

ETHANAC/BARNETT WAREHOUSE PROJECT

TRAFFIC IMPACT ANALYSIS

Prepared For:

Phelan Development Company
450 Newport Center Drive, Suite 230,
Newport Beach, CA 92660

Prepared By:

ENVIRONMENT | PLANNING | DEVELOPMENT SOLUTIONS, INC.

2355 Main Street, Suite 100
Irvine, CA 92614
(949) 794-1180

Prepared by:

Daji Yuan, Ph.D.

daji@epdsolutions.com

Meghan Macias, TE

meghan@epdsolutions.com



January 5, 2023

Table of Contents

1	EXECUTIVE SUMMARY	1
2	INTRODUCTION.....	3
2.1	Project Description.....	3
2.2	Study Area and Analysis Scenarios	6
2.3	Methodology.....	8
2.4	Significance Criteria	9
3	BASELINE CONDITIONS	11
3.1	Existing Transportation System and Access	11
3.2	Existing Traffic Volumes and Intersection Operations.....	13
3.3	Opening Year Traffic Volumes and Intersection Operations	16
4	PROPOSED PROJECT	22
4.1	Project Trip Generation.....	22
4.2	Project Trips.....	22
5	BASELINE PLUS PROJECT CONDITIONS	32
5.1	Existing Plus Project Traffic Volumes and Intersection Operations	32
5.2	Existing Roadway Segment Capacity Analysis.....	35
5.3	Opening Year Cumulative With Project Traffic Volumes and Intersection Operations	36
5.4	Opening Year Roadway Segment Capacity Analysis	40
6	PROJECT IMPROVEMENT AND FAIR SHARE.....	41
6.1	Recommended Improvements.....	41
6.2	Project Fair Share	44

Figures

FIGURE 1:	PROJECT LOCATION	4
FIGURE 2:	PROJECT SITE PLAN	5
FIGURE 3:	PROJECT STUDY AREA	7
FIGURE 4:	EXISTING LANE GEOMETRIES AND TRAFFIC CONTROL.....	12
FIGURE 5:	EXISTING AM PEAK HOUR TRAFFIC VOLUMES	14
FIGURE 6:	EXISTING PM PEAK HOUR TRAFFIC VOLUMES.....	15
FIGURE 7:	LOCATION OF CUMULATIVE PROJECTS.....	17
FIGURE 8:	OPENING YEAR AM PEAK HOUR VOLUMES	20
FIGURE 9:	OPENING YEAR PM PEAK HOUR VOLUMES.....	21
FIGURE 10:	PROJECT PASSENGER VEHICLE TRIP DISTRIBUTION	24
FIGURE 11:	PROJECT TRUCK TRIP DISTRIBUTION	25
FIGURE 12:	PROJECT PASSENGER VEHICLE AM PEAK HOUR TRIP ASSIGNMENT	26
FIGURE 13:	PROJECT PASSENGER VEHICLE PM PEAK HOUR TRIP ASSIGNMENT.....	27
FIGURE 14:	PROJECT TRUCK AM PEAK HOUR TRIP ASSIGNMENT	28
FIGURE 15:	PROJECT TRUCK PM PEAK HOUR TRIP ASSIGNMENT.....	29
FIGURE 16:	PROJECT AM PEAK HOUR TRIP ASSIGNMENT	30
FIGURE 17:	PROJECT PM PEAK HOUR TRIP ASSIGNMENT.....	31
FIGURE 18:	EXISTING PLUS PROJECT AM PEAK HOUR VOLUMES	33
FIGURE 19:	EXISTING PLUS PROJECT PM PEAK HOUR VOLUMES.....	34

FIGURE 20: OPENING YEAR CUMULATIVE WITH PROJECT AM PEAK HOUR VOLUMES 38
 FIGURE 21: OPENING YEAR CUMULATIVE WITH PROJECT PM PEAK HOUR VOLUMES..... 39

Tables

TABLE 1: RELATIONSHIP BETWEEN CONTROL DELAY AND LOS AT A SIGNALIZED INTERSECTION 8
 TABLE 2: RELATIONSHIP BETWEEN DELAY AND LOS AN UNSIGNALIZED INTERSECTION..... 8
 TABLE 3: EXISTING AM AND PM PEAK HOUR LEVEL OF SERVICE..... 13
 TABLE 4: OPENING YEAR AM AND PM PEAK HOUR LEVEL OF SERVICE 16
 TABLE 5: CUMULATIVE PROJECTS TRIP GENERATION..... 18
 TABLE 6: PROJECT TRIP GENERATION..... 23
 TABLE 7: EXISTING PLUS PROJECT AM AND PM PEAK HOUR LEVEL OF SERVICE..... 32
 TABLE 8: EXISTING YEAR ROADWAY SEGMENT CAPACITY ANALYSIS 35
 TABLE 9: OPENING YEAR CUMULATIVE WITH PROJECT AM AND PM PEAK HOUR LEVEL OF SERVICE..... 37
 TABLE 10: OPENING YEAR ROADWAY SEGMENT CAPACITY ANALYSIS 40
 TABLE 11: OPENING YEAR CUMULATIVE WITH PROJECT IMPROVEMENT AM AND PM PEAK HOUR LEVEL OF SERVICE 43
 TABLE 12: PROJECT FAIR SHARE FOR INTERSECTION IMPROVEMENT 44
 TABLE 13: PROJECT FAIR SHARE FOR ROADWAY SEGMENT 44

Appendices

APPENDIX A – SCOPE OF WORK
 APPENDIX B – COUNT SHEETS
 APPENDIX C – ETHANAC AND BARNETT TIMING SHEET
 APPENDIX D – ROADWAY SEGMENT CAPACITY THRESHOLDS
 APPENDIX E – LEVEL OF SERVICE CALCULATIONS
 APPENDIX F – CUMULATIVE PROJECTS TRIP ASSIGNMENT

1 EXECUTIVE SUMMARY

This Traffic Impact Analysis (TIA) has been prepared by EPD Solutions, Inc. (EPD) to analyze the potential traffic-related Level of Service (LOS) deficiencies of the proposed Ethanac/Barnett Warehouse project located on the south of Ethanac Road and west of Barnett Road in the City of Menifee. The project site is comprised of two adjacent parcels (APNs – 331-060-036, 331-060-021) totaling an area of 13.89 acres. The existing site is currently vacant.

The development proposes the construction of two speculative buildings totaling 251,133 square feet (SF). For the purpose of this study, the speculative buildings were analyzed as ten percent manufacturing and 90 percent warehouse land use. The proposed project is estimated to generate approximately 506 daily trips, 56 AM peak hour trips, and 59 PM peak hour trips. In terms of Passenger Car Equivalent (PCE), the proposed development is estimated to generate approximately 720 daily PCE trips, 79 AM PCE trips, and 84 PM PCE trips.

The following study area intersections were evaluated during the AM and PM peak hours, which are defined as the hours with the highest traffic volumes during the 7 AM to 9 AM and 4 PM to 6 PM peak commute periods.

1. Murrieta Road/Ethanac Road (Existing)
2. Ethanac Road/Project Driveway 1 (Proposed)
3. Barnett Road-Case Road/Ethanac Road (Existing)
4. Barnett Road/ Project Driveway 2 (Proposed)
5. Barnett Road/ Project Driveway 3 (Proposed)
6. Barnett Road/ Project Driveway 4 (Proposed)
7. I-215 Southbound (SB) Ramps/Ethanac Road (Existing)
8. I-215 Northbound (NB) Ramps/Ethanac Road (Existing)

AM and PM peak hour traffic operations were evaluated for the following scenarios:

- Existing Conditions
- Existing Plus Project Conditions
- Opening Year Cumulative Without Project Conditions
- Opening Year Cumulative With Project Conditions

Existing Plus Project Intersection Analysis Results

The following intersections would result in an unsatisfactory LOS:

3. Barnett Road-Case Road/Ethanac Road (LOS F at AM peak hour and LOS E at PM peak hour)
7. I-215 SB Ramps/Ethanac Road (LOS F at AM/PM peak hour)
8. I-215 NB Ramps/Ethanac Road (LOS F at AM peak hour)

Opening Year Cumulative With Project Intersection Analysis Results

The following intersections would result in an unsatisfactory LOS:

1. Murrieta Road/Ethanac Road (LOS F at AM/PM peak hour)
3. Barnett Road-Case Road/Ethanac Road (LOS F at AM peak hour and LOS E at PM peak hour)
7. I-215 SB Ramps/Ethanac Road (LOS F at AM/PM peak hour)
8. I-215 NB Ramps/Ethanac Road (LOS F at AM/PM peak hour)

Project Improvement and Fair-Share Calculation

The following improvements reduce the LOS to either below the baseline LOS or a satisfactory LOS:

3. Barnett Road-Case Road/Ethanac Road (AM and PM peak hours): Widen and restripe the northbound shared left-thru-right lane to provide an exclusive right-turn lane and a shared thru-left turn lane. To increase intersection safety, it is recommended that cat tracks pavement markers be installed for all the edges of the dual SBL instead of the single cat track currently installed in the middle of the SBL turns. It is also recommended that a "Keep Clear" pavement marking be installed approximately 85 feet beyond the stop line of the 50 feet left turn pocket at Barnett Road/Ethanac Road. This will ensure that the WBL traffic does not block traffic waiting to make a SBL given the staggered nature of this intersection.
7. I-215 SB Ramps/Ethanac Road (AM and PM peak hours): Widen and restripe the southbound (SB) shared thru-left turn lane to provide an exclusive left-turn lane, to remove the SB thru movement and to add a second right-turn lane. Widen and restripe the eastbound (EB) approach to add two thru-lanes and a right-turn lane. Widen and restripe the westbound (WB) approach to add a second left-turn lane. In addition, add overlap right-turn phasing during the SB phase.
8. 215 NB Ramps/Ethanac Road (AM and PM peak hours): Widen and restripe the northbound (NB) shared thru-left turn lane to provide two left-turn lanes, to remove the NB thru movement and a right-turn lane. Widen and restripe the EB approach to add an exclusive left-turn lane and a thru-lane. Widen and restripe the WB approach to add three thru-lanes and an exclusive right-turn lane. In addition, add overlap right-turn phasing during the NB phase.

Improvements at intersections 7 and 8 are part of the Transportation Uniform Mitigation Fee (TUMF) program. The project would be required to pay TUMF fees which would contribute towards the construction of the I-215 and Ethanac Road Interchange. The project would be responsible for 4.22 percent of the improvement cost at the intersection 3. The project would be responsible for 2.48 percent for improvement at Ethanac Road between Case Road and I-215 SB Ramps and 0.31 percent for improvement at Ethanac Road between Murrieta Road and Barnett Road.

2 INTRODUCTION

This Traffic Impact Analysis (TIA) has been prepared by EPD Solutions, Inc. (EPD) to analyze the potential traffic-related Level of Service (LOS) deficiencies of the proposed warehouse project located on the south of Ethanac Road and west of Barnett Road in the City of Menifee. The scope of work for this TIA was reviewed and approved by the City of Menifee and is provided in *Appendix A*. The TIA was prepared according to the approved scope of work using methodologies and significance criteria consistent as per the City of Menifee LOS Traffic Study Guidelines (October, 2020) and the City General Plan.

2.1 Project Description

The project site is comprised of two adjacent parcels (APNs – 331-060-036, 331-060-021) totaling an area of 13.89 acres. The existing site is currently vacant. The location of the project is shown in Figure 1 and the project site plan is shown in Figure 2. The development proposes the construction of two speculative buildings totaling 251,133 square feet (SF). Ten percent of the total square footage would be allocated for manufacturing and 90 percent would be allocated for warehousing.

The project will be accessible via four driveways, one on Ethanac Road and three on Barnett Road. Project driveway 1 would be accessible to passenger vehicles only and restricted to right-in and right-out movements due to the median on Ethanac Road. Project driveway 2 would be accessible to passenger vehicles and trucks and would also be restricted to right-in and right-out movements due to the planned median on Barnett Road at the time the project is built. Project driveway 3 would be a full access driveway accessible to trucks only, and project driveway 4 would be a full access driveway accessible to passenger vehicles and trucks.

Figure 1: Project Location

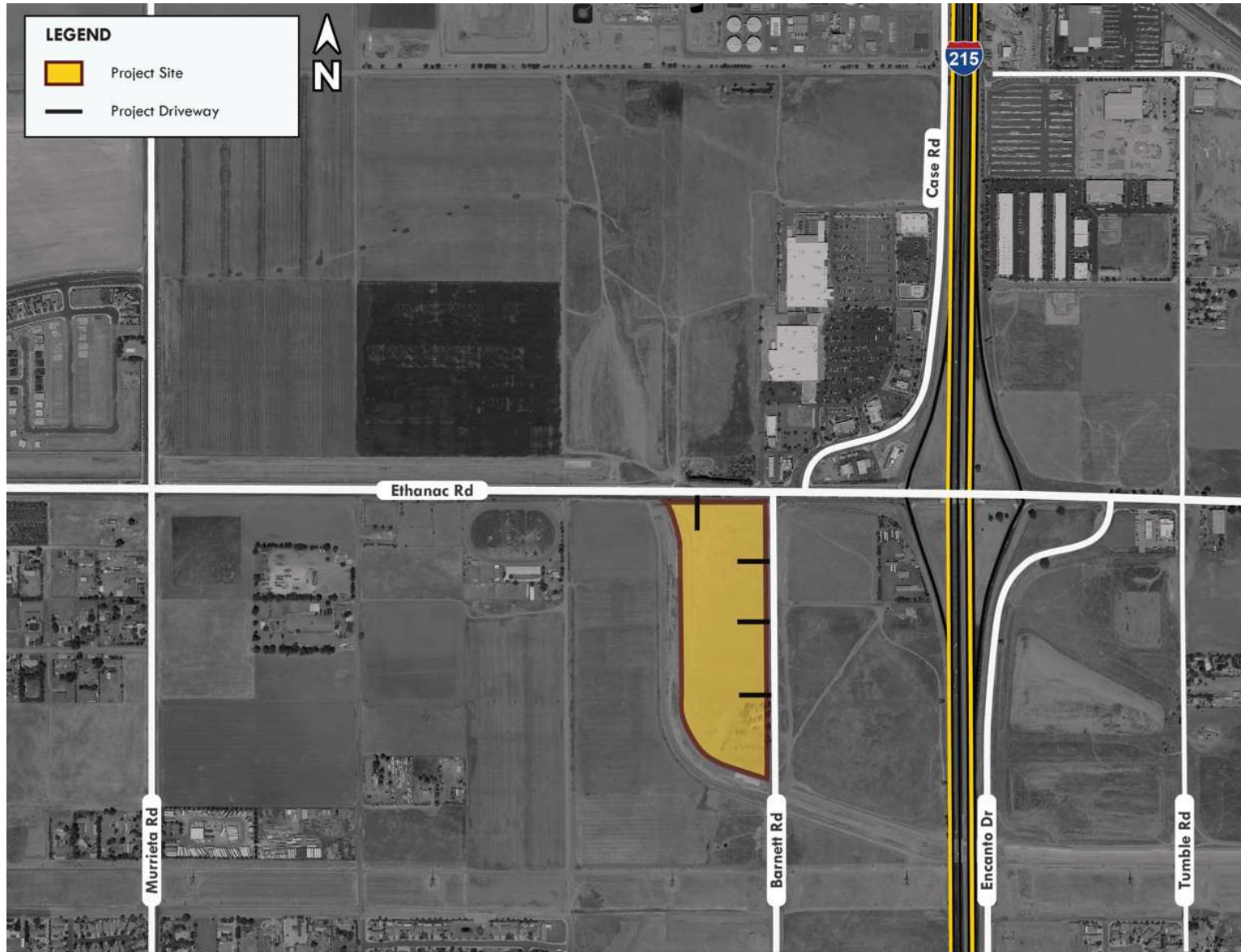
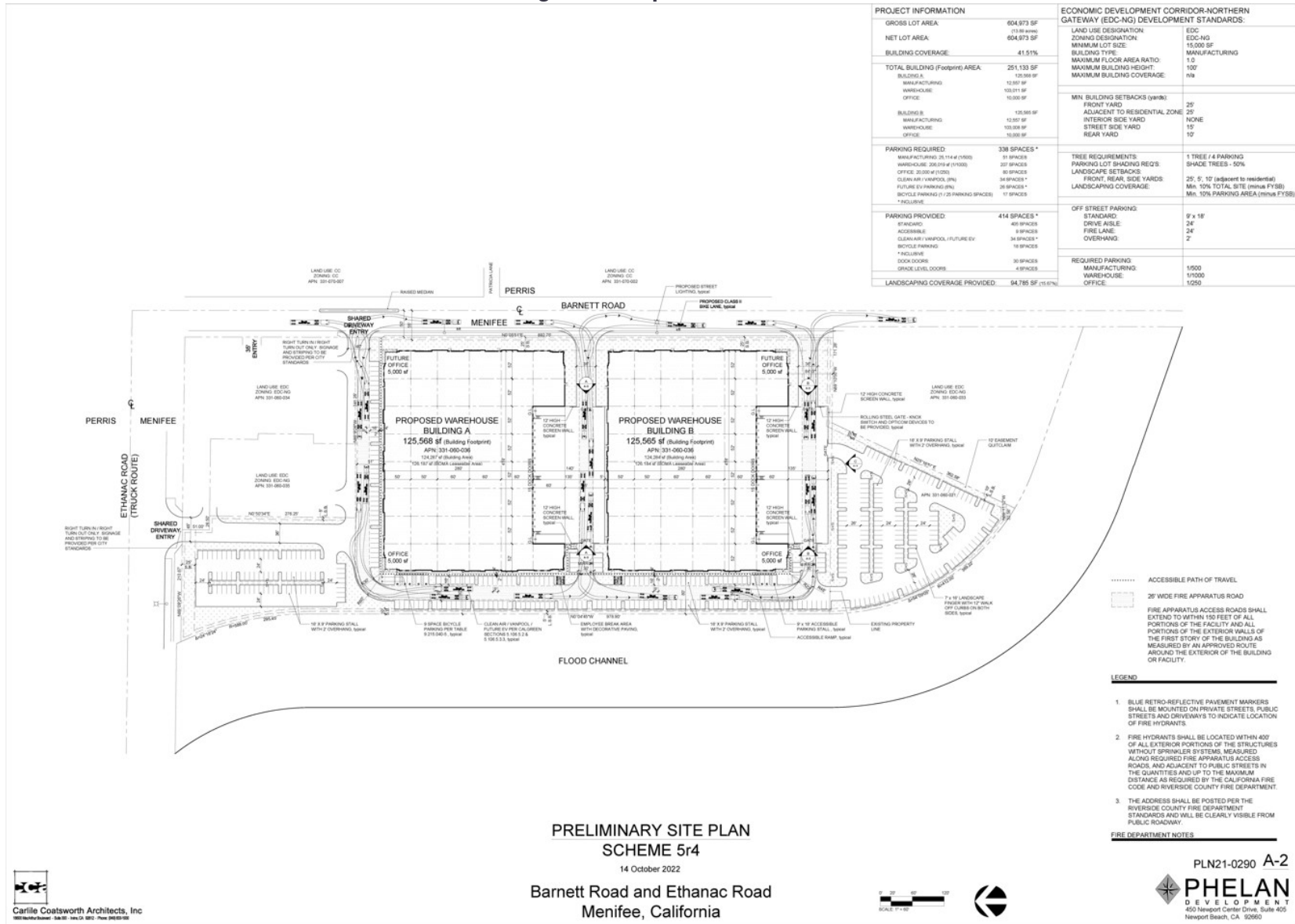


Figure 2: Project Site Plan



2.2 Study Area and Analysis Scenarios

The City of Menifee LOS Traffic Study (TS) Guidelines requires that the traffic and circulation deficiencies of proposed warehouse project be analyzed. The study area was selected to include intersections at which the project would add 50 or more peak hour trips. This TIA includes the analysis of signalized intersections and two-way stop-control (TWSC) intersections. The following intersections were included in the analysis:

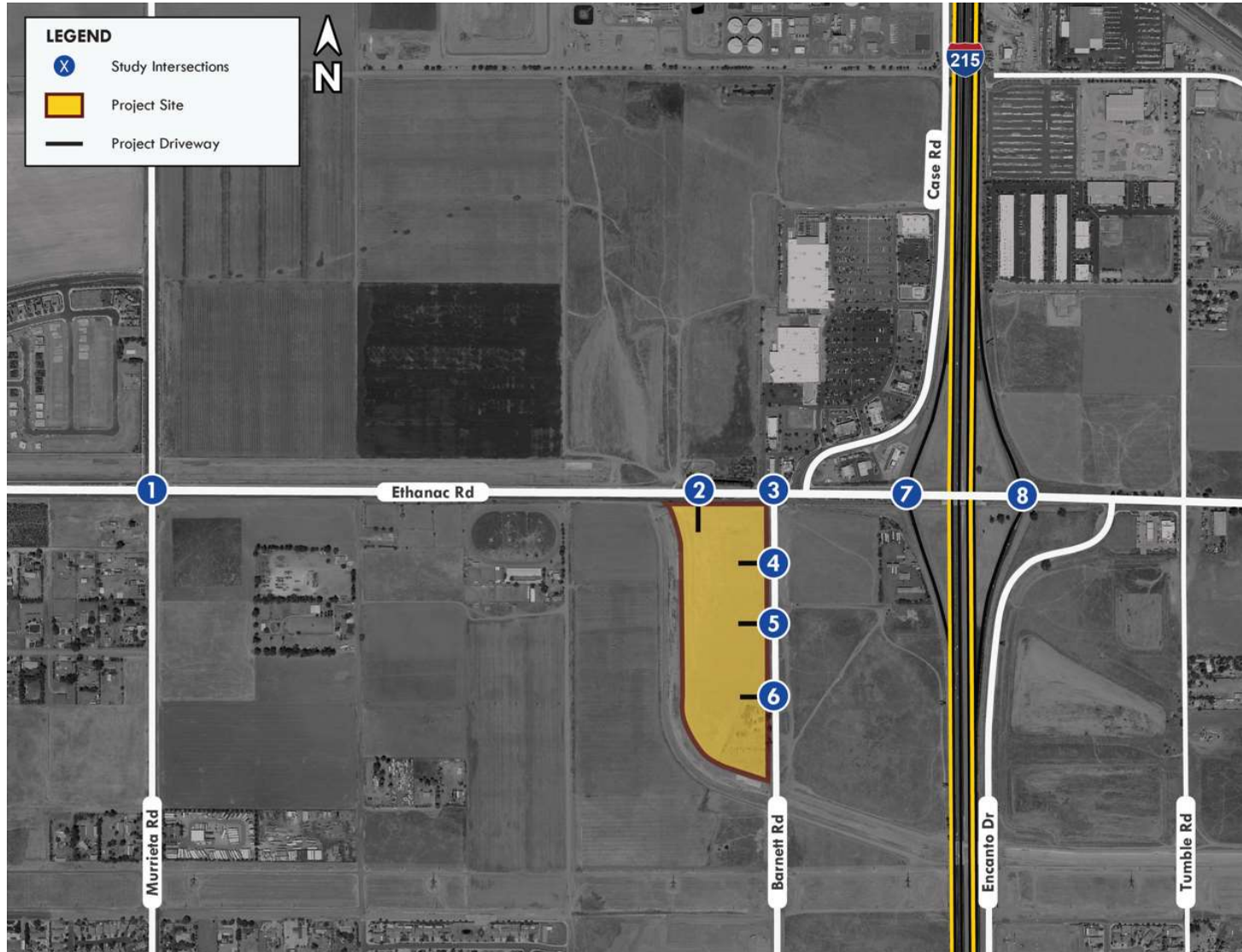
1. Murrieta Road/Ethanac Road (Existing – Signalized)
2. Ethanac Road/Project Driveway 1 (Proposed – TWSC)
3. Barnett Road-Case Road/Ethanac Road (Existing – Signalized)
4. Barnett Road/ Project Driveway 2 (Proposed – TWSC)
5. Barnett Road/ Project Driveway 3 (Proposed – TWSC)
6. Barnett Road/ Project Driveway 4 (Proposed – TWSC)
7. I-215 SB Ramps/Ethanac Road (Existing – Signalized)
8. I-215 NB Ramps/Ethanac Road (Existing – Signalized)

The locations of the study area intersections are shown in Figure 3. Study area intersections were evaluated during the AM and PM peak hours, which are defined as the hour with the highest traffic volumes during the 7 AM to 9 AM and 4 PM to 6 PM peak commute periods. AM and PM peak hour traffic operations were evaluated for the following scenarios:

- Existing Conditions
- Existing Plus Project Conditions
- Opening Year Cumulative Without Project Conditions
- Opening Year Cumulative With Project Conditions

EPD collected counts for the study intersections on Tuesday, May 10th, 2022. The counts were taken while schools were in session. As per the City of Menifee LOS TS Guidelines, forecast traffic volumes for the Opening Year (2024) conditions were developed by applying a growth rate of 2 percent per year to the existing (2022) traffic counts and adding traffic from nearby cumulative development projects (approved and not yet built and those under review). Because the proposed development is located in proximity to the boundary of the City of Perris, cumulative projects provided by the City of Menifee and City of Perris are included in the Cumulative analysis. All traffic count data are provided in *Appendix B*. EPD obtained the signal timing plan for intersection 3: Barnett Road-Case Road/Ethanac Road from the City of Perris and it is provided in *Appendix C*. All signalized intersections use 120 seconds cycle length as suggested by the City of Menifee Traffic Engineer. As per the Manual on Uniform Traffic Control Devices (MUTCD) Section 4D.26 Guidance 14. 'A yellow change interval should have a minimum duration of 3 seconds and a maximum duration of 6 seconds. The longer intervals should be reserved for use on approaches with higher speeds', because the City of Menifee Traffic Engineer did not provide the length of the yellow change, this TIA uses 3 second yellow change for all signalized intersections except intersection 3.

Figure 3: Project Study Area



2.3 Methodology

Intersection operations are evaluated using Level of Service (LOS), which is a measure of the delay experienced by drivers on a roadway facility. LOS A indicates free-flow traffic conditions and is generally the best operating conditions. LOS F is an extremely congested condition and is the worst operating condition from the driver's perspective. In this report, LOS at signalized and unsignalized intersections is calculated using the *Highway Capacity Manual (HCM)*, 7th Edition methodology.

LOS at signalized intersections is defined in terms of the weighted average control delay for the intersection as a whole. Control delay is a measure of the increase in travel time that is experienced due to traffic signal control and is expressed in terms of average control delay per vehicle (in seconds). Control delay is determined based on the intersection geometry and volume, signal cycle length, phasing and coordination along the arterial corridor. Table 1 shows the relationship between control delay and LOS.

Table 1: Relationship between Control Delay and LOS at a Signalized Intersection

LOS	Delay (Seconds per Vehicle)
A	≤ 10
B	>10 – 20
C	>20 – 35
D	>35 – 55
E	>55 – 80
F	>80

Unsignalized intersections are categorized as either all-way stop control (AWSC) or two-way stop control (TWSC). LOS at AWSC intersections is determined by the weighted average control delay of the overall intersection. The HCM TWSC intersection methodology calculates LOS based on the delay experienced by drivers on the minor (stop-controlled) approaches to the intersection. For TWSC intersections, LOS is determined for each minor-street movement, as well as the major-street left-turns. The relationship between delay and LOS at Unsignalized intersections is shown in Table 2.

Table 2: Relationship between Delay and LOS an Unsignalized Intersection

LOS	Delay (seconds)
A	0-10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F	>50

The roadway segment analysis would be performed by comparing the Average Daily Traffic (ADT) on a roadway segment with the Roadway Capacity and Level of Service table provided in *Appendix D*.

2.4 Significance Criteria

City of Menifee

The City of Menifee LOS Traffic Study (TS) Guidelines identifies LOS D as the threshold for acceptable operating conditions for intersections except at constrained intersections and roadway segments in close proximity to I-215, where LOS E is accepted during peak hours.

As per the TS guidelines, a project would not meet the LOS standard under the following conditions:

1. If the pre-Project condition at an intersection or roadway segment is at or better than the minimum acceptable LOS (LOS D, or LOS E at constrained locations near I-215) and the addition of project trips results in unacceptable LOS (LOS E or LOS F), a significant impact is forecast to occur. This type of impact would be considered a “direct” project impact in which the project would be fully responsible for mitigating the impact.
2. If the pre-Project condition is LOS E or F and the Project adds 50 or more peak hour trips to the intersection or roadway segment, then a significant impact is forecast to occur. This type of impact would be considered a “cumulative” project impact in which the project would be required to contribute a fair share payment toward mitigating the impact.

City of Perris

The City of Perris LOS Standards and Significance Criteria for Traffic Studies identifies LOS D as the threshold for acceptable operating conditions for intersections except at constrained intersections and roadway segments in close proximity to State Route (SR) 74, the Ramona-Cajalco Expressway, or at I-215 freeway ramps, where LOS E is accepted during peak hours.

As per the TIA guidelines, a project would not meet the LOS standard under the following conditions:

1. A project-related impact is considered direct and significant when a study intersection operates at an acceptable Level of Service for existing conditions (without the project) and the addition of 50 or more a.m. or p.m. peak hour project trips causes the intersection to operate at an unacceptable Level of Service for existing plus project conditions.
2. A project-related impact is considered direct and significant when a study intersection operates at an unacceptable Level of Service for existing conditions (without the project) and the addition of 50 or more a.m. or p.m. peak hour project trips causes the intersection delay to increase by 2 seconds or more.
3. A cumulative impact is considered significant when a study intersection is forecast to operate at an unacceptable Level of Service with the addition of cumulative/background traffic and 50 or more a.m. or p.m. peak hour project trips.

California Department of Transportation (Caltrans)

The Caltrans *Guide for the Preparation of Traffic Impact Studies* (December 2002) required that State Highway facilities be analyzed when project traffic was added to the facility. As per the guidelines, LOS D is the required standard at intersections under the jurisdiction of Caltrans.

However, Caltrans states the following: *“Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS.”*

In response to implementation of SB743, Caltrans released the *Vehicle Miles Traveled-Focused Transportation Impact Study Guide*, May 20, 2020. According to the latest guide, *“With this guidance, the Department will transition away from requesting LOS or other vehicle operations analyses of land use projects.”*

3 BASELINE CONDITIONS

This section discusses the baseline (without project) conditions. Baseline conditions are those conditions that exist within the study area in the existing condition and that are forecast to occur in the future, without the proposed project.

3.1 Existing Transportation System and Access

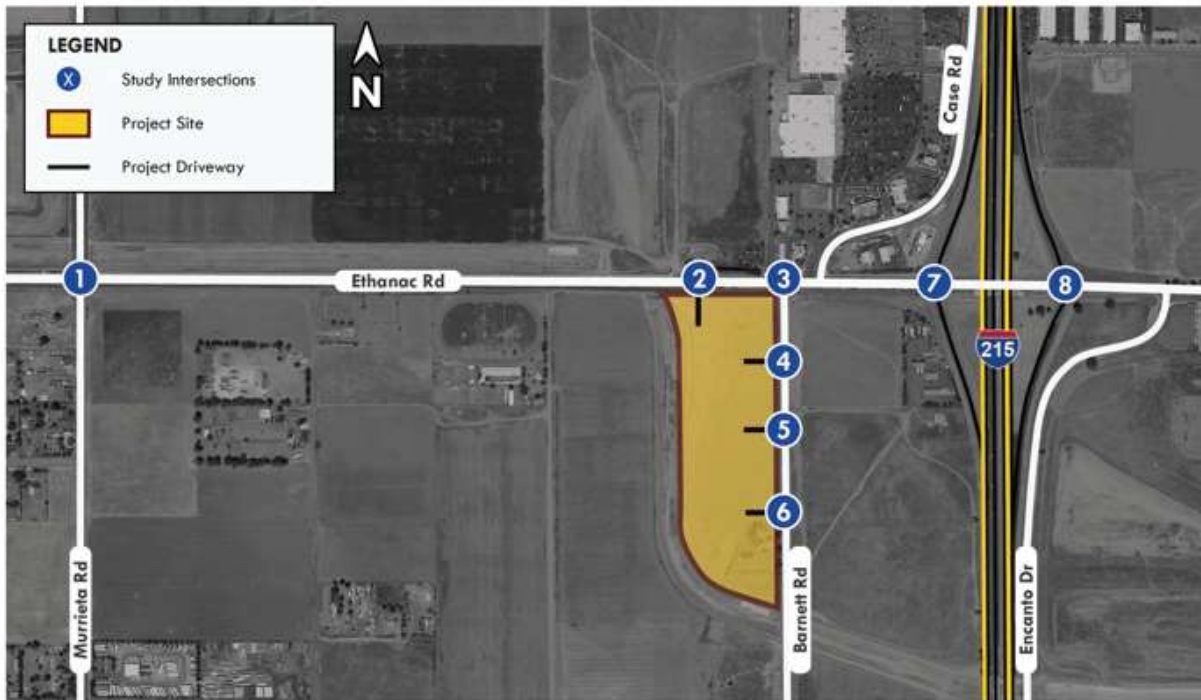
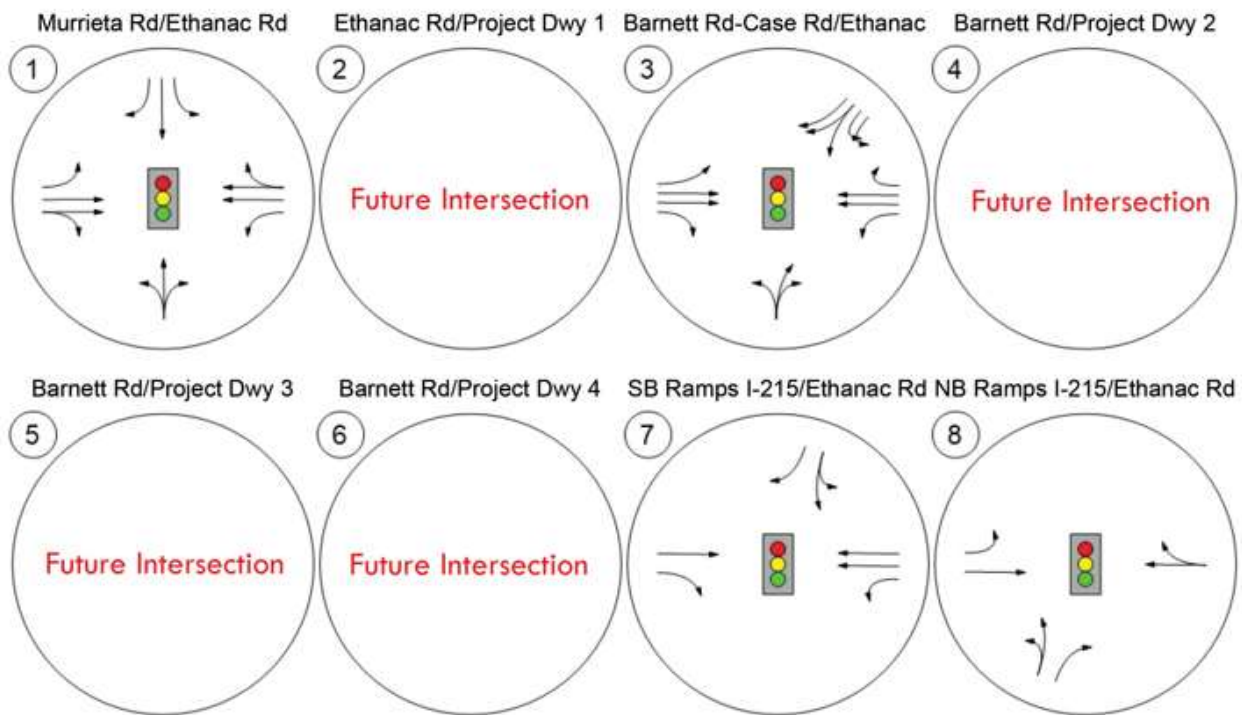
The proposed Ethanac/Barnett Warehouse Project is located on the south of Ethanac Road and west of Barnett Road in the City of Menifee. Roadways providing access to the project site include I-215, Ethanac Road, Murrieta Road and Barnett Road. The characteristics of each roadway are discussed below:

- Regional access is provided to the project via interstate highway I-215 which provides connections between Riverside County, San Bernardino County, Los Angeles County and San Diego County.
- Ethanac Road is designated as a six-lane divided expressway as per the City of Menifee General Plan and the City of Perris General Plan. In the vicinity of the project, the existing Ethanac Road is a four-lane divided arterial.
- Murrieta Road is designated as a four-lane undivided secondary as per the City of Menifee General Plan and a four-lane divided secondary arterial as per the City of Perris General Plan. However, Murrieta Road is currently a four-lane divided secondary arterial on the north of Ethanac Road and a two-lane collector on the south of Ethanac Road under existing conditions.
- Barnett Road is designated as a four-lane undivided secondary as per the City of Menifee General Plan but it is currently a two-lane collector.

There are existing bike lanes on the north side of Ethanac Road between Murrieta Road and Barnett Road. There are existing sidewalks on the north side of Ethanac Road between Murrieta Road and southbound of I-215 ramps. The closest bus stop is located approximately nine hundred feet away from the proposed project site on Case Road at Perris Crossing.

The existing traffic control and intersection geometrics at study area intersections are shown in Figure 4.

Figure 4: Existing Lane Geometries and Traffic Control



3.2 Existing Traffic Volumes and Intersection Operations

Existing AM and PM peak hour traffic volumes at the study area intersections are shown in Figures 5 and 6. The existing Levels of Service at the study area intersections were determined using the HCM methodology, described previously in section 2.3. Table 3 shows the existing AM and PM peak hour levels of service at study intersections. All LOS calculations are provided in *Appendix E*. As shown in Table 3, the following intersections would operate at an unsatisfactory LOS:

3. Barnett Road-Case Road/Ethanac Road (LOS F at AM peak hour and LOS E at PM peak hour)
7. I-215 SB Ramps/Ethanac Road (LOS F at AM/PM peak hour)
8. I-215 NB Ramps/Ethanac Road (LOS F at AM peak hour)

Table 3: Existing AM and PM Peak Hour Level of Service

	Intersection	Jurisdiction	Traffic Control	AM Peak		PM Peak		Threshold of Significance
				Delay ¹	LOS ²	Delay ¹	LOS ²	
1.	Murrieta Rd/Ethanac Rd	City of Menifee/Perris	Signal	32.2	C	35.4	D	D
2.	Ethanac Rd/Project Dwy 1	City of Menifee/Perris	-	-	-	-	-	D
3.	Barnett Rd-Case Rd/Ethanac Rd	City of Menifee/Perris	Signal	90.5	F	59.2	E	D
4.	Barnett Rd/Project Dwy 2	City of Menifee/Perris	-	-	-	-	-	D
5.	Barnett Rd/Project Dwy 3	City of Menifee/Perris	-	-	-	-	-	D
6.	Barnett Rd/Project Dwy 4	City of Menifee/Perris	-	-	-	-	-	D
7.	I-215 SB Ramps/Ethanac Rd	Caltrans/City of Perris	Signal	129.2	F	90.7	F	E
8.	I-215 NB Ramps/Ethanac Rd	Caltrans/City of Perris	Signal	148.1	F	65.5	E	E

=Unsatisfactory Level of Service

TWSC = Two-Way Stop Control

¹Delay in Seconds

²Level of Service

Figure 5: Existing AM Peak Hour Traffic Volumes

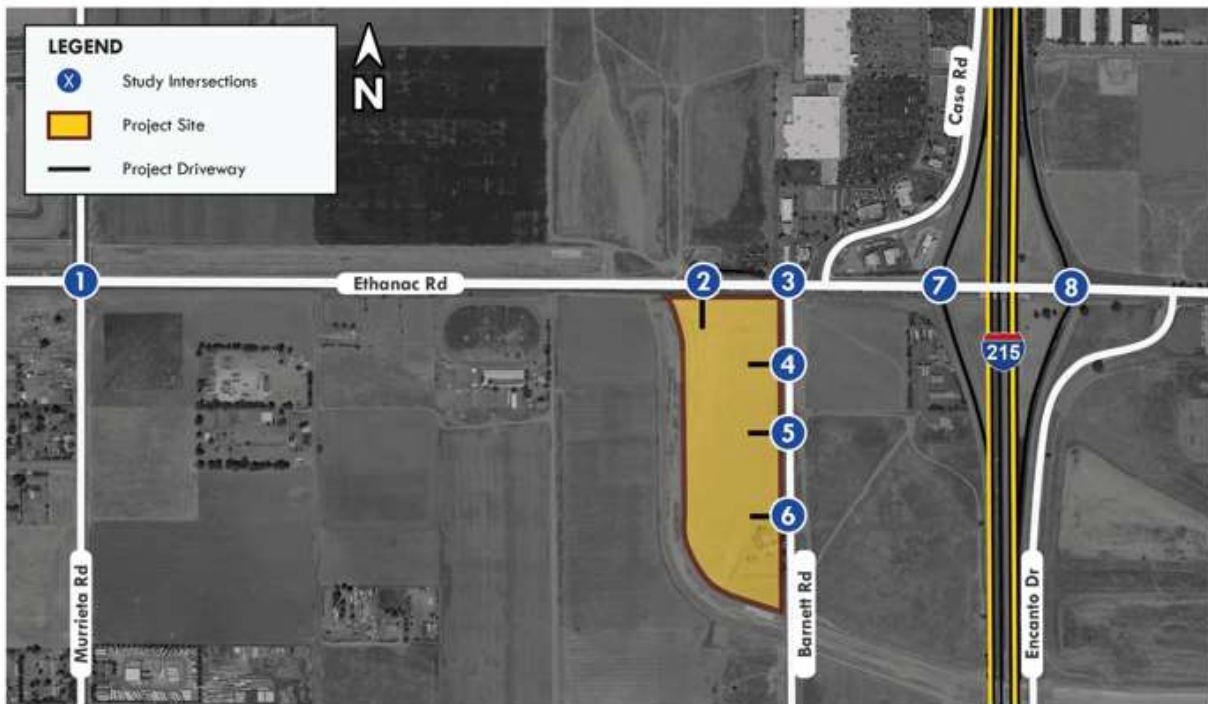
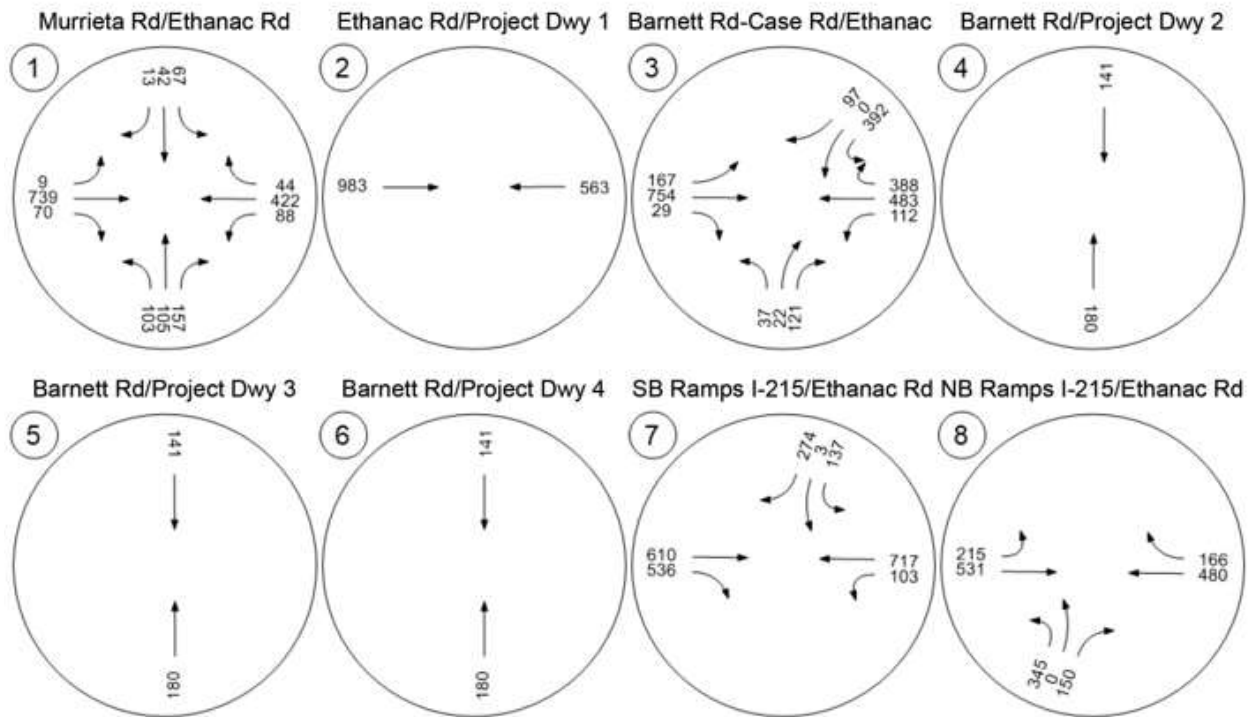
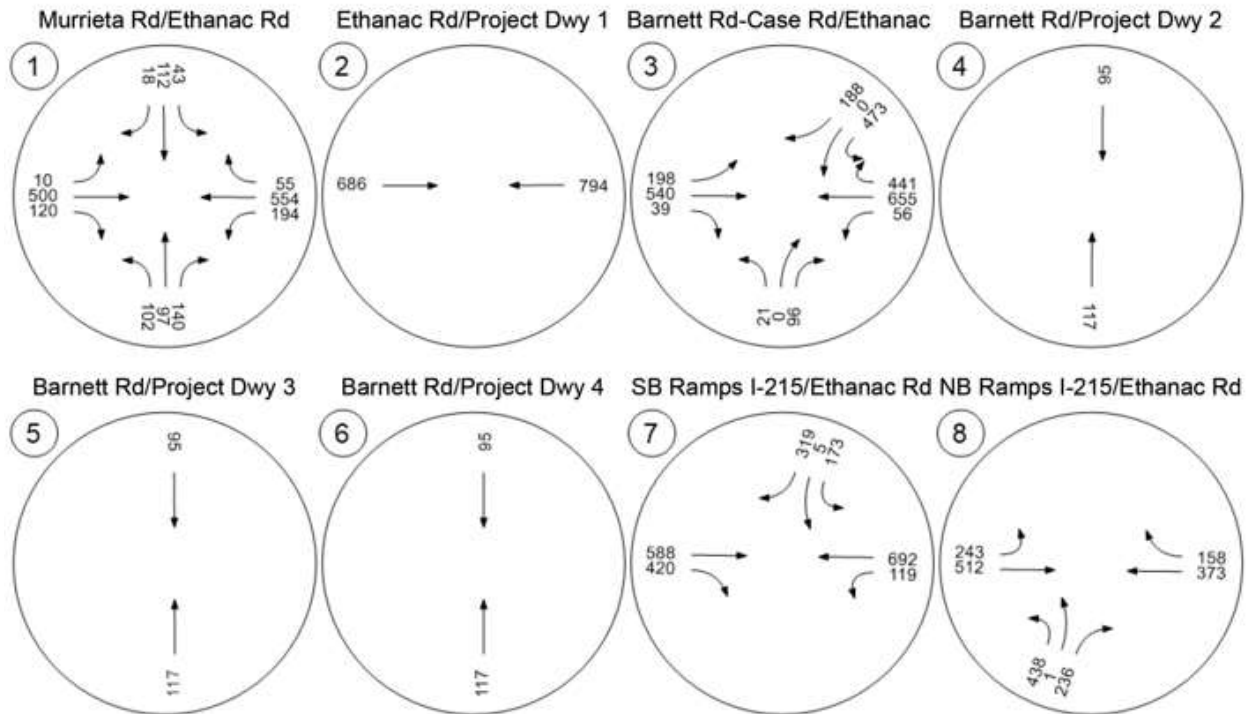


Figure 6: Existing PM Peak Hour Traffic Volumes



3.3 Opening Year Traffic Volumes and Intersection Operations

Opening Year Baseline (2024) traffic volumes were developed by applying a growth rate of two percent per year to the existing (2022) traffic volumes and adding traffic generated by other approved and pending development projects. A total of 24 cumulative development projects are included in the Opening Year Baseline traffic volumes. Out of the 24 cumulative projects, 9 projects are located in the City of Perris, 15 are located in the City of Menifee. The project trip generation for each cumulative project was calculated using trip rates from the Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 11th Edition. The location of the cumulative projects is shown in Figure 7. The Opening Year (2024) Baseline traffic volumes are illustrated in Figures 8 and 9. Table 4 below shows the Opening Year AM and PM peak hour levels of service at study intersections. Table 5 shows the trip generation for each cumulative project, and the cumulative assignment can be found in *Appendix F*. As shown in Table 4, the following intersections would operate at an unsatisfactory LOS:

1. Murrieta Road/Ethanac Road (LOS F at AM/PM peak hour)
3. Barnett Road-Case Road/Ethanac Road (LOS F at AM peak hour and LOS E at PM peak hour)
7. I-215 SB Ramps/Ethanac Road (LOS F at AM/PM peak hour)
8. I-215 NB Ramps/Ethanac Road (LOS F at AM/PM peak hour)

Table 4: Opening Year AM and PM Peak Hour Level of Service

Intersection	Jurisdiction	Traffic Control	AM Peak		PM Peak		Threshold of Significance
			Delay ¹	LOS ²	Delay ¹	LOS ²	
1. Murrieta Rd/Ethanac Rd	City of Menifee/Perris	Signal	101.2	F	112.5	F	D
2. Ethanac Rd/Project Dwy 1	City of Menifee/Perris	-	-	-	-	-	D
3. Barnett Rd-Case Rd/Ethanac Rd	City of Menifee/Perris	Signal	82.3	F	60.4	E	D
4. Barnett Rd/Project Dwy 2	City of Menifee/Perris	-	-	-	-	-	D
5. Barnett Rd/Project Dwy 3	City of Menifee/Perris	-	-	-	-	-	D
6. Barnett Rd/Project Dwy 4	City of Menifee/Perris	-	-	-	-	-	D
7. I-215 SB Ramps/Ethanac Rd	Caltrans/City of Perris	Signal	339.4	F	390.4	F	E
8. I-215 NB Ramps/Ethanac Rd	Caltrans/City of Perris	Signal	282.7	F	422.9	F	E

