

JACK IN THE BOX TRAFFIC IMPACT ANALYSIS

COUNTY OF RIVERSIDE, CALIFORNIA

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Prepared for:

Ms. Gabriela Marks
Marks Architects
2643 4th Ave.
San Diego, CA 92103

Prepared by:



Scott Sato, P.E.
4225 Oceanside Blvd., #354 H
Oceanside, CA 92056
(949) 244-2436

TRAMES SOLUTIONS INC.

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JACK IN THE BOX TRAFFIC IMPACT ANALYSIS

COUNTY OF RIVERSIDE, CALIFORNIA

1.0 INTRODUCTION AND SUMMARY

A. Purpose of the TIA and Study Objectives

The purpose of this traffic impact analysis (TIA) is to evaluate the traffic impacts of the proposed Jack in the Box development. The project is proposed to be developed with a 2,847 sf fast food restaurant with a drive-thru, a C-Store with 12 vehicle fueling positions, and a car wash with 90 linear feet of tunnel. The site is located south of Benton Road and east of Winchester Road in the County of Riverside.

Study objectives include the following:

Existing (2019) Traffic. Existing traffic will be counted to determine current conditions. This constitutes the environmental setting for a CEQA analysis at the time that the hearing body reviews the project. Traffic count data shall be new or recent. In some cases, data up to one year old may be acceptable with the approval of the County of Riverside Engineering Department. Any exception to this must be requested prior to approval of the scoping agreement

Existing (2019) Plus Project Traffic. Traffic generated by the proposed project will be added to existing traffic counts to identify and analyze impacts on the circulation system.

Existing + Ambient + Project (EAP 2021). Traffic conditions prior to the time that the proposed development is completed will be estimated by increasing the existing traffic counts by an appropriate growth rate to be provided by County of Riverside Engineering Department staff, projected to the year that the project is estimated to be completed. Traffic generated by the proposed project will then be added, and the impacts on the circulation system will be analyzed. This will be the basis for determining project-specific impacts, mitigation, and conditions of approval.

Existing + Ambient + Project + Cumulative (EAPC 2021). Traffic generated by other approved projects in the study area shall be identified and added to the Project Completion traffic identified in Scenario 3. This may also include projects that are proposed and in the review process, but not yet fully approved. This scenario will be analyzed, and a determination made if improvements funded through an approved funding mechanism (TUMF, DIF, CFD, RBBD etc.) can accommodate the cumulative traffic at the target Level of Service (LOS) identified in the General Plan. If the “funded” improvements can provide the target LOS, payment into the fee program will be considered as cumulative mitigation through the conditions of approval. Other improvements needed beyond the “funded” improvements (such as localized improvements to non-TUMF facilities) should be identified as such.

B. Site Location and Study Area

The site is located south of Benton Road and east of Winchester Road in the County of Riverside. Figure 1-A illustrates the site location and the traffic analysis study area.

In general, the study area shall include any intersection of Collector or higher classification street with another Collector roadway or higher classification street, at which the proposed project will add 50 or more peak hour trips. Pursuant to the attached scoping agreement (see Appendix “A”), the study area includes the following intersections:

Study Area Intersections	
1.	Winchester Rd. (Hwy. 79) / Benton Rd.
2.	Winchester Rd. (Hwy. 79) / Max Gillis - Thompson Rd.
3.	Winchester Rd. (Hwy. 79) / Via Mira Mosa - Auld Rd.
4.	Temeku St. / Benton Rd.
5.	Winchester Rd. / Project Dwy. (Right-In Access Only)
6.	Briggs Rd. / Project Dwy. 2
7.	Briggs Rd. / Project Dwy. 3
8.	Briggs Rd. / Project Dwy. 4