=Unsatisfactory Level of Service

TWSC = Two-Way Stop Control

¹Delay in Seconds

²Level of Service

Figure 7: Location of Cumulative Projects

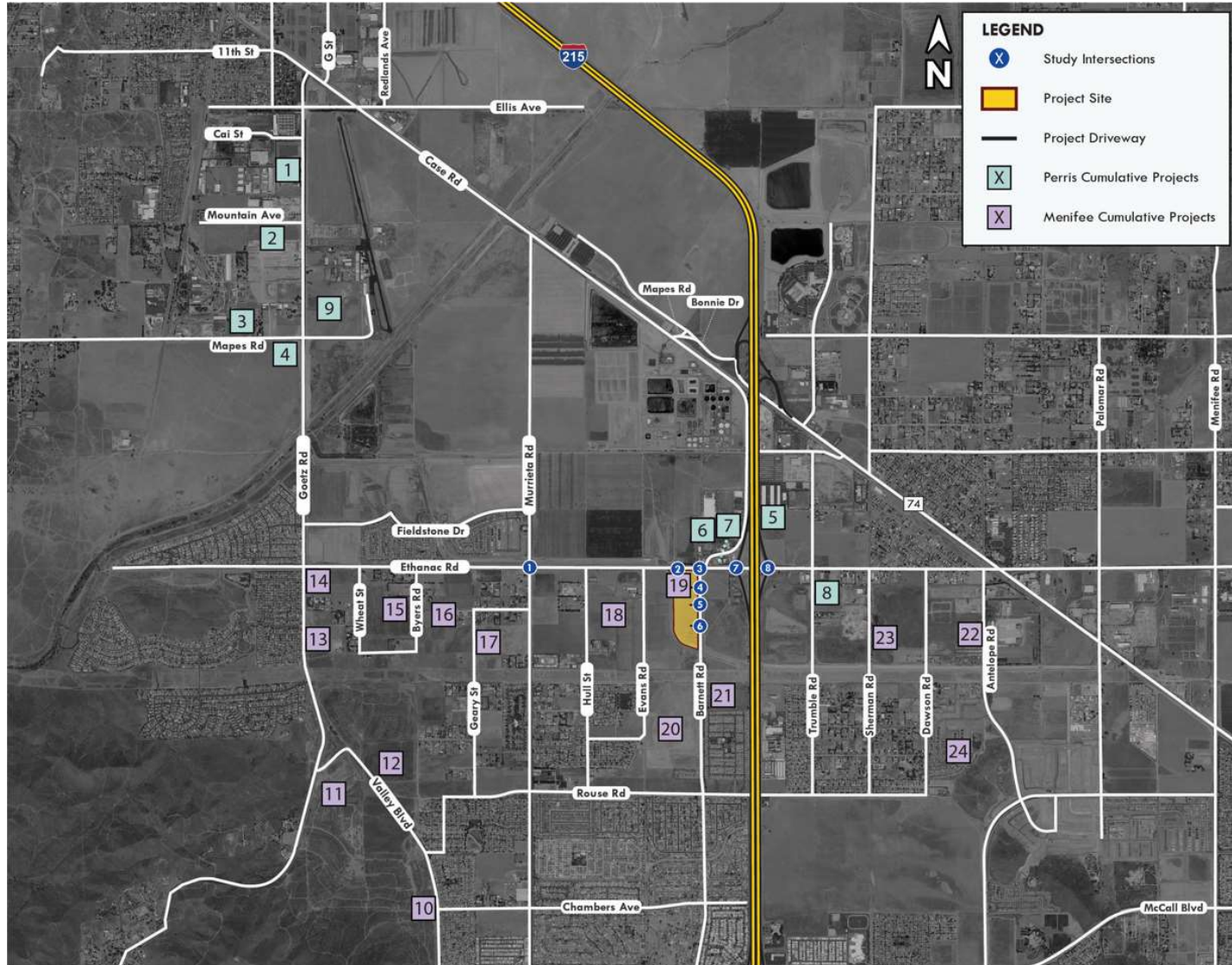


Table 5: Cumulative Projects Trip Generation

Land Use	Units	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Trip Rates								
High-Cube Transload and Short Term Warehouse ¹	TSF	1.40	0.06	0.02	0.08	0.03	0.07	0.10
Manufacturing ²	TSF	4.75	0.52	0.16	0.68	0.23	0.51	0.74
Pharmacy/Drugstore without Drive-Through Window ³	TSF	90.08	1.91	1.03	2.94	4.17	4.34	8.51
Automated Car Wash ⁴	TSF	-	-	-	-	7.10	7.10	14.20
Retail ⁵	TSF	37.01	0.52	0.32	0.84	1.63	1.77	3.40
Single Family Residential ⁶	DU	9.43	0.18	0.52	0.70	0.59	0.35	0.94
Warehouse ⁷	TSF	1.71	0.13	0.04	0.17	0.05	0.13	0.18
Convenience Store/Gas Station (VFP 9-15) ⁸	TSF	700.43	28.26	28.26	56.52	27.26	27.26	54.52
Fast Casual Restaurant ⁹	TSF	97.14	0.72	0.72	1.43	6.90	5.65	12.55
Multifamily Housing (Low Rise) ¹⁰	DU	6.74	0.10	0.30	0.40	0.32	0.19	0.51
General Light Industrial ¹¹	TSF	4.87	0.65	0.09	0.74	0.09	0.56	0.65
City of Perris								
<u>1. Marijuana Manufacturing 50 TSF (PCE)²</u>	50,000 TSF	347	38	12	50	17	37	54
<u>2. IDI Site 1 (PCE)</u>	784,000 TSF	1,606	71	21	92	32	83	115
<u>3. Marijuana Manufacturing and Cultivation (PCE)²</u>	30,000 TSF	208	23	7	30	10	22	32
<u>4. IDI Site 2 (PCE)¹</u>	3,448,734 TSF	7,064	311	93	404	141	363	505
<u>5. Marijuana Manufacturing 12 TSF²</u>	12,000 TSF	83	9	3	12	4	9	13
<u>6. Walgreens³</u>	16,000 TSF	1,441	31	16	47	67	69	136
<u>7. Quick Quack Carwash⁴</u>	3,600 TSF	-	-	-	-	26	26	51
<u>8. Motte Town Center⁵</u>	484,300 TSF	17,924	252	155	407	790	856	1,647
<u>9. Mapes Commerce Center (PCE)¹²</u>	650,280 TSF	2,592	208	36	244	69	190	259
City of Menefee								
<u>10. Valley Blvd. Residential⁶</u>	68 DU	641	12	35	48	40	24	64
<u>11. Cimarron Ridge⁶</u>	756 DU	7,129	138	392	529	448	263	711
<u>12. TTM 38128⁶</u>	96 DU	905	17	50	67	57	33	90
<u>13. Corsica Business Park (PCE)⁷</u>	276,682 TSF	692	53	16	69	20	52	73
<u>14. Goetz & Ethanac Commercial⁸</u>	14,290 TSF	10,009	404	404	808	390	390	779
Gas Station Pass-By Trips (62% AM, 56 PM)			-250	-250	-501	-218	-218	-436
Total Project Trip Generation		10,009	153	153	307	171	171	343
<u>15. Capstone Industrial (PCE)¹</u>	700,037 TSF	1,434	63	19	82	29	74	102

<u>16. Northern Gateway Commerce Center I (PCE)</u> ¹	1,167.71	TSF	2392	105	31	137	48	123	171
<u>17. Sunwood Residential</u> ⁶	79	DU	745	14	41	55	47	27	74
<u>18. Northern Gateway Commerce Center II (PCE)</u> ¹	1,312.60	TSF	2688	118	35	154	54	138	192
<u>19. Ethanac Square</u>									
Gas Station ⁸	3.8	TSF	2662	107	107	215	104	104	207
Gas Station Pass-By Trips (62% AM, 56% PM)				-67	-67	-133	-58	-58	-116
Fast Casual Restaurant ⁹	4.365	TSF	424	3	3	6	30	25	55
Fast Casual Pass-By Trips (49% AM, 50% PM)				-1	-1	-3	-15	-12	-27
Total Project Trip Generation			3086	43	43	85	61	58	119
<u>20. Sagewood Residential</u> ⁶	174	DU	1641	32	90	122	103	61	164
<u>21. McLaughlin Village</u> ¹⁰	126	DU	849	12	38	50	40	24	64
<u>22. Motte Industrial Center (PCE)</u>									
Condos ¹⁰	35	DU	236	3	11	14	11	7	18
General Light Industrial ¹¹	97.564	TSF	695	93	13	106	13	80	93
Total Project Trip Generation			931	96	24	120	24	87	111
<u>23. Menifee Commerce Center (Core 5) (PCE)</u> ¹	1,461.650	TSF	4711	207	62	269	94	242	336
<u>24. Talavera (KB Homes)</u> ⁶	173	DU	1631	31	90	121	102	60	163
Total Cumulative Trip Generation			73856	2175	1503	3678	2557	3251	5809

TSF = Thousand Square Feet

PCE = Passenger Car Equivalent

DU = Dwelling Unit

¹Trip rates from the Institute of transportation Engineers, *Trip Generation Manual*, 11th Edition, 2021. Land Use Code 154 - High-Cube Transload and Short-Term Warehouse.

²Trip rates from the Institute of transportation Engineers, *Trip Generation Manual*, 11th Edition, 2021. Land Use Code 140 - Manufacturing.

³Trip rates from the Institute of transportation Engineers, *Trip Generation Manual*, 11th Edition, 2021. Land Use Code 880 - Pharmacy/Drugstore without Drive-Through Window.

⁴Trip rates from the Institute of transportation Engineers, *Trip Generation Manual*, 11th Edition, 2021. Land Use Code 948 - Automated Car Wash.

⁵Trip rates from the Institute of transportation Engineers, *Trip Generation Manual*, 11th Edition, 2021. Land Use Code 820 - Shopping Center (>150k).

⁶Trip rates from the Institute of transportation Engineers, *Trip Generation Manual*, 11th Edition, 2021. Land Use Code 210 - Single Family Detached Housing.

⁷Trip rates from the Institute of transportation Engineers, *Trip Generation Manual*, 11th Edition, 2021. Land Use Code 150 - Warehousing.

⁸Trip rates from the Institute of transportation Engineers, *Trip Generation Manual*, 11th Edition, 2021. Land Use Code 945 - Convenience Store/Gas Station (VFP).

⁹Trip rates from the Institute of transportation Engineers, *Trip Generation Manual*, 11th Edition, 2021. Land Use Code 930 - Fast Casual Restaurant.

¹⁰Trip rates from the Institute of transportation Engineers, *Trip Generation Manual*, 11th Edition, 2021. Land Use Code 220 - Multifamily Housing (Low-Rise).

¹¹Trip rates from the Institute of transportation Engineers, *Trip Generation Manual*, 11th Edition, 2021. Land Use Code 110 - General Light Industrial.

¹²Trip generation is based on *Mapes Commerce Center Traffic Impact Analysis* (EPD Solutions Inc, August 18, 2022)

Figure 8: Opening Year AM Peak Hour Volumes

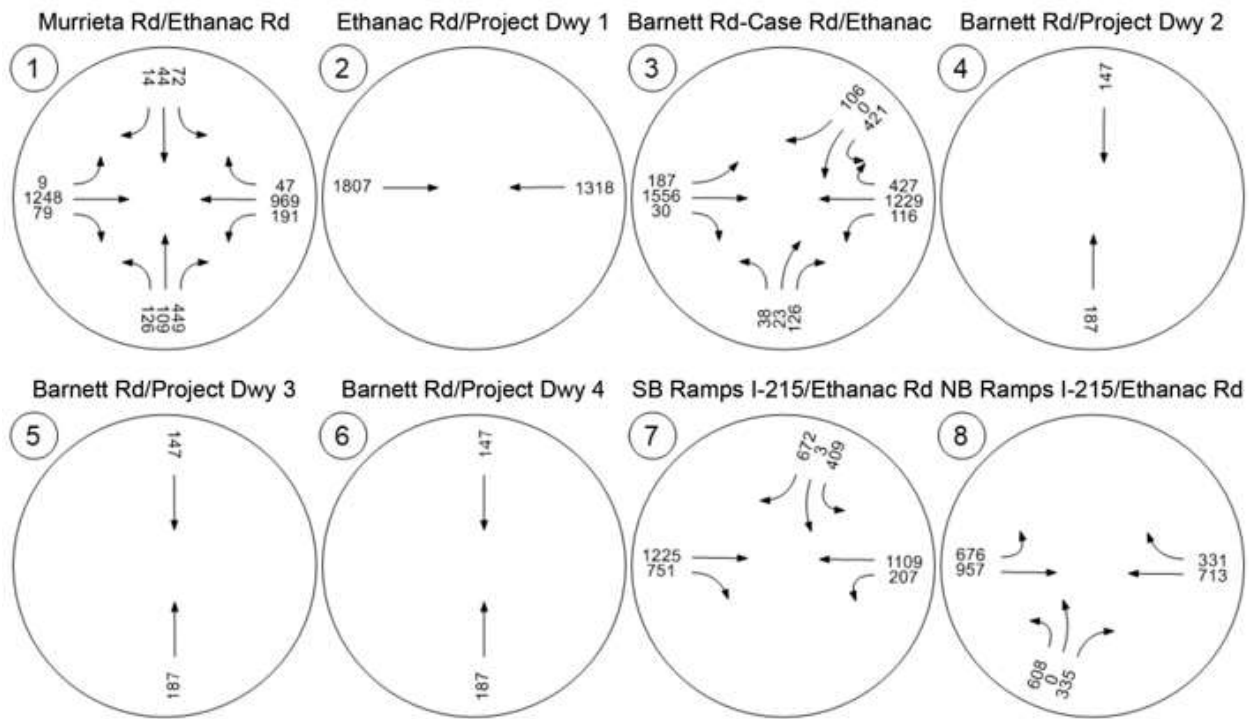
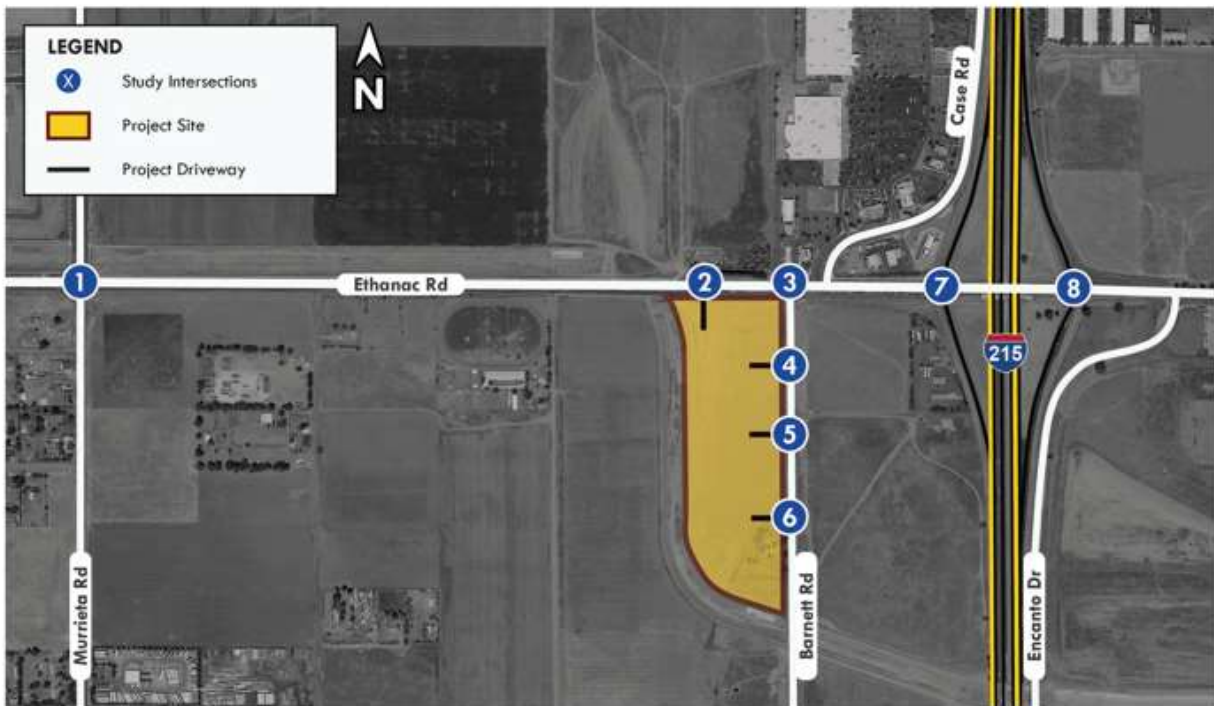
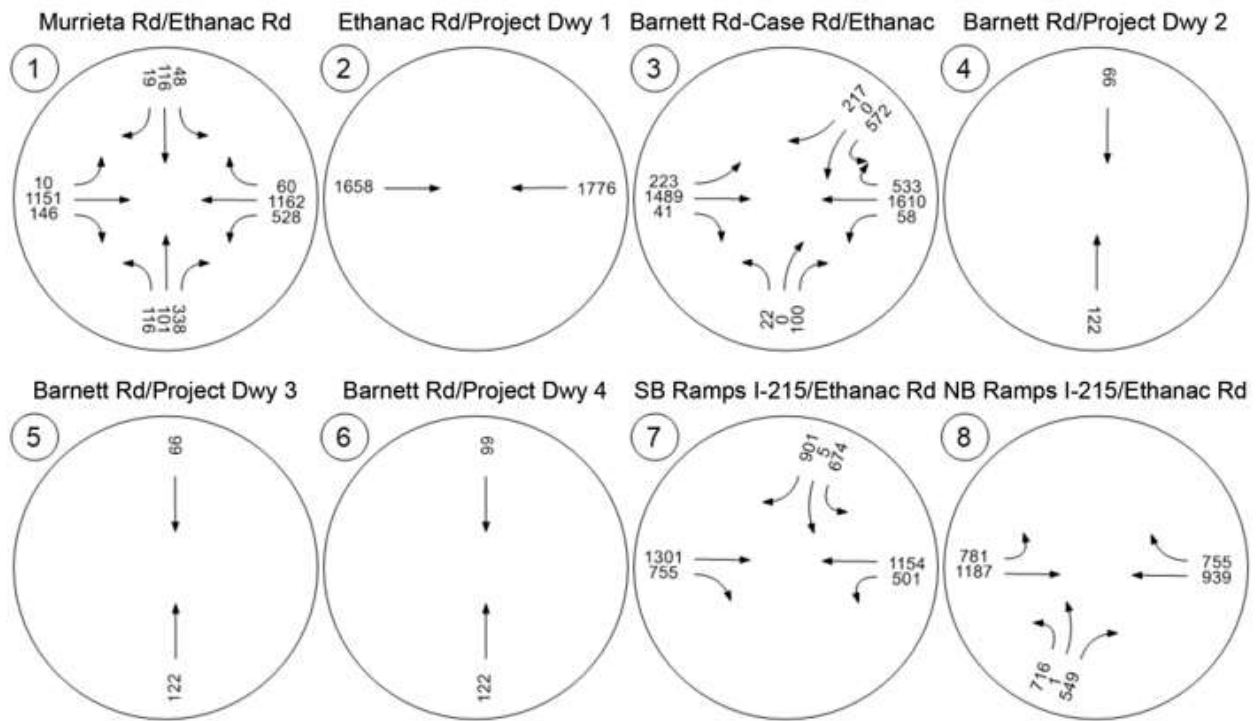


Figure 9: Opening Year PM Peak Hour Volumes



4 PROPOSED PROJECT

The project site is comprised of two adjacent parcels (APNs – 331-060-036, 331-060-021) totaling an area of 13.89 acres. The existing site is currently vacant. The location of the project is shown in Figure 1 and the project site plan is shown in Figure 2. The development proposes the construction of two speculative buildings totaling 251,133 square feet (SF). Ten percent of the total square footage would be allocated for manufacturing and 90 percent would be allocated for warehousing.

The project will be accessible via four driveways, one on Ethanac Road and three on Barnett Road. Project driveway 1 would be accessible to passenger vehicles only and restricted to right-in and right-out movements due to the median on Ethanac Road. Project driveway 2 would be accessible to passenger vehicles and trucks and would also be restricted to right-in and right-out movements due to the planned median on Barnett Road at the time the project is built. Project driveway 3 would be a full access driveway accessible to trucks only, and project driveway 4 would be a full access driveway accessible to passenger vehicles and trucks. The project will install truck turn restriction signs for both project driveways 3 and 4 on Barnett Road to restrict trucks from traveling south on Barnett Road. The project will install truck probation sign beyond the project site to prohibit truck traveling south of the Barnett Road.

4.1 Project Trip Generation

Vehicle trips were generated for the project using trip rates for the manufacturing and warehouse land use from the *ITE Trip Generation Manual*, 11th Edition. The project trip generation is shown in Table 6. The proposed Ethanac/Barnett Warehouse Project would generate a total of 506 daily trips, 56 AM peak hour trips and 59 PM peak hour trips. Upon the application of a Passenger Car Equivalent (PCE) factor, the proposed development would generate a total of 720 daily trips, 79 AM peak hour trips and 84 PM peak hour trips.

4.2 Project Trips

Project trips were distributed to the study area intersections based on the location of the project and logical routes of travel to and from the site. Project trips were assigned to the study area intersections by multiplying the project trip generation by the trip distribution percent at each location. The project trip distribution for the passenger vehicles and trucks is shown in Figures 10 and 11 respectively. The distribution for passenger vehicles and trucks on project driveways is logically redistributed as per the project site plan. The project peak hour trip assignment for passenger vehicles is shown in Figures 12 and 13 respectively. The project peak hour trip assignment for trucks is shown in Figures 14 and 15 respectively. The project peak hour trip assignment for passenger vehicles and trucks in terms of PCE is shown in Figures 16 and 17 respectively.

Table 6: Project Trip Generation

Land Use	Units	AM Peak Hour			PM Peak Hour				
		Daily	In	Out	Total	In	Out	Total	
<u>Trip Rates</u>									
Manufacturing ¹	TSF	4.75	0.52	0.16	0.68	0.23	0.51	0.74	
Warehouse ²	TSF	1.71	0.13	0.04	0.17	0.05	0.13	0.18	
<u>Total Vehicle Trip Generation</u>									
Proposed Manufacturing	25.113	TSF	119	13	4	17	6	13	19
Proposed Warehouse	226.020	TSF	386	30	9	38	11	29	41
Total Trip Generation			506	43	13	56	17	42	59
<u>Vehicle Mix</u>³									
		<u>Percent</u>							
Passenger Vehicles		72.50%	367	31	9	40	12	31	43
2-Axle Trucks		4.60%	23	2	1	3	1	2	3
3-Axle Trucks		5.70%	29	2	1	3	1	2	3
4+-Axle Trucks		17.20%	87	7	2	10	3	7	10
		100%	506	43	13	56	17	42	59
<u>PCE Trip Generation</u>⁴									
		<u>PCE Factor</u>							
Passenger Vehicles		1.0	367	31	9	40	12	31	43
2-Axle Trucks		1.5	35	3	1	4	1	3	4
3-Axle Trucks		2.0	58	5	1	6	2	5	7
4+-Axle Trucks		3.0	261	22	7	29	9	22	31
Total PCE Trip Generation			720	61	18	79	24	60	84

TSF = Thousand Square Feet

PCE = Passenger Car Equivalent

¹Trip rates from the Institute of Transportation Engineers, *Trip Generation Manual, 11th Edition, 2021*. Land Use Code 140 - Manufacturing.²Trip rates from the Institute of Transportation Engineers, *Trip Generation Manual, 11th Edition, 2021*. Land Use Code 150 - Warehousing.³Vehicle Mix from the SCAQMD Warehouse Truck Trip Study Data Results and Usage, July 2014. Classification: Without Cold Storage⁴Passenger Car Equivalent (PCE) factors from San Bernardino County CMP, Appendix B - Guidelines for CMP Traffic Impact Analysis Reports in San Bernardino County, 2016

Figure 10: Project Passenger Vehicle Trip Distribution



Figure 11: Project Truck Trip Distribution



Figure 12: Project Passenger Vehicle AM Peak Hour Trip Assignment

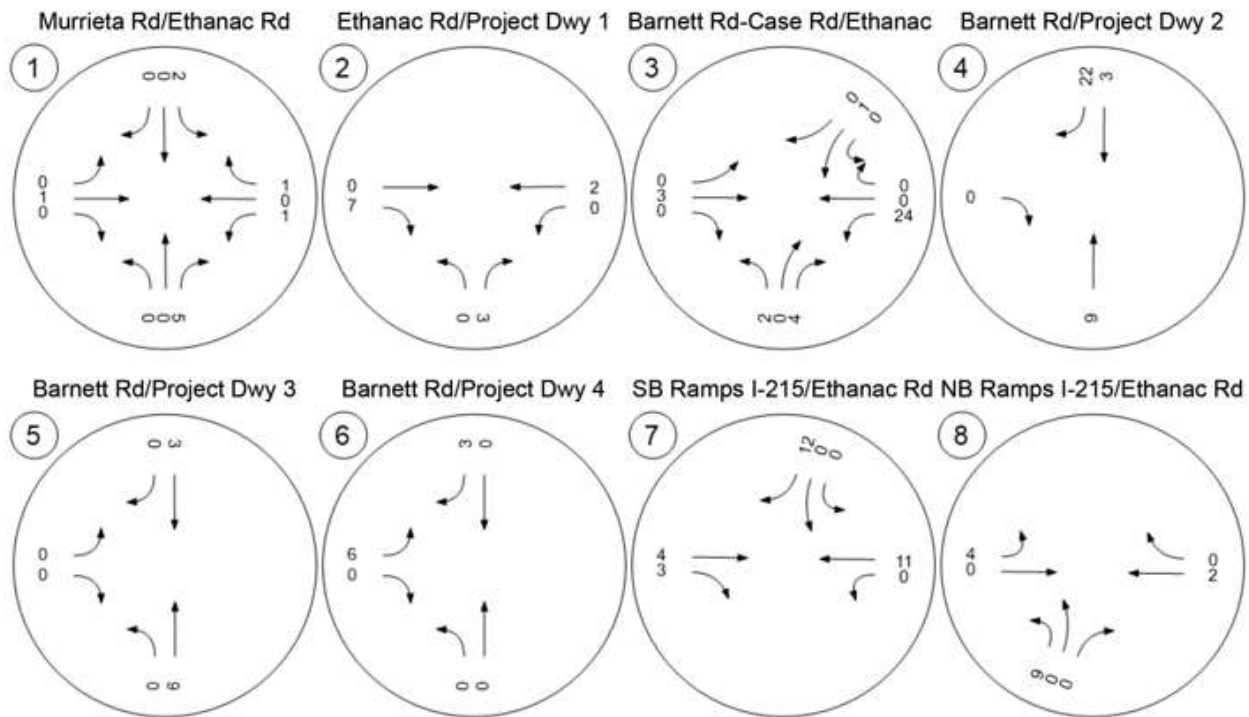


Figure 13: Project Passenger Vehicle PM Peak Hour Trip Assignment

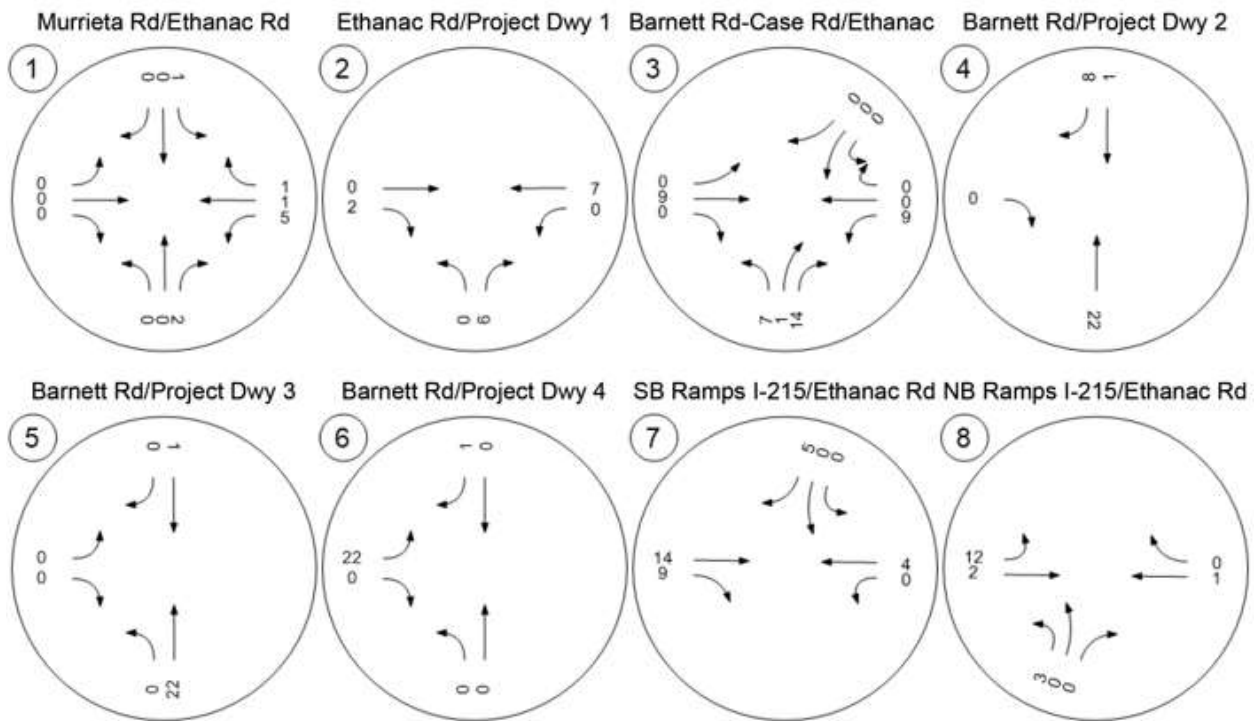


Figure 14: Project Truck AM Peak Hour Trip Assignment

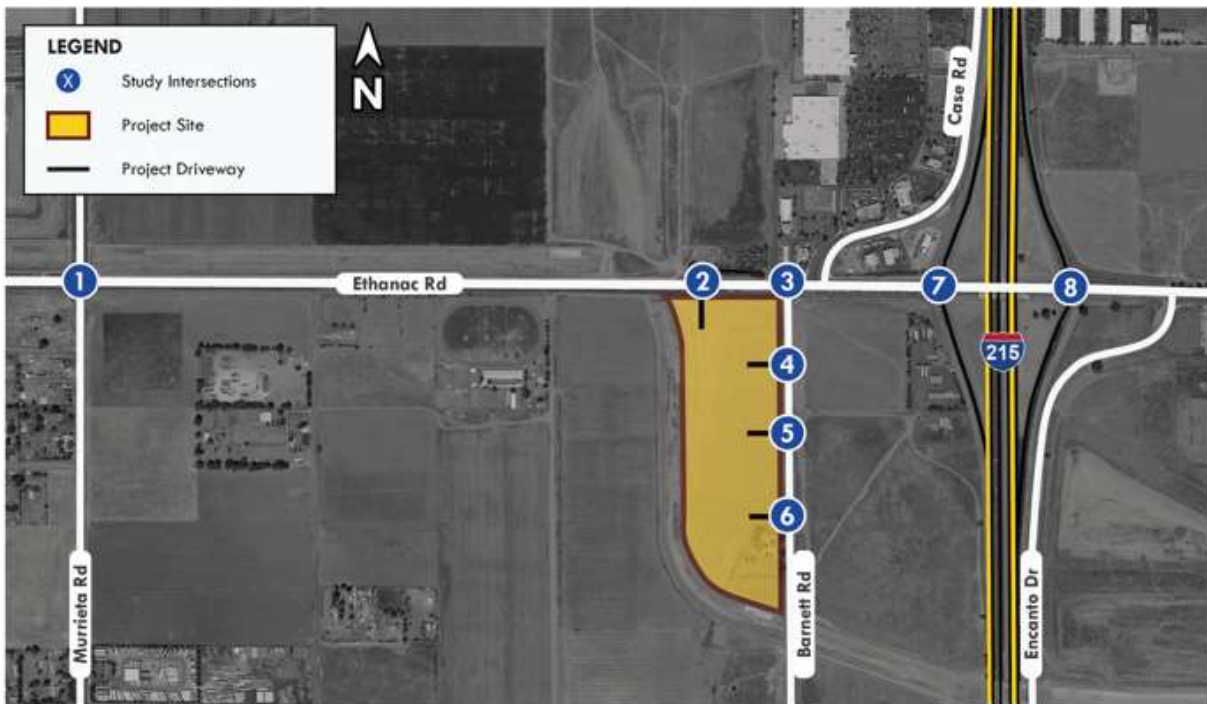
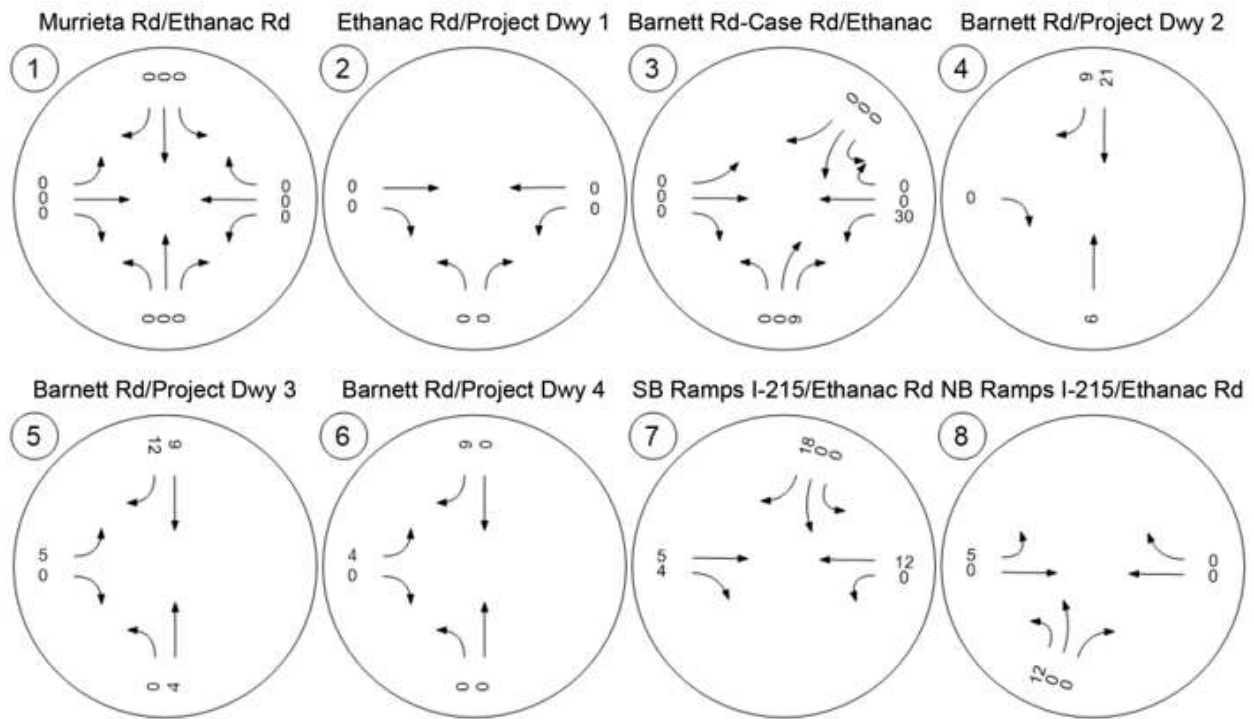


Figure 15: Project Truck PM Peak Hour Trip Assignment

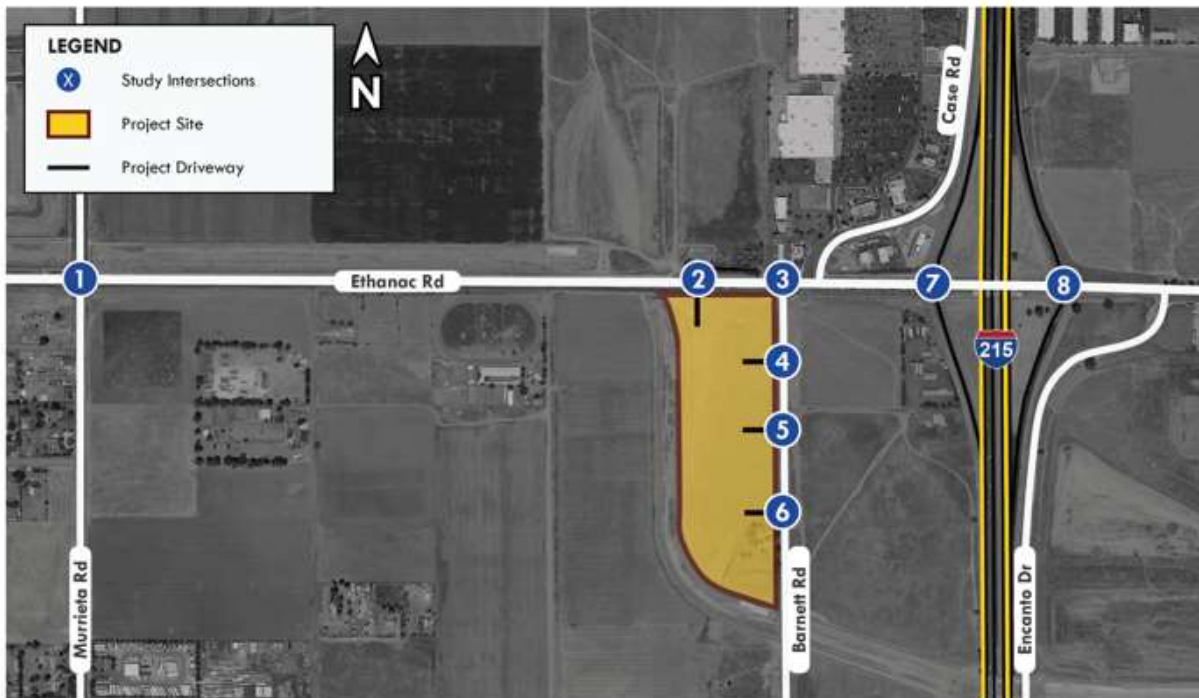
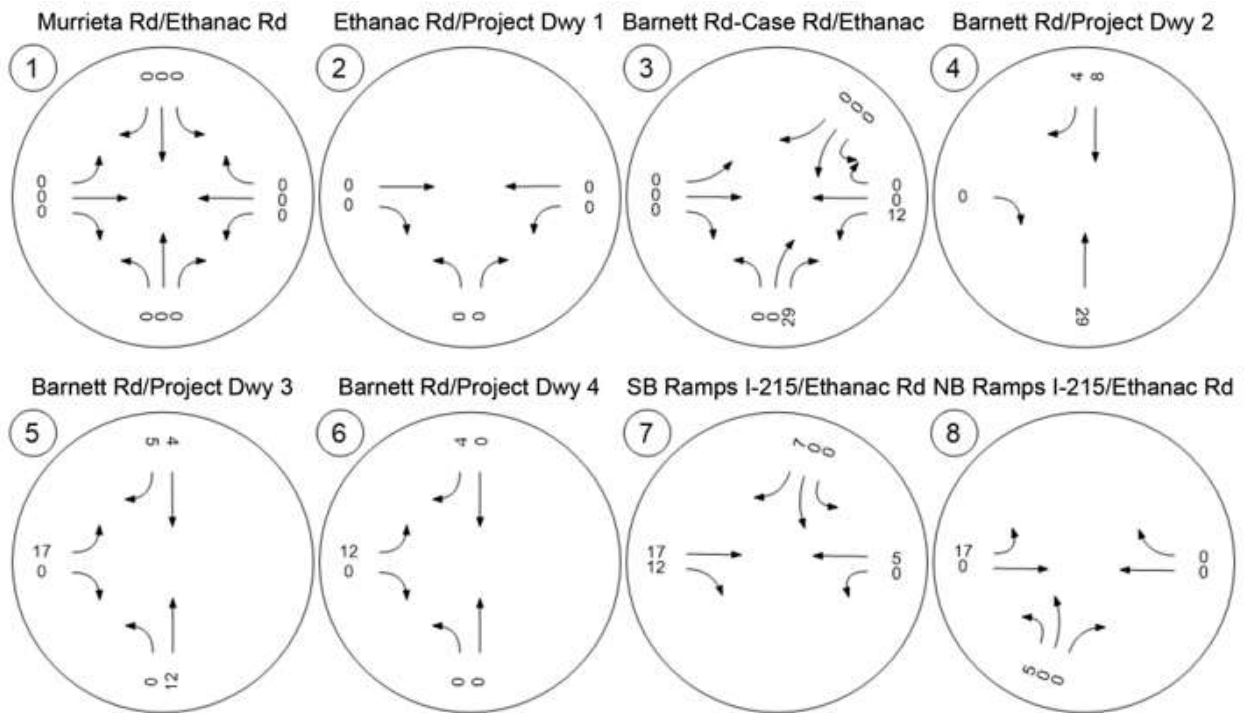


Figure 16: Project AM Peak Hour Trip Assignment

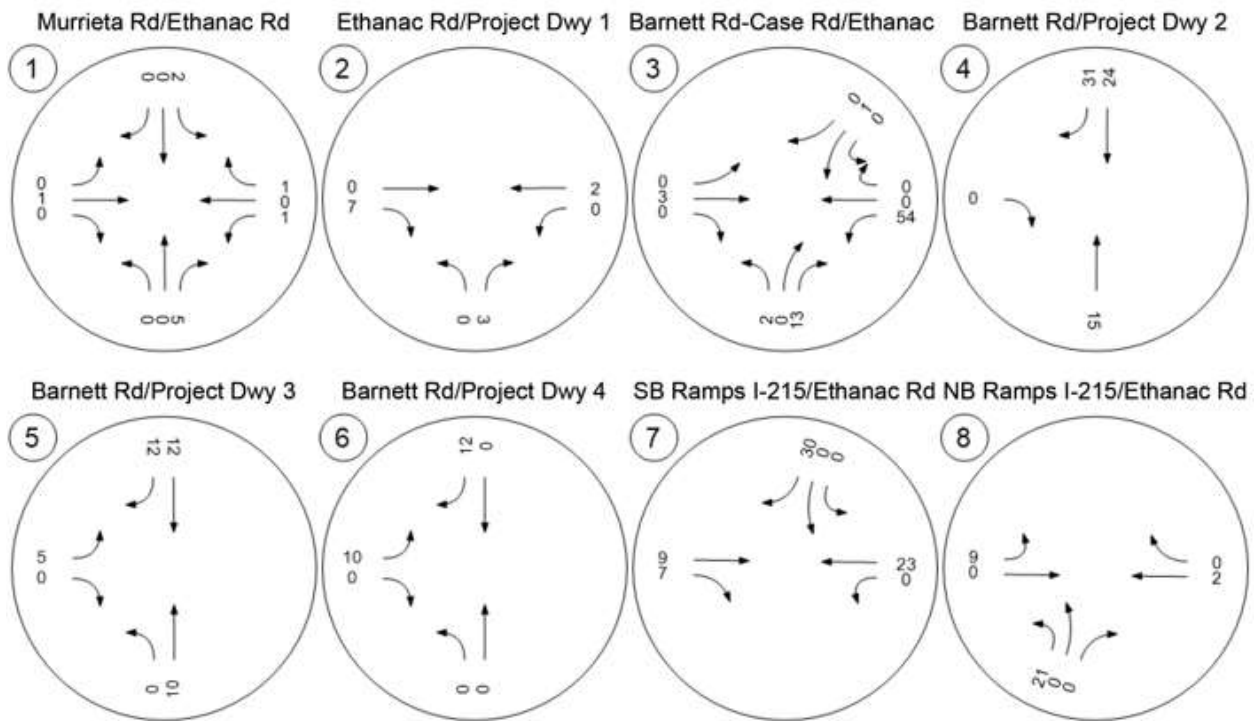
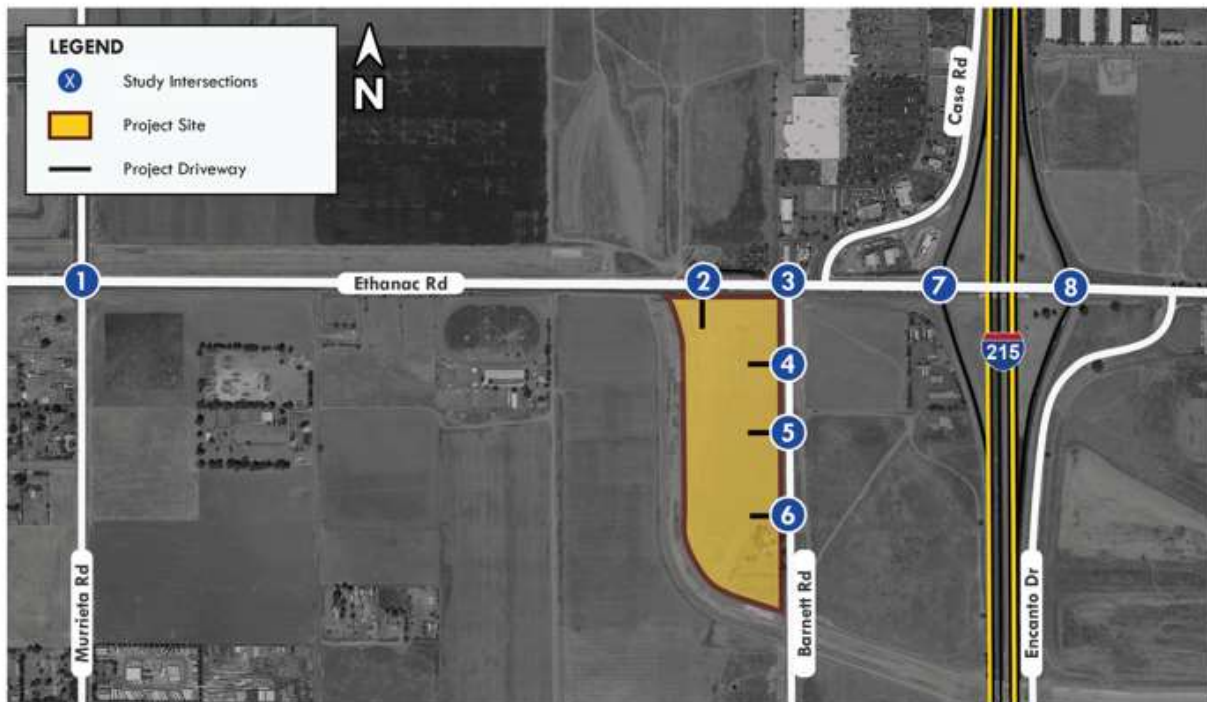
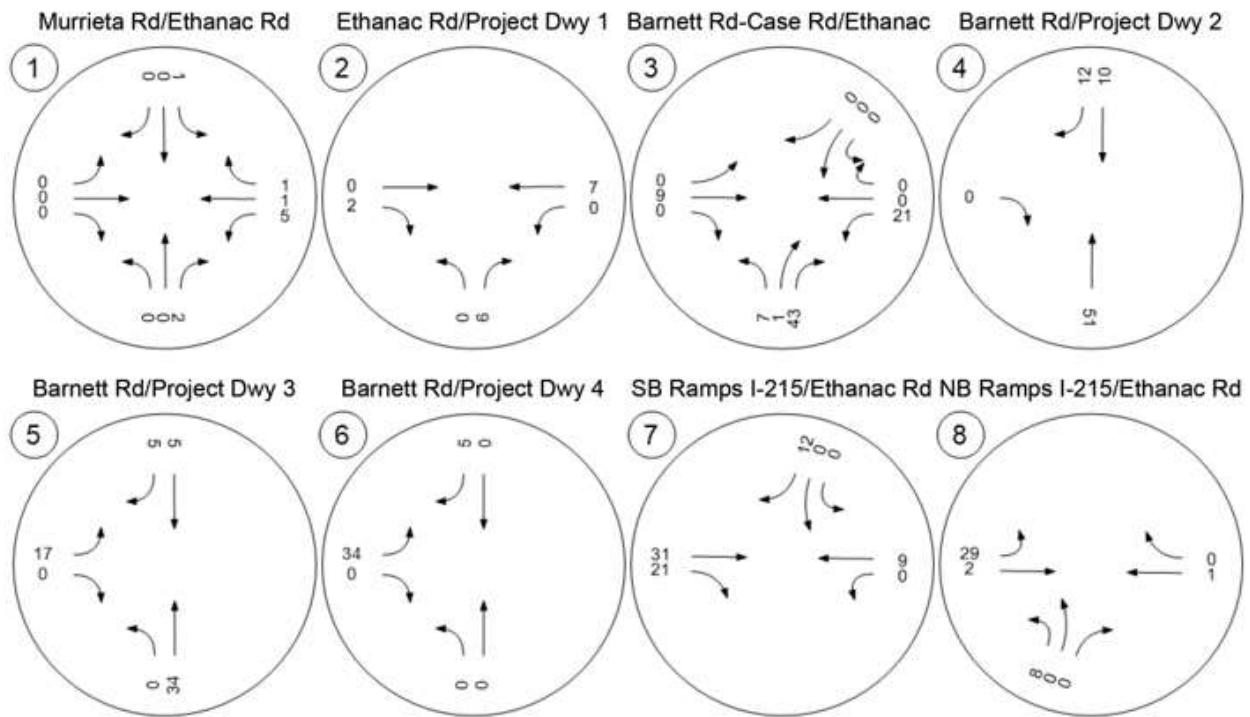


Figure 17: Project PM Peak Hour Trip Assignment



5 BASELINE PLUS PROJECT CONDITIONS

5.1 Existing Plus Project Traffic Volumes and Intersection Operations

The Existing plus Project traffic volumes were developed by adding the project trips to the Existing traffic volumes. The Existing plus Project traffic volumes are shown in Figures 16 and 17. LOS at the study area intersections was determined using the HCM methodology, described previously in Section 2.3. Table 7 shows the Existing plus Project AM and PM peak hour levels of service at the study area intersections. All LOS calculations are provided in Appendix E. As shown in Table 7, the following intersections would operate at an unsatisfactory LOS:

3. Barnett Road-Case Road/Ethanac Road (LOS F at AM peak hour and LOS E at PM peak hour)
7. I-215 SB Ramps/Ethanac Road (LOS F at AM/PM peak hour)
8. I-215 NB Ramps/Ethanac Road (LOS F at AM peak hour)

Table 7: Existing Plus Project AM and PM Peak Hour Level of Service

Intersection	Jurisdiction	Traffic Control	Existing				Existing Plus Project				Difference		Threshold of Significance	Significant?
			AM Peak		PM Peak		AM Peak		PM Peak		AM Peak	PM Peak		
			Delay ¹	LOS ²	Delay ¹	LOS ²	Delay ¹	LOS ²	Delay ¹	LOS ²				
1. Murrieta Rd/Ethanac Rd	City of Menifee/Perris	Signal	32.2	C	35.4	D	32.4	C	35.5	D	0.2	0.1	D	No
2. Ethanac Rd/Project Dwy 1	City of Menifee/Perris	TWSC	-	-	-	-	12.2	B	10.7	B	-	-	D	No
3. Barnett Rd-Case Rd/Ethanac Rd	City of Menifee/Perris	Signal	90.5	F	59.2	E	99.3	F	74.9	E	8.8	15.7	D	Yes
4. Barnett Rd/Project Dwy 2	City of Menifee/Perris	TWSC	-	-	-	-	0.0	A	0.0	A	-	-	D	No
5. Barnett Rd/Project Dwy 3	City of Menifee/Perris	TWSC	-	-	-	-	10.7	B	10.1	B	-	-	D	No
6. Barnett Rd/Project Dwy 4	City of Menifee/Perris	TWSC	-	-	-	-	10.6	B	9.9	A	-	-	D	No
7. I-215 SB Ramps/Ethanac Rd	Caltrans/City of Perris	Signal	129.2	F	90.7	F	131.9	F	103.6	F	2.7	12.9	E	Yes
8. I-215 NB Ramps/Ethanac Rd	Caltrans/City of Perris	Signal	148.1	F	65.5	E	147.3	F	66.1	E	-0.8	0.6	E	Yes

¹=Unsatisfactory Level of Service

TWSC = Two-Way Stop Control

¹Delay in Seconds

²Level of Service

Figure 18: Existing Plus Project AM Peak Hour Volumes

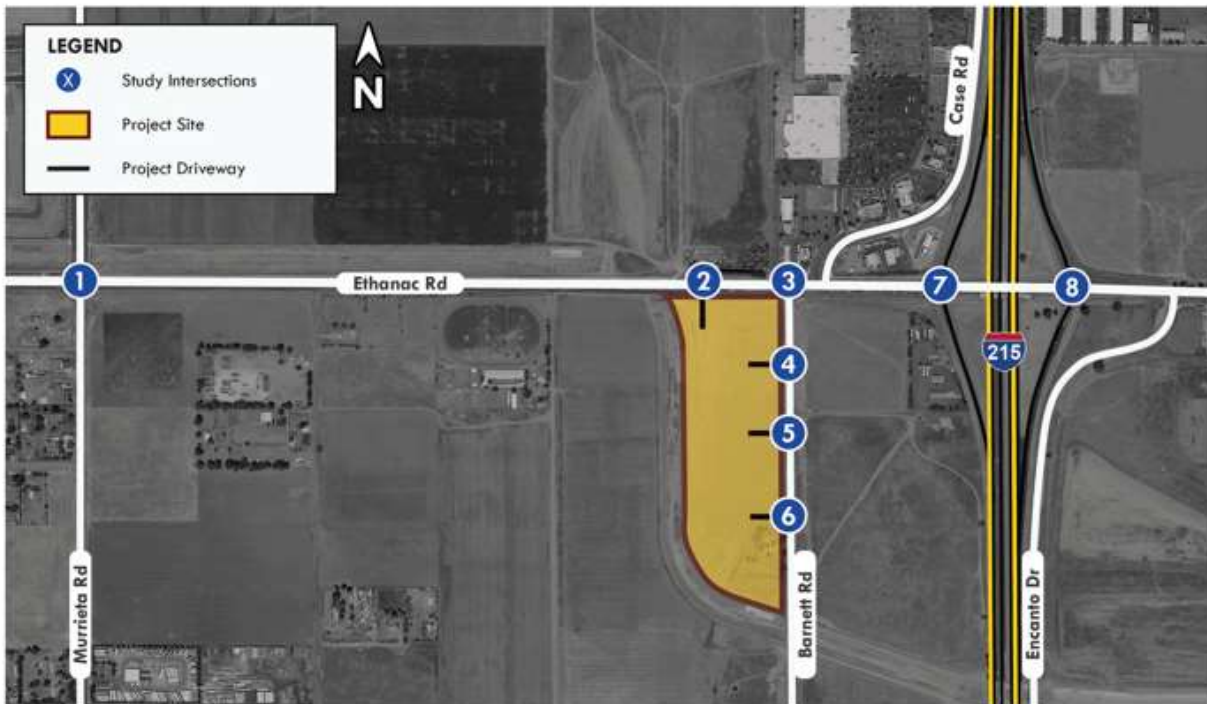
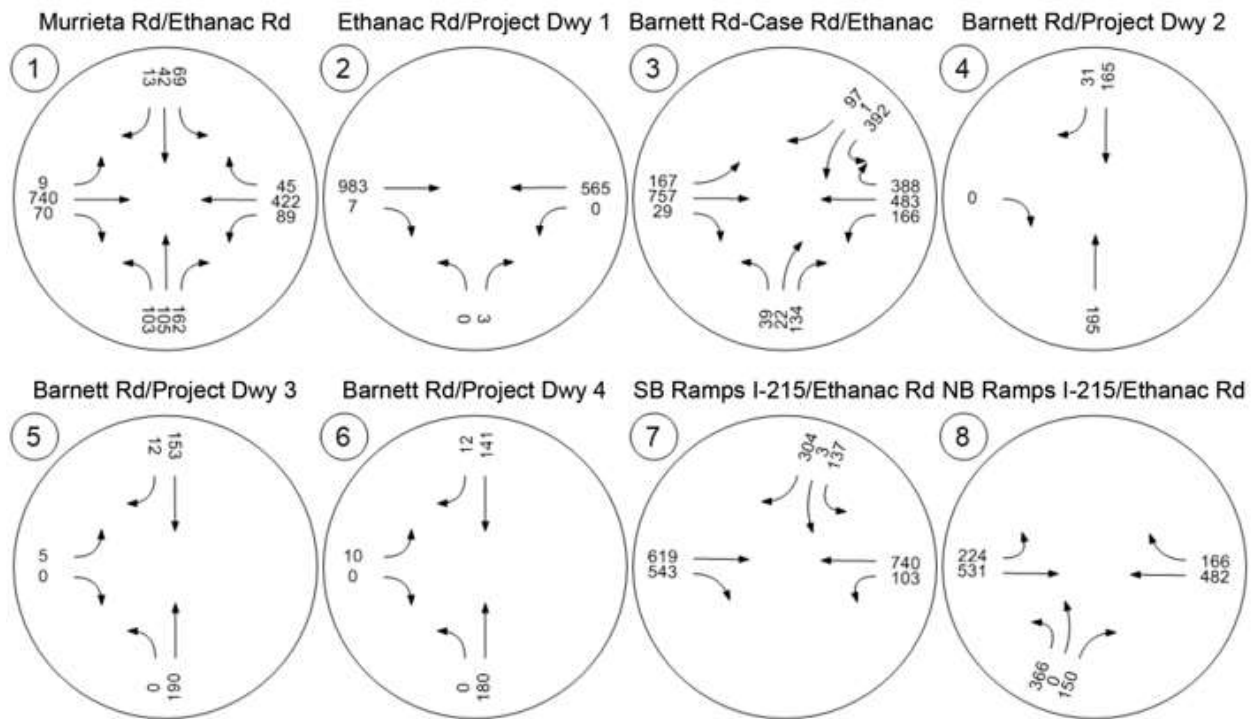
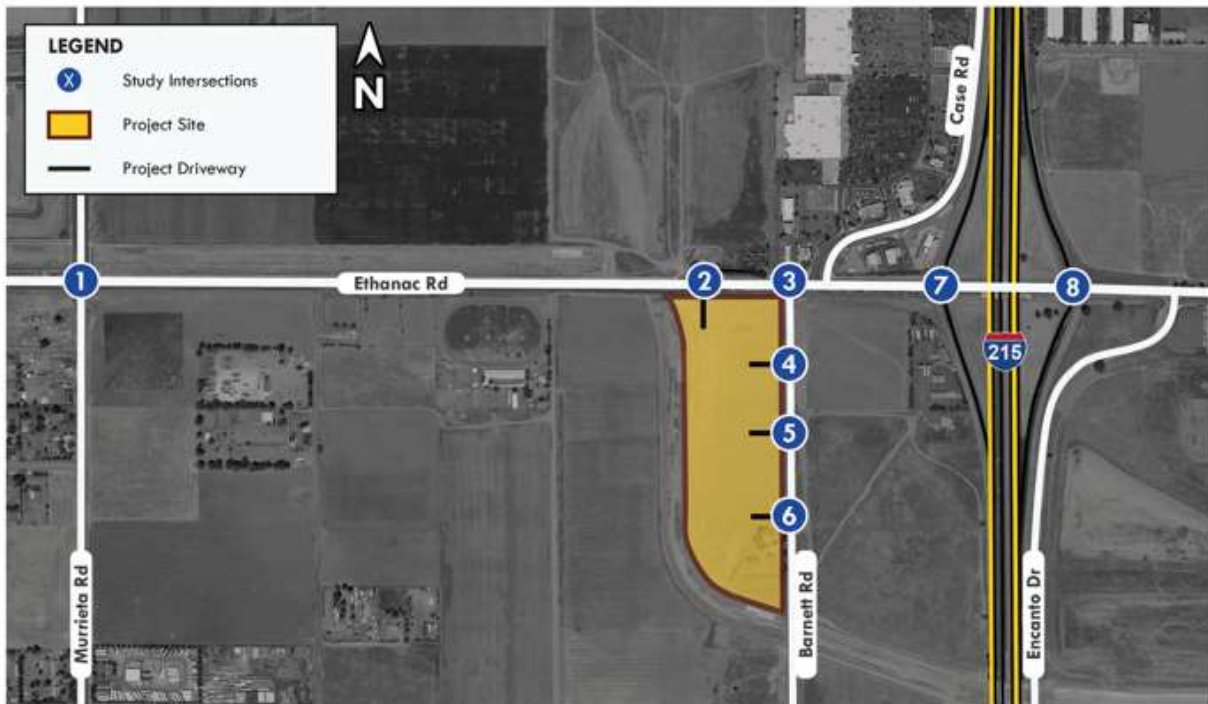
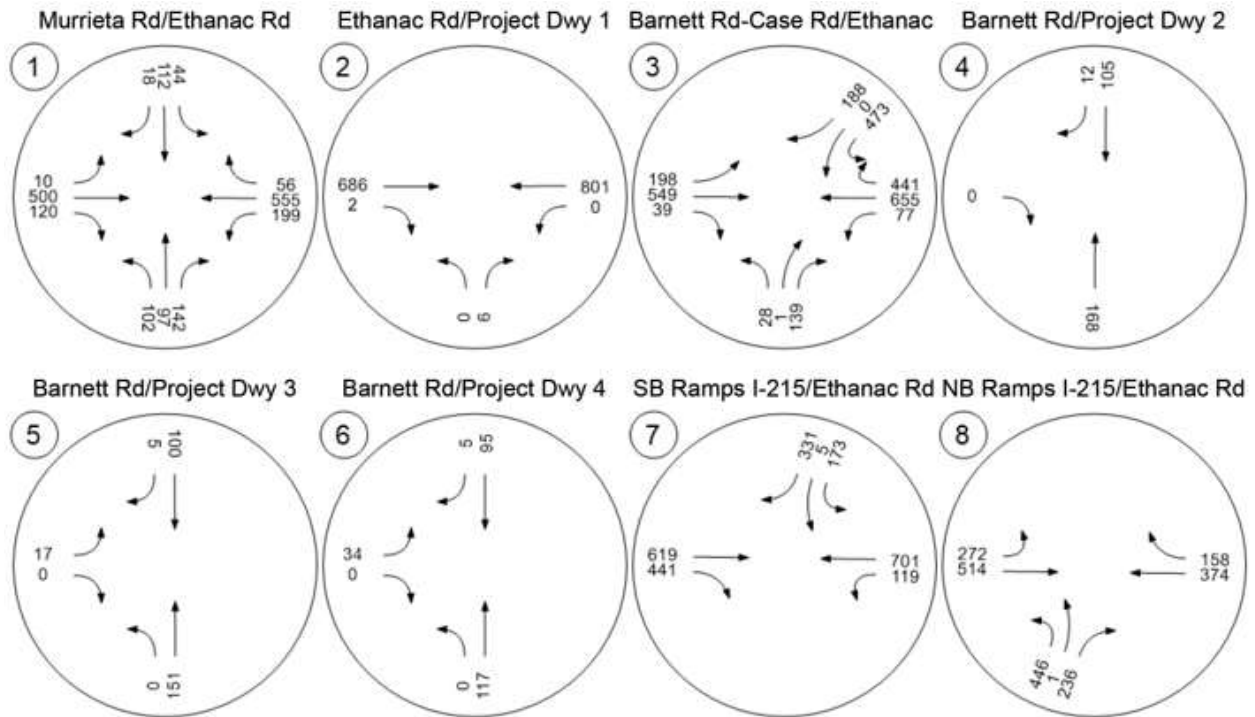


Figure 19: Existing Plus Project PM Peak Hour Volumes



5.2 Existing Roadway Segment Capacity Analysis

As discussed in *Section 3.1*, Ethanac Road is designated as a six-lane divided expressway as per the City of Menifee General Plan. In the vicinity of the project, the existing Ethanac Road is a four-lane divided arterial. EPD collected roadway segment counts for the study roadway segment on Wednesday, September 21, 2022. All traffic count data are provided in *Appendix B*. Existing roadway segment capacity analysis is shown in Table 8.

Table 8: Existing Year Roadway Segment Capacity Analysis

Roadway Segment	Type of Roadway	Threshold of Significance	Threshold Capacity	Existing Roadway ADT	Project Volume on Roadway Segment	Existing Roadway ADT + Project Volume	Over Capacity?
1. Ethanac Rd between Case Rd and I-215 SB Ramps	4-Lane Arterial	LOS E	37,000	27,581	642	28,223	No
2. Ethanac Rd between Murrieta Rd and Barnett Rd	4-Lane Arterial	LOS D	33,400	19,557	81	19,638	No

5.3 Opening Year Cumulative With Project Traffic Volumes and Intersection Operations

Opening Year Cumulative with Project traffic volumes were determined by adding the project trips to Opening Year traffic volumes. The Opening Year Cumulative with Project traffic volumes are shown in Figures 18 and 19. LOS at the study area intersections were determined using the HCM methodology, described previously in Section 2.3. Table 9 shows the Opening Year plus Project AM and PM peak hour LOS at the study area intersections. All LOS calculations are provided in *Appendix E*. As shown in Table 9, the following intersections would operate at an unsatisfactory LOS:

1. Murrieta Road/Ethanac Road (LOS F at AM/PM peak hour)
3. Barnett Road-Case Road/Ethanac Road (LOS F at AM peak hour and LOS E at PM peak hour)
7. I-215 SB Ramps/Ethanac Road (LOS F at AM/PM peak hour)
8. I-215 NB Ramps/Ethanac Road (LOS F at AM/PM peak hour)

As stated in the City of Menefee LOS TS Guidelines, a project that adds 50 trips to an intersection that operates at an LOS F in the base line scenario would result in a cumulative deficiency. For Intersection 1: Murrieta Road/Ethanac Road, the project adds 10 AM and 10 PM peak hour trips to the intersection; therefore, the project would not result in a significant deficiency. Intersection 3: Barnett Road-Case Road/Ethanac Road would operate at LOS F during AM peak hour and LOS E during PM peak hour and would result in an increase of delay more than 2 seconds after the proposed project is constructed. Therefore, the project would have a significant deficiency at Intersection 3: Barnett Road-Case Road/Ethanac Road. Improvements for the intersection are discussed in Section 6 Project Improvements and Fair Share. Intersections 7 and 8: I-215 SB Ramps/NB Ramps and Ethanac Road would operate at LOS F during AM and PM peak hour and would result in an increase of delay more than 2 seconds after the proposed project is constructed. Therefore, the project would have a significant deficiency at Intersections 7 and 8: I-215 SB Ramps/NB Ramps and Ethanac Road. Improvements for the intersection are discussed in Section 6 Project Improvements and Fair Share.

Table 9: Opening Year Cumulative With Project AM and PM Peak Hour Level of Service

Intersection	Jurisdiction	Traffic Control	Opening Year				Opening Year Plus Project				Difference		Threshold of Significance	Significant?
			AM Peak		PM Peak		AM Peak		PM Peak		AM Peak	PM Peak		
			Delay ¹	LOS ²	Delay ¹	LOS ²	Delay ¹	LOS ²	Delay ¹	LOS ²				
1. Murrieta Rd/Ethanac Rd	City of Menifee/Perris	Signal	101.2	F	112.5	F	102.1	F	113.4	F	0.9	0.9	D	Yes
2. Ethanac Rd/Project Dwy 1	City of Menifee/Perris	TWSC	-	-	-	-	18.9	C	17.5	C	-	-	D	No
3. Barnett Rd-Case Rd/Ethanac Rd	City of Menifee/Perris	Signal	82.3	F	60.4	E	97.9	F	70.1	E	15.6	9.7	D	Yes
4. Barnett Rd/Project Dwy 2	City of Menifee/Perris	TWSC	-	-	-	-	0.0	A	0.0	A	-	-	D	No
5. Barnett Rd/Project Dwy 3	City of Menifee/Perris	TWSC	-	-	-	-	10.8	B	10.1	B	-	-	D	No
6. Barnett Rd/Project Dwy 4	City of Menifee/Perris	TWSC	-	-	-	-	10.7	B	10.0	A	-	-	D	No
7. I-215 SB Ramps/Ethanac Rd	Caltrans/City of Perris	Signal	339.4	F	390.4	F	342.1	F	406.4	F	2.7	16.0	E	Yes
8. I-215 NB Ramps/Ethanac Rd	Caltrans/City of Perris	Signal	282.7	F	422.9	F	288.0	F	429.8	F	5.3	6.9	E	Yes

=Unsatisfactory Level of Service

TWSC = Two-Way Stop Control

¹Delay in Seconds

²Level of Service

Figure 20: Opening Year Cumulative With Project AM Peak Hour Volumes

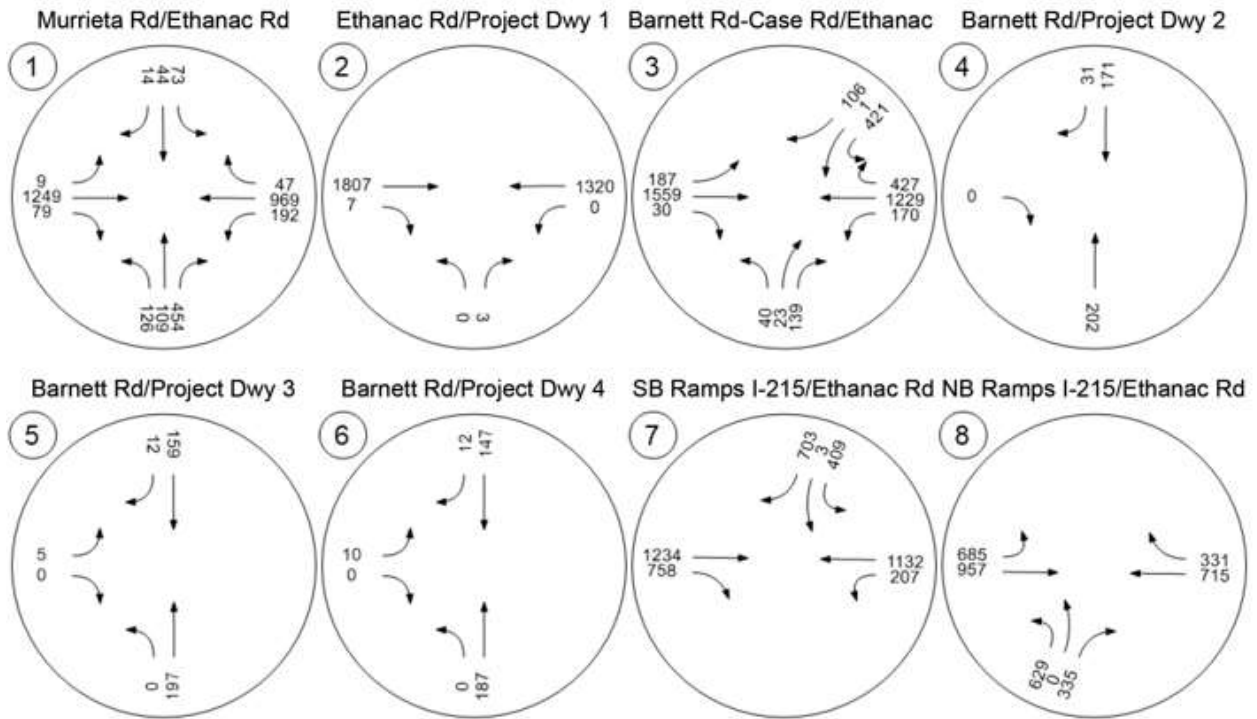
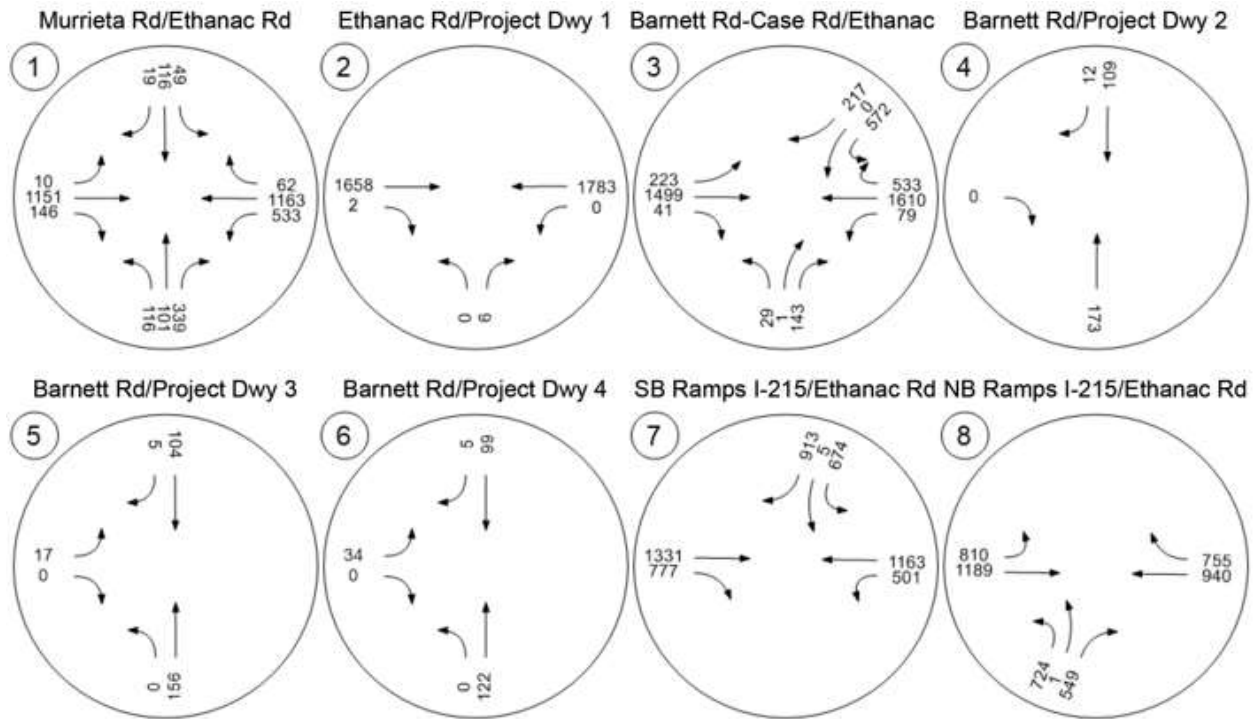


Figure 21: Opening Year Cumulative With Project PM Peak Hour Volumes



5.4 Opening Year Roadway Segment Capacity Analysis

As discussed in Section 3.1, - Ethanac Road is designated as a six-lane divided expressway as per the City of Menifee General Plan. In the vicinity of the project, the existing Ethanac Road is a four-lane divided arterial. A two percent growth rate was applied to the existing Average Daily Traffic (ADT) to obtain opening year roadway segment volumes. Opening year roadway segment capacity analysis is shown in Table 10. It is to be noted that the opening year roadway ADT includes cumulative projects.

Table 10: Opening Year Roadway Segment Capacity Analysis

Roadway Segment	Type of Roadway	Threshold of Significance	Threshold Capacity	Opening Roadway ADT*	Project Volume on Roadway Segment	Opening Roadway ADT + Project Volume	Project Traffic Percentage	Over Capacity?
1. Ethanac Rd between Case Rd and I-215 SB Ramps	4-Lane Arterial	LOS E	37,000	52,782	642	53,423	1.20%	Yes
2. Ethanac Rd between Murrieta Rd and Barnett Rd	4-Lane Arterial	LOS D	33,400	45,740	81	45,821	0.18%	Yes

* 2% Growth Rate applied to existing ADT - Cumulative Projects Included

6 PROJECT IMPROVEMENT AND FAIR SHARE

6.1 Recommended Improvements

The development of the proposed project would cause an increase in delay at the following intersections. It should be noted that these three intersections already operate with unsatisfactory LOS in the existing conditions.:

3. Barnett Road-Case Road/Ethanac Road (LOS F at AM peak hour and LOS E at PM peak hour)
7. I-215 SB Ramps/Ethanac Road (LOS F at AM/PM peak hour)
8. 215 NB Ramps/Ethanac Road (LOS F at AM/PM peak hour)

The following improvements improve the intersection LOS to satisfactory LOS or better:

3. Barnett Road-Case Road/Ethanac Road (AM and PM peak hours): Widen and restripe the northbound shared left-thru-right lane to provide an exclusive right-turn lane and a shared thru-left turn lane. To increase intersection safety, it is recommended that cat tracks pavement markers be installed for all the edges of the dual SBL instead of the single cat track currently installed in the middle of the SBL turns. It is also recommended that a “Keep Clear” pavement marking be installed approximately 85 feet beyond the stop line of the 50 feet left turn pocket at Barnett Road/Ethanac Road. This will ensure that the WBL traffic does not block traffic waiting to make a SBL given the staggered nature of this intersection.
7. I-215 SB Ramps/Ethanac Road (AM and PM peak hours): Widen and restripe the southbound (SB) shared thru-left turn lane to provide an exclusive left-turn lane, to remove the SB thru movement and to add a second right-turn lane. Widen and restripe the eastbound (EB) approach to add two thru-lanes and a right-turn lane. Widen and restripe the westbound (WB) approach to add a second left-turn lane. In addition, add overlap right-turn phasing during the SB phase.
8. 215 NB Ramps/Ethanac Road (AM and PM peak hours): Widen and restripe the northbound (NB) shared thru-left turn lane to provide two left-turn lanes, to remove the NB thru movement and a right-turn lane. Widen and restripe the EB approach to add an exclusive left-turn lane and a thru-lane. Widen and restripe the WB approach to add three thru-lanes and an exclusive right-turn lane. In addition, add overlap right-turn phasing during the NB phase.

As seen in Table 11, all affected intersections improve to a satisfactory LOS with the recommended improvements. All proposed improvement LOS calculations are provided in *Appendix E*. It should be noted that the ultimate planned configuration of Ethanac Road is that of a six-lane roadway. The roadway expansion would help reduce the delay experienced at the intersections of I-215 SB Ramps/NB Ramps and Ethanac Road. To improve the LOS to satisfactory, it is only feasible to remove thru movement on I-215 ramps and add overlap phasing with SB movement and NB movement on I-215 ramps. Removing thru movement can also improve safety and thru movements on freeway ramps are low volume movements.

Additionally, the project would add traffic to the already over-capacity segment of Ethanac Road between Case Road and I-215 SB Ramps and between Murrieta Road and Barnett Road. Widening of Ethanac Road to its General Plan designation would result in satisfactory operations. Fair share for these improvements is discussed in the next section.

Table 11: Opening Year Cumulative With Project Improvement AM and PM Peak Hour Level of Service

Intersection	Opening Year				Opening Year Plus Project				Recommended Improvements	Opening Year Plus Project IMP				Threshold of Significance	Significant?
	AM Peak		PM Peak		AM Peak		PM Peak			AM Peak		PM Peak			
	Delay ¹	LOS ²	Delay ¹	LOS ²	Delay ¹	LOS ²	Delay ¹	LOS ²		Delay ¹	LOS ²	Delay ¹	LOS ²		
3. Barnett Rd-Case Rd/Ethanac Rd <u>Jurisdiction:</u> City of Menifee/City of Perris <u>Traffic Control:</u> Signal	82.3	F	60.4	E	97.9	F	70.1	E	Widen and restripe the NB shared left-thru-right lane to provide an exclusive right-turn lane and a shared thru-left turn lane. To increase intersection safety, it is recommended that cat tracks pavement markers be installed for all the edges of the dual SBL instead of the single cat track currently installed in the middle of the SBL turns. It is also recommended that a "Keep Clear" pavement marking be installed approximately 85 feet beyond the stop line of the 50 feet left turn pocket at Barnett Road/Ethanac Road. This will ensure that the WBL traffic does not block traffic waiting to make a SBL given the staggered nature of this intersection.	51.7	D	51.3	D	D	No
7. I-215 SB Ramps/Ethanac Rd <u>Jurisdiction:</u> Caltrans/City of Perris <u>Traffic Control:</u> Signal	339.4	F	390.4	F	342.1	F	406.4	F	Widen and restripe the SB shared thru-left turn lane to provide an exclusive left-turn lane, to remove the SB thru movement and to add a second right-turn lane. Widen and restripe the EB approach to add two thru-lanes and a right-turn lane. Widen and restripe the WB approach to add a second left-turn lane. In addition, add overlap right-turn phasing during the SB phase.	29.3	C	47.2	D	E	No
8. I-215 NB Ramps/Ethanac Rd <u>Jurisdiction:</u> Caltrans/City of Perris <u>Traffic Control:</u> Signal	282.7	F	422.9	F	288.0	F	429.8	F	Widen and restripe the NB shared thru-left turn lane to provide two left-turn lanes, to remove the NB thru movement and a right-turn lane. Widen and restripe the EB approach to add an exclusive left-turn lane and a thru-lane. Widen and restripe the WB approach to add three thru-lanes and an exclusive right-turn lane. In addition, add overlap right-turn phasing during the NB phase.	35.0	D	36.4	D	E	No

=Unsatisfactory Level of Service

¹Delay in Seconds

²Level of Service

NB= Northbound, SB=Southbound, EB=Eastbound, WB=Westbound

6.2 Project Fair Share

Improvements at intersections 7 and 8 are part of the Transportation Uniform Mitigation Fee (TUMF) program. The project would be required to pay TUMF fees which would contribute towards the construction of the I-215 and Ethanac Road Interchange. For the LOS deficiency at intersection 3 Barnett Road-Case Road/Ethanac Road which does not have any improvements as a part of the TUMF program, a project fair share percentage was calculated. The project's fair share percentage for the recommended improvements is identified in Table 12 below.

Table 12: Project Fair Share for Intersection Improvement

Intersection	AM Peak				PM Peak			
	Project Trips	Existing Traffic Volume	Opening Year Cumulative with Project Volume	Fair Share ¹	Project Trips	Existing Traffic Volume	Opening Year Cumulative with Project Volume	Fair Share ¹
3. Barnett Rd-Case Rd/Ethanac Rd	73	2602	4332	4.22%	81	2707	4947	3.62%

¹Fair share contribution percentage for improvements where the project is not directly responsible is calculated by the formula: Fair Share Percentage = Project Trips/(Opening Year Cumulative with Project Volume - Existing Traffic Volume)

As shown in Table 12, the project would be responsible for 4.22 percent of the improvement cost at the intersection 3.

As discussed in Section 5.4, Ethanac Road at opening year is over the roadway segment capacity with cumulative traffic and project traffic. As shown at Table 13, the project would be responsible for 2.48 percent for improvement at Ethanac Road between Case Road and I-215 SB Ramps and 0.31 percent for improvement at Ethanac Road between Murrieta Road and Barnett Road.

Table 13: Project Fair Share for Roadway Segment

Roadway Segment	Project Trips	Existing Traffic Volume	Opening Year Cumulative with Project Volume	Fair Share ¹
1. Ethanac Rd between Case Rd and I-215 SB Ramps	642	27,581	53,423	2.48%
2. Ethanac Rd between Murrieta Rd and Barnett Rd	81	19,557	45,821	0.31%

¹Fair share contribution percentage for improvements where the project is not directly responsible is calculated by the formula: Fair Share Percentage = Project Trips/(Opening Year Cumulative with Project Volume - Existing Traffic Volume)

APPENDIX A – SCOPE OF WORK



**CITY OF MENIFEE
ENGINEERING DEPARTMENT**

FOR USE BY STAFF
Permit#: _____
Received Date: _____

TRAFFIC SCOPING/STUDY

APPLICATION

SUBMITTAL REQUIREMENTS

THIS FORM MUST BE SUBMITTED WITH FIRST PLAN CHECK:

Project No: PLN21-0290 Schedule: _____ (if applicable)

Project Description: Construction of two industrial buildings, compiling 65,000 square feet of manufacture use and 186,912 square feet of warehouse use.

Name of Owner: Phelan Development Company

Signature: _____ Phone #: _____

Mailing Address: 450 Newport Center Drive, Suite 230 FAX number: _____
Newport Beach, CA 92660

_____ Email Address: _____

Name of Applicant: _____ Contact: _____

Authorized Signature: _____ Phone #: _____

Mailing Address: _____ FAX number: _____

_____ Email Address: _____

Submittal Requirements

- 1. _____ 2 Sets Site Plan
- 2. _____ 2 Sets Traffic/Scoping Study
- 3. _____ 1 \$1,000.00 – Deposit

FIRST SUBMITTAL REQUIRMENTS

- A. The City reserves the right to reject the submitted plan package without performing any plan checks if any of the required plans or information items are missing.

I, the undersigned engineer, do verify that all the items necessary for this project and checked above are attached.

Signature

Date

Civil Engineer's Stamp

Printed Name

Firm Name

Address

Phone Number

Fax

Email Address

1/21/2014

ATTACHMENT A

SCOPING AGREEMENT FOR TRAFFIC STUDY

This letter acknowledges the City Menifee Engineering Department requirements for the traffic study of the following project. The analysis must follow the latest City Traffic Study Guidelines dated October 2020

Case No. PLN21-0290

Related Cases -

SP No. -

EIR No. -

GPA No. -

CZ No. -

Project Name: Barnett and Ethanac Warehouse

Project Location: Southwest Corner of Barnett Road and Ethanac Road

Project Description: Construction of two industrial buildings, compiling 65,000 square feet of manufacture use and 186,912 square feet of warehouse use.

Developer

Name: _____

Address: EPD Solutions, Inc.
2355 Main Street, Suite 100
Irvine, CA 92614

Phelan Development Company
450 Newport Center Drive, Suite 230
Newport Beach, CA 92660

Telephone: (949) 794-1186

A. Trip Generation Source: ITE Trip Generation Manual, most recent edition

	<u>Economic Development Corridor (EDC)</u>		<u>Economic Development Corridor (EDC)</u>
Existing Land Use		Proposed Land Use	
Existing Zoning	<u>EDC - Northern Gateway (EDC-NG)</u>	Proposed Zoning	<u>EDC - Northern Gateway (EDC-NG)</u>
Total Daily Trips			

	In	Out	Total
AM Trips	84	26	110
PM Trips	33	80	113

Internal Trip Allowance Yes No (_____ % Trip Discount)

Pass-By Trip Allowance Yes No (_____ % Trip Discount)
(Attach additional sheet if this is a multi-use site with a breakdown of trips generated)

B. Trip Geographic Distribution: N % S % E % W %

(See attached exhibit for detailed assignment)

Auto 48% north, 45% south, 5% east, 2% west
Truck 60% north, 40% south, 0% east, 0% west

C. Background Traffic

Project Completion Year: 2024

Annual Ambient Growth Rate: 2% or as directed by City

Other area projects to be included: -

Please contact the Engineering Department or use the most recently provided data

Model/Forecast methodology if required _____

D. Horizon Year Analysis: Does this project require a Horizon Year Analysis?

Yes No

E. Study intersections: (NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)

1. Murrieta Road/Ethanac Road

5. _____

2. Barnett Road-Case Road/Ethanac Road

6. _____

3. I-215 SB Ramp/Ethanac Road

7. _____

4. I-215 NB Ramp/Ethanac Road

8. _____

F. Study Roadway Segments:

1. Ethanac Rd between Case Rd and I-215 SB Ramp

5. _____

2. Ethanac Rd between Murrieta Rd and Barnett Rd

6. _____

3. _____

7. _____

4. _____

8. _____

G. Other Jurisdictional Impacts

Is this project within any other Agency's Sphere of Influence or one-mile radius of boundaries? Yes No

es

No

If so, name of Jurisdiction: _____ City of Perris

H. Site Plan (please attach a legible 11'X17' copy)

I. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (To be filled out by Engineering Department)

Recommended by:

Meghan Macias, TE

Consultant's Representative

June 6, 2022

Date

Scoping Agreement Submitted on

June 6, 2022

Date

Scoping Agreement Resubmitted on

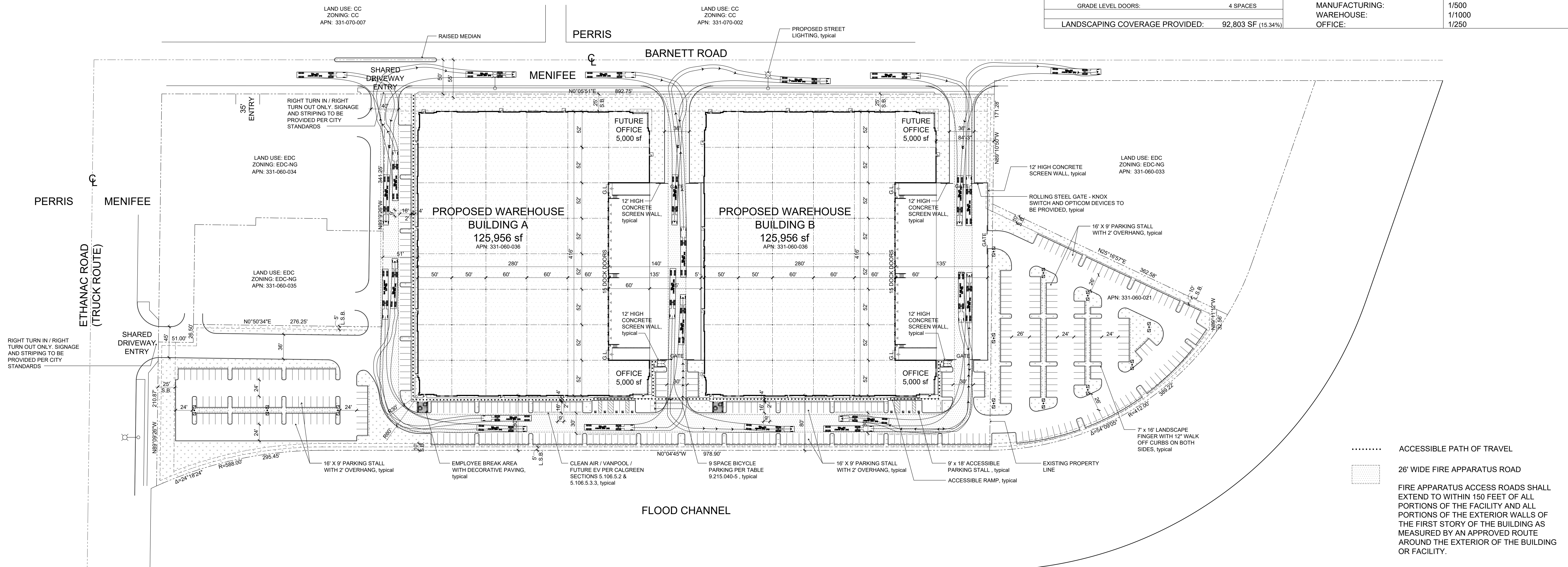
Date

Approved Scoping Agreement:

City of Menifee

Date

PROJECT INFORMATION		ECONOMIC DEVELOPMENT CORRIDOR-NORTHERN GATEWAY (EDC-NG) DEVELOPMENT STANDARDS:	
GROSS LOT AREA:	604,985 SF (13.89 acres)	LAND USE DESIGNATION:	EDC
BUILDING COVERAGE:	41.64%	ZONING DESIGNATION:	EDC-NG
TOTAL BUILDING AREA:	251,912 SF	MINIMUM LOT SIZE:	15,000 SF
BUILDING A:	125,956 SF	BUILDING TYPE:	MANUFACTURING
MANUFACTURING:	32,500 SF	MAXIMUM FLOOR AREA RATIO:	1.0
WAREHOUSE:	83,456 SF	MAXIMUM BUILDING HEIGHT:	100'
OFFICE:	10,000 SF	MAXIMUM BUILDING COVERAGE:	n/a
BUILDING B:	125,956 SF	MIN. BUILDING SETBACKS (yards):	
MANUFACTURING:	32,500 SF	FRONT YARD	25'
WAREHOUSE:	83,456 SF	ADJACENT TO RESIDENTIAL ZONE	25'
OFFICE:	10,000 SF	INTERIOR SIDE YARD	NONE
		STREET SIDE YARD	15'
		REAR YARD	10'
PARKING REQUIRED:	383 SPACES *	TREE REQUIREMENTS:	1 TREE / 4 PARKING
MANUFACTURING: 65,000 sf (1/500)	130 SPACES	PARKING LOT SHADING REQ'S:	SHADE TREES - 50%
WAREHOUSE: 172,912 sf (1/1000)	173 SPACES	LANDSCAPE SETBACKS:	
OFFICE: 20,000 sf (1/250)	80 SPACES	FRONT, REAR, SIDE YARDS:	25', 5', 10' (adjacent to residential)
CLEAN AIR / VANPOOL (8%)	34 SPACES *	LANDSCAPING COVERAGE:	Min. 10% TOTAL SITE (minus FYSB)
FUTURE EV PARKING (6%)	26 SPACES *		
BICYCLE PARKING (1 / 25 PARKING SPACES)	17 SPACES		
* INCLUSIVE		OFF STREET PARKING:	
PARKING PROVIDED:	416 SPACES *	STANDARD:	9' x 18'
STANDARD:	407 SPACES	DRIVE AISLE:	24'
ACCESSIBLE:	9 SPACES	FIRE LANE:	24'
CLEAN AIR / VANPOOL / FUTURE EV:	34 SPACES *	OVERHANG:	2'
BICYCLE PARKING:	18 SPACES		
* INCLUSIVE		REQUIRED PARKING:	
DOCK DOORS:	30 SPACES	MANUFACTURING:	1/500
GRADE LEVEL DOORS:	4 SPACES	WAREHOUSE:	1/1000
		OFFICE:	1/250
LANDSCAPING COVERAGE PROVIDED:	92,803 SF (15.34%)		



**PRELIMINARY SITE PLAN
SCHEME 5r3**

7 March 2022

**Barnett Road and Ethanac Road
Menifee, California**

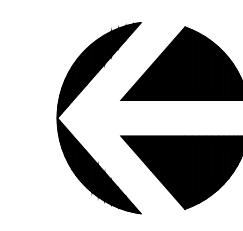
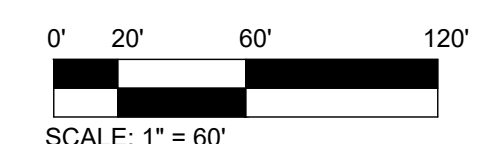


Table 1. Ethanac and Barnett Industrial Trip Generation

Land Use	Units	Daily	AM Peak Hour			PM Peak Hour			
			In	Out	Total	In	Out	Total	
<u>Trip Rates</u>									
Manufacturing ¹	TSF	4.75	0.52	0.16	0.68	0.23	0.51	0.74	
Warehouse ²	TSF	1.71	0.13	0.04	0.17	0.05	0.13	0.18	
<u>Total Vehicle Trip Generation</u>									
Proposed Manufacturing	65 TSF	309	34	11	45	15	33	48	
Proposed Warehouse	186.912 TSF	320	24	7	31	9	24	33	
Total Trip Generation		628	58	18	76	24	57	81	
<u>Vehicle Mix³</u>									
		<u>Percent</u>							
Passenger Vehicles		72.50%	456	42	13	55	17	41	58
2-Axle Trucks		4.60%	29	3	1	4	1	3	4
3-Axle Trucks		5.70%	36	3	1	4	1	3	4
4+-Axle Trucks		17.20%	108	10	3	13	4	10	14
		100%	629	58	18	76	23	57	80
Trucks Only Trip Generation		27.50%	173	16	5	21	6	16	22
<u>PCE Trip Generation⁴</u>									
		<u>PCE Factor</u>							
Passenger Vehicles		1.0	456	42	13	55	17	41	58
2-Axle Trucks		1.5	44	5	2	7	2	4	6
3-Axle Trucks		2.0	72	7	2	9	2	6	8
4+-Axle Trucks		3.0	324	30	9	39	12	29	41
Total PCE Trip Generation			896	84	26	110	33	80	113
Trucks Only PCE Trip Generation		-	440	42	13	55	16	39	55

TSF = Thousand Square Feet

PCE = Passenger Car Equivalent

¹ Trip rates from the Institute of Transportation Engineers, *Trip Generation, 11th Edition, 2021*. Land Use Code 140 - Manufacturing.

² Trip rates from the Institute of Transportation Engineers, *Trip Generation, 11th Edition, 2021*. Land Use Code 150 - Warehousing.