C. Development Project Identification

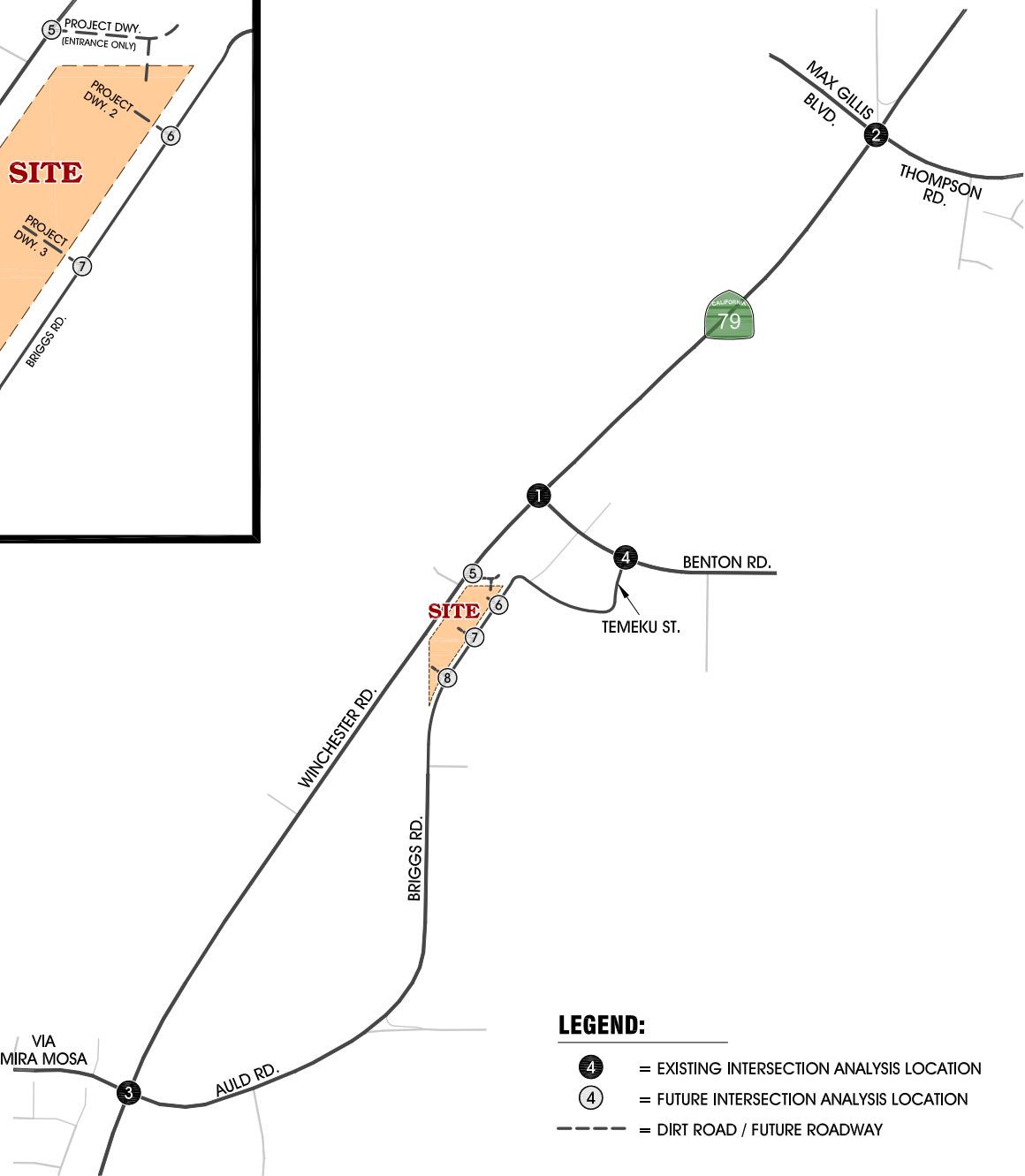
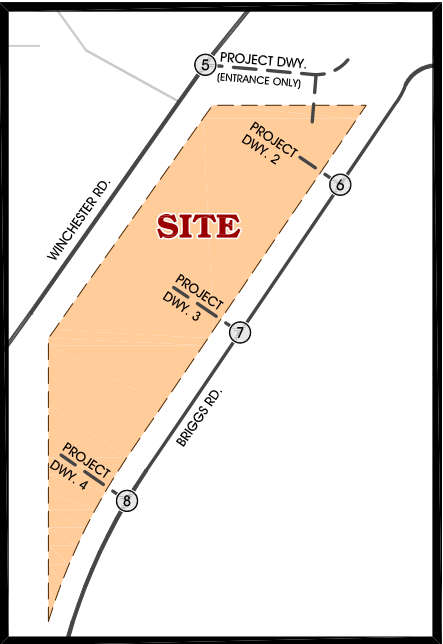
1. Project Size and Description