³ Vehicle Mix from the SCAQMD Warehouse Truck Trip Study Data Results and Usage, July 2014. Classification: Without Cold Storage

⁴ Passenger Car Equivalent (PCE) factors from San Bernardino County CMP, Appendix B - Guidelines for CMP Traffic Impact Analysis Reports in San Bernardino County, 2016

Figure 1. Automobile Trip Distribution

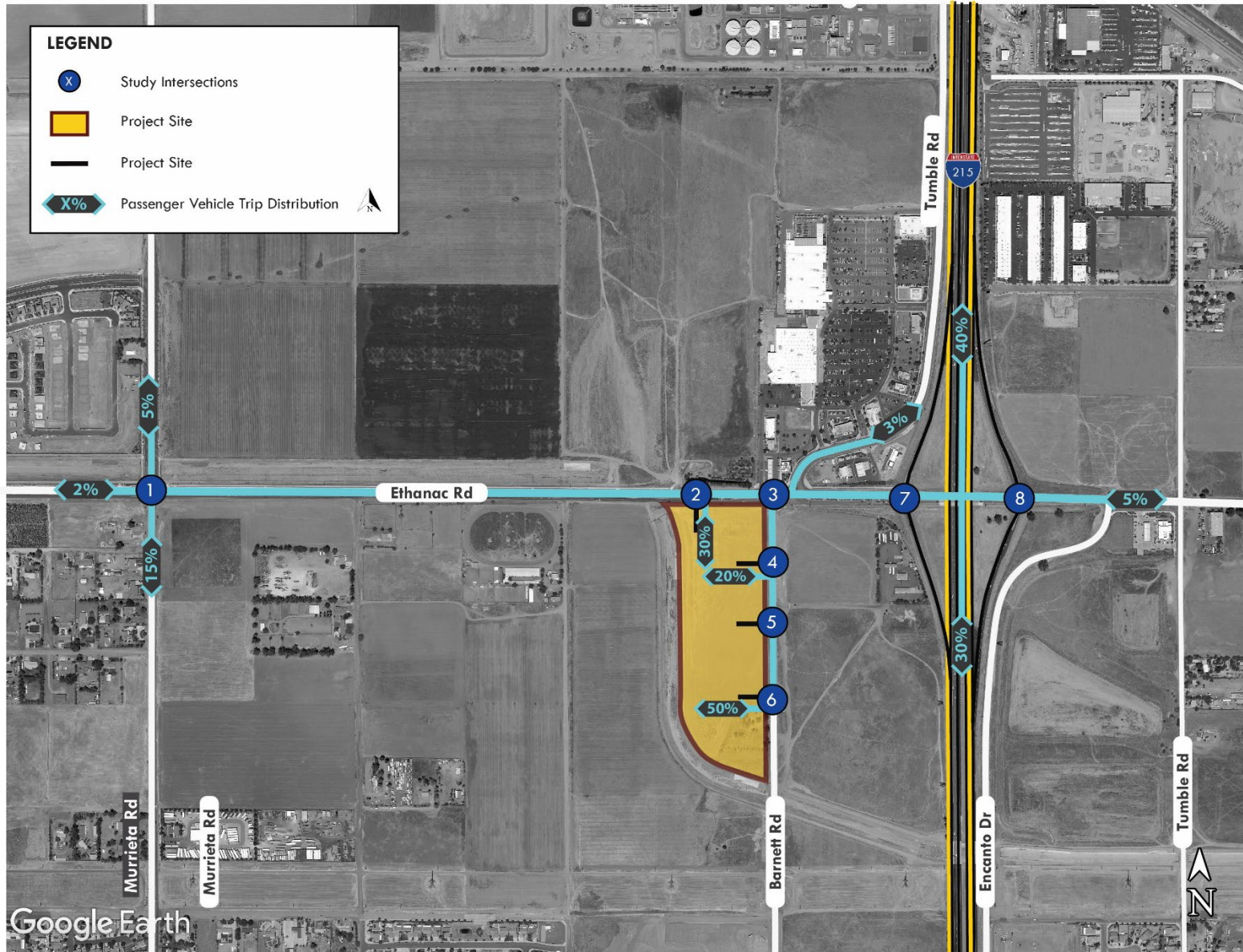
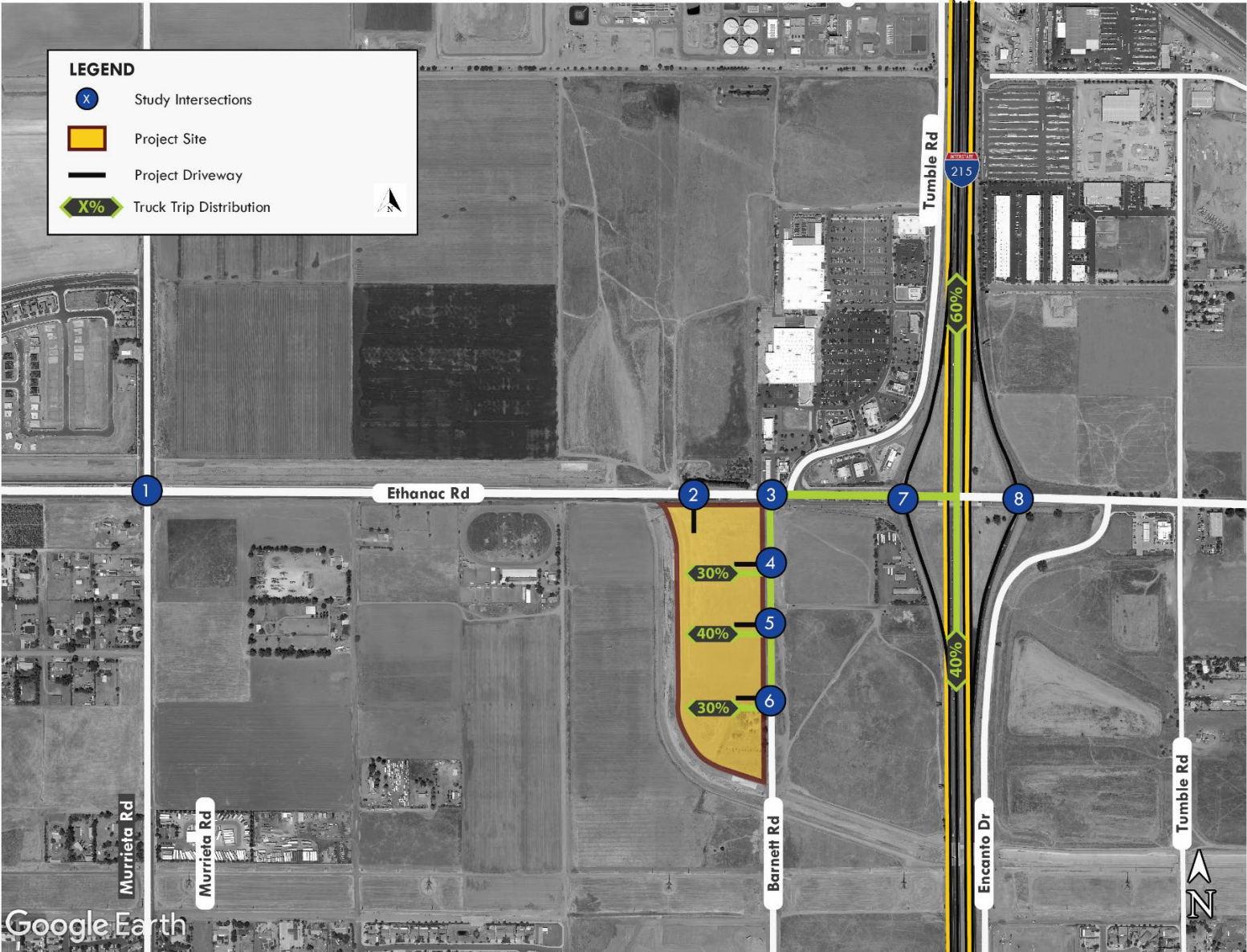


Figure 2. Truck Trip Distribution



ENVIRONMENT | PLANNING | DEVELOPMENT SOLUTIONS, INC.

Date: June 6, 2022
Prepared by: Hashem Basrawi
To: Stephan Manganiello, Contract Traffic Engineer
Rob Blough, City Traffic Engineer
Site: Ethanac and Barnett Warehouse
Subject: **PLN21-0290 Ethanac and Barnett Warehouse TIA Scoping Agreements – Response to Comments**

EPD is in receipt of the City's comments, on the scoping agreement submitted on March 22, 2022. A response to each comment is provided below and a copy of the comments is attached.

LOS Analysis Scope

Comment 1: Ethanac Rd between Murrieta Rd and Barnett Rd was included in the list of study roadway segments.

Comment 2: The trip generation table has been revised to

- Include 186,912 SF of Warehouse and Office area
- Include 65,000 SF of Manufacturing area
- Ensure rounding errors in trip generation calculations are not present
- Add a row showing the total of truck trips only (both actual and PCE)

Comment 3: East on Ethanac Rd has been reduced to 5% whereas south of Murrieta has been increased to 15 %

Comment 4: Truck percentage on I-215 was increased to 60% (northbound) and 40% (southbound).

Comment 5: Automobile and Truck trip percentages at project driveways have been added to the trip distribution figures.

Comment 6: It is premature to determine if any driveways along Barnett Rd will be signalized since the LOS analysis has not been conducted yet. Furthermore, the results of the LOS analysis will determine if signalization is required on any of the driveways along Barnett Rd.

VMT Analysis Scope

Comment 1: A VMT assessment will be conducted. This analysis will include project generated VMT and project effect on VMT estimates for the project TAZ under the following scenarios:

- Baseline conditions
- Baseline plus project
- Cumulative conditions
- Cumulative plus project

Comment 2: EPD acknowledges the comment.



CITY OF MENIFEE
MEMORANDUM
PUBLIC WORK/ENGINEERING DEPARTMENT

DATE: May 12, 2022
TO: Meghan Macias, EPD Solutions
FROM: Stephen Manganiello, Contract Traffic Engineer
Rob Blough, City Traffic Engineer
CC: Chet Robinson, Senior Engineer
SUBJECT: PLN21-0290 Ethanac and Barnett Warehouse TIA Scoping Agreements – Review 1

Traffic Engineering has completed the review for the Ethanac and Barnett Warehouse TIA Scoping Agreements for LOS analysis and VMT analysis and has the following comments.

LOS Analysis Scope

1. Please include Ethanac Rd between Murrieta Rd and Barnett Rd in the study.
2. Table 1-Trip Generation:
 - The site plan shows total manufacturing area of 65,000 square-feet and total warehouse and office area of 186,912 square-feet. However, different square footages were used for the trip generation calculation. Please revise calculations for consistency with latest site plan.
 - Please check the totals for all calculations, as some do not add up correctly (check both the In & Out totals and the total trip generation).
 - Add a row showing the total of truck trips only (both actual and PCE).
3. Figure 1-Automobile Trip Distribution: 15% east of Ethanac Rd may be high. Reduce to 5%. Increase south of Murrieta Rd to 15%.
4. Figure 2-Truck Trip Distribution: In the year 2024, Ethanac Rd east of I-215 will not be connected to SR-74. Hence trucks will not be able to travel along Ethanac Rd east of I-215. Increase truck percentage on I-215 from 45% to 60% (NB) and from 35% to 40% (SB).
5. Trip Distribution: Please provide trip percentages at each driveway.
6. Please specify if any of the driveways along Barnett Road will be signalized for safety reasons and to facilitate trucks to enter/exit the site.

VMT Analysis Scope

1. As indicated by the output provided from the WRCOG VMT screening tool, the project does not appear to screen out. Therefore, a VMT assessment is required. This analysis should include project generated VMT and project effect on VMT estimates for the project TAZ under the following scenarios:
 - Baseline conditions
 - Baseline plus project
 - Cumulative conditions
 - Cumulative plus project
2. The applicant proposes to use the WRCOG VMT calculator tool as an alternative to forecasting VMT through the RIVCOM model. Per the City's updated TIA Guidelines for VMT (January 2022), the applicant will need to demonstrate that the project is a "routine" project similar in nature to other land uses within the project TAZ to justify use of the VMT tool. The output from the VMT tool provided in the scoping agreement demonstrates the project is consistent with the projected socioeconomic data for the TAZ. Therefore, the applicant may use the WRCOG VMT calculator tool to perform the VMT assessment for the project.

Should you have any questions please contact Stephen Manganiello, Contract Traffic Engineer, at stephen.manganiello@stctrffic.com.

APPENDIX B – COUNT SHEETS

INTERSECTION TURNING MOVEMENT COUNTS

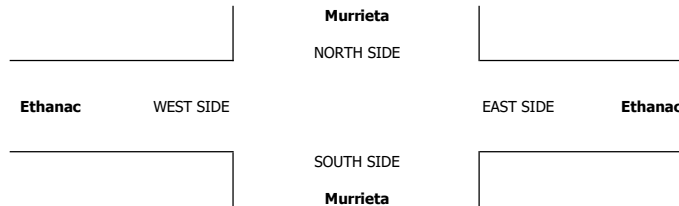
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 5/10/22 TUESDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	Perris Murrieta Ethanac	PROJECT #: SC3423	LOCATION #: 12	CONTROL: SIGNAL
-----------------------------	---	-------------------------------	----------------------	-------------------	--------------------

PCE Adjusted	NOTES:								AM	▲	
	Class	1	2	3	4	5	6	7	PM	N	E ▶
	Factor	1	1.5	2	3	2	2	2	MD	◀ W	S
								OTHER	OTHER	▼	

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			U-TURNS					
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	0.3	0.3	0.3	1	1	1	1	2	0	1	2	0	11					

AM	7:00 AM	7:15 AM	7:30 AM	7:45 AM	8:00 AM	8:15 AM	8:30 AM	8:45 AM	VOLUMES			APPROACH %	APP/DEPART	PM			
	31	26	49	18	7	1	2	186	19	19	111	8	475				
	27	34	29	15	13	1	2	181	26	13	76	5	420				
	28	33	43	24	10	2	2	159	13	21	91	14	437				
	18	12	37	11	14	9	3	214	12	36	146	17	527				
	19	16	29	8	14	4	5	152	10	30	131	22	438				
	15	20	34	8	16	7	6	133	17	25	88	5	372				
	25	18	40	13	11	7	3	96	12	32	58	11	325				
	20	24	35	6	13	5	6	91	15	30	55	13	310				
													0	0	0	0	0
	182	181	295	102	95	36	29	1,211	123	204	753	94	3,303				
	28%	28%	45%	44%	41%	15%	2%	89%	9%	19%	72%	9%					
	657	/	304	233	/	422	1,363	/	1,607	1,050	/	970	0				
	BEGIN PEAK HR 7:00 AM																
	103	105	157	67	42	13	9	739	70	88	422	44	1,858				
	28%	29%	43%	55%	34%	11%	1%	90%	9%	16%	76%	8%					
	PEAK HR FACTOR 0.868												0.871	0.895	0.697	0.881	
	365	/	157	122	/	200	818	/	963	554	/	538	0				
	4:00 PM	4:15 PM	4:30 PM	4:45 PM	5:00 PM	5:15 PM	5:30 PM	5:45 PM	VOLUMES			APPROACH %	APP/DEPART				
	31	28	26	12	23	4	1	120	34	45	148	19	488				
	31	24	38	10	28	6	5	131	32	49	153	9	514				
	23	20	45	10	35	4	0	126	30	53	118	12	474				
	18	25	32	11	26	4	4	124	24	48	136	15	467				
	15	30	35	12	25	6	1	105	25	49	118	10	429				
	26	26	33	8	22	1	3	108	30	58	138	15	467				
	25	16	26	11	25	0	2	116	27	43	113	17	419				
	20	17	40	11	28	1	1	97	27	43	133	16	433				
													0	0	0	0	0
	188	185	272	84	212	26	17	924	228	387	1,055	112	3,688				
	29%	29%	42%	26%	66%	8%	1%	79%	19%	25%	68%	7%					
	645	/	314	322	/	826	1,169	/	1,280	1,554	/	1,269	0				
	BEGIN PEAK HR 4:00 PM																
	102	97	140	43	112	18	10	500	120	194	554	55	1,942				
	30%	29%	41%	25%	65%	10%	2%	79%	19%	24%	69%	7%					
	PEAK HR FACTOR 0.918												0.880	0.939	0.950	0.945	
	338	/	161	173	/	425	629	/	682	802	/	674	0				



INTERSECTION TURNING MOVEMENT COUNTS

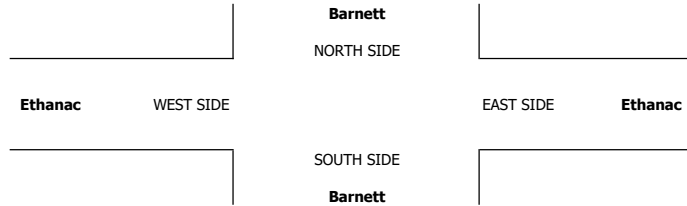
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 5/10/22 TUESDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	Perris Barnett Ethanac	PROJECT #: SC3423	LOCATION #: 13	CONTROL: SIGNAL
-----------------------------	---	------------------------------	----------------------	-------------------	--------------------

PCE Adjusted	NOTES:								AM PM MD OTHER OTHER	▲ N ▼ S	◀ W ▶ E
	Class	1	2	3	4	5	6	7			
	Factor	1	1.5	2	3	2	2				

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			U-TURNS					
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	0	1	0	X	X	0	1	2	1	1	2	0						

	AM												U-TURNS									
	7:00 AM	7:15 AM	7:30 AM	7:45 AM	8:00 AM	8:15 AM	8:30 AM	8:45 AM	VOLUMES	APPROACH %	APP/DEPART	BEGIN PEAK HR	7:00 AM	VOLUMES	APPROACH %	PEAK HR FACTOR	APP/DEPART	NB	SB	EB	WB	TTL
	14	3	6	15	1	3	4	6	50	18%	281	7:00 AM	37	21%	0.682	180						
	11	6	0	6	4	2	0	30	30	11%	/	7:00 AM	22	12%	/	72						
	42	41	25	14	22	26	13	201	201	71%	133	7:00 AM	121	67%	0.531	43						
	0	0	0	0	0	0	0	0	0	0%	96	7:00 AM	0	0%	0.531	141						
	9	7	7	20	17	12	13	96	96	100%	244	7:00 AM	43	100%	0.531	141						
	0	1	3	2	0	1	1	9	9	1%	1,636	7:00 AM	6	1%	0.938	983						
	243	224	226	256	184	169	140	1,567	1,567	96%	1,767	7:00 AM	948	96%	0.938	1,069						
	11	9	6	4	15	5	8	61	61	4%	1,195	7:00 AM	29	3%	0.807	639						
	37	21	37	18	18	15	18	183	183	15%	1,195	7:00 AM	112	18%	0.807	639						
	114	94	112	164	163	110	86	918	918	77%	1,064	7:00 AM	483	76%	0.807	563						
	4	10	15	16	17	16	6	94	94	8%	0	7:00 AM	44	7%	0.896	0						
	481	414	435	515	440	359	291	3,208	3,208		0	7:00 AM	1,844		0.896	0	0	0	0	0	0	



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

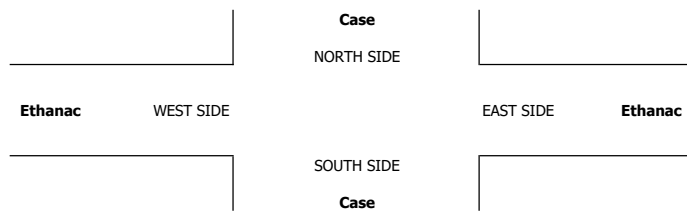
DATE: 5/10/22 TUESDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	Perris Case Ethanac	PROJECT #: LOCATION #: CONTROL:	SC3423 14 SIGNAL
-----------------------------	---	---------------------------	---------------------------------------	------------------------

PCE Adjusted	NOTES:								AM PM MD OTHER OTHER	▲ N ◀ W S ▶ E ▼
	Class	1	2	3	4	5	6	7		
	Factor	1	1.5	2	3	2	2			

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			U-TURNS				
	Case			Case			Ethanac			Ethanac			NB	SB	EB	WB	TTL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR					
	X	X	X	2	X	2	1	2	X	X	2	1					

AM	7:00 AM	0	0	0	82	0	25	22	262	0	0	129	74	592	
		7:15 AM	0	0	0	69	0	26	33	232	0	0	101	65	525
	7:30 AM	0	0	0	97	0	21	36	215	0	0	143	74	584	
	7:45 AM	0	0	0	82	0	29	50	221	0	0	170	92	642	
	8:00 AM	0	0	0	103	0	25	42	164	0	0	173	118	623	
	8:15 AM	0	0	0	111	0	23	40	155	0	0	117	105	551	
	8:30 AM	0	0	0	92	0	27	49	105	0	0	85	119	476	
	8:45 AM	0	0	0	107	0	30	42	103	0	0	77	91	449	
	VOLUMES	0	0	0	740	0	205	312	1,455	0	0	993	737	4,440	
	APPROACH %	0%	0%	0%	78%	0%	22%	18%	82%	0%	0%	57%	43%		
	APP/DEPART	0	/	1,048	945	/	0	1,766	/	2,195	1,729	/	1,197	0	
	BEGIN PEAK HR	7:30 AM													
	VOLUMES	0	0	0	392	0	97	167	754	0	0	602	388	2,399	
	APPROACH %	0%	0%	0%	80%	0%	20%	18%	82%	0%	0%	61%	39%		
	PEAK HR FACTOR	0.000			0.911			0.852			0.852			0.935	
	APP/DEPART	0	/	555	489	/	0	921	/	1,145	990	/	699	0	
PM	4:00 PM	0	0	0	121	0	54	46	121	0	0	141	109	591	
	4:15 PM	0	0	0	110	0	50	51	146	0	0	136	123	615	
	4:30 PM	0	0	0	115	0	38	45	159	0	0	141	98	595	
	4:45 PM	0	0	0	128	0	47	56	115	0	0	153	112	610	
	5:00 PM	1	0	0	97	0	43	51	116	0	0	132	119	558	
	5:15 PM	0	0	0	107	0	42	37	114	0	0	141	91	530	
	5:30 PM	0	0	0	99	0	43	43	122	0	0	125	100	531	
	5:45 PM	0	0	0	103	0	49	59	101	0	0	122	98	531	
		VOLUMES	1	0	0	878	0	364	387	993	0	0	1,090	848	4,559
		APPROACH %	100%	0%	0%	71%	0%	29%	28%	72%	0%	0%	56%	44%	
		APP/DEPART	1	/	1,235	1,242	/	0	1,380	/	1,870	1,937	/	1,455	0
		BEGIN PEAK HR	4:00 PM												
	VOLUMES	0	0	0	473	0	188	198	540	0	0	571	441	2,410	
	APPROACH %	0%	0%	0%	72%	0%	28%	27%	73%	0%	0%	56%	44%		
	PEAK HR FACTOR	0.000			0.946			0.906			0.956			0.980	
	APP/DEPART	0	/	638	661	/	0	738	/	1,013	1,012	/	759	0	

0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

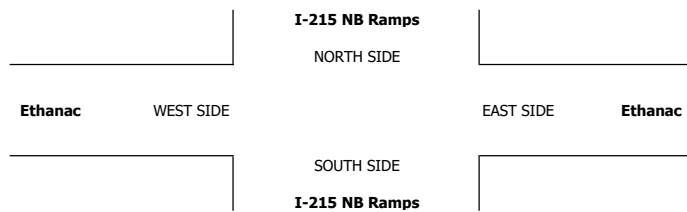
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 5/10/22 TUESDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	Perris I-215 NB Ramps Ethanac	PROJECT #: LOCATION #: CONTROL:	SC3423 16 SIGNAL
-----------------------------	---	-------------------------------------	---------------------------------------	------------------------

PCE Adjusted	NOTES:							AM PM MD OTHER OTHER	▲ N ◀ W S ▼	E ▶
	Class	1	2	3	4	5	6			
	Factor	1	1.5	2	3	2	2			

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			U-TURNS				
	I-215 NB Ramps			I-215 NB Ramps			Ethanac			Ethanac			NB	SB	EB	WB	TTL
NL 0.5	NT 0.5	NR 1	SL X	ST X	SR X	EL 1	ET 1	ER X	WL X	WT 1	WR 0						

AM																			
7:00 AM	67	0	28	0	0	0	66	163	0	0	77	41	442						0
7:15 AM	67	1	26	0	0	0	59	140	0	0	76	35	404						0
7:30 AM	78	0	35	0	0	0	46	142	0	0	101	55	456						0
7:45 AM	102	0	50	0	0	0	46	168	0	0	125	34	523						0
8:00 AM	92	0	36	0	0	0	51	124	0	0	151	43	496						0
8:15 AM	74	0	29	0	0	0	73	98	0	0	104	35	412						0
8:30 AM	72	0	41	0	0	0	39	84	0	0	91	22	347						0
8:45 AM	66	1	30	0	0	0	73	76	0	0	69	21	335						0
VOLUMES	616	2	274	0	0	0	452	992	0	0	792	285	3,412						0
APPROACH %	69%	0%	31%	0%	0%	0%	31%	69%	0%	0%	74%	26%							0
APP/DEPART	892	/	739	0	/	0	1,444	/	1,266	1,077	/	1,408	0						0
BEGIN PEAK HR	7:30 AM																		
VOLUMES	345	0	150	0	0	0	215	531	0	0	480	166	1,886						0
APPROACH %	70%	0%	30%	0%	0%	0%	29%	71%	0%	0%	74%	26%							0
PEAK HR FACTOR	0.816			0.000						0.876			0.832						
APP/DEPART	495	/	381	0	/	0	746	/	681	646	/	825	0						0
4:00 PM	129	0	69	0	0	0	59	108	0	0	84	55	503						0
4:15 PM	101	1	51	0	0	0	67	120	0	0	96	37	472						0
4:30 PM	107	0	56	0	0	0	59	145	0	0	86	35	486						0
4:45 PM	103	0	61	0	0	0	58	140	0	0	108	32	501						0
5:00 PM	110	0	48	0	0	0	51	111	0	0	88	49	456						0
5:15 PM	116	0	54	0	0	0	50	133	0	0	57	35	444						0
5:30 PM	88	0	48	0	0	0	59	146	0	0	83	42	465						0
5:45 PM	107	0	46	0	0	0	61	114	0	0	72	25	423						0
VOLUMES	858	1	432	0	0	0	464	1,015	0	0	671	309	3,748						0
APPROACH %	66%	0%	33%	0%	0%	0%	31%	69%	0%	0%	69%	31%							0
APP/DEPART	1,290	/	773	0	/	0	1,479	/	1,447	980	/	1,529	0						0
BEGIN PEAK HR	4:00 PM																		
VOLUMES	438	1	236	0	0	0	243	512	0	0	373	158	1,961						0
APPROACH %	65%	0%	35%	0%	0%	0%	32%	68%	0%	0%	70%	30%							0
PEAK HR FACTOR	0.854			0.000						0.927			0.952						
APP/DEPART	675	/	402	0	/	0	755	/	748	531	/	811	0						0



24-HOUR ROADWAY SEGMENT COUNTS (WITH FHWA CLASSIFICATION)

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Wednesday, September 21, 2022
JOB #: SC3644

CITY: Menifee
LOCATION: CLASS1 Ethanac west of Case

AM TIME	EASTBOUND													TOTAL	PM Time	EASTBOUND													TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13			1	2	3	4	5	6	7	8	9	10	11	12	13	
0:00	0	9	2	0	0	0	0	0	0	0	0	0	0	11	12:00	1	117	34	0	3	3	0	0	1	0	0	0	159	
0:15	0	5	0	0	0	0	0	0	0	0	0	0	0	5	12:15	0	120	35	1	6	2	1	0	1	0	0	0	166	
0:30	0	6	1	0	0	0	0	0	0	0	0	0	0	7	12:30	0	97	34	1	3	2	0	0	1	0	0	0	138	
0:45	0	3	1	0	1	0	0	0	0	0	0	0	0	5	12:45	1	98	20	1	8	3	0	0	0	0	0	0	131	
1:00	1	7	2	0	0	1	0	0	0	0	0	0	0	11	13:00	1	129	30	0	1	2	0	0	4	0	0	0	167	
1:15	0	1	0	0	0	0	0	0	0	0	0	0	0	1	13:15	1	115	35	0	9	4	0	0	1	0	0	0	165	
1:30	0	11	1	0	0	0	0	0	0	0	0	0	0	12	13:30	0	116	28	1	4	3	0	0	0	0	0	0	152	
1:45	0	9	2	0	0	0	0	0	0	0	0	0	0	11	13:45	0	87	38	1	6	2	0	0	1	0	0	0	135	
2:00	0	8	0	0	1	0	0	0	0	0	0	0	0	9	14:00	0	110	35	2	5	1	0	0	1	0	0	0	154	
2:15	0	10	0	0	0	0	0	0	1	0	0	0	0	11	14:15	0	92	30	0	2	3	0	0	0	0	0	0	127	
2:30	0	4	2	0	0	0	0	0	0	0	0	0	0	6	14:30	1	117	44	1	2	2	0	0	2	0	0	0	169	
2:45	0	9	1	0	0	0	0	0	0	0	0	0	0	10	14:45	2	105	47	0	6	6	1	0	0	0	0	0	167	
3:00	0	13	2	0	0	0	0	0	0	0	0	0	0	15	15:00	0	103	38	2	12	4	1	0	0	0	0	0	160	
3:15	0	15	2	0	1	0	0	1	1	0	0	0	0	20	15:15	1	133	42	2	5	3	0	0	0	0	0	0	186	
3:30	0	22	8	0	0	0	0	0	0	0	0	0	0	30	15:30	1	101	40	0	8	5	0	0	0	0	0	0	155	
3:45	0	28	7	0	1	0	0	0	0	1	0	0	0	37	15:45	0	103	45	0	7	3	0	1	0	0	0	0	159	
4:00	0	34	14	0	2	1	0	0	0	0	0	0	0	51	16:00	0	125	34	1	4	3	0	0	1	0	1	0	169	
4:15	2	38	18	1	2	2	0	0	1	0	0	0	0	64	16:15	1	95	28	2	1	1	0	0	0	0	0	0	128	
4:30	0	50	12	0	0	0	0	0	1	0	0	0	0	63	16:30	0	140	48	0	8	0	0	0	0	0	0	0	196	
4:45	2	51	18	0	4	2	0	0	0	0	0	0	0	77	16:45	0	90	37	0	2	0	0	0	0	0	0	0	129	
5:00	2	47	19	1	1	1	0	1	0	0	1	0	0	73	17:00	3	127	32	0	3	0	0	0	0	0	0	0	165	
5:15	2	68	24	1	2	0	0	0	0	0	0	0	0	97	17:15	1	116	32	1	3	0	0	0	0	0	0	0	153	
5:30	1	76	31	0	5	8	0	1	0	0	0	0	0	122	17:30	2	115	32	0	2	1	0	0	0	0	0	0	152	
5:45	2	55	49	1	11	2	0	0	0	0	0	0	0	120	17:45	0	105	35	0	7	0	0	0	0	0	0	0	147	
6:00	1	65	30	3	6	7	0	0	0	0	0	0	0	112	18:00	1	119	35	0	5	0	0	0	0	0	0	0	160	
6:15	1	84	33	3	8	3	0	0	2	0	0	0	0	134	18:15	0	102	34	0	5	0	0	0	0	0	0	0	141	
6:30	0	94	41	0	2	4	0	0	1	0	0	0	0	142	18:30	1	103	26	1	1	0	0	0	1	0	0	0	133	
6:45	1	105	43	0	5	3	0	0	0	0	0	0	0	157	18:45	0	97	25	0	5	0	0	0	0	0	0	0	127	
7:00	1	123	44	1	10	5	1	0	0	0	0	0	0	185	19:00	0	73	29	0	1	0	0	0	1	0	0	0	104	
7:15	0	188	39	1	10	0	0	0	0	0	0	0	0	238	19:15	1	74	13	0	0	0	0	0	1	0	0	0	89	
7:30	0	254	50	1	9	7	1	0	2	0	0	0	0	324	19:30	2	72	20	0	1	0	0	0	0	0	0	0	95	
7:45	0	169	38	4	6	1	1	0	1	0	0	0	0	220	19:45	0	61	18	0	1	0	0	0	0	0	0	0	80	
8:00	0	162	57	0	11	2	0	0	1	0	0	0	0	233	20:00	0	53	9	1	0	0	0	0	0	0	0	0	63	
8:15	0	132	28	0	6	2	0	0	1	0	0	0	0	169	20:15	1	56	16	0	1	0	0	0	0	0	0	0	74	
8:30	0	92	32	0	7	2	0	0	1	0	0	0	0	134	20:30	0	46	4	0	0	0	0	0	0	0	0	0	50	
8:45	0	94	27	0	2	4	1	0	0	0	0	0	0	128	20:45	0	43	13	0	2	0	0	0	1	0	0	0	59	
9:00	0	94	29	0	5	1	0	0	2	0	0	0	0	131	21:00	1	42	8	0	2	0	0	0	0	0	0	0	53	
9:15	3	97	37	0	4	1	1	0	1	0	0	0	0	144	21:15	1	30	8	0	0	0	0	0	0	0	0	0	39	
9:30	1	95	35	0	6	2	1	0	0	0	0	0	0	140	21:30	0	43	4	0	0	0	0	0	0	0	0	0	47	
9:45	0	77	22	1	6	0	1	0	2	0	0	0	0	109	21:45	0	31	7	0	0	0	0	0	0	0	0	0	38	
10:00	0	103	35	0	1	1	1	0	3	0	0	0	0	144	22:00	0	24	5	0	6	0	0	0	0	0	0	0	35	
10:15	1	89	25	0	3	3	0	0	0	0	0	0	0	121	22:15	2	17	7	0	1	0	0	0	0	0	0	0	27	
10:30	0	97	32	0	3	5	0	1	1	0	0	0	0	139	22:30	0	24	3	0	2	0	0	0	0	0	0	0	29	
10:45	0	104	24	1	4	0	0	0	0	0	0	0	0	133	22:45	1	23	2	0	0	0	0	0	0	0	0	0	26	
11:00	0	101	30	0	5	7	0	0	1	0	0	0	0	144	23:00	0	12	3	0	4	2	0	0	0	0	0	0	21	
11:15	0	118	25	1	2	1	0	0	2	0	0	0	0	149	23:15	0	14	2	0	2	0	0	0	0	0	0	0	18	
11:30	1	116	41	0	7	2	0	1	2	0	0	0	0	170	23:30	0	13	2	0	0	0	0	0	1	0	0	0	15	
11:45	1	106	26	0	4	4	1	0	3	0	0	0	0	145	23:45	0	15	6	0	0	0	0	0	0	0	0	0	22	
TOTAL	23	3,338	1,039	20	163	84	9	5	30	1	1	0	0	4,713	TOTAL	27	3,843	1,152	18	156	55	3	1	18	0	1	0	0	5,274

AM PEAK HOUR 7:15 AM
AM PEAK VOLUME 1,015

PM PEAK HOUR 2:30 PM
PM PEAK VOLUME 682

CLASS 1	Class 1 — Motorcycles	CLASS 8	3 to 4 Axles, Single Trailer
CLASS 2	Passenger Cars	CLASS 9	5 Axles, Single Trailer
CLASS 3	2 Axles, 4-Tire Single Units	CLASS 10	6 or More Axles, Single Trailer
CLASS 4	Buses	CLASS 11	5 or Less Axles, Multi-Trailers
CLASS 5	2 Axles, 6-Tire Single Units	CLASS 12	6 Axles, Multi-Trailers
CLASS 6	3 Axles, Single Unit	CLASS 13	7 or More Axles, Multi-Trailers
CLASS 7	4 or More Axles, Single Unit		

TOTAL: AM+PM	50	7,181	2,191	38	319	139	12	6	48	1	2	0	0	9,987
% OF TOTAL	0.5%	71.9%	21.9%	0.4%	3.2%	1.4%	0.1%	0.1%	0.5%	0.0%	0.0%	0.0%	0.0%	100.0%

Class	1	2	3	4	5	6	7	8	9	10	11	12	13
--------------	----------	----------	----------	----------	----------	----------	----------	----------	----------	-----------	-----------	-----------	-----------

TOTAL: ALL	87	13,264	4,056	68	650	272	33	17	109	3	3	0	0	18,562
% OF TOTAL	0.9%	132.8%	40.6%	0.7%	6.5%	2.7%	0.3%	0.2%	1.1%	0.0%	0.0%	0.0%	0.0%	100.0%

24-HOUR ROADWAY SEGMENT COUNTS (WITH FHWA CLASSIFICATION)

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Wednesday, September 21, 2022
JOB #: SC3644

CITY: Menifee
LOCATION: CLASS1 Ethanac west of Case

AM TIME	WESTBOUND													TOTAL	PM Time	WESTBOUND													TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13			1	2	3	4	5	6	7	8	9	10	11	12	13	
0:00	0	26	1	0	0	0	0	0	0	0	0	0	0	27	12:00	1	68	25	0	3	1	0	0	2	0	0	0	100	
0:15	0	13	1	0	0	0	0	0	0	0	0	0	0	14	12:15	0	92	25	1	5	1	0	0	2	0	0	0	126	
0:30	0	10	1	0	0	0	0	0	0	1	0	0	0	12	12:30	0	121	27	0	7	4	0	1	0	0	0	160		
0:45	0	8	3	0	0	0	0	0	0	0	0	0	0	11	12:45	1	91	30	0	4	4	0	0	1	0	0	0	131	
1:00	0	7	1	0	1	0	0	0	0	1	0	0	0	10	13:00	0	115	36	2	6	2	0	1	3	0	0	0	165	
1:15	0	10	1	0	0	0	0	0	0	0	0	0	0	11	13:15	0	88	16	0	7	3	0	0	2	0	0	0	116	
1:30	0	8	0	0	0	1	0	0	0	1	0	0	0	10	13:30	1	109	28	1	4	1	2	0	1	0	0	0	147	
1:45	0	15	1	0	1	0	0	0	0	0	0	0	0	17	13:45	0	116	28	0	3	4	0	0	3	0	0	0	154	
2:00	0	8	2	0	0	0	0	0	0	3	0	0	0	13	14:00	1	90	20	0	7	7	0	0	1	0	0	0	126	
2:15	0	8	0	0	0	0	0	0	0	0	0	0	0	8	14:15	1	83	37	0	5	2	0	1	0	0	1	0	130	
2:30	0	11	1	0	1	0	0	0	0	0	0	0	0	13	14:30	1	88	29	1	5	2	0	0	0	0	0	0	126	
2:45	0	3	1	0	0	0	0	0	0	0	0	0	0	4	14:45	0	107	33	0	11	3	0	0	1	0	0	0	155	
3:00	0	8	2	0	0	0	0	0	0	0	0	0	0	10	15:00	0	110	32	0	5	2	0	0	0	0	0	0	149	
3:15	0	14	3	0	0	0	0	0	0	0	0	0	0	17	15:15	1	98	37	0	5	6	0	1	1	0	0	0	149	
3:30	0	10	4	0	1	0	0	0	0	0	0	0	0	15	15:30	1	101	44	0	7	1	0	0	1	0	0	0	155	
3:45	0	11	2	0	0	0	0	0	0	0	0	0	0	13	15:45	1	117	45	1	10	3	0	0	0	0	0	0	177	
4:00	0	12	6	0	0	0	0	0	0	0	0	0	0	18	16:00	0	145	39	2	6	1	0	0	0	0	0	0	193	
4:15	0	15	2	0	2	0	0	0	0	0	0	0	0	19	16:15	1	137	41	1	4	2	1	0	1	0	0	0	188	
4:30	1	12	2	0	0	0	0	0	0	0	0	0	0	15	16:30	0	140	34	0	4	0	0	0	0	0	0	0	178	
4:45	0	13	8	0	2	3	0	0	0	0	0	0	0	26	16:45	0	116	41	0	4	1	0	0	2	0	0	0	164	
5:00	1	21	5	0	4	0	0	0	0	0	0	0	0	31	17:00	2	110	55	1	2	1	0	0	0	0	0	0	171	
5:15	0	24	8	1	1	0	0	0	0	0	0	0	0	34	17:15	2	146	37	2	7	2	0	0	0	0	0	0	196	
5:30	2	25	20	0	2	3	0	0	2	0	0	0	0	54	17:30	0	127	36	0	4	1	0	0	0	0	0	0	168	
5:45	1	37	26	0	5	0	0	0	0	0	0	0	0	69	17:45	2	110	33	2	5	4	0	0	0	0	0	0	156	
6:00	0	25	25	0	6	0	0	0	0	0	0	0	0	56	18:00	0	108	23	0	2	1	0	0	1	0	0	0	135	
6:15	0	39	21	0	7	1	0	1	4	0	0	0	0	73	18:15	2	114	24	0	1	1	4	0	0	0	0	0	146	
6:30	0	48	32	0	6	2	1	0	1	0	0	0	0	90	18:30	0	100	34	0	3	2	0	0	0	0	0	0	139	
6:45	0	63	31	1	7	3	1	1	0	0	0	0	0	107	18:45	0	114	29	0	3	3	0	0	0	0	0	0	149	
7:00	1	58	23	0	10	1	1	0	0	0	0	0	0	94	19:00	0	94	32	0	2	1	0	0	0	0	0	0	129	
7:15	0	51	18	0	11	1	1	0	0	0	0	0	0	82	19:15	0	109	14	0	3	3	0	0	0	0	0	0	129	
7:30	0	63	30	2	12	1	1	0	0	1	0	0	0	110	19:30	0	99	22	0	2	2	0	0	2	0	0	0	127	
7:45	0	105	29	0	10	1	1	0	1	0	0	0	0	147	19:45	0	75	22	1	2	3	0	0	0	0	0	0	103	
8:00	1	99	23	0	7	1	0	0	1	0	0	0	0	132	20:00	1	62	23	1	1	4	0	0	0	0	0	0	92	
8:15	0	117	31	0	11	3	0	0	1	0	0	0	0	163	20:15	0	76	16	0	2	0	0	0	0	0	0	0	94	
8:30	0	89	25	1	7	2	1	0	1	0	0	0	0	126	20:30	0	66	22	0	1	0	0	0	0	0	0	0	89	
8:45	1	61	18	1	9	1	0	0	1	0	0	0	0	92	20:45	1	77	14	0	1	1	0	0	0	0	0	0	94	
9:00	0	64	18	1	4	4	0	0	1	0	0	0	0	92	21:00	0	72	17	2	1	2	0	0	1	0	0	0	95	
9:15	0	64	23	0	6	4	0	0	1	0	0	0	0	98	21:15	0	78	19	2	2	0	0	0	0	0	0	0	101	
9:30	0	52	37	0	4	0	1	1	0	0	0	0	0	95	21:30	0	42	7	0	0	0	0	0	0	0	0	0	49	
9:45	2	72	22	0	5	2	1	0	3	0	0	0	0	107	21:45	1	49	9	0	1	0	0	0	0	0	0	0	60	
10:00	0	57	26	1	5	4	0	0	1	0	0	0	0	94	22:00	1	44	8	0	1	0	0	0	0	0	0	0	54	
10:15	0	50	22	0	3	3	0	1	1	0	0	0	0	80	22:15	0	30	6	0	0	0	0	0	2	0	0	0	38	
10:30	0	71	22	0	2	0	1	1	1	0	0	0	0	98	22:30	0	41	6	1	0	0	0	0	0	0	0	0	48	
10:45	1	58	27	0	5	2	2	0	2	0	0	0	0	97	22:45	1	30	6	0	0	0	0	0	1	0	0	0	38	
11:00	0	63	12	0	3	5	1	2	0	1	0	0	0	87	23:00	0	26	6	0	1	0	0	0	0	0	0	0	33	
11:15	0	66	29	0	3	0	0	0	1	0	0	0	0	99	23:15	0	30	7	0	1	0	0	0	0	0	0	0	38	
11:30	1	66	19	1	2	4	0	0	2	0	0	0	0	95	23:30	1	21	3	0	0	0	0	0	0	0	0	0	25	
11:45	0	63	21	0	5	0	1	0	2	0	0	0	0	92	23:45	1	8	3	0	1	0	0	0	0	0	0	0	13	
TOTAL	12	1,893	685	9	170	52	14	7	33	2	0	0	0	2,877	TOTAL	25	4,190	1,180	21	161	81	7	4	28	0	1	0	0	5,698

AM PEAK HOUR 7:45 AM
AM PEAK VOLUME 568

PM PEAK HOUR 3:45 PM
PM PEAK VOLUME 736

CLASS 1	Class 1 — Motorcycles	CLASS 8	3 to 4 Axles, Single Trailer
CLASS 2	Passenger Cars	CLASS 9	5 Axles, Single Trailer
CLASS 3	2 Axles, 4-Tire Single Units	CLASS 10	6 or More Axles, Single Trailer
CLASS 4	Buses	CLASS 11	5 or Less Axles, Multi-Trailers
CLASS 5	2 Axles, 6-Tire Single Units	CLASS 12	6 Axles, Multi-Trailers
CLASS 6	3 Axles, Single Unit	CLASS 13	7 or More Axles, Multi-Trailers
CLASS 7	4 or More Axles, Single Unit		

TOTAL: AM+PM	37	6,083	1,865	30	331	133	21	11	61	2	1	0	0	8,575
% OF TOTAL	0.4%	70.9%	21.7%	0.3%	3.9%	1.6%	0.2%	0.1%	0.7%	0.0%	0.0%	0.0%	0.0%	100.0%

Class **1** **2** **3** **4** **5** **6** **7** **8** **9** **10** **11** **12** **13**

24-HOUR ROADWAY SEGMENT COUNTS (WITH FHWA CLASSIFICATION)

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Wednesday, September 21, 2022
JOB #: SC3644

CITY: Menifee
LOCATION: CLASS2 Ethanac east of Case

AM TIME	EASTBOUND													TOTAL	PM Time	EASTBOUND													TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13			1	2	3	4	5	6	7	8	9	10	11	12	13	
0:00	0	16	4	0	0	0	0	0	1	0	0	0	0	21	12:00	2	168	38	1	6	3	0	0	3	0	0	0	221	
0:15	0	15	2	0	0	0	0	0	0	0	0	0	0	17	12:15	0	162	45	2	7	4	0	0	2	0	0	0	222	
0:30	0	8	3	0	0	0	0	0	0	1	0	0	0	12	12:30	0	152	45	0	4	2	0	1	1	0	0	0	205	
0:45	0	9	1	0	1	0	0	0	0	0	0	0	0	11	12:45	1	136	35	3	7	5	0	0	0	0	0	0	187	
1:00	1	9	1	0	0	0	0	0	0	0	0	0	0	11	13:00	1	177	39	0	4	3	0	1	4	0	0	0	229	
1:15	0	10	4	0	0	0	0	0	0	0	0	0	0	14	13:15	0	132	43	1	9	4	0	0	1	0	0	0	190	
1:30	0	17	2	0	0	0	0	0	2	0	0	0	0	21	13:30	1	156	43	2	7	5	0	0	0	0	0	0	214	
1:45	0	17	2	0	0	1	0	0	1	0	0	0	0	21	13:45	0	130	52	1	9	2	0	0	2	0	0	0	196	
2:00	0	12	0	0	0	0	0	0	1	0	0	0	0	13	14:00	0	137	47	1	11	3	0	0	2	0	0	0	201	
2:15	0	14	1	0	0	0	0	0	2	0	0	0	0	17	14:15	0	162	45	1	6	4	0	0	2	0	1	0	221	
2:30	0	11	1	0	0	0	0	0	0	0	0	0	0	12	14:30	1	181	60	1	3	3	0	0	3	0	0	0	252	
2:45	0	10	1	0	0	0	0	0	0	0	0	0	0	11	14:45	1	155	52	0	9	8	0	0	2	0	0	0	227	
3:00	0	20	2	0	0	0	0	0	0	0	0	0	0	22	15:00	0	160	60	2	21	3	0	0	0	0	0	0	246	
3:15	0	16	3	0	0	1	0	1	1	0	0	0	0	22	15:15	1	173	61	2	6	3	0	0	1	0	0	0	247	
3:30	0	29	5	0	1	0	0	0	0	0	0	0	0	35	15:30	1	173	56	0	10	5	0	0	0	0	1	0	246	
3:45	1	36	7	0	1	0	0	0	2	0	0	0	0	47	15:45	0	140	59	0	6	4	0	1	0	0	2	0	212	
4:00	0	38	11	0	2	0	0	0	1	0	0	0	0	52	16:00	0	163	46	0	9	6	0	0	3	0	0	0	227	
4:15	2	51	15	1	3	2	0	0	4	0	0	0	0	78	16:15	1	146	40	4	1	1	0	0	2	0	0	0	195	
4:30	0	59	18	0	2	1	0	0	2	0	1	0	0	83	16:30	0	175	68	1	5	0	0	0	0	0	0	0	249	
4:45	2	55	25	0	3	1	0	0	0	0	0	0	0	86	16:45	0	134	37	0	7	0	0	0	2	0	0	0	180	
5:00	1	50	26	1	7	2	0	0	4	0	0	0	0	91	17:00	2	162	42	0	4	0	0	0	0	0	0	0	210	
5:15	1	82	27	1	3	1	0	1	2	0	1	0	0	119	17:15	1	158	40	0	7	1	0	0	0	0	0	0	207	
5:30	1	104	32	0	9	9	0	0	0	0	0	0	0	155	17:30	1	174	30	1	5	0	0	0	1	0	1	0	213	
5:45	2	63	39	1	16	2	0	0	2	0	0	0	0	125	17:45	0	134	41	0	9	0	0	0	0	0	0	0	184	
6:00	1	77	50	2	5	8	0	0	0	0	0	0	0	143	18:00	0	147	39	0	7	1	0	0	0	0	0	0	194	
6:15	1	99	41	3	11	4	0	1	3	0	0	0	0	163	18:15	1	149	44	0	7	0	0	0	0	0	0	0	201	
6:30	0	110	44	0	12	4	0	0	5	0	0	0	0	175	18:30	0	158	30	0	3	0	0	0	1	0	0	0	192	
6:45	1	118	62	2	16	5	0	0	2	0	0	0	0	206	18:45	0	125	37	0	8	0	0	0	2	0	0	0	172	
7:00	1	151	55	1	14	8	0	0	3	0	0	0	0	233	19:00	1	103	36	1	1	1	0	0	0	0	0	0	143	
7:15	0	198	62	1	25	3	0	1	1	0	0	0	0	291	19:15	0	107	28	0	2	0	0	0	1	0	0	0	138	
7:30	0	273	63	2	19	7	0	0	3	0	0	0	0	367	19:30	2	110	24	0	4	1	0	0	2	0	0	0	143	
7:45	0	177	48	3	12	4	0	1	3	0	1	0	0	249	19:45	0	117	23	0	5	0	0	0	0	0	0	0	145	
8:00	0	176	53	2	13	2	0	0	3	0	0	0	0	249	20:00	0	98	16	0	1	0	0	0	0	0	0	0	115	
8:15	0	148	46	1	17	2	0	0	2	0	0	0	0	216	20:15	1	79	19	0	1	0	0	0	0	0	0	0	100	
8:30	0	123	54	0	8	2	0	1	1	0	0	0	0	189	20:30	0	80	15	0	0	0	0	0	1	0	0	0	96	
8:45	0	120	44	1	9	6	0	0	0	0	0	0	0	180	20:45	0	73	12	0	2	0	0	0	0	0	0	0	87	
9:00	0	119	52	0	10	1	0	0	3	0	0	0	0	185	21:00	1	69	11	0	2	0	0	0	0	0	0	0	83	
9:15	4	134	51	1	2	1	0	0	2	0	0	0	0	195	21:15	0	59	8	0	0	0	0	0	1	0	0	0	68	
9:30	1	121	39	0	8	5	0	0	1	0	0	0	0	175	21:30	1	54	7	0	1	0	0	0	0	0	0	0	63	
9:45	0	101	24	1	9	1	0	0	3	0	0	0	0	139	21:45	0	59	9	0	1	0	0	0	0	0	0	0	69	
10:00	0	132	57	0	7	1	0	1	5	0	0	0	0	203	22:00	0	43	9	0	6	0	0	0	2	0	0	0	60	
10:15	1	107	38	0	5	4	0	0	4	0	0	0	0	159	22:15	2	35	9	0	1	0	0	0	3	0	0	0	50	
10:30	0	153	47	1	6	6	0	1	3	0	0	0	0	217	22:30	1	39	5	0	3	0	0	0	1	0	0	0	49	
10:45	0	131	45	0	1	1	0	0	1	0	0	0	0	179	22:45	0	37	2	0	1	0	0	0	3	0	0	0	43	
11:00	0	127	43	1	12	5	0	0	4	0	0	0	0	192	23:00	0	26	1	0	5	2	0	0	1	0	0	0	35	
11:15	0	137	45	1	6	2	0	1	2	0	0	0	0	194	23:15	0	29	4	0	4	0	0	0	0	0	0	0	37	
11:30	1	142	57	1	7	3	0	1	4	0	0	0	0	216	23:30	0	27	2	0	0	0	0	0	1	0	0	0	30	
11:45	2	143	43	3	6	7	0	0	4	0	0	0	0	208	23:45	0	19	4	0	0	0	0	0	2	0	0	0	25	
TOTAL	24	4,068	1,395	31	288	112	0	10	88	0	3	0	0	6,019	TOTAL	24	5,582	1,518	24	237	74	0	3	52	0	5	0	0	7,519