The Jack in the Box Site is proposed to be developed in a single development phase by 2021. The following uses are proposed as indicated below:

- A fast food restaurant with drive thru (1,860 square feet)
- A convenience store with 12 vehicle fueling positions
- A car wash with 90 linear feet of tunnel

FIGURE 1-A
STUDY AREA

ON-SITE AREA



LEGEND:

- ④ = EXISTING INTERSECTION ANALYSIS LOCATION
- ④ = FUTURE INTERSECTION ANALYSIS LOCATION
- = DIRT ROAD / FUTURE ROADWAY



2. Existing Land Use

The project site is currently vacant. Adjacent uses include the following:

- North – Retail
- South – Vacant
- East – Industrial
- West – Vacant/Hwy. 79

3. Proposed Land Use

Proposed Land Use: Commercial

4. Site Plan of Proposed Project

Figure 1-B illustrates the conceptual land use plan. As shown in Figure 1-B, the project is proposed to have two driveways along Briggs Road and an inbound only driveway from Winchester Road.

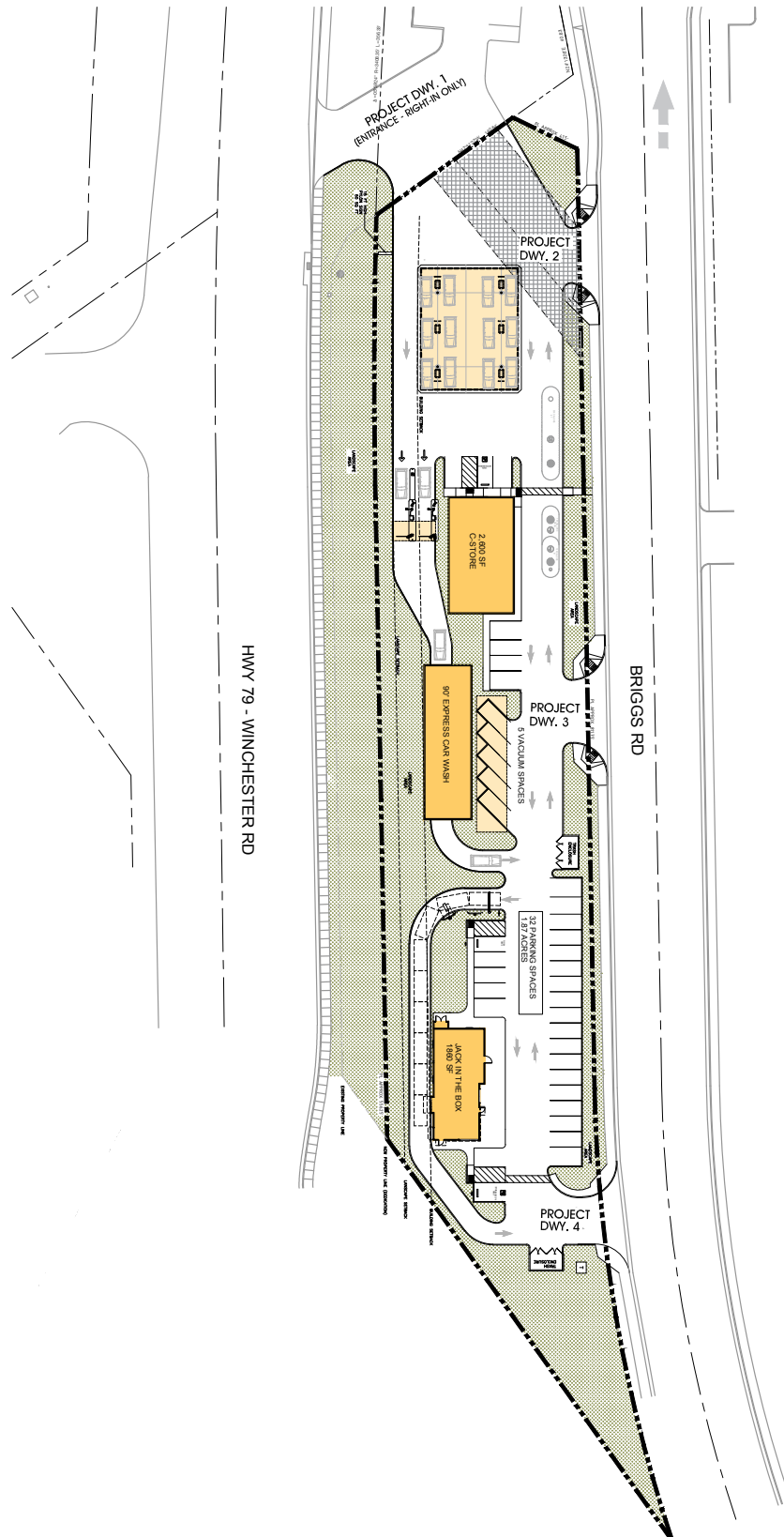
5. Proposed Project Opening Year

The proposed project is anticipated to be completed by 2021. Future traffic analysis has assumed a background (ambient) growth of 2% per year, along with traffic generated by other future developments in the surrounding area.

6. Proposed Project Phasing

The project is expected to be completed in a single phase. Therefore, all traffic recommendations included in this report have been based on the buildout of the proposed project.

FIGURE 1-B SITE PLAN



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2.0 TRAFFIC ANALYSIS METHODOLOGIES

Traffic operations are quantified through the determination of "Level of Service" (LOS). Level of Service is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an infrastructure facility (intersection) representing progressively worsening traffic conditions. This section presents the LOS definition, LOS criteria and methodologies for the Intersection Operations.

A. Level of Service Definition

The definitions of Level of Service for uninterrupted flow (flow unrestrained by the existence of traffic control devices) are:

- LOS "A": Completely free-flow conditions. The operation of vehicles is virtually unaffected by the presence of other vehicles, and operations are constrained only by the geometric features of the highway and by driver preferences. Maneuverability within the traffic stream is good. Minor disruptions to flow are easily absorbed without a change in travel speed.
- LOS "B": Free flow conditions, although the presence of other vehicles becomes noticeable. Average travel speeds are the same as in LOS "A", but drivers have slightly less freedom to maneuver. Minor disruptions are still easily absorbed, although local deterioration in LOS will be more obvious.