AM PEAK HOUR 7:15 AM
AM PEAK VOLUME 1,156

PM PEAK HOUR 2:30 PM
PM PEAK VOLUME 972

CLASS 1	Class 1 — Motorcycles	CLASS 8	3 to 4 Axles, Single Trailer
CLASS 2	Passenger Cars	CLASS 9	5 Axles, Single Trailer
CLASS 3	2 Axles, 4-Tire Single Units	CLASS 10	6 or More Axles, Single Trailer
CLASS 4	Buses	CLASS 11	5 or Less Axles, Multi-Trailers
CLASS 5	2 Axles, 6-Tire Single Units	CLASS 12	6 Axles, Multi-Trailers
CLASS 6	3 Axles, Single Unit	CLASS 13	7 or More Axles, Multi-Trailers
CLASS 7	4 or More Axles, Single Unit		

TOTAL: AM+PM	48	9,650	2,913	55	525	186	0	13	140	0	8	0	0	13,538
% OF TOTAL	0.4%	71.3%	21.5%	0.4%	3.9%	1.4%	0.0%	0.1%	1.0%	0.0%	0.1%	0.0%	0.0%	100.0%

Class	1	2	3	4	5	6	7	8	9	10	11	12	13
--------------	----------	----------	----------	----------	----------	----------	----------	----------	----------	-----------	-----------	-----------	-----------

TOTAL: ALL	82	18,844	5,338	102	966	358	0	28	272	2	14	0	0	26,006
% OF TOTAL	0.6%	139.2%	39.4%	0.8%	7.1%	2.6%	0.0%	0.2%	2.0%	0.0%	0.1%	0.0%	0.0%	100.0%

24-HOUR ROADWAY SEGMENT COUNTS (WITH FHWA CLASSIFICATION)

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Wednesday, September 21, 2022
JOB #: SC3644

CITY: Menifee
LOCATION: CLASS2 Ethanac east of Case

AM TIME	WESTBOUND													TOTAL	PM Time	WESTBOUND													TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13			1	2	3	4	5	6	7	8	9	10	11	12	13	
0:00	0	32	3	0	0	0	0	0	0	0	0	0	0	35	12:00	1	116	36	0	6	1	0	0	4	0	0	0	164	
0:15	0	16	2	0	0	1	0	0	2	0	0	0	0	21	12:15	0	151	38	3	4	1	0	0	2	0	0	0	199	
0:30	0	10	0	0	0	0	0	0	1	0	0	0	0	11	12:30	0	179	39	1	5	5	0	1	1	0	0	0	231	
0:45	0	19	3	0	0	0	0	0	0	0	0	0	0	22	12:45	0	149	37	0	3	5	0	0	2	0	0	0	196	
1:00	0	13	2	0	1	0	0	0	1	0	0	0	0	17	13:00	2	158	52	2	6	4	0	1	3	0	0	0	228	
1:15	0	14	2	0	0	0	0	0	0	0	0	0	0	16	13:15	0	135	32	0	10	2	0	0	1	0	0	0	180	
1:30	0	8	0	0	1	1	0	0	1	0	0	0	0	11	13:30	1	175	42	2	5	6	0	0	0	0	0	0	231	
1:45	0	17	2	0	1	0	0	0	0	0	0	0	0	20	13:45	0	174	43	0	5	5	0	0	7	0	0	0	234	
2:00	0	13	2	0	0	0	0	0	0	3	0	0	0	18	14:00	2	118	40	0	6	8	0	0	2	0	0	0	176	
2:15	0	13	0	0	0	0	0	0	0	0	0	0	0	13	14:15	0	132	52	0	3	2	0	0	1	1	1	0	192	
2:30	0	15	3	0	1	1	0	0	0	0	0	0	0	20	14:30	2	122	46	1	5	2	0	0	0	0	0	0	178	
2:45	0	8	2	0	0	1	0	0	0	0	0	0	0	11	14:45	0	158	41	1	13	5	0	0	2	0	0	0	220	
3:00	0	10	0	0	0	0	0	0	1	0	0	0	0	11	15:00	0	171	42	0	4	3	0	0	1	0	0	0	221	
3:15	0	27	0	0	1	0	0	0	1	0	0	0	0	29	15:15	1	165	43	0	8	2	0	1	2	0	0	0	222	
3:30	0	13	3	0	1	1	0	0	1	0	0	0	0	19	15:30	1	156	42	1	8	1	0	0	2	0	3	0	214	
3:45	0	24	2	0	0	1	0	0	0	0	0	0	0	27	15:45	2	178	57	1	13	3	0	1	0	0	0	0	255	
4:00	0	18	7	0	0	0	0	0	1	0	0	0	0	26	16:00	0	193	50	2	4	1	0	0	0	0	0	0	250	
4:15	0	38	2	0	3	0	0	0	1	0	1	0	0	45	16:15	1	175	58	1	3	3	0	0	2	0	0	0	243	
4:30	1	29	3	0	1	1	0	0	0	0	0	0	0	35	16:30	1	178	46	0	5	0	0	0	1	0	0	0	231	
4:45	0	40	11	0	3	2	0	0	1	0	0	0	0	57	16:45	0	158	51	0	3	2	0	0	2	0	0	0	216	
5:00	0	43	11	0	6	0	0	1	2	0	0	0	0	63	17:00	3	155	55	2	3	0	0	0	0	0	0	0	218	
5:15	0	43	12	0	4	0	0	0	0	0	0	0	0	59	17:15	2	209	33	2	9	2	0	0	0	0	1	0	0	258
5:30	0	51	22	0	6	1	0	0	3	0	0	0	0	83	17:30	0	180	39	0	5	1	0	0	0	0	0	0	225	
5:45	0	67	29	0	7	0	0	0	1	0	0	0	0	104	17:45	1	152	40	2	6	4	0	0	1	0	0	0	206	
6:00	0	50	24	2	12	1	0	0	1	0	0	0	0	90	18:00	0	158	37	0	4	1	0	0	3	0	0	0	203	
6:15	0	59	40	0	13	2	0	1	5	0	0	0	0	120	18:15	3	159	25	1	2	5	0	0	2	0	0	0	197	
6:30	0	76	47	1	15	4	0	0	1	0	0	0	0	144	18:30	0	151	39	0	5	1	0	0	0	0	0	0	196	
6:45	0	97	40	0	13	5	0	1	3	0	0	0	0	159	18:45	1	148	35	0	4	3	0	0	0	0	0	0	191	
7:00	0	95	30	1	25	3	0	1	1	0	0	0	0	156	19:00	0	146	37	0	0	2	0	0	0	0	0	0	185	
7:15	0	79	31	3	14	2	0	0	1	0	0	0	0	130	19:15	0	151	18	1	3	3	0	0	1	0	0	0	177	
7:30	0	113	28	2	10	2	0	0	1	0	0	0	0	156	19:30	0	129	20	0	2	2	0	0	1	0	0	0	154	
7:45	0	145	33	0	13	2	0	0	2	0	0	0	0	195	19:45	0	111	20	1	3	2	0	0	2	0	0	0	139	
8:00	0	146	37	0	11	0	0	1	2	0	0	0	0	197	20:00	0	86	13	1	1	4	0	0	1	0	0	0	106	
8:15	0	157	51	0	14	2	0	0	1	0	0	0	0	225	20:15	0	101	13	0	3	0	0	0	0	0	0	0	117	
8:30	0	167	43	1	8	3	0	0	2	0	0	0	0	224	20:30	0	93	12	0	1	0	0	0	0	0	0	0	106	
8:45	0	125	36	1	13	1	0	0	2	0	0	0	0	178	20:45	0	103	13	0	2	1	0	0	0	0	0	0	119	
9:00	0	106	43	1	7	5	0	1	3	0	0	0	0	166	21:00	0	100	4	2	0	3	0	0	2	0	0	0	111	
9:15	0	99	28	0	8	3	0	0	2	0	0	0	0	140	21:15	0	105	12	2	2	1	0	0	2	0	0	0	124	
9:30	0	96	47	1	3	1	0	1	3	0	0	0	0	152	21:30	0	62	6	0	1	0	0	0	1	0	0	0	70	
9:45	1	116	42	1	9	3	0	0	2	0	0	0	0	174	21:45	1	76	5	0	0	0	0	0	0	0	0	0	82	
10:00	0	111	40	1	5	5	0	0	3	0	0	0	0	165	22:00	1	65	5	0	2	0	0	0	0	0	0	0	73	
10:15	0	83	30	0	4	3	0	0	2	0	0	0	0	122	22:15	0	45	5	0	0	0	0	0	4	0	0	0	54	
10:30	0	114	42	0	4	2	0	0	1	1	0	0	0	164	22:30	0	53	4	1	0	0	0	0	2	0	0	0	60	
10:45	2	115	38	0	3	5	0	0	3	0	0	0	0	166	22:45	0	38	5	0	0	0	0	0	1	0	0	0	44	
11:00	1	113	38	1	4	5	0	2	2	0	0	0	0	166	23:00	0	28	7	0	3	0	0	0	1	0	0	0	39	
11:15	0	115	48	1	6	1	0	1	2	0	0	0	0	174	23:15	0	40	3	0	1	0	0	0	1	0	0	0	45	
11:30	1	108	38	0	4	4	0	1	4	0	0	0	0	160	23:30	1	25	4	0	0	0	0	0	1	0	0	0	31	
11:45	0	100	29	0	5	2	0	0	2	0	0	0	0	138	23:45	1	18	3	0	1	0	0	0	0	0	0	0	23	
TOTAL	6	3,166	1,026	17	259	76	0	11	71	1	1	0	0	4,634	TOTAL	28	6,028	1,399	30	182	96	0	4	61	1	5	0	0	7,834
AM PEAK HOUR														7:45 AM	PM PEAK HOUR														3:45 PM
AM PEAK VOLUME														841	PM PEAK VOLUME														979

CLASS 1	Class 1 — Motorcycles	CLASS 8	3 to 4 Axles, Single Trailer
CLASS 2	Passenger Cars	CLASS 9	5 Axles, Single Trailer
CLASS 3	2 Axles, 4-Tire Single Units	CLASS 10	6 or More Axles, Single Trailer
CLASS 4	Buses	CLASS 11	5 or Less Axles, Multi-Trailers
CLASS 5	2 Axles, 6-Tire Single Units	CLASS 12	6 Axles, Multi-Trailers
CLASS 6	3 Axles, Single Unit	CLASS 13	7 or More Axles, Multi-Trailers
CLASS 7	4 or More Axles, Single Unit		

TOTAL: AM+PM	34	9,194	2,425	47	441	172	0	15	132	2	6	0	0	12,468
% OF TOTAL	0.3%	73.7%	19.4%	0.4%	3.5%	1.4%	0.0%	0.1%	1.1%	0.0%	0.0%	0.0%	0.0%	100.0%

Class	1	2	3	4	5	6	7	8	9	10	11	12	13
--------------	----------	----------	----------	----------	----------	----------	----------	----------	----------	-----------	-----------	-----------	-----------

APPENDIX C – ETHANAC AND BARNETT TIMING SHEET

INTERSECTION: ETHANAC ROAD AND BARNETT ROAD/CASE ROAD

QuicNet
System
Parameters

Group Assignment:
Field Master Assignment:
System Reference Number:
Communications Channel:
Drop Address:
Area Number:
Area Address:

N/S Street Name: **BARNETT RD./CASE RD.**
E/W Street Name: **ETHANAC RD.**

Last QuicNet Database Change:

Notes:

Field Change Record					
Change	By	Date	Change	By	Date

Excl Ped Assignment	_____	Note: Set the Exclusive Ped Outputs on the "Outputs / General" page				
Exclusive Walk	0					
Exclusive FDW	0					
All Red Clear	0.0					
Exclusive Ped Phase		<table border="1"> <tr><td>Walk Output</td><td> </td></tr> <tr><td>Don't Walk Output</td><td> </td></tr> </table>	Walk Output		Don't Walk Output	
Walk Output						
Don't Walk Output						

Basic Phase Timing	Phase							
	1	2	3	4	5	6	7	8
	WL	ET	SB	NB	EL	WT		
Min Green	6	6	6	6	6	6		
Extension	3.5	3.5	3.5	3.5	3.5	3.5		
Max	15	40	20	25	25	40		
Max 2								
Cond Serve Check								

Alternate Timing - Bank 1	Phase							
	1	2	3	4	5	6	7	8
Alternate Walk								
Alternate Ped Clear								
Alternate Minimum								
Alternate Extension								

Clear	Phase							
	1	2	3	4	5	6	7	8
Yellow Change	3.0	5.2	5.0	4.0	3.0	5.2		
Red Clear	1.0	0.8	1.0	1.0	1.0	0.8		

Red Lock		Red Rest	
Yellow Lock		Dual Entry	2_6_
Simultaneous Gap	2_6_	Sequential Timing	
Rest In Walk		Inhibit Ped Reservice	
Advance Walk		Semi-Actuated	
Flashing Walk		Guaranteed Passage	
Max Extension		Conditional Service	
Phase Functions - Page 1			

Pedestrian Timing	Phase								
	1	2	3	4	5	6	7	8	
	Walk		7		7		7		
	Ped Clear - FDW		23		38		32		
	Adv / Delay Walk								
PE Min Ped FDW									

Volume Density	Phase								
	1	2	3	4	5	6	7	8	
	Type 3 Disconnect								
	Added per Vehicle		1.2		1.2		1.2		
	Max Added Initial		20.0		20.0		20.0		
	Min Gap	1.0	1.0	1.0	1.0	1.0	1.0		
Max Gap	0.5	0.5	0.5	0.5	0.5	0.5			
Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0			

Minimum Recall	2_6_	Soft Recall	
Ped Recall		External Recall	
Maximum Recall		Manual Control Calls	
Green Flash		Fast Green Flash	
Overlap Green Flash		Fast Overlap G. Flash	
Phase Functions - Page 2			

		Phase							
		1	2	3	4	5	6	7	8
Basic Phase Timing	Min Green								
	Extension								
	Max								
	Max 2								
	Cond Serve Check								
Clear	Yellow Change								
	Red Clear								
Pedestrian Timing	Walk								
	Ped Clear - FDW								
	Adv / Delay Walk								
	PE Min Ped FDW								
Volume Density	Type 3 Disconnect								
	Added per Vehicle								
	Max Added Initial								
	Min Gap								
	Max Gap								
	Reduce Every								

Phase Timing - Bank 2

		Phase							
		1	2	3	4	5	6	7	8
Basic Phase Timing	Min Green								
	Extension								
	Max								
	Max 2								
	Cond Serve Check								
Clear	Yellow Change								
	Red Clear								
Pedestrian Timing	Walk								
	Ped Clear - FDW								
	Adv / Delay Walk								
	PE Min Ped FDW								
Volume Density	Type 3 Disconnect								
	Added per Vehicle								
	Max Added Initial								
	Min Gap								
	Max Gap								
	Reduce Every								

Phase Timing - Bank 3

		Phase							
		1	2	3	4	5	6	7	8
Alternate Walk									
Alternate Ped Clear									
Alternate Minimum									
Alternate Extension									

Alternate Timing - Bank 2

		Phase							
		1	2	3	4	5	6	7	8
Alternate Walk									
Alternate Ped Clear									
Alternate Minimum									
Alternate Extension									

Alternate Timing - Bank 3

Note: Set the Limited Service Interval on the "Utilities / Misc" page

Clear Phases	
Delay	
Clear Time	
Railroad - 1	

Clear Phases	
Limited Service Phases	
Delay	
Clear Time	
Railroad - 2	

Railroad Preempt Parameters

Step	Time	Clear	Ped Call	Hold	Advance	Force Off	Vehicle Call	Permit	Ped Omit	Output
0										
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										

Special Event Sequence - 1

	Delay	Clear	Clear Phases
EV - A	0	10	2_5
EV - B	0	10	4
EV - C	0	10	1_6
EV - D	0	10	3

Emergency Vehicle Preempt

SE - 1	1
SE - 2	1
EV - A	1
EV - B	1
EV - C	1
EV - D	1

Preempt Priority

Step	Time	Clear	Ped Call	Hold	Advance	Force Off	Vehicle Call	Permit	Ped Omit	Output
0										
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										

Special Event Sequence - 2

Note:
The Ring-Barrier Sum of these Minimums will be the Minimum Cycle Length During Transition

Transition Type	
Coord Extra Functions	
Phase 1 - Minimum	
Phase 2 - Minimum	
Phase 3 - Minimum	
Phase 4 - Minimum	
Phase 5 - Minimum	
Phase 6 - Minimum	
Phase 7 - Minimum	
Phase 8 - Minimum	

Coordination - General

Transition Type
 0.X = Shortway
 1.X = Lengthen
 2.X = Shorten
 X.1 thru X.4 = Number of Cycles to get "In Step"

Coord Extra
 1 = Programmed Walk Time for Sync Phases
 2 = Always Terminate Sync Phase Peds

Coordination Plan									
	1	2	3	4	5	6	7	8	9
Cycle									
Offset - 1									
Offset - 2									
Offset - 3									
Zone Offset									
Ring Offset									
Hold Release									
Ped Adjust									
Force Off - 1									
Force Off - 2									
Force Off - 3									
Force Off - 4									
Force Off - 5									
Force Off - 6									
Force Off - 7									
Force Off - 8									

Coordination - Cycle, Offsets, & Force Offs

Coordination Plan									
	1	2	3	4	5	6	7	8	9
Perm 1 - Begin									
Perm 1 - End									
Perm 1 - Veh Phases									
Perm 1 - Ped Phases									
Perm 2 - Begin									
Perm 2 - End									
Perm 2 - Veh Phases									
Perm 2 - Ped Phases									
Perm 3 - Begin									
Perm 3 - End									
Perm 3 - Veh Phases									
Perm 3 - Ped Phases									
Max Inhibit Phases									
Max Recall Phases									
Sync Phases									
Lag Phases									
Pre-Timed Phases									

Coordination - Permissives & Phase Sequence

	Overlap Number							
	1 (A)	2 (B)	3 (C)	4 (D)	5	6	7	8
Load Switch Number	0	1	2	3				
Vehicle Set 1	<u>2_4</u>	<u>3_6</u>	<u>1_3</u>	<u>4_5</u>				
Vehicle Set 2								
Vehicle Set 3								
Negative Vehicle	<u>3</u>	<u>2_4</u>	<u>2_4</u>	<u>3</u>				
Negative Ped	<u>2_4</u>	<u>4_6</u>	<u>4_6</u>	<u>2_4</u>				
Green Omit								
Green Clear Omit								
Green Clearance								
Yellow Change	5.2	5.2	3.0	3.0				
Red Clearance	0.8	0.8	1.0	1.0				

Overlaps

	AND 1	AND 2	AND 3	AND 4
Input - A				
Input - B				
Output				

AND Gates

	NAND 1	NAND 2	NAND 3	NAND 4
Input - A				
Input - B				
Output				

NAND Gates

	OR 1	OR 2	OR 3	OR 4	OR 5	OR 6
Input - A						
Input - B						
Output						

2 Input - OR Gates

	OR 7	OR 8
Input - A		
Input - B		
Input - C		
Input - D		
Output		

4 Input - OR Gates

	NOT 1	NOT 2	NOT 3	NOT 4
Input				
Output				

NOT Gates (Inverters)

	DELAY 1	DELAY 2	DELAY 3	DELAY 4	DELAY 5	DELAY 6
Input						
Delay Time						
Output						

DELAY Gates

Det. #	C-1 Pin #	Delay	Carry-over	Phase Assignmnrnts	Detector Attributes	Detector Set Assignments
1	39	0.0	0.0	123__8	__45_7_	_2_____
2	40	0.0	0.0	123__8	__45_7_	____6__
3	41	0.0	0.0	123__8	__45_7_	____4__
4	42	0.0	0.0	123__8	__45_7_	____8
5	43	0.0	0.0	123__8	__45_7_	_2_____
6	44	0.0	0.0	123__8	__45_7_	____6__
7	45	0.0	0.0	123__8	__45_7_	____4__
8	46	0.0	0.0	123__8	__45_7_	____8
9	47	0.0	0.0	123__8	____67_	_2_____
10	48	0.0	0.0	123__8	____67_	____6__
11	49	0.0	0.0	123__8	____67_	____4__
12	50	0.0	0.0	123__8	____67_	____8
13	55	0.0	0.0	123__8	__45_7_	____5__
14	56	0.0	0.0	123__8	__45_7_	____1__
15	57	0.0	0.0	123__8	__45_7_	____7__
16	58	0.0	0.0	123__8	__45_7_	____3__
17	59	0.0	0.0	123__8	__45_7_	____2__
18	60	0.0	0.0	123__8	__45_7_	____6__
19	61	0.0	0.0	123__8	__45_7_	____4__
20	62	0.0	0.0	123__8	__45_7_	____8
21	63	0.0	0.0	123__8	__45_7_	____2__
22	64	0.0	0.0	123__8	__45_7_	____6__
23	65	0.0	0.0	123__8	__45_7_	____4__
24	66	0.0	0.0	123__8	__45_7_	____8
25	67	0.0	0.0	123__8	__2_____	____2__
26	68	0.0	0.0	123__8	__2_____	____6__
27	69	0.0	0.0	123__8	__2_____	____4__
28	70	0.0	0.0	123__8	__2_____	____8
29	76	0.0	0.0	123__8	__45_7_	____5__
30	77	0.0	0.0	123__8	__45_7_	____1__
31	78	0.0	0.0	123__8	__45_7_	____7__
32	79	0.0	0.0	123__8	__45_7_	____3__

Detector Assignments

Detector Attributes

- 1 = Full Time Delay
- 2 = Ped Call
- 3 =
- 4 = Count
- 5 = Extension
- 6 = Type 3
- 7 = Calling
- 8 = Alternate

Detector Assignments

- 1 = Detector Set 1
- 2 = Detector Set 2
- 3 = Detector Set 3
- 4 =
- 5 =
- 6 = Failure - Min Recall
- 7 = Failure - Max Recall
- 8 = Report on Failure

	C-1 Pin #
Flash Sense	81
External Permit - 1	
External Permit - 2	
Exclusive Ped Omit	
Max. Term Inhibit	
Max. 2	
External Lag Phases	
External Max. Recall	
Stop Time	82
Manual Control Enable	
Manual Cont. Advance	
External Min. Recall	

General Inputs

	C-1 Pin #
Plan 1	
Plan 2	
Plan 3	
Plan 4	
Plan 5	
Plan 6	
Plan 7	
Plan 8	
Plan 9	
Free	
Flash	

Coordination Plan Inputs

	C-1 Pin #
Railroad - 1	51
Railroad - 2	52
Special Event - 1	
Special Event - 2	
Gate Down	
EV - A	71
EV - B	72
EV - C	73
EV - D	74

Preempt Inputs

	C-1 Pin #
Phase Bank - 2	
Phase Bank - 3	
Detector Set - 2	
Detector Set - 3	
Overlap Vehicle Set - 2	
Overlap Vehicle Set - 3	
Interval Signal Plan - 2	
Interval Signal Plan - 3	
Interval Signal Plan - 4	

Bank, Set, & Plan Inputs

	C-1 Pin #
Door Ajar	
UPS Battery	
UPS Power	
Cabinet Temperature	

Alarm Inputs

	C-1 Pin #
Alarm - 1	
Alarm - 2	
Alarm - 3	
Alarm - 4	

	C-1 Pin #
Advance Warning - 1	
Advance Warning - 2	
Detector Failure	
Flasher - Alternating 1	
Flasher - Alternating 2	
Fast Flasher	
On Line	
Exclusive - Walk	
Exclusive - Don't Walk	

General Outputs

	C-1 Pin #
Output - 1	
Output - 2	
Output - 3	
Output - 4	
Output - 5	
Output - 6	
Output - 7	
Output - 8	

Time of Day Outputs

	C-1 Pin #
Plan - 1	
Plan - 2	
Plan - 3	
Plan - 4	
Plan - 5	
Plan - 6	
Plan - 7	
Plan - 8	
Plan - 9	
Free	
Flash	

Coordination Plan Out

	Ped Phase
Ped 2-P Loadswitch	<u> 2 </u>
Ped 4-P Loadswitch	<u> 4 </u>
Ped 6-P Loadswitch	<u> 6 </u>
Ped 8-P Loadswitch	<u> 8 </u>

Ped Loadswitch Assignment

	C-1 Pin #
Dial - 2	
Dial - 3	
Offset - 1	
Offset - 2	
Offset - 3	
Free	
Flash	

Seven Wire Outputs

	C-1 Pin #	
	On	Flash
Railroad - 1		
Railroad - 2		
Special Event - 1		
Special Event - 2		
Preempt Failure		
EV - A		
EV - B		
EV - C		
EV - D		
Any Preempt		

Preemption Outputs

	C-1 Pin #
Output - 1	
Output - 2	
Output - 3	
Output - 4	
Output - 5	
Output - 6	
Output - 7	
Output - 8	

Special Event Outputs

	C-1 Pin #
Output - 1	
Output - 2	
Output - 3	
Output - 4	
Output - 5	
Output - 6	
Output - 7	
Output - 8	

Special Function Output

	Phase Number							
	1	2	3	4	5	6	7	8
Red								
Yellow								
Green								
Walk								
Don't Walk								

Phase Output Redirection

	Overlap Number							
	1	2	3	4	5	6	7	8
Red								
Yellow								
Green								

Overlap Output Redirection

Event	Day of Week	Season	Hour	Minute	Plan	Offset
0						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						

Time Base Coordination Events

Event	Day of Week	Season	Hour	Minute	Funct.	Phase / Bits
0						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

Time of Day Function Events

TOD Functions

- 0 = Permitted Phases
- 1 = Red Lock
- 2 = Yellow Lock
- 3 = Vehicle Min Recall
- 4 = Ped Recall
- 5 =
- 6 = Rest In Walk
- 7 = Red Rest
- 8 = Double Entry
- 9 = Vehicle Max Recall
- 10 = Soft Recall
- 11 = Max Extension 2
- 12 = Conditional Service
- 13 = Lag Free Phases
- 14, Bit 1 = Local Override
- 14, Bit 4 = Disable Det Off Monitoring
- 15 = TOD Outputs

#	Holiday Type	Day	Month	Year
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				

Holiday Dates

Event	Holiday Type	Hour	Minute	Plan	Offset
0					
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					

Holiday Time Base Coordination Events

Event	Holiday Type	Hour	Minute	Funct.	Phase / Bits
0					
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Holiday Time of Day Function Events

Season #	Start Month	Start Day	End Month	End Day
1				
2				
3				
4				
5				
6				
7				
8				

Season Definitions

Red Start Time	5.0
Yellow Start Phases	4
First Green Phases	2 6
Startup Vehicle Calls	123456
Startup Ped Calls	2 4 6
Startup	

Max ON Time	7
Max OFF Time	20
Chatter	45
Detector Check	

	Sign 1	Sign 2
Phase Number		
Time Before Yellow		
Advance Warning Signs		

Flash Entry Phases	
Flash Phases Yellow	
Flash Overlaps Yellow	
Flash Type	0
Flash Setup	

Exclusive Phases	
Protect / Permissive	
Disable Yellow Range	
Extra One	1
Lag Phases - Free	
Configuration	

Permitted Phases	123456
Restricted Phases	
Disable Overlap Range	
Extra Two	
Configuration	

Keyboard Beep	Y
Backlight Timeout	5
Spec Evnt 1 - Ltd Serv Interval	
Spec Evnt 2 - Ltd Serv Interval	
Red Revert	5.0
Miscellaneous	

Spring Month (Begin)	3
Spring Week (Begin)	2
Fall Month (End)	11
Fall Week (End)	1
Daylight Savings Time	

Manual Plan	14
Manual Offset	
Manual	

Manual Plan
 1 thru 9 = Coordination Plan 1 thru 9
 14 = Free
 15 = Flash

Extra One
 1 = TBC Type 1
 2 = NEMA Ext. Coord
 3 = Auto Daylight Savings
 4 = Solid FDW on EV
 5 = Extended Status
 6 = International Ped
 7 = Flash - Clear Outputs
 8 = Split Ring

Extra Two
 1 = AWB During Initial
 2 = LMU Installed
 3 = Disable Min Walk
 4 = QuicNet/4 System
 5 = Ignore P/P on EV
 6 =
 7 = Reserved
 8 =

Flash Type
 0 = All On - Off (12345678 - 0)
 1 = Main - Side (1256 - 3478)
 2 = Ping Pong (1234 - 5678)
 3 = Ring Pairs (1638 - 5247)

Address	
Area Number	
Area Address	
IP Port	
IP Address	
Subnet Mask	
Gateway	
Ethernet Port Address	

	Port 1	Port 2	Port 3	Port 4
Address				
Area Number				
Area Address				
Comm Time Out				
CTS Delay				
RTS Hold				
Baud Rate				
Data Format				
Communications Parameters				

APPENDIX D – ROADWAY SEGMENT CAPACITY THRESHOLDS

ROADWAY SEGMENT CAPACITY THRESHOLDS				
Roadway Classification	Number of Lanes	Maximum Two-Way Average Daily Traffic (ADT) Volume		
		LOS C	LOS D	LOS E
Collector	2	10,400	11,700	13,000
Secondary	4	20,700	23,300	25,900
Major	4	27,300	30,700	34,100
Arterial	4	29,600	33,400	37,000
Mountain Arterial	2	12,900	14,500	16,100
Mountain Arterial	4	25,500	28,700	31,900
Urban Arterial	6	45,000	50,600	56,300
Urban Arterial	8	69,000	78,000	87,000
Expressway	4	53,000	58,000	64,000
Expressway	6	79,000	87,000	95,000
Expressway	8	106,000	119,000	132,000
Freeway	4	80,000	91,000	100,000
Freeway	6	102,000	123,000	132,000
Freeway	8	136,000	164,000	176,000
Freeway	10	169,000	205,000	220,000
Ramp ⁽¹⁾	1	16,000	18,000	20,000

Footnotes:

1. Ramp Capacity is given as a one-way traffic volume.

Source: Riverside County Transportation Department

APPENDIX E – LEVEL OF SERVICE CALCULATIONS

Table of Contents

Intersection Analysis Summary	2
Intersection Level Of Service Report	3
Intersection 1: Murrieta Rd/Ethanac Rd	3
Intersection 2: Ethanac Rd/Project Dwy 1	8
Intersection 3: Barnett Rd-Case Rd/Ethanac Rd	10
Intersection 4: Barnett Rd/Project Dwy 2	15
Intersection 5: Barnett Rd/Project Dwy 3	17
Intersection 6: Barnett Rd/Project Dwy 4	19
Intersection 7: SB Ramps I-215/Ethanac Rd	21
Intersection 8: NB Ramps I-215/Ethanac Rd	26
Turning Movement Volume: Summary	31

Ethanac Barnett Industrial

Vistro File: C:\...\Barnett and Ethanac
Warehouse_11_14_2022.vistro

Scenario 1 Existing AM

Report File: C:\...\Existing AM.pdf

12/2/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Murrieta Rd/Ethanac Rd	Signalized	HCM 7th Edition	EB Left	0.561	32.2	C
2	Ethanac Rd/Project Dwy 1	Two-way stop	HCM 7th Edition	EB Thru	0.010	0.0	A
3	Barnett Rd-Case Rd/Ethanac Rd	Signalized	HCM 7th Edition	NB Right	0.571	90.5	F
4	Barnett Rd/Project Dwy 2	Two-way stop	HCM 7th Edition	NB Thru	0.002	0.0	A
5	Barnett Rd/Project Dwy 3	Two-way stop	HCM 7th Edition	NB Thru	0.002	0.0	A
6	Barnett Rd/Project Dwy 4	Two-way stop	HCM 7th Edition	NB Thru	0.002	0.0	A
7	SB Ramps I-215/Ethanac Rd	Signalized	HCM 7th Edition	EB Right	0.609	129.2	F
8	NB Ramps I-215/Ethanac Rd	Signalized	HCM 7th Edition	WB Thru	0.797	148.1	F

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.

Intersection Level Of Service Report
Intersection 1: Murrieta Rd/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	32.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.561

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	+			← →			← →			← →		
Lane Configuration	+			← →			← →			← →		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	325.00	100.00	620.00	245.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	103	105	157	67	42	13	9	739	70	88	422	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	39	0	0	3	0	0	18	0	0	11
Total Hourly Volume [veh/h]	103	105	118	67	42	10	9	739	52	88	422	33
Peak Hour Factor	0.8679	0.8679	0.8679	0.8714	0.8714	0.8714	0.8950	0.8950	0.8950	0.6971	0.6971	0.6971
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	30	34	19	12	3	3	206	15	32	151	12
Total Analysis Volume [veh/h]	119	121	136	77	48	11	10	826	58	126	605	47
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0		0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0		0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0		0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0		0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0		0		0		0	
Bicycle Volume [bicycles/h]	0		0		0		0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	45	0	0	14	0	29	42	0	19	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	28	10	10	10	2	56	56	10	65	65
g / C, Green / Cycle	0.23	0.08	0.08	0.08	0.01	0.47	0.47	0.08	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.21	0.04	0.03	0.01	0.01	0.24	0.24	0.07	0.17	0.17
s, saturation flow rate [veh/h]	1760	1810	1900	1615	1810	1900	1857	1810	1900	1852
c, Capacity [veh/h]	409	149	157	133	24	887	867	154	1023	998
d1, Uniform Delay [s]	44.97	52.76	51.82	50.86	58.73	22.28	22.28	54.01	15.46	15.46
k, delay calibration	0.18	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.43	2.75	1.09	0.26	10.93	2.04	2.09	10.28	0.83	0.86
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	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	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.52	0.31	0.08	0.41	0.50	0.50	0.82	0.32	0.32
d, Delay for Lane Group [s/veh]	58.40	55.51	52.92	51.12	69.66	24.32	24.37	64.29	16.29	16.32
Lane Group LOS	E	E	D	D	E	C	C	E	B	B
Critical Lane Group	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	12.38	2.34	1.41	0.32	0.38	9.20	9.00	4.18	5.22	5.10
50th-Percentile Queue Length [ft/ln]	309.58	58.54	35.29	7.91	9.38	229.98	225.04	104.49	130.41	127.44
95th-Percentile Queue Length [veh/ln]	18.15	4.21	2.54	0.57	0.68	14.17	13.92	7.52	8.96	8.80
95th-Percentile Queue Length [ft/ln]	453.86	105.37	63.53	14.24	16.89	354.33	348.06	188.08	224.05	220.01

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.40	58.40	58.40	55.51	52.92	51.12	69.66	24.35	24.37	64.29	16.30	16.32
Movement LOS	E	E	E	E	D	D	E	C	C	E	B	B
d_A, Approach Delay [s/veh]	58.40			54.24			24.85			24.08		
Approach LOS	E			D			C			C		
d_I, Intersection Delay [s/veh]	32.18											
Intersection LOS	C											
Intersection V/C	0.561											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			9.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			51.34			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			2.231			0.000			0.000		
Crosswalk LOS	F			B			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	683			167			633			467		
d_b, Bicycle Delay [s]	26.00			50.42			28.02			35.27		
I_b,int, Bicycle LOS Score for Intersection	2.244			1.789			2.312			2.211		
Bicycle LOS	B			A			B			B		

Sequence




Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Ethanac Rd/Project Dwy 1

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	0	983	0	0	563
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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	0	983	0	0	563
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	0	259	0	0	148
Total Analysis Volume [veh/h]	0	0	1035	0	0	593
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	29.27	12.08	0.00	0.00	10.30	0.00
Movement LOS	D	B	A	A	B	A
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	0.00
d_A, Approach Delay [s/veh]	20.68		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 3: Barnett Rd-Case Rd/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	90.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.571

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	+			T T T			T T T			T T T		
Lane Configuration	+			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	305.00	100.00	220.00	160.00	100.00	450.00	120.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	37	22	121	392	0	97	167	754	29	112	483	388
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	30	0	0	24	0	0	7	0	0	97
Total Hourly Volume [veh/h]	37	22	91	392	0	73	167	754	22	112	483	291
Peak Hour Factor	0.6818	0.6818	0.6818	0.9114	0.9114	0.9114	0.8523	0.8523	0.8523	0.8520	0.8520	0.8520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	8	33	108	0	20	49	221	6	33	142	85
Total Analysis Volume [veh/h]	54	32	133	430	0	80	196	885	26	131	567	342
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0			0			0			
v_di, Inbound Pedestrian Volume crossing m	0		0			0			0			
v_co, Outbound Pedestrian Volume crossing	0		0			0			0			
v_ci, Inbound Pedestrian Volume crossing mi	0		0			0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0		0			0			0			
Bicycle Volume [bicycles/h]	0		0			0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
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	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	20	0	0	25	0	25	40	0	15	40	0
Amber [s]	0.0	5.0	0.0	0.0	4.0	0.0	3.0	5.2	0.0	3.0	5.2	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.8	0.0	1.0	0.8	0.0
Split [s]	0	14	0	0	50	0	11	36	0	20	45	0
Vehicle Extension [s]	0.0	3.5	0.0	0.0	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0
Walk [s]	0	5	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	38	0	0	23	0	0	32	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	3.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	5.00	5.00	5.00	4.00	6.00	6.00	4.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	3.00	3.00	3.00	2.00	4.00	4.00	2.00	4.00	4.00
g_i, Effective Green Time [s]	8	18	18	18	7	62	62	11	66	66
g / C, Green / Cycle	0.07	0.15	0.15	0.15	0.06	0.52	0.52	0.09	0.55	0.55
(v / s)_i Volume / Saturation Flow Rate	0.13	0.12	0.02	0.02	0.11	0.24	0.02	0.07	0.16	0.21
s, saturation flow rate [veh/h]	1697	3514	1615	1615	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	114	533	245	245	107	1875	837	159	1980	884
d1, Uniform Delay [s]	56.00	49.22	44.29	44.29	56.49	18.44	14.16	53.80	14.58	15.60
k, delay calibration	0.24	0.13	0.13	0.13	0.13	0.50	0.50	0.13	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	431.35	3.53	0.37	0.37	386.99	0.86	0.07	11.81	0.36	1.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	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	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.92	0.81	0.16	0.16	1.84	0.47	0.03	0.82	0.29	0.39
d, Delay for Lane Group [s/veh]	487.35	52.75	44.66	44.66	443.47	19.30	14.23	65.61	14.94	16.87
Lane Group LOS	F	D	D	D	F	B	B	E	B	B
Critical Lane Group	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	17.07	6.48	1.07	1.07	14.68	7.94	0.36	4.41	4.20	5.60
50th-Percentile Queue Length [ft/ln]	426.84	162.10	26.68	26.68	367.11	198.40	9.10	110.24	104.93	140.03
95th-Percentile Queue Length [veh/ln]	27.83	10.66	1.92	1.92	24.13	12.56	0.66	7.85	7.55	9.48
95th-Percentile Queue Length [ft/ln]	695.79	266.50	48.03	48.03	603.32	313.90	16.38	196.34	188.87	237.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	487.35	487.35	487.35	52.75	44.66	44.66	443.47	19.30	14.23	65.61	14.94	16.87
Movement LOS	F	F	F	D	D	D	F	B	B	E	B	B
d_A, Approach Delay [s/veh]	487.35			51.48			94.28			21.96		
Approach LOS	F			D			F			C		
d_I, Intersection Delay [s/veh]	90.47											
Intersection LOS	F											
Intersection V/C	0.571											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.51	49.51	49.51	0.00
I_p,int, Pedestrian LOS Score for Intersection	1.973	2.696	2.775	0.000
Crosswalk LOS	A	B	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	133	750	500	650
d_b, Bicycle Delay [s]	52.28	23.45	33.76	27.35
I_b,int, Bicycle LOS Score for Intersection	1.970	2.441	2.479	2.498
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report
Intersection 4: Barnett Rd/Project Dwy 2**

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	180	141	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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	180	141	0	0	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]	0	47	37	0	0	0
Total Analysis Volume [veh/h]	0	189	148	0	0	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	8.98
Movement LOS		A	A	A		A
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	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		8.98	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 5: Barnett Rd/Project Dwy 3**

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	180	141	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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	180	141	0	0	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]	0	47	37	0	0	0
Total Analysis Volume [veh/h]	0	189	148	0	0	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.49	0.00	0.00	0.00	10.43	8.98
Movement LOS	A	A	A	A	B	A
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	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		9.71	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 6: Barnett Rd/Project Dwy 4**

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	180	141	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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	180	141	0	0	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]	0	47	37	0	0	0
Total Analysis Volume [veh/h]	0	189	148	0	0	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.49	0.00	0.00	0.00	10.43	8.98
Movement LOS	A	A	A	A	B	A
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	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		9.71	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 7: SB Ramps I-215/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	129.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.609

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00	100.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	650.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	137	3	274	0	610	536	103	717	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	137	3	274	0	610	536	103	717	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9375	0.9375	0.9375	1.0000	0.9189	0.9189	0.8448	0.8448	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	37	1	73	0	166	146	30	212	0
Total Analysis Volume [veh/h]	0	0	0	146	3	292	0	664	583	122	849	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	23	0	0	88	0	9	97	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	14	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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		C	R	C	R	L	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		68	68	30	30	10	44
g / C, Green / Cycle		0.57	0.57	0.25	0.25	0.08	0.37
(v / s)_i Volume / Saturation Flow Rate		0.08	0.18	0.35	0.36	0.07	0.23
s, saturation flow rate [veh/h]		1811	1615	1900	1615	1810	3618
c, Capacity [veh/h]		1024	913	478	406	150	1331
d1, Uniform Delay [s]		12.35	13.83	44.90	44.90	54.10	31.32
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]		0.30	0.92	187.62	209.34	10.02	0.51
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		0.15	0.32	1.39	1.43	0.81	0.64
d, Delay for Lane Group [s/veh]		12.65	14.76	232.52	254.24	64.12	31.83
Lane Group LOS		B	B	F	F	E	C
Critical Lane Group		No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		1.97	4.36	39.02	35.62	4.04	10.19
50th-Percentile Queue Length [ft/ln]		49.14	109.07	975.54	890.49	100.96	254.82
95th-Percentile Queue Length [veh/ln]		3.54	7.79	58.30	54.26	7.27	15.43
95th-Percentile Queue Length [ft/ln]		88.44	194.70	1457.45	1356.61	181.74	385.72

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	12.65	12.65	14.76	0.00	232.52	254.24	64.12	31.83	0.00
Movement LOS				B	B	B		F	F	E	C	
d_A, Approach Delay [s/veh]	0.00			14.04			242.68			35.89		
Approach LOS	A			B			F			D		
d_I, Intersection Delay [s/veh]	129.24											
Intersection LOS	F											
Intersection V/C	0.609											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.099	0.000	2.580
Crosswalk LOS	F	B	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	317	1400	1550
d_b, Bicycle Delay [s]	60.00	42.50	5.40	3.04
I_b,int, Bicycle LOS Score for Intersection	4.132	2.287	3.617	2.361
Bicycle LOS	D	B	D	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: NB Ramps I-215/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	148.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.797

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔						↔			↔		
Lane Configuration	↔						↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	300.00	100.00	100.00	100.00	300.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	345	0	150	0	0	0	215	531	0	0	480	166
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	345	0	150	0	0	0	215	531	0	0	480	166
Peak Hour Factor	0.8160	0.8160	0.8160	1.0000	1.0000	1.0000	0.8756	0.8756	1.0000	1.0000	0.8318	0.8318
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	106	0	46	0	0	0	61	152	0	0	144	50
Total Analysis Volume [veh/h]	423	0	184	0	0	0	246	606	0	0	577	200
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0		0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0		0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0		0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0		0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0		0		0		0	
Bicycle Volume [bicycles/h]	0		0		0		0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	14	0	0	0	0	21	106	0	0	85	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	R		L	C	C
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	59	59		18	53	30
g / C, Green / Cycle	0.50	0.50		0.15	0.44	0.25
(v / s)_i Volume / Saturation Flow Rate	0.23	0.11		0.14	0.32	0.43
s, saturation flow rate [veh/h]	1810	1615		1810	1900	1817
c, Capacity [veh/h]	896	799		278	833	457
d1, Uniform Delay [s]	19.98	17.28		49.76	27.78	44.90
k, delay calibration	0.50	0.50		0.12	0.11	0.50
l, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	1.79	0.67		9.78	1.23	323.76
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.47	0.23		0.89	0.73	1.70
d, Delay for Lane Group [s/veh]	21.76	17.95		59.55	29.01	368.66
Lane Group LOS	C	B		E	C	F
Critical Lane Group	Yes	No		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	8.13	3.04		7.97	14.40	54.63
50th-Percentile Queue Length [ft/ln]	203.30	76.03		199.18	359.98	1365.83
95th-Percentile Queue Length [veh/ln]	12.81	5.47		12.60	20.62	84.36
95th-Percentile Queue Length [ft/ln]	320.21	136.85		314.91	515.56	2109.03

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.76	21.76	17.95	0.00	0.00	0.00	59.55	29.01	0.00	0.00	368.66	368.66
Movement LOS	C	C	B				E	C			F	F
d_A, Approach Delay [s/veh]	20.61			0.00			37.83			368.66		
Approach LOS	C			A			D			F		
d_I, Intersection Delay [s/veh]	148.12											
Intersection LOS	F											
Intersection V/C	0.797											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.153	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	167	0	1700	1350
d_b, Bicycle Delay [s]	50.42	60.00	1.35	6.34
I_b,int, Bicycle LOS Score for Intersection	2.561	4.132	2.965	2.842
Bicycle LOS	B	D	C	C

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Ethanac Barnett Industrial

Vistro File: C:\...\Barnett and Ethanac
Warehouse_11_14_2022.vistro

Scenario 1 Existing AM

Report File: C:\...\Existing AM.pdf

12/2/2022

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Murrieta Rd/Ethanac Rd	103	105	157	67	42	13	9	739	70	88	422	44	1859

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
2	Ethanac Rd/Project Dwy 1	0	0	983	0	0	563	1546

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Barnett Rd-Case Rd/Ethanac Rd	37	22	121	392	0	97	167	754	29	112	483	388	2602

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Thru	Right	Thru	Right	Right	Right	
4	Barnett Rd/Project Dwy 2	180		141	0	0		321

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
5	Barnett Rd/Project Dwy 3	0	180	141	0	0	0	321

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
6	Barnett Rd/Project Dwy 4	0	180	141	0	0	0	321

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
7	SB Ramps I-215/Ethanac Rd	137	3	274	610	536	103	717	2380

Version 2022 (SP 0-10)

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
8	NB Ramps I-215/Ethanac Rd	345	0	150	215	531	480	166	1887

Table of Contents

Intersection Analysis Summary	2
Intersection Level Of Service Report	3
Intersection 1: Murrieta Rd/Ethanac Rd	3
Intersection 2: Ethanac Rd/Project Dwy 1	8
Intersection 3: Barnett Rd-Case Rd/Ethanac Rd	10
Intersection 4: Barnett Rd/Project Dwy 2	15
Intersection 5: Barnett Rd/Project Dwy 3	17
Intersection 6: Barnett Rd/Project Dwy 4	19
Intersection 7: SB Ramps I-215/Ethanac Rd	21
Intersection 8: NB Ramps I-215/Ethanac Rd	26
Turning Movement Volume: Summary	31

Ethanac Barnett Industrial

Vistro File: C:\...\Barnett and Ethanac
Warehouse_11_14_2022.vistro

Scenario 2 Existing PM

Report File: C:\...\Existing PM.pdf

12/2/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Murrieta Rd/Ethanac Rd	Signalized	HCM 7th Edition	EB Left	0.538	35.4	D
2	Ethanac Rd/Project Dwy 1	Two-way stop	HCM 7th Edition	WB Thru	0.008	0.0	A
3	Barnett Rd-Case Rd/Ethanac Rd	Signalized	HCM 7th Edition	EB Left	0.542	59.2	E
4	Barnett Rd/Project Dwy 2	Two-way stop	HCM 7th Edition	NB Thru	0.001	0.0	A
5	Barnett Rd/Project Dwy 3	Two-way stop	HCM 7th Edition	NB Thru	0.001	0.0	A
6	Barnett Rd/Project Dwy 4	Two-way stop	HCM 7th Edition	NB Thru	0.001	0.0	A
7	SB Ramps I-215/Ethanac Rd	Signalized	HCM 7th Edition	EB Thru	0.637	90.7	F
8	NB Ramps I-215/Ethanac Rd	Signalized	HCM 7th Edition	WB Thru	0.738	65.5	E

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.