- LOS "C": The influence of traffic density on operations becomes marked. The ability to maneuver within the traffic stream is clearly affected by other vehicles. Minor disruptions can cause serious local deterioration in service, and queues will form behind any significant traffic disruption.
- LOS "D": The ability to maneuver is restricted due to traffic congestion. Travel speed is reduced by the increasing volume. Only minor disruptions can be absorbed without extensive queues forming and the service deteriorating.
- LOS "E": Operations at or near capacity, an unstable level. Vehicles are operating with the minimum spacing for maintaining uniform flow.
- LOS "F": Forced or breakdown flow. It occurs either when vehicles arrive at a rate greater than the rate at which they are discharged or when the forecast demand exceeds the computed capacity of a planned facility. Although operations at these points – and on sections immediately downstream – appear to be at capacity, queues form behind these breakdowns. Operations within queues are highly unstable, with vehicles experiencing brief periods of movement followed by stoppages.

B. County of Riverside Level of Service Criteria

The Riverside County General Plan has established Level of Service (LOS) “C” as the county-wide target along all County maintained roads and conventional state highways. As an exception, LOS “D” may be allowed in Community Development areas, only at intersections of any combination of Secondary Highways, Major Highways, Arterials, Urban Arterials, Expressways, conventional state highways or freeway ramp intersections. For the purposes of this traffic study, LOS “D” has been determined to be the maximum allowable threshold for the intersection operations. Therefore, LOS “E” or “F” is considered unacceptable and requires improvements measures.

C. Intersection Operations Analysis Methodology

The County of Riverside requires the use of the Transportation Research Board - Highway Capacity Manual (HCM), 6th Edition. The HCM defines level of service as a qualitative measure, which describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. The criteria used to evaluate Level of Service (LOS) conditions vary based on the type of roadway and whether the traffic flow is considered interrupted or uninterrupted. The HCM methodology expresses the level of service at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control.

The level of service is typically dependent on the quality of traffic flow at the intersections along a roadway. The HCM methodology expresses the level of service at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control. The Levels of Service results in this study are determined using the HCM methodology.

For signalized intersections, average total delay per vehicle for the overall intersection is used to determine level of service.

The study area intersections which are stop sign controlled with stop control on the minor street only have been analyzed using the unsignalized intersection methodology of the HCM. For these intersections, the calculation of level of service is dependent on the occurrence of gaps occurring in the traffic flow of the main street. Using data collected describing the intersection configuration and traffic volumes at the study area locations; the level of service has been calculated. The level of service criteria for this type of intersection analysis is based on average total delay per vehicle for the worst minor street movement(s).

For all way stop (AWS) controlled intersections, the ability of vehicles to enter the intersection is not controlled by the occurrence of gaps in the flow of the main street. The AWS controlled intersections have been evaluated using the HCM methodology for this type of multi-way stop controlled intersection configuration. The level of service criteria for this type of intersection analysis is based on average total delay per vehicle.

The levels of service are defined for the various analysis methodologies as follows:

LEVEL OF SERVICE	AVERAGE TOTAL DELAY PER VEHICLE (SECONDS)	
	SIGNALIZED	UNSIGNALIZED
A	0 to 10.00	0 to 10.00
B	10.01 to 20.00	10.01 to 15.00
C	20.01 to 35.00	15.01 to 25.00
D	35.01 to 55.00	25.01 to 35.00
E	55.01 to 80.00	35.01 to 50.00
F	80.01 and up	50.01 and up

Levels of service at the study area intersections have been evaluated using the following HCM intersection analysis program: Synchro.

Peak hour factors (PHF), where known from existing traffic counts, have been used to assess intersection operations.

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3.0 AREA CONDITIONS

A. Study Area Intersections

In general, the minimum area to be studied shall include any intersection of “Collector” or higher classification street, with “Collector” or higher classification streets, at which the proposed project will add 50 or more peak hour. The County of Riverside Engineering Department may require deviation from these requirements based on area conditions. The study area includes the following intersections (shown previously on Figure 1-A):

Study Area Intersections	
1.	Winchester Rd. (Hwy. 79) / Benton Rd.
2.	Winchester Rd. (Hwy. 79) / Max Gillis - Thompson Rd.
3.	Winchester Rd. (Hwy. 79) / Via Mira Mosa - Auld Rd.
4.	Temeku St. / Benton Rd.
5.	Winchester Rd. / Project Dwy. (Right-In Access Only)
6.	Briggs Rd. / Project Dwy. 2
7.	Briggs Rd. / Project Dwy. 3
8.	Briggs Rd. / Project Dwy. 4

B. Area Roadway System

Figure 3-A identifies the existing roadway conditions for study area roadways. The existing intersection traffic controls and geometrics are identified.

The County of Riverside Circulation Element and Roadway Cross-Sections is depicted on Figure 3-B. Similarly, the City of Murrieta’s Circulation Element is shown on Figure 3-C

C. Existing (2019) Traffic Volumes

Existing intersection level of service calculations are based upon manual AM and PM peak hour turning movement counts made for Trames Solutions, Inc. in April 2019. Existing (2019) AM and PM peak hour intersection turning movement volumes are shown on Figure 3-D and Figure 3-E, respectively.

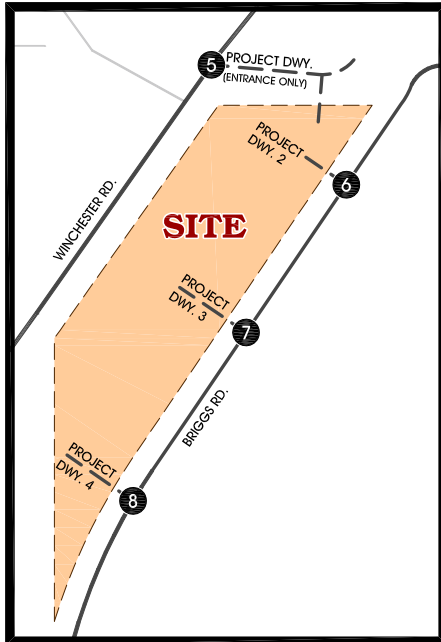
The traffic count worksheets are included in Appendix "B".

D. Existing (2019) Delay and Level of Service

The County of Riverside has established Level of Service (LOS) “D” as the maximum allowable threshold for the intersection operations. Therefore, LOS “E” or “F” is considered unacceptable and requires improvements measures.