Intersection Level Of Service Report
Intersection 1: Murrieta Rd/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	35.4
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.538

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			← →			← →			← →		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	325.00	100.00	620.00	245.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	102	97	140	43	112	18	10	500	120	194	554	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	35	0	0	5	0	0	30	0	0	14
Total Hourly Volume [veh/h]	102	97	105	43	112	13	10	500	90	194	554	41
Peak Hour Factor	0.9185	0.9185	0.9185	0.8801	0.8801	0.8801	0.9388	0.9388	0.9388	0.9502	0.9502	0.9502
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	26	29	12	32	4	3	133	24	51	146	11
Total Analysis Volume [veh/h]	111	106	114	49	127	15	11	533	96	204	583	43
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0			0			0			
v_di, Inbound Pedestrian Volume crossing m	0		0			0			0			
v_co, Outbound Pedestrian Volume crossing	0		0			0			0			
v_ci, Inbound Pedestrian Volume crossing mi	0		0			0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0		0			0			0			
Bicycle Volume [bicycles/h]	0		0			0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	29	0	0	14	0	51	27	0	50	26	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	24	10	10	10	2	54	54	16	68	68
g / C, Green / Cycle	0.20	0.08	0.08	0.08	0.01	0.45	0.45	0.13	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.19	0.03	0.07	0.01	0.01	0.17	0.17	0.11	0.17	0.17
s, saturation flow rate [veh/h]	1763	1810	1900	1615	1810	1900	1801	1810	1900	1855
c, Capacity [veh/h]	356	151	158	134	26	856	811	237	1078	1052
d1, Uniform Delay [s]	47.05	51.84	54.04	50.91	58.66	21.81	21.84	51.05	13.48	13.48
k, delay calibration	0.27	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	21.41	1.24	9.12	0.36	10.73	1.26	1.34	8.82	0.69	0.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	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	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.33	0.80	0.11	0.43	0.38	0.38	0.86	0.29	0.29
d, Delay for Lane Group [s/veh]	68.46	53.08	63.16	51.27	69.39	23.08	23.19	59.88	14.17	14.19
Lane Group LOS	E	D	E	D	E	C	C	E	B	B
Critical Lane Group	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	11.78	1.45	4.17	0.43	0.41	6.28	6.01	6.58	4.58	4.48
50th-Percentile Queue Length [ft/ln]	294.56	36.14	104.18	10.81	10.22	157.02	150.32	164.47	114.59	112.04
95th-Percentile Queue Length [veh/ln]	17.41	2.60	7.50	0.78	0.74	10.39	10.03	10.79	8.09	7.95
95th-Percentile Queue Length [ft/ln]	435.30	65.06	187.52	19.47	18.40	259.77	250.86	269.64	202.36	198.83

Movement, Approach, & Intersection Results

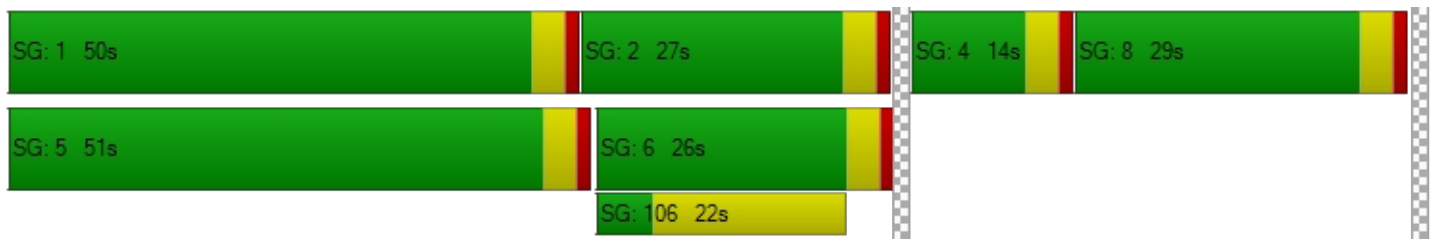
d_M, Delay for Movement [s/veh]	68.46	68.46	68.46	53.08	63.16	51.27	69.39	23.12	23.19	59.88	14.18	14.19
Movement LOS	E	E	E	D	E	D	E	C	C	E	B	B
d_A, Approach Delay [s/veh]	68.46			59.64			23.93			25.41		
Approach LOS	E			E			C			C		
d_I, Intersection Delay [s/veh]	35.37											
Intersection LOS	D											
Intersection V/C	0.538											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			9.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			51.34			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			2.244			0.000			0.000		
Crosswalk LOS	F			B			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	417			167			383			367		
d_b, Bicycle Delay [s]	37.60			50.42			39.20			40.02		
I_b,int, Bicycle LOS Score for Intersection	2.164			1.883			2.112			2.256		
Bicycle LOS	B			A			B			B		

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Ethanac Rd/Project Dwy 1

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	0	686	0	0	794
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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	0	686	0	0	794
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	0	181	0	0	209
Total Analysis Volume [veh/h]	0	0	722	0	0	836
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	23.22	10.61	0.00	0.00	9.05	0.00
Movement LOS	C	B	A	A	A	A
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	0.00
d_A, Approach Delay [s/veh]	16.92		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 3: Barnett Rd-Case Rd/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	59.2
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.542

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	+			T T T			T T T			T T T		
Lane Configuration	+			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	305.00	100.00	220.00	160.00	100.00	450.00	120.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	21	0	96	473	0	188	198	540	39	56	655	441
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	24	0	0	47	0	0	10	0	0	110
Total Hourly Volume [veh/h]	21	0	72	473	0	141	198	540	29	56	655	331
Peak Hour Factor	0.8694	0.8694	0.8694	0.9463	0.9463	0.9463	0.9060	0.9060	0.9060	0.9560	0.9560	0.9560
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	0	21	125	0	37	55	149	8	15	171	87
Total Analysis Volume [veh/h]	24	0	83	500	0	149	219	596	32	59	685	346
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0			0			0			
v_di, Inbound Pedestrian Volume crossing m	0		0			0			0			
v_co, Outbound Pedestrian Volume crossing	0		0			0			0			
v_ci, Inbound Pedestrian Volume crossing mi	0		0			0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0		0			0			0			
Bicycle Volume [bicycles/h]	0		0			0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
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	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	20	0	0	25	0	25	40	0	15	40	0
Amber [s]	0.0	5.0	0.0	0.0	4.0	0.0	3.0	5.2	0.0	3.0	5.2	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.8	0.0	1.0	0.8	0.0
Split [s]	0	12	0	0	50	0	13	46	0	12	45	0
Vehicle Extension [s]	0.0	3.5	0.0	0.0	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0
Walk [s]	0	5	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	38	0	0	23	0	0	32	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	3.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	5.00	5.00	5.00	4.00	6.00	6.00	4.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	3.00	3.00	3.00	2.00	4.00	4.00	2.00	4.00	4.00
g_i, Effective Green Time [s]	6	21	21	21	9	67	67	5	63	63
g / C, Green / Cycle	0.05	0.17	0.17	0.17	0.08	0.56	0.56	0.04	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	0.06	0.14	0.05	0.05	0.12	0.16	0.02	0.03	0.19	0.21
s, saturation flow rate [veh/h]	1655	3514	1615	1615	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	83	615	283	283	137	2013	898	78	1896	847
d1, Uniform Delay [s]	56.99	47.63	42.83	42.83	55.49	14.15	12.05	56.78	16.76	17.30
k, delay calibration	0.13	0.13	0.13	0.13	0.16	0.50	0.50	0.13	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	148.68	3.20	0.59	0.59	282.09	0.38	0.07	15.91	0.54	1.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	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	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.28	0.81	0.26	0.26	1.60	0.30	0.04	0.75	0.36	0.41
d, Delay for Lane Group [s/veh]	205.67	50.84	43.43	43.43	337.58	14.52	12.13	72.69	17.30	18.76
Lane Group LOS	F	D	D	D	F	B	B	E	B	B
Critical Lane Group	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.98	7.45	1.97	1.97	14.83	4.35	0.41	2.12	5.62	6.05
50th-Percentile Queue Length [ft/ln]	149.43	186.27	49.25	49.25	370.85	108.71	10.17	52.90	140.45	151.29
95th-Percentile Queue Length [veh/ln]	10.64	11.93	3.55	3.55	24.14	7.77	0.73	3.81	9.51	10.09
95th-Percentile Queue Length [ft/ln]	265.88	298.18	88.64	88.64	603.52	194.21	18.30	95.23	237.63	252.16

Movement, Approach, & Intersection Results

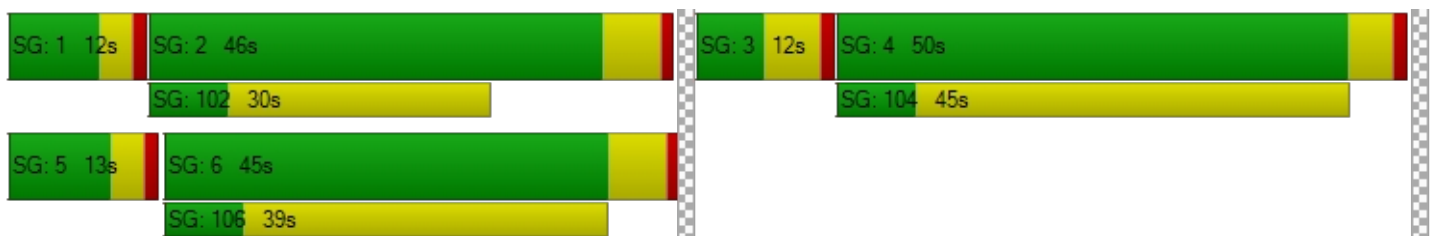
d_M, Delay for Movement [s/veh]	205.67	205.67	205.67	50.84	43.43	43.43	337.58	14.52	12.13	72.69	17.30	18.76
Movement LOS	F	F	F	D	D	D	F	B	B	E	B	B
d_A, Approach Delay [s/veh]	205.67			49.13			97.96			20.76		
Approach LOS	F			D			F			C		
d_I, Intersection Delay [s/veh]	59.23											
Intersection LOS	E											
Intersection V/C	0.542											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.51	49.51	49.51	0.00
I_p,int, Pedestrian LOS Score for Intersection	1.876	2.756	2.767	0.000
Crosswalk LOS	A	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	100	750	667	650
d_b, Bicycle Delay [s]	54.16	23.45	26.68	27.35
I_b,int, Bicycle LOS Score for Intersection	1.776	2.708	2.267	2.550
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report
Intersection 4: Barnett Rd/Project Dwy 2**

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	117	95	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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	117	95	0	0	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]	0	31	25	0	0	0
Total Analysis Volume [veh/h]	0	123	100	0	0	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	8.75
Movement LOS		A	A	A		A
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	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		8.75	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 5: Barnett Rd/Project Dwy 3**

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	117	95	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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	117	95	0	0	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]	0	31	25	0	0	0
Total Analysis Volume [veh/h]	0	123	100	0	0	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.39	0.00	0.00	0.00	9.68	8.75
Movement LOS	A	A	A	A	A	A
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	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		9.21	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 6: Barnett Rd/Project Dwy 4**

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	117	95	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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	117	95	0	0	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]	0	31	25	0	0	0
Total Analysis Volume [veh/h]	0	123	100	0	0	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.39	0.00	0.00	0.00	9.68	8.75
Movement LOS	A	A	A	A	A	A
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	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		9.21	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 7: SB Ramps I-215/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	90.7
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.637

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				↑↑			↑↑			↑↑↑		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00	100.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	650.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	173	5	319	0	588	420	119	692	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	173	5	319	0	588	420	119	692	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.8464	0.8464	0.8464	1.0000	0.9226	0.9226	0.9564	0.9564	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	51	1	94	0	159	114	31	181	0
Total Analysis Volume [veh/h]	0	0	0	204	6	377	0	637	455	124	724	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0	
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-	
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0	
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0	
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	
Split [s]	0	0	0	0	23	0	0	88	0	9	97	0	
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0	
Pedestrian Clearance [s]	0	0	0	0	14	0	0	10	0	0	10	0	
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	
Minimum Recall					No			No		No	No		
Maximum Recall					No			No		No	No		
Pedestrian Recall					No			No		No	No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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		C	R	C	R	L	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		68	68	30	30	10	44
g / C, Green / Cycle		0.56	0.56	0.25	0.25	0.08	0.37
(v / s)_i Volume / Saturation Flow Rate		0.12	0.23	0.34	0.28	0.07	0.20
s, saturation flow rate [veh/h]		1812	1615	1900	1615	1810	3618
c, Capacity [veh/h]		1023	911	478	406	152	1335
d1, Uniform Delay [s]		12.88	14.86	44.91	44.91	54.03	29.87
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]		0.45	1.39	163.64	81.48	10.00	0.34
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		0.21	0.41	1.33	1.12	0.81	0.54
d, Delay for Lane Group [s/veh]		13.34	16.24	208.55	126.39	64.03	30.21
Lane Group LOS		B	B	F	F	E	C
Critical Lane Group		No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]		2.89	6.07	35.83	21.18	4.10	8.29
50th-Percentile Queue Length [ft/ln]		72.23	151.64	895.66	529.54	102.55	207.15
95th-Percentile Queue Length [veh/ln]		5.20	10.10	53.10	30.67	7.38	13.01
95th-Percentile Queue Length [ft/ln]		130.01	252.61	1327.46	766.65	184.60	325.17

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	13.34	13.34	16.24	0.00	208.55	126.39	64.03	30.21	0.00
Movement LOS				B	B	B		F	F	E	C	
d_A, Approach Delay [s/veh]	0.00			15.20			174.31			35.16		
Approach LOS	A			B			F			D		
d_I, Intersection Delay [s/veh]	90.66											
Intersection LOS	F											
Intersection V/C	0.637											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.146	0.000	2.558
Crosswalk LOS	F	B	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	317	1400	1550
d_b, Bicycle Delay [s]	60.00	42.50	5.40	3.04
I_b,int, Bicycle LOS Score for Intersection	4.132	2.528	3.361	2.259
Bicycle LOS	D	B	C	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: NB Ramps I-215/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	65.5
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.738

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔						↔			↔		
Lane Configuration	↔						↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	300.00	100.00	100.00	100.00	300.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	438	1	236	0	0	0	243	512	0	0	373	158
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	438	1	236	0	0	0	243	512	0	0	373	158
Peak Hour Factor	0.8544	0.8544	0.8544	1.0000	1.0000	1.0000	0.9269	0.9269	1.0000	1.0000	0.9516	0.9516
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	128	0	69	0	0	0	66	138	0	0	98	42
Total Analysis Volume [veh/h]	513	1	276	0	0	0	262	552	0	0	392	166
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	36	0	0	0	0	25	84	0	0	59	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	R		L	C	C
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	58	58		19	54	30
g / C, Green / Cycle	0.49	0.49		0.16	0.45	0.25
(v / s)_i Volume / Saturation Flow Rate	0.28	0.17		0.14	0.29	0.31
s, saturation flow rate [veh/h]	1810	1615		1810	1900	1805
c, Capacity [veh/h]	880	785		294	850	454
d1, Uniform Delay [s]	22.13	19.11		49.23	25.84	44.90
k, delay calibration	0.50	0.50		0.14	0.11	0.50
l, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.83	1.24		11.60	0.84	120.90
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.58	0.35		0.89	0.65	1.23
d, Delay for Lane Group [s/veh]	24.97	20.35		60.83	26.68	165.81
Lane Group LOS	C	C		E	C	F
Critical Lane Group	Yes	No		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	10.90	5.00		8.62	12.31	28.66
50th-Percentile Queue Length [ft/ln]	272.51	125.08		215.43	307.80	716.57
95th-Percentile Queue Length [veh/ln]	16.31	8.67		13.43	18.07	41.94
95th-Percentile Queue Length [ft/ln]	407.87	216.79		335.78	451.66	1048.55

Movement, Approach, & Intersection Results

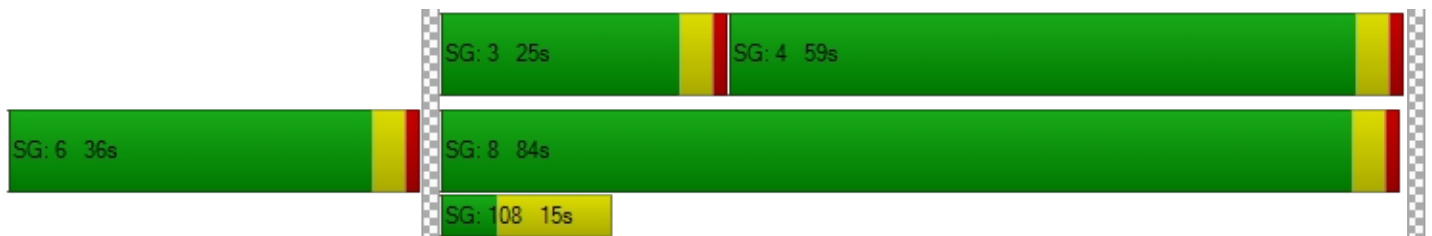
d_M, Delay for Movement [s/veh]	24.97	24.97	20.35	0.00	0.00	0.00	60.83	26.68	0.00	0.00	165.81	165.81
Movement LOS	C	C	C				E	C			F	F
d_A, Approach Delay [s/veh]	23.35			0.00			37.67			165.81		
Approach LOS	C			A			D			F		
d_I, Intersection Delay [s/veh]	65.51											
Intersection LOS	E											
Intersection V/C	0.738											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.212	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	0	1333	917
d_b, Bicycle Delay [s]	32.27	60.00	6.67	17.60
I_b,int, Bicycle LOS Score for Intersection	2.863	4.132	2.903	2.480
Bicycle LOS	C	D	C	B

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Ethanac Barnett Industrial

Vistro File: C:\...\Barnett and Ethanac
Warehouse_11_14_2022.vistro

Scenario 2 Existing PM

Report File: C:\...\Existing PM.pdf

12/2/2022

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Murrieta Rd/Ethanac Rd	102	97	140	43	112	18	10	500	120	194	554	55	1945

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
2	Ethanac Rd/Project Dwy 1	0	0	686	0	0	794	1480

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Barnett Rd-Case Rd/Ethanac Rd	21	0	96	473	0	188	198	540	39	56	655	441	2707

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Thru		Thru	Right	Right		
4	Barnett Rd/Project Dwy 2	117		95	0	0		212

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
5	Barnett Rd/Project Dwy 3	0	117	95	0	0	0	212

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
6	Barnett Rd/Project Dwy 4	0	117	95	0	0	0	212

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
7	SB Ramps I-215/Ethanac Rd	173	5	319	588	420	119	692	2316

Version 2022 (SP 0-10)

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
8	NB Ramps I-215/Ethanac Rd	438	1	236	243	512	373	158	1961

Table of Contents

Intersection Analysis Summary	2
Intersection Level Of Service Report	3
Intersection 1: Murrieta Rd/Ethanac Rd	3
Intersection 2: Ethanac Rd/Project Dwy 1	8
Intersection 3: Barnett Rd-Case Rd/Ethanac Rd	10
Intersection 4: Barnett Rd/Project Dwy 2	15
Intersection 5: Barnett Rd/Project Dwy 3	17
Intersection 6: Barnett Rd/Project Dwy 4	19
Intersection 7: SB Ramps I-215/Ethanac Rd	21
Intersection 8: NB Ramps I-215/Ethanac Rd	26
Turning Movement Volume: Summary	31

Ethanac Barnett Industrial

Vistro File: C:\...\Barnett and Ethanac
Warehouse_11_14_2022.vistro

Scenario 5 Opening AM

Report File: C:\...\Opening AM.pdf

12/2/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Murrieta Rd/Ethanac Rd	Signalized	HCM 7th Edition	EB Right	0.972	101.2	F
2	Ethanac Rd/Project Dwy 1	Two-way stop	HCM 7th Edition	EB Thru	0.019	0.0	A
3	Barnett Rd-Case Rd/Ethanac Rd	Signalized	HCM 7th Edition	EB Left	0.846	82.3	F
4	Barnett Rd/Project Dwy 2	Two-way stop	HCM 7th Edition	NB Thru	0.002	0.0	A
5	Barnett Rd/Project Dwy 3	Two-way stop	HCM 7th Edition	NB Thru	0.002	0.0	A
6	Barnett Rd/Project Dwy 4	Two-way stop	HCM 7th Edition	NB Thru	0.002	0.0	A
7	SB Ramps I-215/Ethanac Rd	Signalized	HCM 7th Edition	EB Thru	1.281	339.4	F
8	NB Ramps I-215/Ethanac Rd	Signalized	HCM 7th Edition	WB Thru	1.536	282.7	F

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.

Intersection Level Of Service Report
Intersection 1: Murrieta Rd/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	101.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.972

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	+			← →			← →			← →		
Lane Configuration	+			← →			← →			← →		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	325.00	100.00	620.00	245.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	103	105	157	67	42	13	9	739	70	88	422	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	0	286	2	0	0	0	479	6	99	530	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	112	0	0	4	0	0	20	0	0	12
Total Hourly Volume [veh/h]	126	109	337	72	44	10	9	1248	59	191	969	35
Peak Hour Factor	0.8679	0.8679	0.8679	0.8714	0.8714	0.8714	0.8950	0.8950	0.8950	0.6971	0.6971	0.6971
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	31	97	21	13	3	3	349	16	68	348	13
Total Analysis Volume [veh/h]	145	126	388	83	50	11	10	1394	66	274	1390	50
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0		0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0		0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0		0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0		0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0		0		0		0	
Bicycle Volume [bicycles/h]	0		0		0		0		0		0	

Version 2022 (SP 0-10)

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	43	0	0	14	0	19	43	0	20	44	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	39	10	10	10	1	39	39	16	54	54
g / C, Green / Cycle	0.33	0.08	0.08	0.08	0.01	0.33	0.33	0.13	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.39	0.05	0.03	0.01	0.01	0.39	0.39	0.15	0.38	0.38
s, saturation flow rate [veh/h]	1704	1810	1900	1615	1810	1900	1870	1810	1900	1877
c, Capacity [veh/h]	555	150	157	133	23	618	608	241	847	837
d1, Uniform Delay [s]	40.46	52.92	51.86	50.84	58.81	40.50	40.50	52.00	29.73	29.86
k, delay calibration	0.50	0.11	0.11	0.11	0.11	0.50	0.50	0.16	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	101.45	3.19	1.15	0.26	12.44	100.57	102.76	77.01	10.59	11.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	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	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.19	0.55	0.32	0.08	0.44	1.19	1.19	1.14	0.85	0.86
d, Delay for Lane Group [s/veh]	141.91	56.11	53.01	51.10	71.25	141.06	143.25	129.01	40.33	40.98
Lane Group LOS	F	E	D	D	E	F	F	F	D	D
Critical Lane Group	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	31.76	2.54	1.47	0.32	0.38	35.20	35.01	12.40	20.63	20.70
50th-Percentile Queue Length [ft/ln]	794.09	63.54	36.81	7.91	9.54	879.98	875.33	310.01	515.69	517.62
95th-Percentile Queue Length [veh/ln]	45.64	4.58	2.65	0.57	0.69	50.10	49.97	19.20	28.08	28.17
95th-Percentile Queue Length [ft/ln]	1141.02	114.38	66.26	14.24	17.17	1252.39	1249.15	479.99	701.90	704.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	141.91	141.91	141.91	56.11	53.01	51.10	71.25	142.10	143.25	129.01	40.64	40.98
Movement LOS	F	F	F	E	D	D	E	F	F	F	D	D
d_A, Approach Delay [s/veh]	141.91			54.65			141.67			54.78		
Approach LOS	F			D			F			D		
d_I, Intersection Delay [s/veh]	101.21											
Intersection LOS	F											
Intersection V/C	0.972											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.236	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	167	650	667
d_b, Bicycle Delay [s]	27.34	50.42	27.34	26.67
I_b,int, Bicycle LOS Score for Intersection	2.832	1.804	2.789	2.984
Bicycle LOS	C	A	C	C

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Ethanac Rd/Project Dwy 1

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.019

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	0	983	0	0	563
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	785	0	0	732
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	0	1807	0	0	1318
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	0	476	0	0	347
Total Analysis Volume [veh/h]	0	0	1902	0	0	1387
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.02	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	176.77	18.63	0.00	0.00	16.35	0.00
Movement LOS	F	C	A	A	C	A
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	0.00
d_A, Approach Delay [s/veh]	97.70		0.00		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 3: Barnett Rd-Case Rd/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	82.3
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.846

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	+			T T T			T T T			T T T		
Lane Configuration	+			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	305.00	100.00	220.00	160.00	100.00	450.00	120.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	37	22	121	392	0	97	167	754	29	112	483	388
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	13	0	5	13	772	0	0	727	23
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	32	0	0	27	0	0	8	0	0	107
Total Hourly Volume [veh/h]	38	23	94	421	0	79	187	1556	22	116	1229	320
Peak Hour Factor	0.6818	0.6818	0.6818	0.9114	0.9114	0.9114	0.8523	0.8523	0.8523	0.8520	0.8520	0.8520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	8	34	115	0	22	55	456	6	34	361	94
Total Analysis Volume [veh/h]	56	34	138	462	0	87	219	1826	26	136	1442	376
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0			0			0			
v_di, Inbound Pedestrian Volume crossing m	0		0			0			0			
v_co, Outbound Pedestrian Volume crossing	0		0			0			0			
v_ci, Inbound Pedestrian Volume crossing mi	0		0			0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0		0			0			0			
Bicycle Volume [bicycles/h]	0		0			0			0			

Version 2022 (SP 0-10)

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
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	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	20	0	0	25	0	25	40	0	15	40	0
Amber [s]	0.0	5.0	0.0	0.0	4.0	0.0	3.0	5.2	0.0	3.0	5.2	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.8	0.0	1.0	0.8	0.0
Split [s]	0	14	0	0	50	0	11	44	0	12	45	0
Vehicle Extension [s]	0.0	3.5	0.0	0.0	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0
Walk [s]	0	5	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	38	0	0	23	0	0	32	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	3.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	5.00	5.00	5.00	4.00	6.00	6.00	4.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	3.00	3.00	3.00	2.00	4.00	4.00	2.00	4.00	4.00
g_i, Effective Green Time [s]	8	19	19	19	7	64	64	8	65	65
g / C, Green / Cycle	0.07	0.16	0.16	0.16	0.06	0.53	0.53	0.07	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.03	0.03	0.12	0.50	0.02	0.08	0.40	0.23
s, saturation flow rate [veh/h]	1698	3514	1615	1615	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	114	569	261	261	108	1913	854	121	1941	866
d1, Uniform Delay [s]	56.00	48.57	43.35	43.35	56.47	26.91	13.55	56.02	21.45	16.82
k, delay calibration	0.26	0.13	0.13	0.13	0.16	0.50	0.50	0.15	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	462.32	3.44	0.36	0.36	476.11	12.31	0.07	82.14	2.62	1.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	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	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.99	0.81	0.17	0.17	2.04	0.95	0.03	1.12	0.74	0.43
d, Delay for Lane Group [s/veh]	518.31	52.01	43.71	43.71	532.59	39.23	13.61	138.15	24.08	18.40
Lane Group LOS	F	D	D	D	F	D	B	F	C	B
Critical Lane Group	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	18.16	6.94	1.15	1.15	17.49	26.88	0.35	6.44	15.74	6.53
50th-Percentile Queue Length [ft/ln]	453.97	173.49	28.67	28.67	437.26	671.94	8.85	161.05	393.48	163.16
95th-Percentile Queue Length [veh/ln]	29.49	11.26	2.06	2.06	28.41	35.38	0.64	10.99	22.25	10.72
95th-Percentile Queue Length [ft/ln]	737.13	281.49	51.61	51.61	710.14	884.50	15.93	274.66	556.14	267.90

Movement, Approach, & Intersection Results

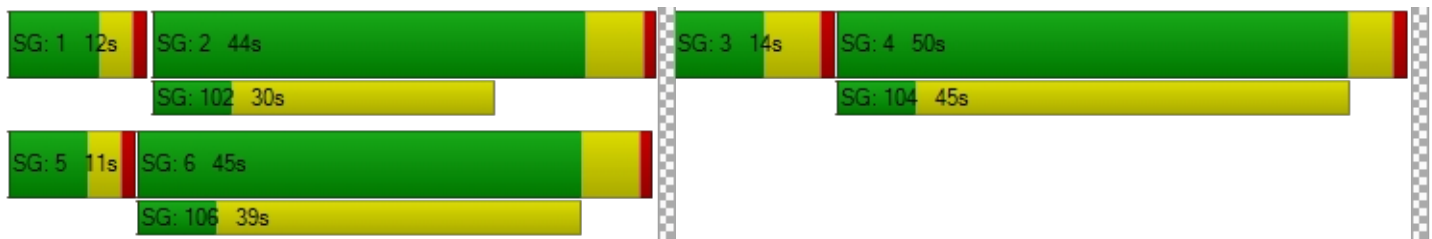
d_M, Delay for Movement [s/veh]	518.31	518.31	518.31	52.01	43.71	43.71	532.59	39.23	13.61	138.15	24.08	18.40
Movement LOS	F	F	F	D	D	D	F	D	B	F	C	B
d_A, Approach Delay [s/veh]	518.31			50.69			91.08			30.92		
Approach LOS	F			D			F			C		
d_I, Intersection Delay [s/veh]	82.27											
Intersection LOS	F											
Intersection V/C	0.846											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	49.53			49.53			49.53			0.00		
I_p,int, Pedestrian LOS Score for Intersection	1.984			2.718			3.078			0.000		
Crosswalk LOS	A			B			C			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	133			750			633			650		
d_b, Bicycle Delay [s]	52.29			23.46			28.04			27.36		
I_b,int, Bicycle LOS Score for Intersection	1.989			2.510			3.275			3.260		
Bicycle LOS	A			B			C			C		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report
Intersection 4: Barnett Rd/Project Dwy 2**

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	180	141	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	187	147	0	0	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]	0	49	39	0	0	0
Total Analysis Volume [veh/h]	0	197	155	0	0	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	9.02
Movement LOS		A	A	A		A
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	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		9.02	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 5: Barnett Rd/Project Dwy 3**

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	180	141	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	187	147	0	0	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]	0	49	39	0	0	0
Total Analysis Volume [veh/h]	0	197	155	0	0	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.50	0.00	0.00	0.00	10.54	9.02
Movement LOS	A	A	A	A	B	A
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	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		9.78	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 6: Barnett Rd/Project Dwy 4**

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	180	141	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	187	147	0	0	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]	0	49	39	0	0	0
Total Analysis Volume [veh/h]	0	197	155	0	0	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.50	0.00	0.00	0.00	10.54	9.02
Movement LOS	A	A	A	A	B	A
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	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		9.78	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 7: SB Ramps I-215/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	339.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.281

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00	100.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	650.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	137	3	274	0	610	536	103	717	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	267	0	387	0	591	194	100	363	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	409	3	672	0	1225	751	207	1109	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9375	0.9375	0.9375	1.0000	0.9189	0.9189	0.8448	0.8448	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	109	1	179	0	333	204	61	328	0
Total Analysis Volume [veh/h]	0	0	0	436	3	717	0	1333	817	245	1313	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0	
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-	
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0	
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0	
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	
Split [s]	0	0	0	0	23	0	0	83	0	14	97	0	
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0	
Pedestrian Clearance [s]	0	0	0	0	14	0	0	10	0	0	10	0	
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	
Minimum Recall					No			No		No	No		
Maximum Recall					No			No		No	No		
Pedestrian Recall					No			No		No	No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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		C	R	C	R	L	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		60	60	30	30	18	52
g / C, Green / Cycle		0.50	0.50	0.25	0.25	0.15	0.44
(v / s)_i Volume / Saturation Flow Rate		0.24	0.44	0.70	0.51	0.14	0.36
s, saturation flow rate [veh/h]		1810	1615	1900	1615	1810	3618
c, Capacity [veh/h]		899	802	478	406	274	1579
d1, Uniform Delay [s]		20.05	27.31	44.90	44.90	49.96	29.91
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]		1.89	14.45	810.66	463.46	10.35	1.20
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		0.49	0.89	2.79	2.01	0.89	0.83
d, Delay for Lane Group [s/veh]		21.94	41.77	855.57	508.37	60.31	31.11
Lane Group LOS		C	D	F	F	E	C
Critical Lane Group		No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]		8.52	21.13	121.75	64.30	7.98	16.65
50th-Percentile Queue Length [ft/ln]		213.02	528.21	3043.86	1607.58	199.44	416.22
95th-Percentile Queue Length [veh/ln]		13.31	28.67	190.51	101.33	12.61	23.34
95th-Percentile Queue Length [ft/ln]		332.70	716.67	4762.74	2533.32	315.24	583.51

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	21.94	21.94	41.77	0.00	855.57	508.37	60.31	31.11	0.00
Movement LOS				C	C	D		F	F	E	C	
d_A, Approach Delay [s/veh]	0.00			34.24			723.63			35.70		
Approach LOS	A			C			F			D		
d_I, Intersection Delay [s/veh]	339.44											
Intersection LOS	F											
Intersection V/C	1.281											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.331	0.000	2.957
Crosswalk LOS	F	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	317	1317	1550
d_b, Bicycle Delay [s]	60.00	42.50	7.00	3.04
I_b,int, Bicycle LOS Score for Intersection	4.132	3.467	5.107	2.845
Bicycle LOS	D	C	F	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: NB Ramps I-215/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	282.7
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.536

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔						↔			↔		
Lane Configuration	↔						↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	300.00	100.00	100.00	100.00	300.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	345	0	150	0	0	0	215	531	0	0	480	166
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	249	0	179	0	0	0	452	405	0	0	214	158
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	608	0	335	0	0	0	676	957	0	0	713	331
Peak Hour Factor	0.8160	0.8160	0.8160	1.0000	1.0000	1.0000	0.8756	0.8756	1.0000	1.0000	0.8318	0.8318
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	186	0	103	0	0	0	193	273	0	0	214	99
Total Analysis Volume [veh/h]	745	0	411	0	0	0	772	1093	0	0	857	398
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	14	0	0	0	0	9	106	0	0	97	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	R		L	C	C
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	40	40		30	72	38
g / C, Green / Cycle	0.34	0.34		0.25	0.60	0.31
(v / s)_i Volume / Saturation Flow Rate	0.41	0.25		0.43	0.58	0.70
s, saturation flow rate [veh/h]	1810	1615		1810	1900	1799
c, Capacity [veh/h]	610	545		449	1133	566
d1, Uniform Delay [s]	39.77	35.36		45.10	23.04	41.13
k, delay calibration	0.50	0.50		0.50	0.24	0.50
l, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	113.76	9.38		332.33	11.82	553.79
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.22	0.75		1.72	0.96	2.22
d, Delay for Lane Group [s/veh]	153.53	44.74		377.42	34.86	594.92
Lane Group LOS	F	D		F	C	F
Critical Lane Group	Yes	No		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	36.96	12.01		54.73	30.94	103.55
50th-Percentile Queue Length [ft/ln]	924.00	300.23		1368.15	773.41	2588.71
95th-Percentile Queue Length [veh/ln]	53.16	17.69		84.67	40.06	163.78
95th-Percentile Queue Length [ft/ln]	1329.12	442.32		2116.77	1001.45	4094.48

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	153.53	153.53	44.74	0.00	0.00	0.00	377.42	34.86	0.00	0.00	594.92	594.92
Movement LOS	F	F	D				F	C			F	F
d_A, Approach Delay [s/veh]	114.85			0.00			176.66			594.92		
Approach LOS	F			A			F			F		
d_I, Intersection Delay [s/veh]	282.71											
Intersection LOS	F											
Intersection V/C	1.536											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.331	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	167	0	1700	1550
d_b, Bicycle Delay [s]	50.42	60.00	1.35	3.04
I_b,int, Bicycle LOS Score for Intersection	3.467	4.132	4.637	3.630
Bicycle LOS	C	D	E	D

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Ethanac Barnett Industrial

Vistro File: C:\...\Barnett and Ethanac
Warehouse_11_14_2022.vistro

Scenario 5 Opening AM

Report File: C:\...\Opening AM.pdf

12/2/2022

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Murrieta Rd/Ethanac Rd	126	109	449	72	44	14	9	1248	79	191	969	47	3357

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
2	Ethanac Rd/Project Dwy 1	0	0	1807	0	0	1318	3125

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Barnett Rd-Case Rd/Ethanac Rd	38	23	126	421	0	106	187	1556	30	116	1229	427	4259

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Thru	Right	Thru	Right	Right	Right	
4	Barnett Rd/Project Dwy 2	187		147	0	0		334

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
5	Barnett Rd/Project Dwy 3	0	187	147	0	0	0	334

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
6	Barnett Rd/Project Dwy 4	0	187	147	0	0	0	334

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
7	SB Ramps I-215/Ethanac Rd	409	3	672	1225	751	207	1109	4376

Version 2022 (SP 0-10)

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
8	NB Ramps I-215/Ethanac Rd	608	0	335	676	957	713	331	3620

Table of Contents

Intersection Analysis Summary	2
Intersection Level Of Service Report	3
Intersection 1: Murrieta Rd/Ethanac Rd	3
Intersection 2: Ethanac Rd/Project Dwy 1	8
Intersection 3: Barnett Rd-Case Rd/Ethanac Rd	10
Intersection 4: Barnett Rd/Project Dwy 2	15
Intersection 5: Barnett Rd/Project Dwy 3	17
Intersection 6: Barnett Rd/Project Dwy 4	19
Intersection 7: SB Ramps I-215/Ethanac Rd	21
Intersection 8: NB Ramps I-215/Ethanac Rd	26
Turning Movement Volume: Summary	31

Ethanac Barnett Industrial

Vistro File: C:\...\Barnett and Ethanac
Warehouse_11_14_2022.vistro

Scenario 6 Opening PM

Report File: C:\...\Opening PM.pdf

12/2/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Murrieta Rd/Ethanac Rd	Signalized	HCM 7th Edition	NB Right	1.034	112.5	F
2	Ethanac Rd/Project Dwy 1	Two-way stop	HCM 7th Edition	WB Thru	0.019	0.0	A
3	Barnett Rd-Case Rd/Ethanac Rd	Signalized	HCM 7th Edition	EB Left	0.840	60.4	E
4	Barnett Rd/Project Dwy 2	Two-way stop	HCM 7th Edition	NB Thru	0.001	0.0	A
5	Barnett Rd/Project Dwy 3	Two-way stop	HCM 7th Edition	NB Thru	0.001	0.0	A
6	Barnett Rd/Project Dwy 4	Two-way stop	HCM 7th Edition	NB Thru	0.001	0.0	A
7	SB Ramps I-215/Ethanac Rd	Signalized	HCM 7th Edition	EB Thru	1.691	390.4	F
8	NB Ramps I-215/Ethanac Rd	Signalized	HCM 7th Edition	WB Thru	1.940	422.9	F

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.

Intersection Level Of Service Report
Intersection 1: Murrieta Rd/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	112.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.034

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			← →			← →			← →		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	325.00	100.00	620.00	245.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	102	97	140	43	112	18	10	500	120	194	554	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	0	192	3	0	0	0	631	21	326	586	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	85	0	0	5	0	0	37	0	0	15
Total Hourly Volume [veh/h]	116	101	253	48	116	14	10	1151	109	528	1162	45
Peak Hour Factor	0.9185	0.9185	0.9185	0.8801	0.8801	0.8801	0.9388	0.9388	0.9388	0.9502	0.9502	0.9502
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	27	69	14	33	4	3	307	29	139	306	12
Total Analysis Volume [veh/h]	126	110	275	55	132	16	11	1226	116	556	1223	47
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0			0			0			
v_di, Inbound Pedestrian Volume crossing m	0		0			0			0			
v_co, Outbound Pedestrian Volume crossing	0		0			0			0			
v_ci, Inbound Pedestrian Volume crossing mi	0		0			0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0		0			0			0			
Bicycle Volume [bicycles/h]	0		0			0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	33	0	0	14	0	9	39	0	34	64	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	29	10	10	10	2	35	35	30	63	63
g / C, Green / Cycle	0.24	0.08	0.08	0.08	0.01	0.29	0.29	0.25	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.30	0.03	0.07	0.01	0.01	0.36	0.36	0.31	0.33	0.34
s, saturation flow rate [veh/h]	1716	1810	1900	1615	1810	1900	1843	1810	1900	1875
c, Capacity [veh/h]	415	151	158	135	25	554	538	452	1003	990
d1, Uniform Delay [s]	45.50	52.00	54.18	50.92	58.73	42.50	42.50	45.00	20.09	20.20
k, delay calibration	0.50	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	123.95	1.47	10.76	0.39	11.96	117.21	119.93	121.23	3.05	3.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	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	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.23	0.36	0.83	0.12	0.44	1.23	1.23	1.23	0.63	0.64
d, Delay for Lane Group [s/veh]	169.45	53.47	64.95	51.31	70.69	159.71	162.43	166.23	23.15	23.37
Lane Group LOS	F	D	E	D	E	F	F	F	C	C
Critical Lane Group	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	26.52	1.63	4.40	0.46	0.41	34.26	33.64	28.57	13.12	13.17
50th-Percentile Queue Length [ft/ln]	663.08	40.78	109.97	11.54	10.36	856.46	840.95	714.33	327.99	329.18
95th-Percentile Queue Length [veh/ln]	39.14	2.94	7.84	0.83	0.75	49.47	48.77	41.83	19.06	19.12
95th-Percentile Queue Length [ft/ln]	978.42	73.41	195.96	20.78	18.65	1236.80	1219.25	1045.75	476.49	477.95

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	169.45	169.45	169.45	53.47	64.95	51.31	70.69	160.92	162.43	166.23	23.25	23.37
Movement LOS	F	F	F	D	E	D	E	F	F	F	C	C
d_A, Approach Delay [s/veh]	169.45			60.76			160.32			66.79		
Approach LOS	F			E			F			E		
d_I, Intersection Delay [s/veh]	112.46											
Intersection LOS	F											
Intersection V/C	1.034											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			9.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			51.34			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			2.249			0.000			0.000		
Crosswalk LOS	F			B			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	483			167			583			1000		
d_b, Bicycle Delay [s]	34.50			50.42			30.10			15.00		
I_b,int, Bicycle LOS Score for Intersection	2.543			1.903			2.706			3.078		
Bicycle LOS	B			A			B			C		

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Ethanac Rd/Project Dwy 1

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.019

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	0	686	0	0	794
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	945	0	0	950
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	0	1658	0	0	1776
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	0	436	0	0	467
Total Analysis Volume [veh/h]	0	0	1745	0	0	1869
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.02	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	201.33	17.10	0.00	0.00	14.87	0.00
Movement LOS	F	C	A	A	B	A
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	0.00
d_A, Approach Delay [s/veh]	109.21		0.00		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 3: Barnett Rd-Case Rd/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	60.4
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.840

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	305.00	100.00	220.00	160.00	100.00	450.00	120.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	21	0	96	473	0	188	198	540	39	56	655	441
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	80	0	21	17	927	0	0	929	74
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	25	0	0	54	0	0	10	0	0	133
Total Hourly Volume [veh/h]	22	0	75	572	0	163	223	1489	31	58	1610	400
Peak Hour Factor	0.8694	0.8694	0.8694	0.9463	0.9463	0.9463	0.9060	0.9060	0.9060	0.9560	0.9560	0.9560
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	0	22	151	0	43	62	411	9	15	421	105
Total Analysis Volume [veh/h]	25	0	86	604	0	172	246	1643	34	61	1684	418
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0			0			0			
v_di, Inbound Pedestrian Volume crossing m	0		0			0			0			
v_co, Outbound Pedestrian Volume crossing	0		0			0			0			
v_ci, Inbound Pedestrian Volume crossing mi	0		0			0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0		0			0			0			
Bicycle Volume [bicycles/h]	0		0			0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
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	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	20	0	0	25	0	25	40	0	15	40	0
Amber [s]	0.0	5.0	0.0	0.0	4.0	0.0	3.0	5.2	0.0	3.0	5.2	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.8	0.0	1.0	0.8	0.0
Split [s]	0	12	0	0	50	0	13	48	0	10	45	0
Vehicle Extension [s]	0.0	3.5	0.0	0.0	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0
Walk [s]	0	5	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	38	0	0	23	0	0	32	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	3.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	5.00	5.00	5.00	4.00	6.00	6.00	4.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	3.00	3.00	3.00	2.00	4.00	4.00	2.00	4.00	4.00
g_i, Effective Green Time [s]	6	25	25	25	9	63	63	5	59	59
g / C, Green / Cycle	0.05	0.21	0.21	0.21	0.08	0.52	0.52	0.04	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.07	0.17	0.05	0.05	0.14	0.45	0.02	0.03	0.47	0.26
s, saturation flow rate [veh/h]	1655	3514	1615	1615	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	83	728	334	334	137	1895	846	79	1780	795
d1, Uniform Delay [s]	56.99	45.57	39.86	39.86	55.49	24.94	13.91	56.79	28.97	20.89
k, delay calibration	0.13	0.13	0.13	0.13	0.21	0.50	0.50	0.13	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	168.35	3.03	0.49	0.49	372.26	5.67	0.09	16.96	11.89	2.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	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	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.33	0.83	0.26	0.26	1.80	0.87	0.04	0.77	0.95	0.53
d, Delay for Lane Group [s/veh]	225.34	48.60	40.35	40.35	427.75	30.61	14.00	73.75	40.87	23.38
Lane Group LOS	F	D	D	D	F	C	B	E	D	C
Critical Lane Group	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.43	8.90	2.18	2.18	18.26	21.03	0.47	2.20	25.05	8.46
50th-Percentile Queue Length [ft/ln]	160.85	222.40	54.62	54.62	456.38	525.67	11.79	55.11	626.19	211.57
95th-Percentile Queue Length [veh/ln]	11.38	13.79	3.93	3.93	29.46	28.55	0.85	3.97	33.26	13.23
95th-Percentile Queue Length [ft/ln]	284.40	344.69	98.31	98.31	736.40	713.67	21.23	99.19	831.39	330.84

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	225.34	225.34	225.34	48.60	40.35	40.35	427.75	30.61	14.00	73.75	40.87	23.38
Movement LOS	F	F	F	D	D	D	F	C	B	E	D	C
d_A, Approach Delay [s/veh]	225.34			46.77			81.12			38.41		
Approach LOS	F			D			F			D		
d_I, Intersection Delay [s/veh]	60.40											
Intersection LOS	E											
Intersection V/C	0.840											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.51	49.51	49.51	0.00
I_p,int, Pedestrian LOS Score for Intersection	1.882	2.808	3.109	0.000
Crosswalk LOS	A	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	100	750	700	650
d_b, Bicycle Delay [s]	54.16	23.45	25.36	27.35
I_b,int, Bicycle LOS Score for Intersection	1.784	2.929	3.154	3.454
Bicycle LOS	A	C	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report
Intersection 4: Barnett Rd/Project Dwy 2**

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	117	95	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	122	99	0	0	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]	0	32	26	0	0	0
Total Analysis Volume [veh/h]	0	128	104	0	0	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	8.76
Movement LOS		A	A	A		A
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	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		8.76	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 5: Barnett Rd/Project Dwy 3**

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	117	95	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	122	99	0	0	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]	0	32	26	0	0	0
Total Analysis Volume [veh/h]	0	128	104	0	0	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.40	0.00	0.00	0.00	9.73	8.76
Movement LOS	A	A	A	A	A	A
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	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		9.25	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 6: Barnett Rd/Project Dwy 4**

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	117	95	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	122	99	0	0	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]	0	32	26	0	0	0
Total Analysis Volume [veh/h]	0	128	104	0	0	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.40	0.00	0.00	0.00	9.73	8.76
Movement LOS	A	A	A	A	A	A
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	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		9.25	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 7: SB Ramps I-215/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	390.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.691

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00	100.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	650.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	173	5	319	0	588	420	119	692	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	494	0	569	0	689	318	377	434	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	674	5	901	0	1301	755	501	1154	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.8464	0.8464	0.8464	1.0000	0.9226	0.9226	0.9564	0.9564	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	199	1	266	0	353	205	131	302	0
Total Analysis Volume [veh/h]	0	0	0	796	6	1065	0	1410	818	524	1207	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	43	0	0	55	0	22	77	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	14	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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		C	R	C	R	L	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		48	48	30	30	30	64
g / C, Green / Cycle		0.40	0.40	0.25	0.25	0.25	0.53
(v / s)_i Volume / Saturation Flow Rate		0.44	0.66	0.74	0.51	0.29	0.33
s, saturation flow rate [veh/h]		1810	1615	1900	1615	1810	3618
c, Capacity [veh/h]		727	648	475	404	450	1924
d1, Uniform Delay [s]		35.92	35.92	44.99	44.99	45.09	19.72
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.11
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		65.52	296.28	891.01	470.03	96.12	0.34
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		1.10	1.64	2.97	2.03	1.17	0.63
d, Delay for Lane Group [s/veh]		101.44	332.19	936.01	515.03	141.21	20.06
Lane Group LOS		F	F	F	F	F	C
Critical Lane Group		No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]		33.97	71.86	131.62	64.64	25.26	11.59
50th-Percentile Queue Length [ft/ln]		849.21	1796.38	3290.41	1616.10	631.48	289.69
95th-Percentile Queue Length [veh/ln]		46.71	111.74	205.61	101.92	36.54	17.17
95th-Percentile Queue Length [ft/ln]		1167.74	2793.38	5140.31	2547.91	913.40	429.25

Movement, Approach, & Intersection Results

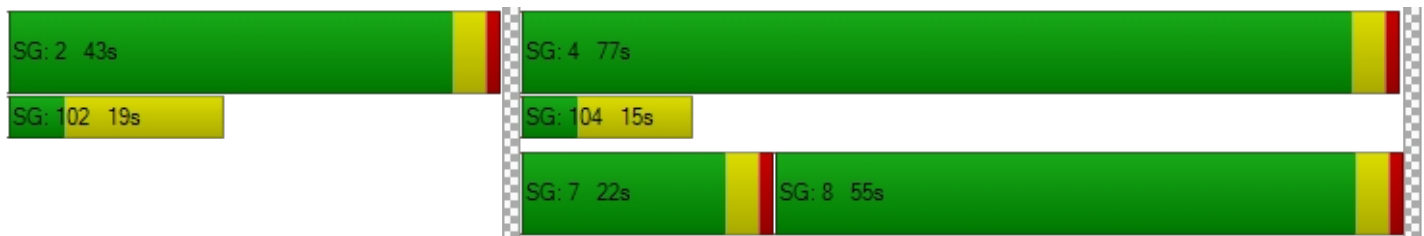
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	101.44	101.44	332.19	0.00	936.01	515.03	141.21	20.06	0.00
Movement LOS				F	F	F		F	F	F	C	
d_A, Approach Delay [s/veh]	0.00			233.07			781.45			56.74		
Approach LOS	A			F			F			E		
d_I, Intersection Delay [s/veh]	390.39											
Intersection LOS	F											
Intersection V/C	1.691											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.562	0.000	3.106
Crosswalk LOS	F	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	650	850	1217
d_b, Bicycle Delay [s]	60.00	27.34	19.84	9.20
I_b,int, Bicycle LOS Score for Intersection	4.132	4.640	5.236	2.988
Bicycle LOS	D	E	F	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: NB Ramps I-215/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	422.9
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.940

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔						↔			↔		
Lane Configuration	↔						↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	300.00	100.00	100.00	100.00	300.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	438	1	236	0	0	0	243	512	0	0	373	158
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	260	0	304	0	0	0	528	655	0	0	551	591
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	716	1	549	0	0	0	781	1187	0	0	939	755
Peak Hour Factor	0.8544	0.8544	0.8544	1.0000	1.0000	1.0000	0.9269	0.9269	1.0000	1.0000	0.9516	0.9516
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	210	0	161	0	0	0	211	320	0	0	247	198
Total Analysis Volume [veh/h]	838	1	643	0	0	0	843	1281	0	0	987	793
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	14	0	0	0	0	12	106	0	0	94	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	R		L	C	C
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	29	29		30	83	49
g / C, Green / Cycle	0.24	0.24		0.25	0.69	0.41
(v / s)_i Volume / Saturation Flow Rate	0.46	0.40		0.47	0.67	1.01
s, saturation flow rate [veh/h]	1810	1615		1810	1900	1762
c, Capacity [veh/h]	433	386		449	1319	726
d1, Uniform Delay [s]	45.65	45.65		45.10	17.23	35.26
k, delay calibration	0.50	0.50		0.50	0.33	0.50
l, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	430.66	310.28		402.39	14.29	656.75
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.94	1.66		1.88	0.97	2.45
d, Delay for Lane Group [s/veh]	476.31	355.93		447.49	31.52	692.01
Lane Group LOS	F	F		F	C	F
Critical Lane Group	Yes	No		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	64.57	44.71		63.48	33.98	153.21
50th-Percentile Queue Length [ft/ln]	1614.21	1117.67		1587.03	849.59	3830.35
95th-Percentile Queue Length [veh/ln]	100.79	69.52		98.96	43.54	246.50
95th-Percentile Queue Length [ft/ln]	2519.76	1738.11		2473.92	1088.61	6162.41

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	476.31	476.31	355.93	0.00	0.00	0.00	447.49	31.52	0.00	0.00	692.01	692.01
Movement LOS	F	F	F				F	C			F	F
d_A, Approach Delay [s/veh]	424.08			0.00			196.61			692.01		
Approach LOS	F			A			F			F		
d_I, Intersection Delay [s/veh]	422.92											
Intersection LOS	F											
Intersection V/C	1.940											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.437	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	167	0	1700	1500
d_b, Bicycle Delay [s]	50.42	60.00	1.35	3.75
I_b,int, Bicycle LOS Score for Intersection	4.005	4.132	5.064	4.497
Bicycle LOS	D	D	F	E

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Ethanac Barnett Industrial

Vistro File: C:\...\Barnett and Ethanac
Warehouse_11_14_2022.vistro

Scenario 6 Opening PM

Report File: C:\...\Opening PM.pdf

12/2/2022

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Murrieta Rd/Ethanac Rd	116	101	338	48	116	19	10	1151	146	528	1162	60	3795

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
2	Ethanac Rd/Project Dwy 1	0	0	1658	0	0	1776	3434

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Barnett Rd-Case Rd/Ethanac Rd	22	0	100	572	0	217	223	1489	41	58	1610	533	4865

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Thru	Right	Thru	Right	Right	Right	
4	Barnett Rd/Project Dwy 2	122		99	0	0	0	221

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
5	Barnett Rd/Project Dwy 3	0	122	99	0	0	0	221

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
6	Barnett Rd/Project Dwy 4	0	122	99	0	0	0	221

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
7	SB Ramps I-215/Ethanac Rd	674	5	901	1301	755	501	1154	5291

Version 2022 (SP 0-10)

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
8	NB Ramps I-215/Ethanac Rd	716	1	549	781	1187	939	755	4928

Table of Contents

Intersection Analysis Summary	2
Intersection Level Of Service Report	3
Intersection 1: Murrieta Rd/Ethanac Rd	3
Intersection 2: Ethanac Rd/Project Dwy 1	8
Intersection 3: Barnett Rd-Case Rd/Ethanac Rd	10
Intersection 4: Barnett Rd/Project Dwy 2	15
Intersection 5: Barnett Rd/Project Dwy 3	17
Intersection 6: Barnett Rd/Project Dwy 4	19
Intersection 7: SB Ramps I-215/Ethanac Rd	21
Intersection 8: NB Ramps I-215/Ethanac Rd	26
Turning Movement Volume: Summary	31

Ethanac Barnett Industrial

Vistro File: C:\...\Barnett and Ethanac
Warehouse_1_3_2023.vistro

Scenario 3 Existing AM + Proj

Report File: C:\...\Existing AM + P.pdf

1/3/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Murrieta Rd/Ethanac Rd	Signalized	HCM 7th Edition	EB Left	0.566	32.4	C
2	Ethanac Rd/Project Dwy 1	Two-way stop	HCM 7th Edition	NB Right	0.006	12.2	B
3	Barnett Rd-Case Rd/Ethanac Rd	Signalized	HCM 7th Edition	NB Right	0.615	99.3	F
4	Barnett Rd/Project Dwy 2	Two-way stop	HCM 7th Edition	NB Thru	0.002	0.0	A
5	Barnett Rd/Project Dwy 3	Two-way stop	HCM 7th Edition	EB Left	0.008	10.7	B
6	Barnett Rd/Project Dwy 4	Two-way stop	HCM 7th Edition	EB Left	0.017	10.6	B
7	SB Ramps I-215/Ethanac Rd	Signalized	HCM 7th Edition	EB Right	0.634	131.9	F
8	NB Ramps I-215/Ethanac Rd	Signalized	HCM 7th Edition	WB Thru	0.818	147.3	F

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.

Intersection Level Of Service Report
Intersection 1: Murrieta Rd/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	32.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.566

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			← →			← →			← →		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	325.00	100.00	620.00	245.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	103	105	157	67	42	13	9	739	70	88	422	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	5	2	0	0	0	1	0	1	0	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	41	0	0	3	0	0	18	0	0	11
Total Hourly Volume [veh/h]	103	105	121	69	42	10	9	740	52	89	422	34
Peak Hour Factor	0.8679	0.8679	0.8679	0.8714	0.8714	0.8714	0.8950	0.8950	0.8950	0.6971	0.6971	0.6971
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	30	35	20	12	3	3	207	15	32	151	12
Total Analysis Volume [veh/h]	119	121	139	79	48	11	10	827	58	128	605	49
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0		0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0		0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0		0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0		0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0		0		0		0	
Bicycle Volume [bicycles/h]	0		0		0		0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	45	0	0	14	0	29	42	0	19	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	28	10	10	10	2	56	56	10	65	65
g / C, Green / Cycle	0.23	0.08	0.08	0.08	0.01	0.46	0.46	0.09	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.22	0.04	0.03	0.01	0.01	0.24	0.24	0.07	0.17	0.17
s, saturation flow rate [veh/h]	1759	1810	1900	1615	1810	1900	1857	1810	1900	1850
c, Capacity [veh/h]	412	149	157	133	24	882	862	156	1020	993
d1, Uniform Delay [s]	44.86	52.81	51.82	50.85	58.73	22.55	22.55	53.94	15.60	15.60
k, delay calibration	0.19	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.67	2.89	1.09	0.26	10.93	2.09	2.13	10.27	0.85	0.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	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	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.53	0.31	0.08	0.41	0.51	0.51	0.82	0.32	0.33
d, Delay for Lane Group [s/veh]	58.53	55.70	52.91	51.12	69.66	24.63	24.68	64.21	16.44	16.47
Lane Group LOS	E	E	D	D	E	C	C	E	B	B
Critical Lane Group	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	12.50	2.41	1.41	0.32	0.38	9.28	9.08	4.24	5.27	5.14
50th-Percentile Queue Length [ft/ln]	312.61	60.20	35.29	7.91	9.38	231.98	227.01	106.09	131.64	128.52
95th-Percentile Queue Length [veh/ln]	18.30	4.33	2.54	0.57	0.68	14.27	14.02	7.62	9.03	8.86
95th-Percentile Queue Length [ft/ln]	457.59	108.36	63.52	14.24	16.89	356.87	350.55	190.55	225.72	221.48

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.53	58.53	58.53	55.70	52.91	51.12	69.66	24.65	24.68	64.21	16.46	16.47
Movement LOS	E	E	E	E	D	D	E	C	C	E	B	B
d_A, Approach Delay [s/veh]	58.53			54.37			25.16			24.27		
Approach LOS	E			D			C			C		
d_I, Intersection Delay [s/veh]	32.44											
Intersection LOS	C											
Intersection V/C	0.566											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			9.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			51.34			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			2.232			0.000			0.000		
Crosswalk LOS	F			B			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	683			167			633			467		
d_b, Bicycle Delay [s]	26.00			50.42			28.02			35.27		
I_b,int, Bicycle LOS Score for Intersection	2.253			1.792			2.313			2.214		
Bicycle LOS	B			A			B			B		

Sequence




Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report
Intersection 2: Ethanac Rd/Project Dwy 1**

Control Type:	Two-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	0	983	0	0	563
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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	3	0	7	0	2
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	3	983	7	0	565
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	1	259	2	0	149
Total Analysis Volume [veh/h]	0	3	1035	7	0	595
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	29.48	12.16	0.00	0.00	10.33	0.00
Movement LOS	D	B	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.45	0.45	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.16		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.02					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 3: Barnett Rd-Case Rd/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	99.3
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.615

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	+			T T T			T T T			T T T		
Lane Configuration	+			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	305.00	100.00	220.00	160.00	100.00	450.00	120.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	37	22	121	392	0	97	167	754	29	112	483	388
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	13	0	1	0	0	3	0	54	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	34	0	0	24	0	0	7	0	0	97
Total Hourly Volume [veh/h]	39	22	100	392	1	73	167	757	22	166	483	291
Peak Hour Factor	0.6818	0.6818	0.6818	0.9114	0.9114	0.9114	0.8523	0.8523	0.8523	0.8520	0.8520	0.8520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	8	37	108	0	20	49	222	6	49	142	85
Total Analysis Volume [veh/h]	57	32	147	430	1	80	196	888	26	195	567	342
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0			0			0			
v_di, Inbound Pedestrian Volume crossing m	0		0			0			0			
v_co, Outbound Pedestrian Volume crossing	0		0			0			0			
v_ci, Inbound Pedestrian Volume crossing mi	0		0			0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0		0			0			0			
Bicycle Volume [bicycles/h]	0		0			0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
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	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	20	0	0	25	0	25	40	0	15	40	0
Amber [s]	0.0	5.0	0.0	0.0	4.0	0.0	3.0	5.2	0.0	3.0	5.2	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.8	0.0	1.0	0.8	0.0
Split [s]	0	14	0	0	50	0	11	36	0	20	45	0
Vehicle Extension [s]	0.0	3.5	0.0	0.0	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0
Walk [s]	0	5	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	38	0	0	23	0	0	32	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	3.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	5.00	5.00	5.00	4.00	6.00	6.00	4.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	3.00	3.00	3.00	2.00	4.00	4.00	2.00	4.00	4.00
g_i, Effective Green Time [s]	8	18	18	18	7	58	58	15	66	66
g / C, Green / Cycle	0.07	0.15	0.15	0.15	0.06	0.48	0.48	0.12	0.55	0.55
(v / s)_i Volume / Saturation Flow Rate	0.14	0.12	0.03	0.03	0.11	0.25	0.02	0.11	0.16	0.21
s, saturation flow rate [veh/h]	1693	3514	1621	1615	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	114	533	246	245	107	1748	780	223	1980	884
d1, Uniform Delay [s]	56.00	49.21	44.30	44.30	56.49	21.25	16.30	51.72	14.58	15.60
k, delay calibration	0.28	0.13	0.13	0.13	0.13	0.50	0.50	0.29	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	501.88	3.53	0.38	0.38	386.99	1.06	0.08	23.32	0.36	1.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	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	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	2.08	0.81	0.16	0.16	1.84	0.51	0.03	0.87	0.29	0.39
d, Delay for Lane Group [s/veh]	557.88	52.74	44.68	44.68	443.47	22.31	16.38	75.04	14.94	16.88
Lane Group LOS	F	D	D	D	F	C	B	E	B	B
Critical Lane Group	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	19.26	6.48	1.08	1.08	14.68	8.69	0.40	7.20	4.20	5.60
50th-Percentile Queue Length [ft/ln]	481.49	162.09	27.07	26.97	367.11	217.34	9.90	180.07	104.93	140.04
95th-Percentile Queue Length [veh/ln]	31.17	10.66	1.95	1.94	24.13	13.53	0.71	11.60	7.56	9.48
95th-Percentile Queue Length [ft/ln]	779.25	266.49	48.73	48.55	603.32	338.23	17.82	290.10	188.88	237.08

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	557.88	557.88	557.88	52.74	44.68	44.68	443.47	22.31	16.38	75.04	14.94	16.88
Movement LOS	F	F	F	D	D	D	F	C	B	E	B	B
d_A, Approach Delay [s/veh]	557.88			51.46			96.54			26.16		
Approach LOS	F			D			F			C		
d_I, Intersection Delay [s/veh]	99.29											
Intersection LOS	F											
Intersection V/C	0.615											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.51	49.51	49.51	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.020	2.696	2.776	0.000
Crosswalk LOS	B	B	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	133	750	500	650
d_b, Bicycle Delay [s]	52.28	23.45	33.76	27.35
I_b,int, Bicycle LOS Score for Intersection	2.005	2.442	2.481	2.550
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report
Intersection 4: Barnett Rd/Project Dwy 2**

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	180	141	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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	15	24	31	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	195	165	31	0	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]	0	51	43	8	0	0
Total Analysis Volume [veh/h]	0	205	174	33	0	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	9.20
Movement LOS		A	A	A		A
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	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		9.20	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 5: Barnett Rd/Project Dwy 3**

Control Type:	Two-way stop	Delay (sec / veh):	10.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	180	141	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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	10	12	12	5	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	190	153	12	5	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]	0	50	40	3	1	0
Total Analysis Volume [veh/h]	0	200	161	13	5	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	7.54	0.00	0.00	0.00	10.70	9.13
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.59	0.59
d_A, Approach Delay [s/veh]	0.00		0.00		10.70	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.14					
Intersection LOS	B					

**Intersection Level Of Service Report
Intersection 6: Barnett Rd/Project Dwy 4**

Control Type:	Two-way stop	Delay (sec / veh):	10.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.017

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	180	141	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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	12	10	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	180	141	12	10	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]	0	47	37	3	3	0
Total Analysis Volume [veh/h]	0	189	148	13	11	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	7.52	0.00	0.00	0.00	10.57	9.11
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.05	0.05
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	1.28	1.28
d_A, Approach Delay [s/veh]	0.00		0.00		10.57	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.32					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 7: SB Ramps I-215/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	131.9
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.634

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00	100.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	650.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	137	3	274	0	610	536	103	717	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	30	0	9	7	0	23	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	137	3	304	0	619	543	103	740	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9375	0.9375	0.9375	1.0000	0.9189	0.9189	0.8448	0.8448	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	37	1	81	0	168	148	30	219	0
Total Analysis Volume [veh/h]	0	0	0	146	3	324	0	674	591	122	876	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	23	0	0	88	0	9	97	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	14	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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		C	R	C	R	L	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		68	68	30	30	10	44
g / C, Green / Cycle		0.57	0.57	0.25	0.25	0.08	0.37
(v / s)_i Volume / Saturation Flow Rate		0.08	0.20	0.35	0.37	0.07	0.24
s, saturation flow rate [veh/h]		1811	1615	1900	1615	1810	3618
c, Capacity [veh/h]		1024	913	478	406	150	1331
d1, Uniform Delay [s]		12.35	14.18	44.90	44.90	54.10	31.63
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	1.08	196.60	217.81	10.02	0.56
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		0.15	0.35	1.41	1.45	0.81	0.66
d, Delay for Lane Group [s/veh]		12.65	15.26	241.51	262.71	64.12	32.19
Lane Group LOS		B	B	F	F	E	C
Critical Lane Group		No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		1.97	4.97	40.22	36.58	4.04	10.63
50th-Percentile Queue Length [ft/ln]		49.14	124.21	1005.43	914.45	100.96	265.63
95th-Percentile Queue Length [veh/ln]		3.54	8.62	60.25	55.84	7.27	15.97
95th-Percentile Queue Length [ft/ln]		88.45	215.59	1506.22	1396.11	181.74	399.28

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	12.65	12.65	15.26	0.00	241.51	262.71	64.12	32.19	0.00
Movement LOS				B	B	B		F	F	E	C	
d_A, Approach Delay [s/veh]	0.00			14.44			251.42			36.09		
Approach LOS	A			B			F			D		
d_I, Intersection Delay [s/veh]	131.90											
Intersection LOS	F											
Intersection V/C	0.634											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.109	0.000	2.589
Crosswalk LOS	F	B	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	317	1400	1550
d_b, Bicycle Delay [s]	60.00	42.50	5.40	3.04
I_b,int, Bicycle LOS Score for Intersection	4.132	2.340	3.647	2.383
Bicycle LOS	D	B	D	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: NB Ramps I-215/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	147.3
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.818

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	300.00	100.00	100.00	100.00	300.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	345	0	150	0	0	0	215	531	0	0	480	166
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	21	0	0	0	0	0	9	0	0	0	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	366	0	150	0	0	0	224	531	0	0	482	166
Peak Hour Factor	0.8160	0.8160	0.8160	1.0000	1.0000	1.0000	0.8756	0.8756	1.0000	1.0000	0.8318	0.8318
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	112	0	46	0	0	0	64	152	0	0	145	50
Total Analysis Volume [veh/h]	449	0	184	0	0	0	256	606	0	0	579	200
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0			0			0			
v_di, Inbound Pedestrian Volume crossing m	0		0			0			0			
v_co, Outbound Pedestrian Volume crossing	0		0			0			0			
v_ci, Inbound Pedestrian Volume crossing mi	0		0			0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0		0			0			0			
Bicycle Volume [bicycles/h]	0		0			0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	14	0	0	0	0	21	106	0	0	85	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	R		L	C	C
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	59	59		19	53	30
g / C, Green / Cycle	0.49	0.49		0.16	0.44	0.25
(v / s)_i Volume / Saturation Flow Rate	0.25	0.11		0.14	0.32	0.43
s, saturation flow rate [veh/h]	1810	1615		1810	1900	1818
c, Capacity [veh/h]	886	790		288	844	457
d1, Uniform Delay [s]	20.81	17.66		49.43	27.24	44.90
k, delay calibration	0.50	0.50		0.13	0.11	0.50
l, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.07	0.69		10.94	1.17	325.61
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.23		0.89	0.72	1.70
d, Delay for Lane Group [s/veh]	22.88	18.35		60.38	28.41	370.51
Lane Group LOS	C	B		E	C	F
Critical Lane Group	Yes	No		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	8.94	3.08		8.37	14.22	54.87
50th-Percentile Queue Length [ft/ln]	223.38	77.03		209.35	355.59	1371.87
95th-Percentile Queue Length [veh/ln]	13.84	5.55		13.12	20.41	84.76
95th-Percentile Queue Length [ft/ln]	345.93	138.66		327.99	510.22	2118.88

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.88	22.88	18.35	0.00	0.00	0.00	60.38	28.41	0.00	0.00	370.51	370.51
Movement LOS	C	C	B				E	C			F	F
d_A, Approach Delay [s/veh]	21.56			0.00			37.90			370.51		
Approach LOS	C			A			D			F		
d_I, Intersection Delay [s/veh]	147.29											
Intersection LOS	F											
Intersection V/C	0.818											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.161	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	167	0	1700	1350
d_b, Bicycle Delay [s]	50.42	60.00	1.35	6.34
I_b,int, Bicycle LOS Score for Intersection	2.604	4.132	2.982	2.845
Bicycle LOS	B	D	C	C

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Ethanac Barnett Industrial

Vistro File: C:\...\Barnett and Ethanac
Warehouse_1_3_2023.vistro

Scenario 3 Existing AM + Proj

Report File: C:\...\Existing AM + P.pdf

1/3/2023

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Murrieta Rd/Ethanac Rd	103	105	162	69	42	13	9	740	70	89	422	45	1869

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
2	Ethanac Rd/Project Dwy 1	0	3	983	7	0	565	1558

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Barnett Rd-Case Rd/Ethanac Rd	39	22	134	392	1	97	167	757	29	166	483	388	2675

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Thru	Right	Thru	Right	Right	Right	
4	Barnett Rd/Project Dwy 2	195		165	31	0		391

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
5	Barnett Rd/Project Dwy 3	0	190	153	12	5	0	360

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
6	Barnett Rd/Project Dwy 4	0	180	141	12	10	0	343

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
7	SB Ramps I-215/Ethanac Rd	137	3	304	619	543	103	740	2449

Version 2022 (SP 0-10)

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
8	NB Ramps I-215/Ethanac Rd	366	0	150	224	531	482	166	1919

Table of Contents

Intersection Analysis Summary	2
Intersection Level Of Service Report	3
Intersection 1: Murrieta Rd/Ethanac Rd	3
Intersection 2: Ethanac Rd/Project Dwy 1	8
Intersection 3: Barnett Rd-Case Rd/Ethanac Rd	10
Intersection 4: Barnett Rd/Project Dwy 2	15
Intersection 5: Barnett Rd/Project Dwy 3	17
Intersection 6: Barnett Rd/Project Dwy 4	19
Intersection 7: SB Ramps I-215/Ethanac Rd	21
Intersection 8: NB Ramps I-215/Ethanac Rd	26
Turning Movement Volume: Summary	31

Ethanac Barnett Industrial

Vistro File: C:\...\Barnett and Ethanac
Warehouse_1_3_2023.vistro

Scenario 4 Existing PM + Proj

Report File: C:\...\Existing PM + P.pdf

1/3/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Murrieta Rd/Ethanac Rd	Signalized	HCM 7th Edition	EB Left	0.541	35.5	D
2	Ethanac Rd/Project Dwy 1	Two-way stop	HCM 7th Edition	NB Right	0.014	10.7	B
3	Barnett Rd-Case Rd/Ethanac Rd	Signalized	HCM 7th Edition	NB Right	0.570	74.9	E
4	Barnett Rd/Project Dwy 2	Two-way stop	HCM 7th Edition	NB Thru	0.002	0.0	A
5	Barnett Rd/Project Dwy 3	Two-way stop	HCM 7th Edition	EB Left	0.025	10.1	B
6	Barnett Rd/Project Dwy 4	Two-way stop	HCM 7th Edition	EB Left	0.047	9.9	A
7	SB Ramps I-215/Ethanac Rd	Signalized	HCM 7th Edition	EB Thru	0.664	103.6	F
8	NB Ramps I-215/Ethanac Rd	Signalized	HCM 7th Edition	WB Thru	0.761	66.1	E

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.

Intersection Level Of Service Report
Intersection 1: Murrieta Rd/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	35.5
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.541

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			← →			← →			← →		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	325.00	100.00	620.00	245.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	102	97	140	43	112	18	10	500	120	194	554	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	2	1	0	0	0	0	0	5	1	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	36	0	0	5	0	0	30	0	0	14
Total Hourly Volume [veh/h]	102	97	106	44	112	13	10	500	90	199	555	42
Peak Hour Factor	0.9185	0.9185	0.9185	0.8801	0.8801	0.8801	0.9388	0.9388	0.9388	0.9502	0.9502	0.9502
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	26	29	12	32	4	3	133	24	52	146	11
Total Analysis Volume [veh/h]	111	106	115	50	127	15	11	533	96	209	584	44
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0		0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0		0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0		0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0		0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0		0		0		0	
Bicycle Volume [bicycles/h]	0		0		0		0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	29	0	0	14	0	51	27	0	50	26	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	24	10	10	10	2	54	54	16	68	68
g / C, Green / Cycle	0.20	0.08	0.08	0.08	0.01	0.45	0.45	0.13	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.19	0.03	0.07	0.01	0.01	0.17	0.17	0.12	0.17	0.17
s, saturation flow rate [veh/h]	1763	1810	1900	1615	1810	1900	1801	1810	1900	1854
c, Capacity [veh/h]	357	151	158	134	26	850	805	242	1077	1051
d1, Uniform Delay [s]	47.02	51.86	54.04	50.90	58.66	22.08	22.11	50.88	13.52	13.52
k, delay calibration	0.27	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	21.54	1.28	9.12	0.36	10.73	1.29	1.37	8.81	0.70	0.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	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	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.33	0.80	0.11	0.43	0.38	0.38	0.86	0.30	0.30
d, Delay for Lane Group [s/veh]	68.57	53.14	63.16	51.27	69.39	23.37	23.48	59.70	14.22	14.24
Lane Group LOS	E	D	E	D	E	C	C	E	B	B
Critical Lane Group	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	11.83	1.48	4.17	0.43	0.41	6.33	6.06	6.73	4.61	4.51
50th-Percentile Queue Length [ft/ln]	295.75	36.92	104.17	10.81	10.22	158.20	151.45	168.37	115.25	112.63
95th-Percentile Queue Length [veh/ln]	17.47	2.66	7.50	0.78	0.74	10.45	10.09	10.99	8.13	7.99
95th-Percentile Queue Length [ft/ln]	436.77	66.45	187.51	19.47	18.40	261.33	252.37	274.77	203.28	199.65

Movement, Approach, & Intersection Results

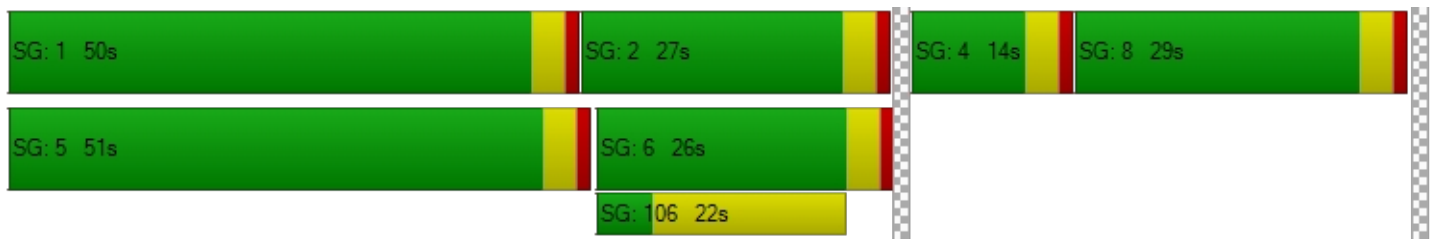
d_M, Delay for Movement [s/veh]	68.57	68.57	68.57	53.14	63.16	51.27	69.39	23.41	23.48	59.70	14.23	14.24
Movement LOS	E	E	E	D	E	D	E	C	C	E	B	B
d_A, Approach Delay [s/veh]	68.57			59.62			24.21			25.58		
Approach LOS	E			E			C			C		
d_I, Intersection Delay [s/veh]	35.54											
Intersection LOS	D											
Intersection V/C	0.541											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			9.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			51.34			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			2.244			0.000			0.000		
Crosswalk LOS	F			B			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	417			167			383			367		
d_b, Bicycle Delay [s]	37.60			50.42			39.20			40.02		
I_b,int, Bicycle LOS Score for Intersection	2.167			1.885			2.112			2.262		
Bicycle LOS	B			A			B			B		

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Ethanac Rd/Project Dwy 1

Control Type:	Two-way stop	Delay (sec / veh):	10.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.014

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	0	686	0	0	794
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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	9	0	2	0	7
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	9	686	2	0	801
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	2	181	1	0	211
Total Analysis Volume [veh/h]	0	9	722	2	0	843
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	23.42	10.70	0.00	0.00	9.05	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.07	1.07	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.70		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.06					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 3: Barnett Rd-Case Rd/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	74.9
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.570

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	+			T T T			T T T			T T T		
Lane Configuration	+			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	305.00	100.00	220.00	160.00	100.00	450.00	120.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	21	0	96	473	0	188	198	540	39	56	655	441
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	1	43	0	0	0	0	9	0	21	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	35	0	0	47	0	0	10	0	0	110
Total Hourly Volume [veh/h]	28	1	104	473	0	141	198	549	29	77	655	331
Peak Hour Factor	0.8694	0.8694	0.8694	0.9463	0.9463	0.9463	0.9060	0.9060	0.9060	0.9560	0.9560	0.9560
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	0	30	125	0	37	55	151	8	20	171	87
Total Analysis Volume [veh/h]	32	1	120	500	0	149	219	606	32	81	685	346
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0			0			0			
v_di, Inbound Pedestrian Volume crossing m	0		0			0			0			
v_co, Outbound Pedestrian Volume crossing	0		0			0			0			
v_ci, Inbound Pedestrian Volume crossing mi	0		0			0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0		0			0			0			
Bicycle Volume [bicycles/h]	0		0			0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
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	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	20	0	0	25	0	25	40	0	15	40	0
Amber [s]	0.0	5.0	0.0	0.0	4.0	0.0	3.0	5.2	0.0	3.0	5.2	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.8	0.0	1.0	0.8	0.0
Split [s]	0	12	0	0	50	0	13	46	0	12	45	0
Vehicle Extension [s]	0.0	3.5	0.0	0.0	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0
Walk [s]	0	5	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	38	0	0	23	0	0	32	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	3.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	5.00	5.00	5.00	4.00	6.00	6.00	4.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	3.00	3.00	3.00	2.00	4.00	4.00	2.00	4.00	4.00
g_i, Effective Green Time [s]	6	21	21	21	9	65	65	7	63	63
g / C, Green / Cycle	0.05	0.17	0.17	0.17	0.08	0.54	0.54	0.06	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	0.09	0.14	0.05	0.05	0.12	0.17	0.02	0.04	0.19	0.21
s, saturation flow rate [veh/h]	1654	3514	1615	1615	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	83	615	283	283	137	1963	876	103	1896	847
d1, Uniform Delay [s]	56.99	47.63	42.83	42.83	55.49	15.09	12.82	55.86	16.76	17.30
k, delay calibration	0.13	0.13	0.13	0.13	0.16	0.50	0.50	0.13	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	387.39	3.20	0.59	0.59	282.09	0.41	0.08	14.31	0.54	1.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	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	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.83	0.81	0.26	0.26	1.60	0.31	0.04	0.78	0.36	0.41
d, Delay for Lane Group [s/veh]	444.39	50.84	43.43	43.43	337.58	15.50	12.89	70.17	17.30	18.76
Lane Group LOS	F	D	D	D	F	B	B	E	B	B
Critical Lane Group	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	11.50	7.45	1.97	1.97	14.83	4.61	0.42	2.83	5.62	6.05
50th-Percentile Queue Length [ft/ln]	287.61	186.27	49.25	49.25	370.85	115.20	10.56	70.81	140.45	151.29
95th-Percentile Queue Length [veh/ln]	19.42	11.93	3.55	3.55	24.14	8.13	0.76	5.10	9.51	10.09
95th-Percentile Queue Length [ft/ln]	485.43	298.18	88.64	88.64	603.52	203.22	19.00	127.46	237.63	252.16

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	444.39	444.39	444.39	50.84	43.43	43.43	337.58	15.50	12.89	70.17	17.30	18.76
Movement LOS	F	F	F	D	D	D	F	B	B	E	B	B
d_A, Approach Delay [s/veh]	444.39			49.13			97.71			21.60		
Approach LOS	F			D			F			C		
d_I, Intersection Delay [s/veh]	74.93											
Intersection LOS	E											
Intersection V/C	0.570											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.51	49.51	49.51	0.00
I_p,int, Pedestrian LOS Score for Intersection	1.930	2.756	2.770	0.000
Crosswalk LOS	A	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	100	750	667	650
d_b, Bicycle Delay [s]	54.16	23.45	26.68	27.35
I_b,int, Bicycle LOS Score for Intersection	1.870	2.708	2.275	2.568
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report
Intersection 4: Barnett Rd/Project Dwy 2**

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	117	95	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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	51	10	12	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	168	105	12	0	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]	0	44	28	3	0	0
Total Analysis Volume [veh/h]	0	177	111	13	0	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	8.83
Movement LOS		A	A	A		A
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	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		8.83	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 5: Barnett Rd/Project Dwy 3**

Control Type:	Two-way stop	Delay (sec / veh):	10.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.025

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	117	95	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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	34	5	5	17	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	151	100	5	17	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]	0	40	26	1	4	0
Total Analysis Volume [veh/h]	0	159	105	5	18	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	7.41	0.00	0.00	0.00	10.08	8.91
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.08	0.08
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	1.90	1.90
d_A, Approach Delay [s/veh]	0.00		0.00		10.08	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.63					
Intersection LOS	B					

**Intersection Level Of Service Report
Intersection 6: Barnett Rd/Project Dwy 4**

Control Type:	Two-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.047

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	117	95	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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	5	34	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	117	95	5	34	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]	0	31	25	1	9	0
Total Analysis Volume [veh/h]	0	123	100	5	36	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.05	0.00
d_M, Delay for Movement [s/veh]	7.40	0.00	0.00	0.00	9.92	8.99
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.15	0.15
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	3.69	3.69
d_A, Approach Delay [s/veh]	0.00		0.00		9.92	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.35					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 7: SB Ramps I-215/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	103.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.664

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				↑↑			↑↑			↑↑↑		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00	100.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	650.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	173	5	319	0	588	420	119	692	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	12	0	31	21	0	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	173	5	331	0	619	441	119	701	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.8464	0.8464	0.8464	1.0000	0.9226	0.9226	0.9564	0.9564	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	51	1	98	0	168	119	31	183	0
Total Analysis Volume [veh/h]	0	0	0	204	6	391	0	671	478	124	733	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0	
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-	
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0	
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0	
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	
Split [s]	0	0	0	0	23	0	0	88	0	9	97	0	
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0	
Pedestrian Clearance [s]	0	0	0	0	14	0	0	10	0	0	10	0	
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	
Minimum Recall					No			No		No	No		
Maximum Recall					No			No		No	No		
Pedestrian Recall					No			No		No	No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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		C	R	C	R	L	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		68	68	30	30	10	44
g / C, Green / Cycle		0.56	0.56	0.25	0.25	0.08	0.37
(v / s)_i Volume / Saturation Flow Rate		0.12	0.24	0.35	0.30	0.07	0.20
s, saturation flow rate [veh/h]		1812	1615	1900	1615	1810	3618
c, Capacity [veh/h]		1022	911	478	406	152	1335
d1, Uniform Delay [s]		12.88	15.03	44.91	44.91	54.03	29.96
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]		0.45	1.48	193.99	102.36	10.00	0.35
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		0.21	0.43	1.40	1.18	0.81	0.55
d, Delay for Lane Group [s/veh]		13.34	16.51	238.90	147.26	64.03	30.31
Lane Group LOS		B	B	F	F	E	C
Critical Lane Group		No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]		2.89	6.37	39.86	23.54	4.10	8.42
50th-Percentile Queue Length [ft/ln]		72.23	159.21	996.59	588.57	102.55	210.39
95th-Percentile Queue Length [veh/ln]		5.20	10.51	59.67	34.50	7.38	13.17
95th-Percentile Queue Length [ft/ln]		130.02	262.68	1491.83	862.44	184.60	329.33

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	13.34	13.34	16.51	0.00	238.90	147.26	64.03	30.31	0.00
Movement LOS				B	B	B		F	F	E	C	
d_A, Approach Delay [s/veh]	0.00			15.40			200.78			35.19		
Approach LOS	A			B			F			D		
d_I, Intersection Delay [s/veh]	103.61											
Intersection LOS	F											
Intersection V/C	0.664											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.151	0.000	2.568
Crosswalk LOS	F	B	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	317	1400	1550
d_b, Bicycle Delay [s]	60.00	42.50	5.40	3.04
I_b,int, Bicycle LOS Score for Intersection	4.132	2.551	3.455	2.267
Bicycle LOS	D	B	C	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: NB Ramps I-215/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	66.1
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.761

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔						↔			↔		
Lane Configuration	↔						↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	300.00	100.00	100.00	100.00	300.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	438	1	236	0	0	0	243	512	0	0	373	158
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	0	0	0	0	0	29	2	0	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	446	1	236	0	0	0	272	514	0	0	374	158
Peak Hour Factor	0.8544	0.8544	0.8544	1.0000	1.0000	1.0000	0.9269	0.9269	1.0000	1.0000	0.9516	0.9516
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	131	0	69	0	0	0	73	139	0	0	98	42
Total Analysis Volume [veh/h]	522	1	276	0	0	0	293	555	0	0	393	166
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	34	0	0	0	0	27	86	0	0	59	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	R		L	C	C
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	56	56		22	56	30
g / C, Green / Cycle	0.47	0.47		0.18	0.46	0.25
(v / s)_i Volume / Saturation Flow Rate	0.29	0.17		0.16	0.29	0.31
s, saturation flow rate [veh/h]	1810	1615		1810	1900	1805
c, Capacity [veh/h]	849	758		324	882	454
d1, Uniform Delay [s]	23.78	20.39		48.23	24.33	44.90
k, delay calibration	0.50	0.50		0.19	0.11	0.50
l, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	3.34	1.35		14.86	0.75	121.75
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.36		0.90	0.63	1.23
d, Delay for Lane Group [s/veh]	27.12	21.75		63.09	25.08	166.65
Lane Group LOS	C	C		E	C	F
Critical Lane Group	Yes	No		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	11.66	5.21		9.90	11.95	28.77
50th-Percentile Queue Length [ft/ln]	291.53	130.16		247.40	298.64	719.30
95th-Percentile Queue Length [veh/ln]	17.26	8.95		15.05	17.61	42.12
95th-Percentile Queue Length [ft/ln]	431.54	223.71		376.37	440.35	1052.94

Movement, Approach, & Intersection Results

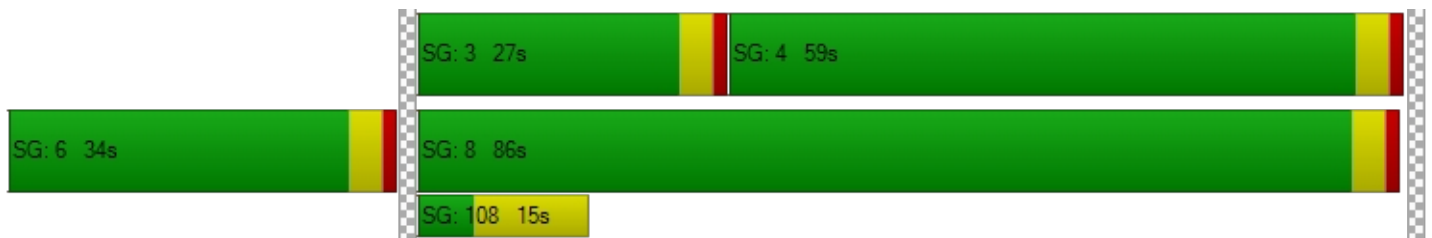
d_M, Delay for Movement [s/veh]	27.12	27.12	21.75	0.00	0.00	0.00	63.09	25.08	0.00	0.00	166.65	166.65
Movement LOS	C	C	C				E	C			F	F
d_A, Approach Delay [s/veh]	25.26			0.00			38.21			166.65		
Approach LOS	C			A			D			F		
d_I, Intersection Delay [s/veh]	66.07											
Intersection LOS	E											
Intersection V/C	0.761											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.215	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	0	1367	917
d_b, Bicycle Delay [s]	33.75	60.00	6.02	17.60
I_b,int, Bicycle LOS Score for Intersection	2.878	4.132	2.959	2.482
Bicycle LOS	C	D	C	B

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Ethanac Barnett Industrial

Vistro File: C:\...\Barnett and Ethanac Warehouse_1_3_2023.vistro

Scenario 4 Existing PM + Proj

Report File: C:\...\Existing PM + P.pdf

1/3/2023

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Murrieta Rd/Ethanac Rd	102	97	142	44	112	18	10	500	120	199	555	56	1955

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
2	Ethanac Rd/Project Dwy 1	0	9	686	2	0	801	1498

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Barnett Rd-Case Rd/Ethanac Rd	28	1	139	473	0	188	198	549	39	77	655	441	2788

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Thru	Right	Thru	Right	Right	Right	
4	Barnett Rd/Project Dwy 2	168		105	12	0		285

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
5	Barnett Rd/Project Dwy 3	0	151	100	5	17	0	273

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
6	Barnett Rd/Project Dwy 4	0	117	95	5	34	0	251

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
7	SB Ramps I-215/Ethanac Rd	173	5	331	619	441	119	701	2389

Version 2022 (SP 0-10)

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
8	NB Ramps I-215/Ethanac Rd	446	1	236	272	514	374	158	2001

Table of Contents

Intersection Analysis Summary	2
Intersection Level Of Service Report	3
Intersection 1: Murrieta Rd/Ethanac Rd	3
Intersection 2: Ethanac Rd/Project Dwy 1	8
Intersection 3: Barnett Rd-Case Rd/Ethanac Rd	10
Intersection 4: Barnett Rd/Project Dwy 2	15
Intersection 5: Barnett Rd/Project Dwy 3	17
Intersection 6: Barnett Rd/Project Dwy 4	19
Intersection 7: SB Ramps I-215/Ethanac Rd	21
Intersection 8: NB Ramps I-215/Ethanac Rd	26
Turning Movement Volume: Summary	31

Ethanac Barnett Industrial

Vistro File: C:\...\Barnett and Ethanac
Warehouse_1_3_2023.vistro

Scenario 7 Opening AM + Proj

Report File: C:\...\Opening AM + P.pdf

1/3/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Murrieta Rd/Ethanac Rd	Signalized	HCM 7th Edition	NB Right	0.976	102.1	F
2	Ethanac Rd/Project Dwy 1	Two-way stop	HCM 7th Edition	NB Right	0.011	18.9	C
3	Barnett Rd-Case Rd/Ethanac Rd	Signalized	HCM 7th Edition	NB Right	0.893	97.9	F
4	Barnett Rd/Project Dwy 2	Two-way stop	HCM 7th Edition	NB Thru	0.002	0.0	A
5	Barnett Rd/Project Dwy 3	Two-way stop	HCM 7th Edition	EB Left	0.008	10.8	B
6	Barnett Rd/Project Dwy 4	Two-way stop	HCM 7th Edition	EB Left	0.017	10.7	B
7	SB Ramps I-215/Ethanac Rd	Signalized	HCM 7th Edition	EB Thru	1.307	342.1	F
8	NB Ramps I-215/Ethanac Rd	Signalized	HCM 7th Edition	WB Thru	1.557	288.0	F

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.

Intersection Level Of Service Report
Intersection 1: Murrieta Rd/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	102.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.976

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	+			← →			← →			← →		
Lane Configuration	+			← →			← →			← →		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	325.00	100.00	620.00	245.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	103	105	157	67	42	13	9	739	70	88	422	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	0	291	3	0	0	0	480	6	100	530	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	114	0	0	4	0	0	20	0	0	12
Total Hourly Volume [veh/h]	126	109	340	73	44	10	9	1249	59	192	969	35
Peak Hour Factor	0.8679	0.8679	0.8679	0.8714	0.8714	0.8714	0.8950	0.8950	0.8950	0.6971	0.6971	0.6971
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	31	98	21	13	3	3	349	16	69	348	13
Total Analysis Volume [veh/h]	145	126	392	84	50	11	10	1396	66	275	1390	50
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0		0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0		0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0		0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0		0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0		0		0		0	
Bicycle Volume [bicycles/h]	0		0		0		0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	43	0	0	14	0	19	43	0	20	44	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	39	10	10	10	1	39	39	16	54	54
g / C, Green / Cycle	0.33	0.08	0.08	0.08	0.01	0.33	0.33	0.13	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.39	0.05	0.03	0.01	0.01	0.39	0.39	0.15	0.38	0.38
s, saturation flow rate [veh/h]	1704	1810	1900	1615	1810	1900	1870	1810	1900	1877
c, Capacity [veh/h]	555	150	157	134	23	618	608	241	847	837
d1, Uniform Delay [s]	40.46	52.95	51.85	50.84	58.81	40.50	40.50	52.00	29.73	29.86
k, delay calibration	0.50	0.11	0.11	0.11	0.11	0.50	0.50	0.16	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	104.52	3.27	1.15	0.26	12.44	101.21	103.42	78.74	10.59	11.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	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	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.20	0.56	0.32	0.08	0.44	1.19	1.20	1.14	0.85	0.86
d, Delay for Lane Group [s/veh]	144.98	56.22	53.01	51.10	71.25	141.71	143.92	130.74	40.32	40.98
Lane Group LOS	F	E	D	D	E	F	F	F	D	D
Critical Lane Group	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	32.22	2.58	1.47	0.32	0.38	35.31	35.13	12.52	20.63	20.71
50th-Percentile Queue Length [ft/ln]	805.60	64.39	36.81	7.91	9.54	882.73	878.13	312.91	515.68	517.63
95th-Percentile Queue Length [veh/ln]	46.39	4.64	2.65	0.57	0.69	50.27	50.15	19.38	28.08	28.17
95th-Percentile Queue Length [ft/ln]	1159.81	115.90	66.26	14.24	17.17	1256.84	1253.68	484.48	701.89	704.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	144.98	144.98	144.98	56.22	53.01	51.10	71.25	142.75	143.92	130.74	40.64	40.98
Movement LOS	F	F	F	E	D	D	E	F	F	F	D	D
d_A, Approach Delay [s/veh]	144.98			54.72			142.32			55.10		
Approach LOS	F			D			F			E		
d_I, Intersection Delay [s/veh]	102.14											
Intersection LOS	F											
Intersection V/C	0.976											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.237	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	167	650	667
d_b, Bicycle Delay [s]	27.34	50.42	27.34	26.67
I_b,int, Bicycle LOS Score for Intersection	2.842	1.805	2.791	2.984
Bicycle LOS	C	A	C	C

Sequence




Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Ethanac Rd/Project Dwy 1

Control Type:	Two-way stop	Delay (sec / veh):	18.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.011

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	0	983	0	0	563
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	785	7	0	734
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	3	1807	7	0	1320
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	1	476	2	0	347
Total Analysis Volume [veh/h]	0	3	1902	7	0	1389
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.02	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	178.16	18.86	0.00	0.00	16.42	0.00
Movement LOS	F	C	A	A	C	A
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.87	0.87	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	18.86		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.02					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 3: Barnett Rd-Case Rd/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	97.9
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.893

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	+			T T T			T T T			T T T		
Lane Configuration	+			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	305.00	100.00	220.00	160.00	100.00	450.00	120.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	37	22	121	392	0	97	167	754	29	112	483	388
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	13	13	1	5	13	775	0	54	727	23
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	35	0	0	27	0	0	8	0	0	107
Total Hourly Volume [veh/h]	40	23	104	421	1	79	187	1559	22	170	1229	320
Peak Hour Factor	0.6818	0.6818	0.6818	0.9114	0.9114	0.9114	0.8523	0.8523	0.8523	0.8520	0.8520	0.8520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	8	38	115	0	22	55	457	6	50	361	94
Total Analysis Volume [veh/h]	59	34	153	462	1	87	219	1829	26	200	1442	376
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0			0			0			
v_di, Inbound Pedestrian Volume crossing m	0		0			0			0			
v_co, Outbound Pedestrian Volume crossing	0		0			0			0			
v_ci, Inbound Pedestrian Volume crossing mi	0		0			0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0		0			0			0			
Bicycle Volume [bicycles/h]	0		0			0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
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	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	20	0	0	25	0	25	40	0	15	40	0
Amber [s]	0.0	5.0	0.0	0.0	4.0	0.0	3.0	5.2	0.0	3.0	5.2	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.8	0.0	1.0	0.8	0.0
Split [s]	0	14	0	0	50	0	11	44	0	12	45	0
Vehicle Extension [s]	0.0	3.5	0.0	0.0	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0
Walk [s]	0	5	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	38	0	0	23	0	0	32	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	3.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	5.00	5.00	5.00	4.00	6.00	6.00	4.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	3.00	3.00	3.00	2.00	4.00	4.00	2.00	4.00	4.00
g_i, Effective Green Time [s]	8	19	19	19	7	64	64	8	65	65
g / C, Green / Cycle	0.07	0.16	0.16	0.16	0.06	0.53	0.53	0.07	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.15	0.13	0.03	0.03	0.12	0.51	0.02	0.11	0.40	0.23
s, saturation flow rate [veh/h]	1694	3514	1621	1615	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	114	569	262	261	108	1913	854	121	1941	866
d1, Uniform Delay [s]	56.00	48.57	43.36	43.36	56.47	26.96	13.55	56.02	21.45	16.82
k, delay calibration	0.30	0.13	0.13	0.13	0.16	0.50	0.50	0.34	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	536.67	3.44	0.36	0.36	476.11	12.53	0.07	315.11	2.62	1.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	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	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	2.15	0.81	0.17	0.17	2.04	0.96	0.03	1.65	0.74	0.43
d, Delay for Lane Group [s/veh]	592.66	52.00	43.72	43.72	532.59	39.49	13.61	371.12	24.08	18.40
Lane Group LOS	F	D	D	D	F	D	B	F	C	B
Critical Lane Group	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	20.47	6.94	1.16	1.16	17.49	27.01	0.35	14.30	15.74	6.53
50th-Percentile Queue Length [ft/ln]	511.84	173.48	29.05	28.96	437.26	675.37	8.85	357.41	393.51	163.17
95th-Percentile Queue Length [veh/ln]	33.00	11.26	2.09	2.09	28.41	35.54	0.64	23.37	22.25	10.72
95th-Percentile Queue Length [ft/ln]	825.03	281.48	52.30	52.13	710.14	888.47	15.93	584.27	556.17	267.91

Movement, Approach, & Intersection Results

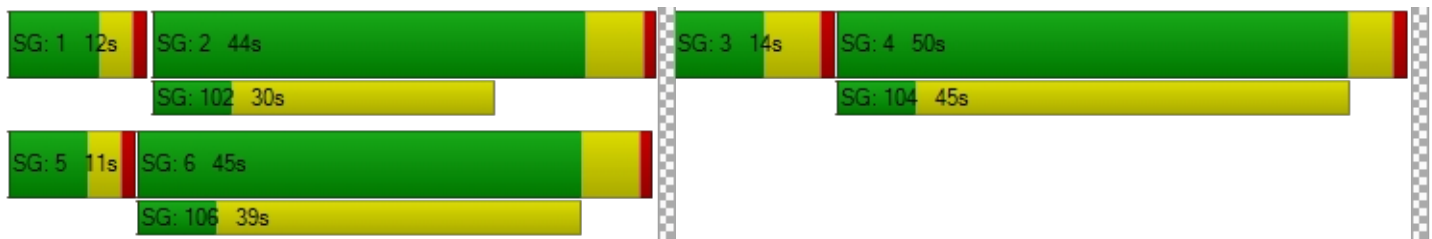
d_M, Delay for Movement [s/veh]	592.66	592.66	592.66	52.00	43.72	43.72	532.59	39.49	13.61	371.12	24.08	18.40
Movement LOS	F	F	F	D	D	D	F	D	B	F	C	B
d_A, Approach Delay [s/veh]	592.66			50.68			91.23			57.42		
Approach LOS	F			D			F			E		
d_I, Intersection Delay [s/veh]	97.94											
Intersection LOS	F											
Intersection V/C	0.893											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	49.53			49.53			49.53			0.00		
I_p,int, Pedestrian LOS Score for Intersection	2.030			2.718			3.079			0.000		
Crosswalk LOS	B			B			C			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	133			750			633			650		
d_b, Bicycle Delay [s]	52.29			23.46			28.04			27.36		
I_b,int, Bicycle LOS Score for Intersection	2.023			2.512			3.277			3.313		
Bicycle LOS	B			B			C			C		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report
Intersection 4: Barnett Rd/Project Dwy 2**

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	180	141	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	15	24	31	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	202	171	31	0	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]	0	53	45	8	0	0
Total Analysis Volume [veh/h]	0	213	180	33	0	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	9.24
Movement LOS		A	A	A		A
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	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		9.24	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 5: Barnett Rd/Project Dwy 3**

Control Type:	Two-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	180	141	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	10	12	12	5	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	197	159	12	5	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]	0	52	42	3	1	0
Total Analysis Volume [veh/h]	0	207	167	13	5	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	7.56	0.00	0.00	0.00	10.80	9.16
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.60	0.60
d_A, Approach Delay [s/veh]	0.00		0.00		10.80	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.14					
Intersection LOS	B					

**Intersection Level Of Service Report
Intersection 6: Barnett Rd/Project Dwy 4**

Control Type:	Two-way stop	Delay (sec / veh):	10.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.017

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	180	141	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	12	10	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	187	147	12	10	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]	0	49	39	3	3	0
Total Analysis Volume [veh/h]	0	197	155	13	11	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	7.53	0.00	0.00	0.00	10.69	9.15
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.05	0.05
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	1.30	1.30
d_A, Approach Delay [s/veh]	0.00		0.00		10.69	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.31					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 7: SB Ramps I-215/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	342.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.307

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00	100.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	650.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	137	3	274	0	610	536	103	717	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	267	0	418	0	600	201	100	386	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	409	3	703	0	1234	758	207	1132	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9375	0.9375	0.9375	1.0000	0.9189	0.9189	0.8448	0.8448	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	109	1	187	0	336	206	61	335	0
Total Analysis Volume [veh/h]	0	0	0	436	3	750	0	1343	825	245	1340	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	23	0	0	83	0	14	97	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	14	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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		C	R	C	R	L	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		60	60	30	30	18	52
g / C, Green / Cycle		0.50	0.50	0.25	0.25	0.15	0.44
(v / s)_i Volume / Saturation Flow Rate		0.24	0.46	0.71	0.51	0.14	0.37
s, saturation flow rate [veh/h]		1810	1615	1900	1615	1810	3618
c, Capacity [veh/h]		899	802	478	406	274	1579
d1, Uniform Delay [s]		20.05	28.35	44.90	44.90	49.96	30.27
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]		1.89	19.34	820.05	472.25	10.35	1.35
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		0.49	0.93	2.81	2.03	0.89	0.85
d, Delay for Lane Group [s/veh]		21.94	47.70	864.96	517.15	60.31	31.62
Lane Group LOS		C	D	F	F	E	C
Critical Lane Group		No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]		8.52	23.76	123.00	65.29	7.98	17.22
50th-Percentile Queue Length [ft/ln]		213.02	593.91	3075.03	1632.36	199.44	430.46
95th-Percentile Queue Length [veh/ln]		13.31	31.75	192.43	102.94	12.61	24.02
95th-Percentile Queue Length [ft/ln]		332.70	793.75	4810.70	2573.40	315.24	600.59

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	21.94	21.94	47.70	0.00	864.96	517.15	60.31	31.62	0.00
Movement LOS				C	C	D		F	F	E	C	
d_A, Approach Delay [s/veh]	0.00			38.19			732.61			36.06		
Approach LOS	A			D			F			D		
d_I, Intersection Delay [s/veh]	342.14											
Intersection LOS	F											
Intersection V/C	1.307											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.342	0.000	2.966
Crosswalk LOS	F	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	317	1317	1550
d_b, Bicycle Delay [s]	60.00	42.50	7.00	3.04
I_b,int, Bicycle LOS Score for Intersection	4.132	3.521	5.137	2.867
Bicycle LOS	D	D	F	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: NB Ramps I-215/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	288.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.557

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔						↔			↔		
Lane Configuration	↔						↔			↔		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	300.00	100.00	100.00	100.00	300.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	345	0	150	0	0	0	215	531	0	0	480	166
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	270	0	179	0	0	0	461	405	0	0	216	158
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	629	0	335	0	0	0	685	957	0	0	715	331
Peak Hour Factor	0.8160	0.8160	0.8160	1.0000	1.0000	1.0000	0.8756	0.8756	1.0000	1.0000	0.8318	0.8318
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	193	0	103	0	0	0	196	273	0	0	215	99
Total Analysis Volume [veh/h]	771	0	411	0	0	0	782	1093	0	0	860	398
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	14	0	0	0	0	9	106	0	0	97	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	R		L	C	C
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	40	40		30	72	38
g / C, Green / Cycle	0.34	0.34		0.25	0.60	0.31
(v / s)_i Volume / Saturation Flow Rate	0.43	0.25		0.43	0.58	0.70
s, saturation flow rate [veh/h]	1810	1615		1810	1900	1800
c, Capacity [veh/h]	610	545		450	1133	566
d1, Uniform Delay [s]	39.77	35.36		45.09	23.04	41.14
k, delay calibration	0.50	0.50		0.50	0.24	0.50
l, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	131.45	9.38		341.85	11.82	556.38
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.26	0.75		1.74	0.96	2.22
d, Delay for Lane Group [s/veh]	171.22	44.74		386.94	34.86	597.52
Lane Group LOS	F	D		F	C	F
Critical Lane Group	Yes	No		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	39.96	12.01		55.94	30.94	103.93
50th-Percentile Queue Length [ft/ln]	998.95	300.23		1398.50	773.41	2598.31
95th-Percentile Queue Length [veh/ln]	58.06	17.69		86.65	40.06	164.40
95th-Percentile Queue Length [ft/ln]	1451.38	442.32		2166.35	1001.45	4110.03

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	171.22	171.22	44.74	0.00	0.00	0.00	386.94	34.86	0.00	0.00	597.52	597.52
Movement LOS	F	F	D				F	C			F	F
d_A, Approach Delay [s/veh]	127.24			0.00			181.70			597.52		
Approach LOS	F			A			F			F		
d_I, Intersection Delay [s/veh]	288.01											
Intersection LOS	F											
Intersection V/C	1.557											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.340	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	167	0	1700	1550
d_b, Bicycle Delay [s]	50.42	60.00	1.35	3.04
I_b,int, Bicycle LOS Score for Intersection	3.510	4.132	4.653	3.635
Bicycle LOS	D	D	E	D

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Ethanac Barnett Industrial

Vistro File: C:\...\Barnett and Ethanac
Warehouse_1_3_2023.vistro

Scenario 7 Opening AM + Proj

Report File: C:\...\Opening AM + P.pdf

1/3/2023

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Murrieta Rd/Ethanac Rd	126	109	454	73	44	14	9	1249	79	192	969	47	3365

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
2	Ethanac Rd/Project Dwy 1	0	3	1807	7	0	1320	3137

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Barnett Rd-Case Rd/Ethanac Rd	40	23	139	421	1	106	187	1559	30	170	1229	427	4332

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Thru	Right	Thru	Right	Right	Right	
4	Barnett Rd/Project Dwy 2	202		171	31	0		404

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
5	Barnett Rd/Project Dwy 3	0	197	159	12	5	0	373

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
6	Barnett Rd/Project Dwy 4	0	187	147	12	10	0	356

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
7	SB Ramps I-215/Ethanac Rd	409	3	703	1234	758	207	1132	4446

Version 2022 (SP 0-10)

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
8	NB Ramps I-215/Ethanac Rd	629	0	335	685	957	715	331	3652

Table of Contents

Intersection Analysis Summary	2
Intersection Level Of Service Report	3
Intersection 1: Murrieta Rd/Ethanac Rd	3
Intersection 2: Ethanac Rd/Project Dwy 1	8
Intersection 3: Barnett Rd-Case Rd/Ethanac Rd	10
Intersection 4: Barnett Rd/Project Dwy 2	15
Intersection 5: Barnett Rd/Project Dwy 3	17
Intersection 6: Barnett Rd/Project Dwy 4	19
Intersection 7: SB Ramps I-215/Ethanac Rd	21
Intersection 8: NB Ramps I-215/Ethanac Rd	26
Turning Movement Volume: Summary	31

Ethanac Barnett Industrial

Vistro File: C:\...\Barnett and Ethanac
Warehouse_1_3_2023.vistro

Scenario 8 Opening PM + Proj

Report File: C:\...\Opening PM + P.pdf

1/3/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Murrieta Rd/Ethanac Rd	Signalized	HCM 7th Edition	NB Right	1.038	113.4	F
2	Ethanac Rd/Project Dwy 1	Two-way stop	HCM 7th Edition	NB Right	0.030	17.5	C
3	Barnett Rd-Case Rd/Ethanac Rd	Signalized	HCM 7th Edition	NB Right	0.868	70.1	E
4	Barnett Rd/Project Dwy 2	Two-way stop	HCM 7th Edition	NB Thru	0.002	0.0	A
5	Barnett Rd/Project Dwy 3	Two-way stop	HCM 7th Edition	EB Left	0.025	10.1	B
6	Barnett Rd/Project Dwy 4	Two-way stop	HCM 7th Edition	EB Left	0.047	10.0	A
7	SB Ramps I-215/Ethanac Rd	Signalized	HCM 7th Edition	EB Thru	1.717	406.4	F
8	NB Ramps I-215/Ethanac Rd	Signalized	HCM 7th Edition	WB Thru	1.963	429.8	F

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.

Intersection Level Of Service Report
Intersection 1: Murrieta Rd/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	113.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.038

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	+			← →			← →			← →		
Lane Configuration	+			← →			← →			← →		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	325.00	100.00	620.00	245.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	102	97	140	43	112	18	10	500	120	194	554	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	0	193	4	0	0	0	631	21	331	587	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	85	0	0	5	0	0	37	0	0	16
Total Hourly Volume [veh/h]	116	101	254	49	116	14	10	1151	109	533	1163	46
Peak Hour Factor	0.9185	0.9185	0.9185	0.8801	0.8801	0.8801	0.9388	0.9388	0.9388	0.9502	0.9502	0.9502
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	27	69	14	33	4	3	307	29	140	306	12
Total Analysis Volume [veh/h]	126	110	277	56	132	16	11	1226	116	561	1224	48
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0		0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0		0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0		0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0		0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0		0		0		0	
Bicycle Volume [bicycles/h]	0		0		0		0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	33	0	0	14	0	9	39	0	34	64	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	29	10	10	10	2	35	35	30	63	63
g / C, Green / Cycle	0.24	0.08	0.08	0.08	0.01	0.29	0.29	0.25	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.30	0.03	0.07	0.01	0.01	0.36	0.36	0.31	0.34	0.34
s, saturation flow rate [veh/h]	1715	1810	1900	1615	1810	1900	1843	1810	1900	1875
c, Capacity [veh/h]	415	151	158	135	25	554	538	452	1003	990
d1, Uniform Delay [s]	45.50	52.03	54.18	50.92	58.73	42.50	42.50	45.00	20.11	20.22
k, delay calibration	0.50	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	126.02	1.52	10.76	0.39	11.96	117.21	119.93	125.71	3.06	3.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	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	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.24	0.37	0.83	0.12	0.44	1.23	1.23	1.24	0.63	0.64
d, Delay for Lane Group [s/veh]	171.52	53.54	64.95	51.31	70.69	159.71	162.43	170.71	23.17	23.41
Lane Group LOS	F	D	E	D	E	F	F	F	C	C
Critical Lane Group	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	26.76	1.66	4.40	0.46	0.41	34.26	33.64	29.14	13.15	13.20
50th-Percentile Queue Length [ft/ln]	668.88	41.56	109.97	11.54	10.36	856.46	840.95	728.42	328.77	330.09
95th-Percentile Queue Length [veh/ln]	39.51	2.99	7.84	0.83	0.75	49.47	48.77	42.74	19.10	19.16
95th-Percentile Queue Length [ft/ln]	987.86	74.82	195.96	20.78	18.65	1236.80	1219.25	1068.50	477.46	479.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	171.52	171.52	171.52	53.54	64.95	51.31	70.69	160.92	162.43	170.71	23.29	23.41
Movement LOS	F	F	F	D	E	D	E	F	F	F	C	C
d_A, Approach Delay [s/veh]	171.52			60.75			160.32			68.41		
Approach LOS	F			E			F			E		
d_I, Intersection Delay [s/veh]	113.42											
Intersection LOS	F											
Intersection V/C	1.038											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			9.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			51.34			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			2.249			0.000			0.000		
Crosswalk LOS	F			B			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	483			167			583			1000		
d_b, Bicycle Delay [s]	34.50			50.42			30.10			15.00		
I_b,int, Bicycle LOS Score for Intersection	2.546			1.904			2.706			3.085		
Bicycle LOS	B			A			B			C		

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report
Intersection 2: Ethanac Rd/Project Dwy 1**

Control Type:	Two-way stop	Delay (sec / veh):	17.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.030

Intersection Setup

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	0	0	686	0	0	794
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	945	2	0	957
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	9	1658	2	0	1783
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	2	436	1	0	469
Total Analysis Volume [veh/h]	0	9	1745	2	0	1877
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.02	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	203.28	17.49	0.00	0.00	14.89	0.00
Movement LOS	F	C	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.09	0.09	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.34	2.34	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	17.49		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.04					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 3: Barnett Rd-Case Rd/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	70.1
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.868

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	+			T T T			T T T			T T T		
Lane Configuration	+			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	305.00	100.00	220.00	160.00	100.00	450.00	120.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	21	0	96	473	0	188	198	540	39	56	655	441
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	1	43	80	0	21	17	937	0	21	929	74
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	36	0	0	54	0	0	10	0	0	133
Total Hourly Volume [veh/h]	29	1	107	572	0	163	223	1499	31	79	1610	400
Peak Hour Factor	0.8694	0.8694	0.8694	0.9463	0.9463	0.9463	0.9060	0.9060	0.9060	0.9560	0.9560	0.9560
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	0	31	151	0	43	62	414	9	21	421	105
Total Analysis Volume [veh/h]	33	1	123	604	0	172	246	1655	34	83	1684	418
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0			0			0			
v_di, Inbound Pedestrian Volume crossing m	0		0			0			0			
v_co, Outbound Pedestrian Volume crossing	0		0			0			0			
v_ci, Inbound Pedestrian Volume crossing mi	0		0			0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0		0			0			0			
Bicycle Volume [bicycles/h]	0		0			0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
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	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	20	0	0	25	0	25	40	0	15	40	0
Amber [s]	0.0	5.0	0.0	0.0	4.0	0.0	3.0	5.2	0.0	3.0	5.2	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.8	0.0	1.0	0.8	0.0
Split [s]	0	12	0	0	50	0	13	48	0	10	45	0
Vehicle Extension [s]	0.0	3.5	0.0	0.0	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0
Walk [s]	0	5	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	38	0	0	23	0	0	32	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	3.0	0.0	2.0	4.0	0.0	2.0	4.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	5.00	5.00	5.00	4.00	6.00	6.00	4.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	3.00	3.00	3.00	2.00	4.00	4.00	2.00	4.00	4.00
g_i, Effective Green Time [s]	6	25	25	25	9	62	62	6	59	59
g / C, Green / Cycle	0.05	0.21	0.21	0.21	0.08	0.52	0.52	0.05	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.09	0.17	0.05	0.05	0.14	0.46	0.02	0.05	0.47	0.26
s, saturation flow rate [veh/h]	1654	3514	1615	1615	1810	3618	1615	1810	3618	1615
c, Capacity [veh/h]	83	728	334	334	137	1871	835	91	1780	795
d1, Uniform Delay [s]	56.99	45.57	39.86	39.86	55.49	25.78	14.29	56.74	28.97	20.89
k, delay calibration	0.13	0.13	0.13	0.13	0.21	0.50	0.50	0.13	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	408.57	3.03	0.49	0.49	372.26	6.54	0.09	30.36	11.89	2.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	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	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.88	0.83	0.26	0.26	1.80	0.88	0.04	0.91	0.95	0.53
d, Delay for Lane Group [s/veh]	465.56	48.60	40.35	40.35	427.75	32.32	14.38	87.10	40.87	23.38
Lane Group LOS	F	D	D	D	F	C	B	F	D	C
Critical Lane Group	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	12.00	8.90	2.18	2.18	18.26	21.83	0.48	3.27	25.05	8.46
50th-Percentile Queue Length [ft/ln]	299.90	222.40	54.62	54.62	456.38	545.68	11.99	81.77	626.19	211.57
95th-Percentile Queue Length [veh/ln]	20.18	13.79	3.93	3.93	29.46	29.49	0.86	5.89	33.26	13.23
95th-Percentile Queue Length [ft/ln]	504.48	344.69	98.31	98.31	736.40	737.24	21.58	147.19	831.39	330.84

Movement, Approach, & Intersection Results

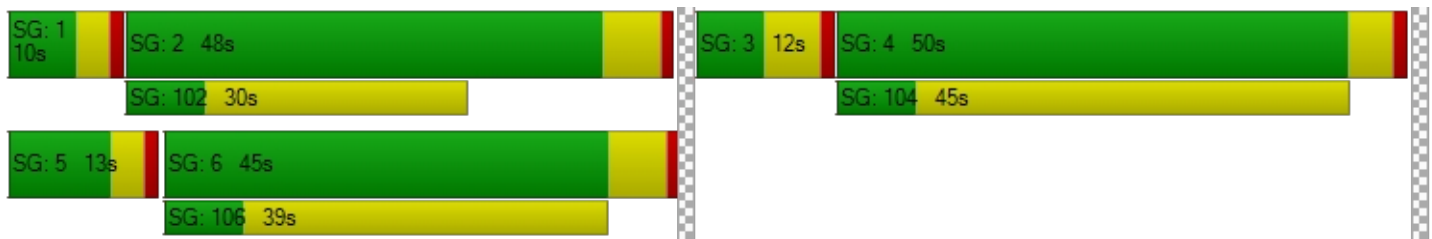
d_M, Delay for Movement [s/veh]	465.56	465.56	465.56	48.60	40.35	40.35	427.75	32.32	14.38	87.10	40.87	23.38
Movement LOS	F	F	F	D	D	D	F	C	B	F	D	C
d_A, Approach Delay [s/veh]	465.56			46.77			82.27			39.28		
Approach LOS	F			D			F			D		
d_I, Intersection Delay [s/veh]	70.14											
Intersection LOS	E											
Intersection V/C	0.868											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.51	49.51	49.51	0.00
I_p,int, Pedestrian LOS Score for Intersection	1.936	2.808	3.113	0.000
Crosswalk LOS	A	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	100	750	700	650
d_b, Bicycle Delay [s]	54.16	23.45	25.36	27.35
I_b,int, Bicycle LOS Score for Intersection	1.878	2.929	3.164	3.472
Bicycle LOS	A	C	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report
Intersection 4: Barnett Rd/Project Dwy 2**

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	117	95	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	51	10	12	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	173	109	12	0	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]	0	46	29	3	0	0
Total Analysis Volume [veh/h]	0	182	115	13	0	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	8.85
Movement LOS		A	A	A		A
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	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		8.85	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 5: Barnett Rd/Project Dwy 3**

Control Type:	Two-way stop	Delay (sec / veh):	10.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.025

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	117	95	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	34	5	5	17	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	156	104	5	17	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]	0	41	27	1	4	0
Total Analysis Volume [veh/h]	0	164	109	5	18	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	7.42	0.00	0.00	0.00	10.14	8.93
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.08	0.08
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	1.93	1.93
d_A, Approach Delay [s/veh]	0.00		0.00		10.14	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.62					
Intersection LOS	B					

**Intersection Level Of Service Report
Intersection 6: Barnett Rd/Project Dwy 4**

Control Type:	Two-way stop	Delay (sec / veh):	10.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.047

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
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	0	0	0
Entry Pocket Length [ft]	100.00	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		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	117	95	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	5	34	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	122	99	5	34	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]	0	32	26	1	9	0
Total Analysis Volume [veh/h]	0	128	104	5	36	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.05	0.00
d_M, Delay for Movement [s/veh]	7.41	0.00	0.00	0.00	9.99	9.01
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.15	0.15
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	3.73	3.73
d_A, Approach Delay [s/veh]	0.00		0.00		9.99	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.32					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 7: SB Ramps I-215/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	406.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.717

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00	100.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	650.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	No			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	173	5	319	0	588	420	119	692	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	494	0	581	0	719	340	377	443	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	674	5	913	0	1331	777	501	1163	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.8464	0.8464	0.8464	1.0000	0.9226	0.9226	0.9564	0.9564	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	199	1	270	0	361	211	131	304	0
Total Analysis Volume [veh/h]	0	0	0	796	6	1079	0	1443	842	524	1216	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	43	0	0	55	0	22	77	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	14	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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		C	R	C	R	L	C
C, Cycle Length [s]		120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		48	48	30	30	30	64
g / C, Green / Cycle		0.40	0.40	0.25	0.25	0.25	0.53
(v / s)_i Volume / Saturation Flow Rate		0.44	0.67	0.76	0.52	0.29	0.34
s, saturation flow rate [veh/h]		1810	1615	1900	1615	1810	3618
c, Capacity [veh/h]		727	648	475	404	450	1924
d1, Uniform Delay [s]		35.92	35.92	44.99	44.99	45.09	19.80
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.11
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		65.52	305.87	922.20	496.55	96.12	0.35
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		1.10	1.66	3.04	2.08	1.17	0.63
d, Delay for Lane Group [s/veh]		101.44	341.78	967.19	541.55	141.21	20.14
Lane Group LOS		F	F	F	F	F	C
Critical Lane Group		No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]		33.97	73.58	135.73	67.62	25.26	11.72
50th-Percentile Queue Length [ft/ln]		849.21	1839.55	3393.32	1690.47	631.48	292.96
95th-Percentile Queue Length [veh/ln]		46.71	114.68	211.89	106.72	36.54	17.33
95th-Percentile Queue Length [ft/ln]		1167.74	2867.05	5297.35	2667.92	913.40	433.31

Movement, Approach, & Intersection Results

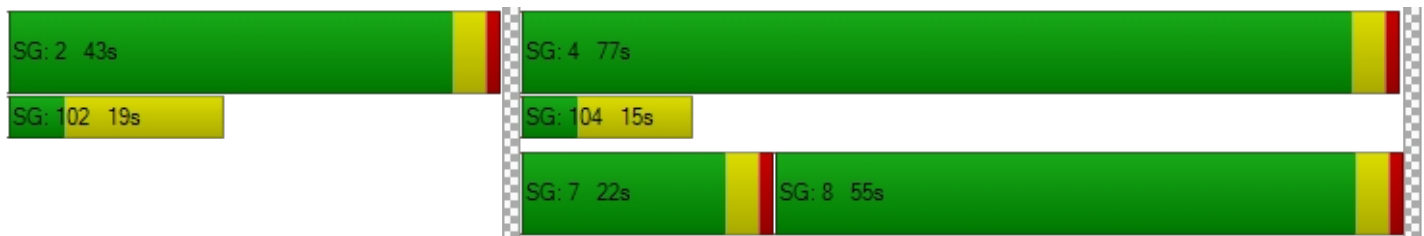
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	101.44	101.44	341.78	0.00	967.19	541.55	141.21	20.14	0.00
Movement LOS				F	F	F		F	F	F	C	
d_A, Approach Delay [s/veh]	0.00			239.31			810.35			56.60		
Approach LOS	A			F			F			E		
d_I, Intersection Delay [s/veh]	406.41											
Intersection LOS	F											
Intersection V/C	1.717											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	51.34	0.00	51.34
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.567	0.000	3.116
Crosswalk LOS	F	B	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	650	850	1217
d_b, Bicycle Delay [s]	60.00	27.34	19.84	9.20
I_b,int, Bicycle LOS Score for Intersection	4.132	4.663	5.330	2.995
Bicycle LOS	D	E	F	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: NB Ramps I-215/Ethanac Rd

Control Type:	Signalized	Delay (sec / veh):	429.8
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.963

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	300.00	100.00	100.00	100.00	300.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	438	1	236	0	0	0	243	512	0	0	373	158
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	268	0	304	0	0	0	557	657	0	0	552	591
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	724	1	549	0	0	0	810	1189	0	0	940	755
Peak Hour Factor	0.8544	0.8544	0.8544	1.0000	1.0000	1.0000	0.9269	0.9269	1.0000	1.0000	0.9516	0.9516
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	212	0	161	0	0	0	218	321	0	0	247	198
Total Analysis Volume [veh/h]	847	1	643	0	0	0	874	1283	0	0	988	793
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-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	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	14	0	0	0	0	12	106	0	0	94	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	C	R		L	C	C
C, Cycle Length [s]	120	120		120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	29	29		30	83	49
g / C, Green / Cycle	0.24	0.24		0.25	0.70	0.41
(v / s)_i Volume / Saturation Flow Rate	0.47	0.40		0.48	0.68	1.01
s, saturation flow rate [veh/h]	1810	1615		1810	1900	1762
c, Capacity [veh/h]	431	385		450	1321	728
d1, Uniform Delay [s]	45.71	45.71		45.08	17.17	35.21
k, delay calibration	0.50	0.50		0.50	0.33	0.50
l, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	443.74	313.50		432.17	14.32	655.29
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.97	1.67		1.94	0.97	2.45
d, Delay for Lane Group [s/veh]	489.45	359.21		477.25	31.49	690.50
Lane Group LOS	F	F		F	C	F
Critical Lane Group	Yes	No		Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	65.86	44.86		67.27	34.00	153.20
50th-Percentile Queue Length [ft/ln]	1646.46	1121.50		1681.86	850.09	3829.93
95th-Percentile Queue Length [veh/ln]	102.88	69.80		105.10	43.57	246.50
95th-Percentile Queue Length [ft/ln]	2571.99	1744.90		2627.55	1089.18	6162.39

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	489.45	489.45	359.21	0.00	0.00	0.00	477.25	31.49	0.00	0.00	690.50	690.50
Movement LOS	F	F	F				F	C			F	F
d_A, Approach Delay [s/veh]	433.28			0.00			212.11			690.50		
Approach LOS	F			A			F			F		
d_I, Intersection Delay [s/veh]	429.79											
Intersection LOS	F											
Intersection V/C	1.963											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.440	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	167	0	1700	1500
d_b, Bicycle Delay [s]	50.42	60.00	1.35	3.75
I_b,int, Bicycle LOS Score for Intersection	4.020	4.132	5.119	4.498
Bicycle LOS	D	D	F	E

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Ethanac Barnett Industrial

Vistro File: C:\...\Barnett and Ethanac
Warehouse_1_3_2023.vistro

Scenario 8 Opening PM + Proj

Report File: C:\...\Opening PM + P.pdf

1/3/2023

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Murrieta Rd/Ethanac Rd	116	101	339	49	116	19	10	1151	146	533	1163	62	3805

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
2	Ethanac Rd/Project Dwy 1	0	9	1658	2	0	1783	3452

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Barnett Rd-Case Rd/Ethanac Rd	29	1	143	572	0	217	223	1499	41	79	1610	533	4947

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Thru	Right	Thru	Right	Right	Right	
4	Barnett Rd/Project Dwy 2	173		109	12	0		294

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
5	Barnett Rd/Project Dwy 3	0	156	104	5	17	0	282

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
6	Barnett Rd/Project Dwy 4	0	122	99	5	34	0	260

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
7	SB Ramps I-215/Ethanac Rd	674	5	913	1331	777	501	1163	5364

Version 2022 (SP 0-10)

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
8	NB Ramps I-215/Ethanac Rd	724	1	549	810	1189	940	755	4968

Option 1: Copy of Barnett Rd-Case Rd/Ethanac Rd

Number	3											
Intersection	Barnett Rd-Case Rd/Ethanac Rd											
Control Type	Signalized											
Analysis Method	HCM 7th Edition											
Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	37	22	121	392	0	97	167	754	29	115	483	388
Total Analysis Volume [veh/h]	59	34	153	462	1	87	219	1829	26	204	1442	376

Intersection Settings

Cycle Length [s]	120											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Fully actuated											
Lost time [s]	0.00											
Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	14	0	0	30	0	20	58	0	18	56	0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	21	0	0	7	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.11	0.11	0.15	0.15	0.15	0.13	0.48	0.48	0.12	0.47	0.47	
(v / s)_i Volume / Saturation Flow Rate	0.05	0.09	0.13	0.03	0.03	0.12	0.51	0.02	0.11	0.40	0.23	
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Arrival type	3			3			3			3		
s, saturation flow rate [veh/h]	1842	1615	3514	1621	1615	1810	3618	1615	1810	3618	1615	
c, Capacity [veh/h]	206	181	545	251	250	243	1744	779	213	1684	752	
X, volume / capacity	0.45	0.85	0.85	0.18	0.18	0.90	1.05	0.03	0.96	0.86	0.50	
d, Delay for Lane Group [s/veh]	51.41	62.56	53.13	44.40	44.40	62.94	66.73	16.46	73.01	34.37	24.73	
Lane Group LOS	D	E	D	D	D	E	F	B	E	C	C	

Version 2022 (SP 0-10)

Critical Lane Group	No	Yes	Yes	NO	NO	NO	Yes	No	Yes	NO	NO
50th-Percentile Queue Length [veh/ln]	2.71	5.03	7.02	1.17	1.17	7.27	32.80	0.40	7.31	19.24	7.80
50th-Percentile Queue Length [ft/ln]	67.67	125.85	175.38	29.24	29.14	181.72	820.01	9.92	182.66	481.05	195.07
95th-Percentile Queue Length [veh/ln]	4.87	8.71	11.36	2.11	2.10	11.69	43.81	0.71	11.74	26.44	12.38
95th-Percentile Queue Length [ft/ln]	121.81	217.84	283.98	52.63	52.45	292.26	1095.33	17.85	293.48	660.90	309.60

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.41	51.41	62.56	53.13	44.40	44.40	62.94	66.73	16.46	73.01	34.37	24.73
Movement LOS	D	D	E	D	D	D	E	F	B	E	C	C
Critical Movement	No	No	No	No	No	No	No	No	No	Yes	No	No
d_A, Approach Delay [s/veh]	58.35			51.73			65.70			36.47		
Approach LOS	E			D			E			D		
d_I, Intersection Delay [s/veh]	51.68											
Intersection LOS	D											
Intersection V/C	0.845											

Option 1: Copy of Barnett Rd-Case Rd/Ethanac Rd

Number	3											
Intersection	Barnett Rd-Case Rd/Ethanac Rd											
Control Type	Signalized											
Analysis Method	HCM 7th Edition											
Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	21	0	96	473	0	188	198	540	39	62	655	441
Total Analysis Volume [veh/h]	33	1	123	604	0	172	246	1655	34	89	1684	418

Intersection Settings

Cycle Length [s]	120											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Fully actuated											
Lost time [s]	0.00											
Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	14	0	0	30	0	21	65	0	11	55	0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	21	0	0	7	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.09	0.09	0.19	0.19	0.19	0.14	0.52	0.52	0.06	0.44	0.44	
(v / s)_i Volume / Saturation Flow Rate	0.02	0.08	0.17	0.05	0.05	0.14	0.46	0.02	0.05	0.47	0.26	
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Arrival type	3			3			3			3		
s, saturation flow rate [veh/h]	1812	1615	3514	1615	1615	1810	3618	1615	1810	3618	1615	
c, Capacity [veh/h]	167	148	679	312	312	257	1890	844	107	1590	710	
X, volume / capacity	0.20	0.83	0.89	0.28	0.28	0.96	0.88	0.04	0.83	1.06	0.59	
d, Delay for Lane Group [s/veh]	51.05	64.66	51.44	41.75	41.75	69.67	31.26	14.07	71.01	73.64	29.00	
Lane Group LOS	D	E	D	D	D	E	C	B	E	F	C	

Version 2022 (SP 0-10)

Critical Lane Group	No	Yes	Yes	NO	NO	Yes	NO	NO	NO	Yes	No
50th-Percentile Queue Length [veh/ln]	0.98	4.10	9.16	2.22	2.22	8.65	21.44	0.47	3.12	31.23	9.60
50th-Percentile Queue Length [ft/ln]	24.43	102.62	229.03	55.58	55.58	216.19	535.88	11.82	77.90	780.81	240.12
95th-Percentile Queue Length [veh/ln]	1.76	7.39	14.12	4.00	4.00	13.47	29.03	0.85	5.61	42.19	14.69
95th-Percentile Queue Length [ft/ln]	43.97	184.71	353.12	100.04	100.04	336.76	725.70	21.28	140.23	1054.66	367.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.05	51.05	64.66	51.44	41.75	41.75	69.67	31.26	14.07	71.01	73.64	29.00
Movement LOS	D	D	E	D	D	D	E	C	B	E	F	C
Critical Movement	No	No	No	No	No	No	No	No	No	No	Yes	No
d_A, Approach Delay [s/veh]	61.71			49.29			35.85			65.01		
Approach LOS	E			D			D			E		
d_I, Intersection Delay [s/veh]	51.34											
Intersection LOS	D											
Intersection V/C	0.849											

Option 2: Copy of SB Ramps I-215/Ethanac Rd

Number	7											
Intersection	SB Ramps I-215/Ethanac Rd											
Control Type	Signalized											
Analysis Method	HCM 7th Edition											
Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	0	0	0	137	3	274	0	607	539	103	717	0
Total Analysis Volume [veh/h]	0	0	0	436	3	736	0	1340	829	245	1354	0

Intersection Settings

Cycle Length [s]	120											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Semi-actuated											
Lost time [s]	0.00											
Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap	Protecte	Permiss	Permiss
Signal Group	0	0	0	2	2	0	0	8	8	7	4	0
Auxiliary Signal Groups									2,8			
Lead / Lag	-	-	-	Lag	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	10	10	0	0	10	10	5	10	0
Maximum Green [s]	0	0	0	30	30	0	0	30	30	30	30	0
Amber [s]	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0	0.0
Split [s]	0	0	0	23	23	0	0	42	42	55	97	0
Walk [s]	0	0	0	5	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	0	0	14	14	0	0	10	10	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall				No				No	No	No	No	
Maximum Recall				No				No	No	No	No	
Pedestrian Recall				No				No	No	No	No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.51	0.51	0.30	0.84	0.09	0.42
(v / s)_i Volume / Saturation Flow Rate	0.24	0.26	0.26	0.51	0.07	0.37
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900
Arrival type	3	3	3	3		
s, saturation flow rate [veh/h]	1810	2859	5176	1615	3514	3618
c, Capacity [veh/h]	929	1467	1528	1359	322	1520
X, volume / capacity	0.47	0.50	0.88	0.61	0.76	0.89
d, Delay for Lane Group [s/veh]	20.44	20.38	41.98	5.13	56.94	34.25
Lane Group LOS	C	C	D	A	E	C

Version 2022 (SP 0-10)

Critical Lane Group	NO	NO	NO	Yes	NO	Yes
50th-Percentile Queue Length [veh/ln]	8.10	6.86	12.65	4.80	3.78	18.22
50th-Percentile Queue Length [ft/ln]	202.58	171.58	316.35	119.99	94.43	455.39
95th-Percentile Queue Length [veh/ln]	12.77	11.16	18.49	8.39	6.80	25.22
95th-Percentile Queue Length [ft/ln]	319.30	278.98	462.19	209.81	169.98	630.38

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	20.44	0.00	20.38	0.00	41.98	5.13	56.94	34.25	0.00
Movement LOS				C		C		D	A	E	C	
Critical Movement				No		No		No	No	Yes	No	
d_A, Approach Delay [s/veh]	0.00			20.40			27.89			37.72		
Approach LOS	A			C			C			D		
d_I, Intersection Delay [s/veh]	29.30											
Intersection LOS	C											
Intersection V/C	0.646											

Option 2: Copy of SB Ramps I-215/Ethanac Rd

Number	7											
Intersection	SB Ramps I-215/Ethanac Rd											
Control Type	Signalized											
Analysis Method	HCM 7th Edition											
Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	0	0	0	173	5	319	0	588	425	119	692	0
Total Analysis Volume [veh/h]	0	0	0	796	6	1073	0	1443	848	524	1221	0

Intersection Settings

Cycle Length [s]	120											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Semi-actuated											
Lost time [s]	0.00											
Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap	Protecte	Permiss	Permiss
Signal Group	0	0	0	2	2	0	0	8	8	7	4	0
Auxiliary Signal Groups									2,8			
Lead / Lag	-	-	-	Lag	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	10	10	0	0	10	10	5	10	0
Maximum Green [s]	0	0	0	30	30	0	0	30	30	30	30	0
Amber [s]	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0	0.0
Split [s]	0	0	0	44	44	0	0	60	60	16	76	0
Walk [s]	0	0	0	5	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	0	0	27	27	0	0	10	10	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall				No				No	No	No	No	
Maximum Recall				No				No	No	No	No	
Pedestrian Recall				No				No	No	No	No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle		0.48	0.48	0.25	0.76	0.17	0.46
(v / s)_i Volume / Saturation Flow Rate		0.44	0.38	0.28	0.53	0.15	0.34
so, Base Saturation Flow per Lane [pc/h/ln]		1900	1900	1900	1900	1900	1900
Arrival type	3	3		3		3	
s, saturation flow rate [veh/h]		1810	2859	5176	1615	3514	3618
c, Capacity [veh/h]		864	1365	1302	1231	601	1649
X, volume / capacity		0.92	0.79	1.11	0.69	0.87	0.74
d, Delay for Lane Group [s/veh]		45.87	30.86	96.36	10.29	52.60	27.48
Lane Group LOS		D	C	F	B	D	C

Version 2022 (SP 0-10)

Critical Lane Group	Yes	NO	Yes	NO	Yes	NO
50th-Percentile Queue Length [veh/ln]	24.64	13.36	19.02	10.11	7.96	14.21
50th-Percentile Queue Length [ft/ln]	615.91	333.93	475.50	252.83	198.98	355.33
95th-Percentile Queue Length [veh/ln]	32.78	19.35	27.75	15.33	12.59	20.40
95th-Percentile Queue Length [ft/ln]	819.41	483.77	693.82	383.21	314.65	509.90

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	45.87	0.00	30.86	0.00	96.36	10.29	52.60	27.48	0.00
Movement LOS				D		C		F	B	D	C	
Critical Movement				No		No		Yes	No	No	No	
d_A, Approach Delay [s/veh]	0.00			37.25			64.50			35.02		
Approach LOS	A			D			E			D		
d_I, Intersection Delay [s/veh]	47.17											
Intersection LOS	D											
Intersection V/C	0.868											

Option 2: Copy of NB Ramps I-215/Ethanac Rd

Number	8											
Intersection	NB Ramps I-215/Ethanac Rd											
Control Type	Signalized											
Analysis Method	HCM 7th Edition											
Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	345	0	150	0	0	0	215	531	0	0	480	166
Total Analysis Volume [veh/h]	771	0	411	0	0	12	782	1093	0	0	860	398

Intersection Settings

Cycle Length [s]	120											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Semi-actuated											
Lost time [s]	0.00											
Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Overlap
Signal Group	0	6	0	0	0	0	3	8	0	0	4	4
Auxiliary Signal Groups												4,6
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	10
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	30
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0
Split [s]	0	49	0	0	0	0	50	71	0	0	21	21
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	5
Pedestrian Clearance [s]	0	10	0	0	0	0	0	10	0	0	10	10
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0
Minimum Recall							No	No			No	No
Maximum Recall							No	No			No	No
Pedestrian Recall							No	No			No	No
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle			0.24	0.47	0.20	0.69
(v / s)_i Volume / Saturation Flow Rate			0.22	0.30	0.17	0.25
so, Base Saturation Flow per Lane [pc/h/ln]			1900	1900	1900	1900
Arrival type	3	3	3	3		
s, saturation flow rate [veh/h]			3514	3618	5176	1615
c, Capacity [veh/h]			846	1713	1032	1119
X, volume / capacity			0.92	0.64	0.83	0.36
d, Delay for Lane Group [s/veh]			49.40	24.24	47.97	8.30
Lane Group LOS			D	C	D	A

Version 2022 (SP 0-10)

Critical Lane Group		Yes	NO	Yes	Yes
50th-Percentile Queue Length [veh/ln]		11.87	11.59	8.35	4.12
50th-Percentile Queue Length [ft/ln]		296.72	289.64	208.80	102.92
95th-Percentile Queue Length [veh/ln]		17.52	17.17	13.09	7.41
95th-Percentile Queue Length [ft/ln]		437.97	429.20	327.29	185.26

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	49.40	24.24	0.00	0.00	47.97	8.30
Movement LOS							D	C			D	A
Critical Movement	No		No				Yes	No			No	No
d_A, Approach Delay [s/veh]	0.00			0.00			34.74			35.42		
Approach LOS	A			A			C			D		
d_I, Intersection Delay [s/veh]	35.01											
Intersection LOS	D											
Intersection V/C	0.506											

Option 1: Copy of NB Ramps I-215/Ethanac Rd

Number	8											
Intersection	NB Ramps I-215/Ethanac Rd											
Control Type	Signalized											
Analysis Method	HCM 7th Edition											
Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	439	1	236	0	0	0	244	512	0	0	373	158
Total Analysis Volume [veh/h]	849	1	643	0	0	5	875	1283	0	0	988	793

Intersection Settings

Cycle Length [s]	120											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Semi-actuated											
Lost time [s]	0.00											
Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Overlap
Signal Group	6	6	0	0	0	0	3	8	0	0	4	4
Auxiliary Signal Groups												4,6
Lead / Lag	Lag	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	10	10	0	0	0	0	5	10	0	0	10	10
Maximum Green [s]	30	30	0	0	0	0	30	30	0	0	30	30
Amber [s]	3.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0
All red [s]	1.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0
Split [s]	63	63	0	0	0	0	33	57	0	0	24	24
Walk [s]	5	5	0	0	0	0	0	5	0	0	5	5
Pedestrian Clearance [s]	10	10	0	0	0	0	0	10	0	0	10	10
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0
Minimum Recall	No						No	No			No	No
Maximum Recall	No						No	No			No	No
Pedestrian Recall	No						No	No			No	No
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.42	0.42		0.25	0.51	0.23	0.68	
(v / s)_i Volume / Saturation Flow Rate	0.24	0.40		0.25	0.35	0.19	0.49	
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900		1900	1900	1900	1900	
Arrival type	3		3		3		3	
s, saturation flow rate [veh/h]	3514	1615		3514	3618	5176	1615	
c, Capacity [veh/h]	1490	685		878	1843	1171	1104	
X, volume / capacity	0.57	0.94		1.00	0.70	0.84	0.72	
d, Delay for Lane Group [s/veh]	27.84	55.42		58.42	22.86	46.14	15.83	
Lane Group LOS	C	E		E	C	D	B	

Version 2022 (SP 0-10)

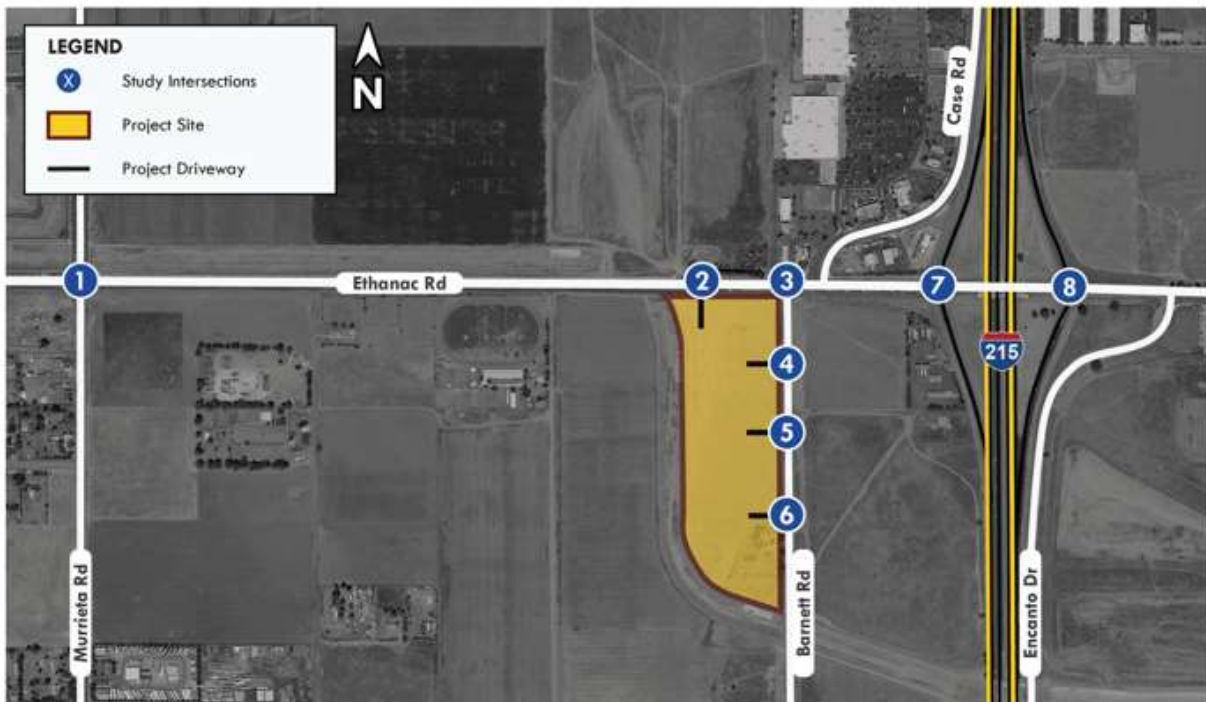
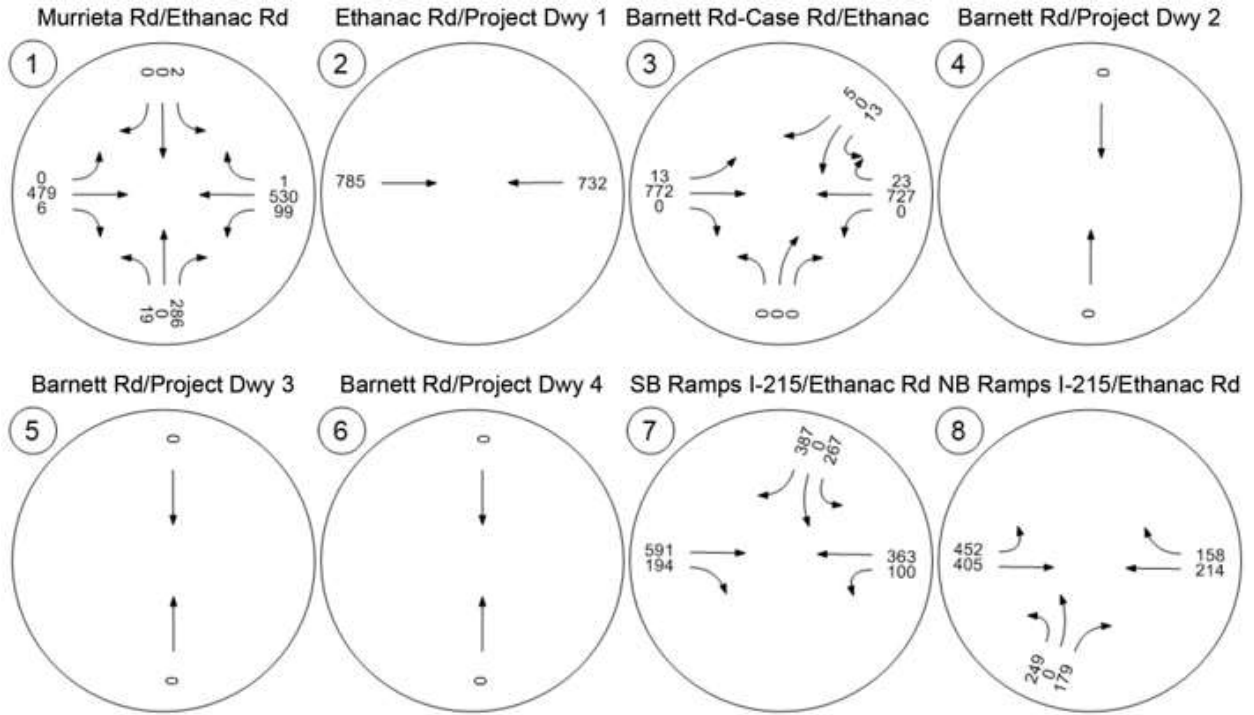
Critical Lane Group	No	Yes		Yes	NO	NO	Yes
50th-Percentile Queue Length [veh/ln]	9.48	21.71		14.53	13.49	9.50	13.18
50th-Percentile Queue Length [ft/ln]	236.93	542.77		363.13	337.14	237.58	329.53
95th-Percentile Queue Length [veh/ln]	14.53	29.35		20.78	19.51	14.56	19.14
95th-Percentile Queue Length [ft/ln]	363.15	733.81		519.39	487.70	363.98	478.38

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	27.84	0.00	55.42	0.00	0.00	0.00	58.42	22.86	0.00	0.00	46.14	15.83
Movement LOS	C		E				E	C			D	B
Critical Movement	No		No				Yes	No			No	No
d_A, Approach Delay [s/veh]	39.73			0.00			37.28			32.64		
Approach LOS	D			A			D			C		
d_I, Intersection Delay [s/veh]	36.43											
Intersection LOS	D											
Intersection V/C	0.907											

APPENDIX F – CUMULATIVE PROJECTS TRIP ASSIGNMENT

CUMULATIVE PROJECTS AM TRIP ASSIGNMENT



CUMULATIVE PROJECTS PM TRIP ASSIGNMENT