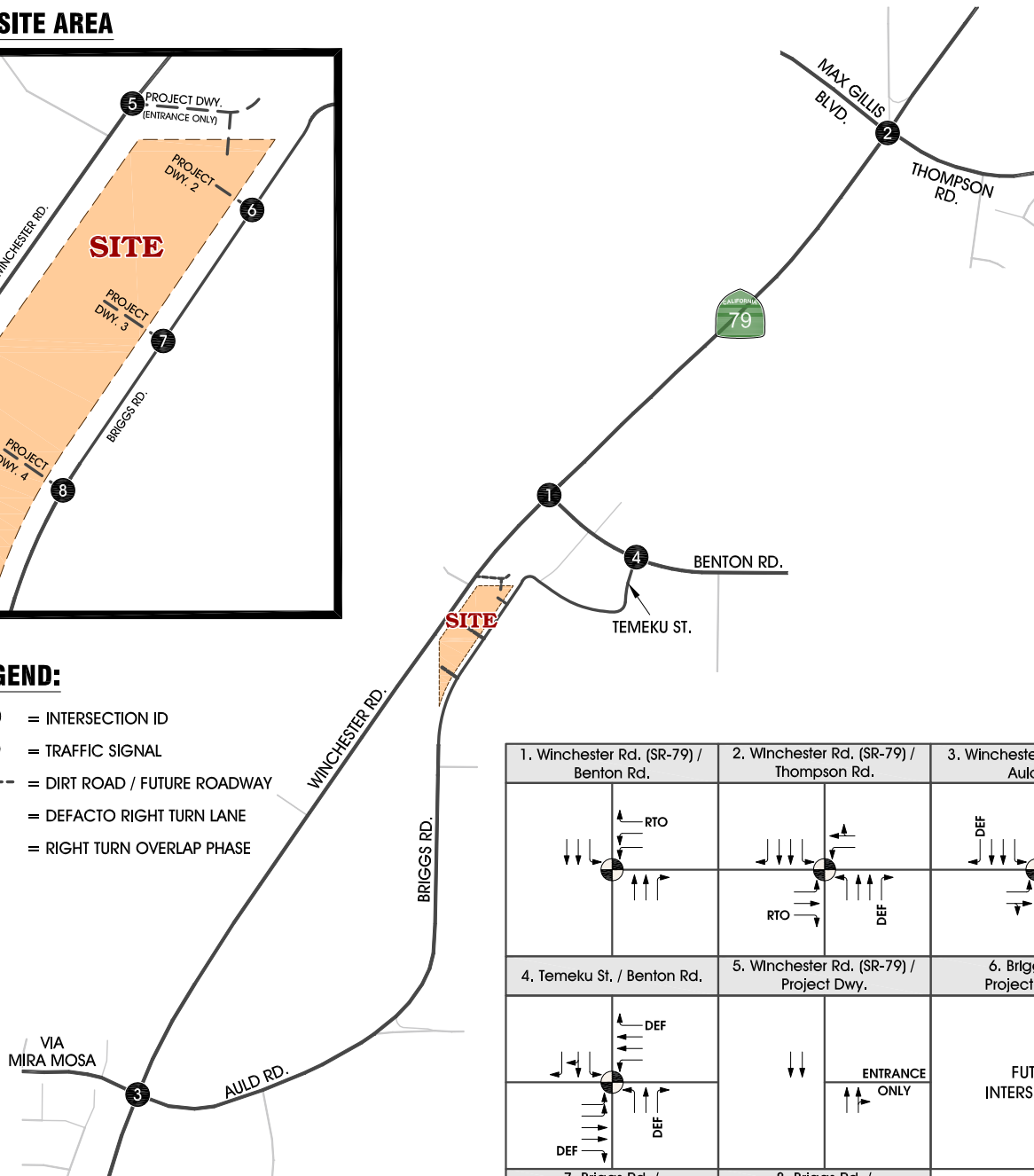
FIGURE 3-A EXISTING TRAFFIC CONTROLS AND INTERSECTION GEOMETRICS

ON-SITE AREA



LEGEND:

- 8 = INTERSECTION ID
- = TRAFFIC SIGNAL
- = DIRT ROAD / FUTURE ROADWAY
- DEF = DEFACTO RIGHT TURN LANE
- RTO = RIGHT TURN OVERLAP PHASE

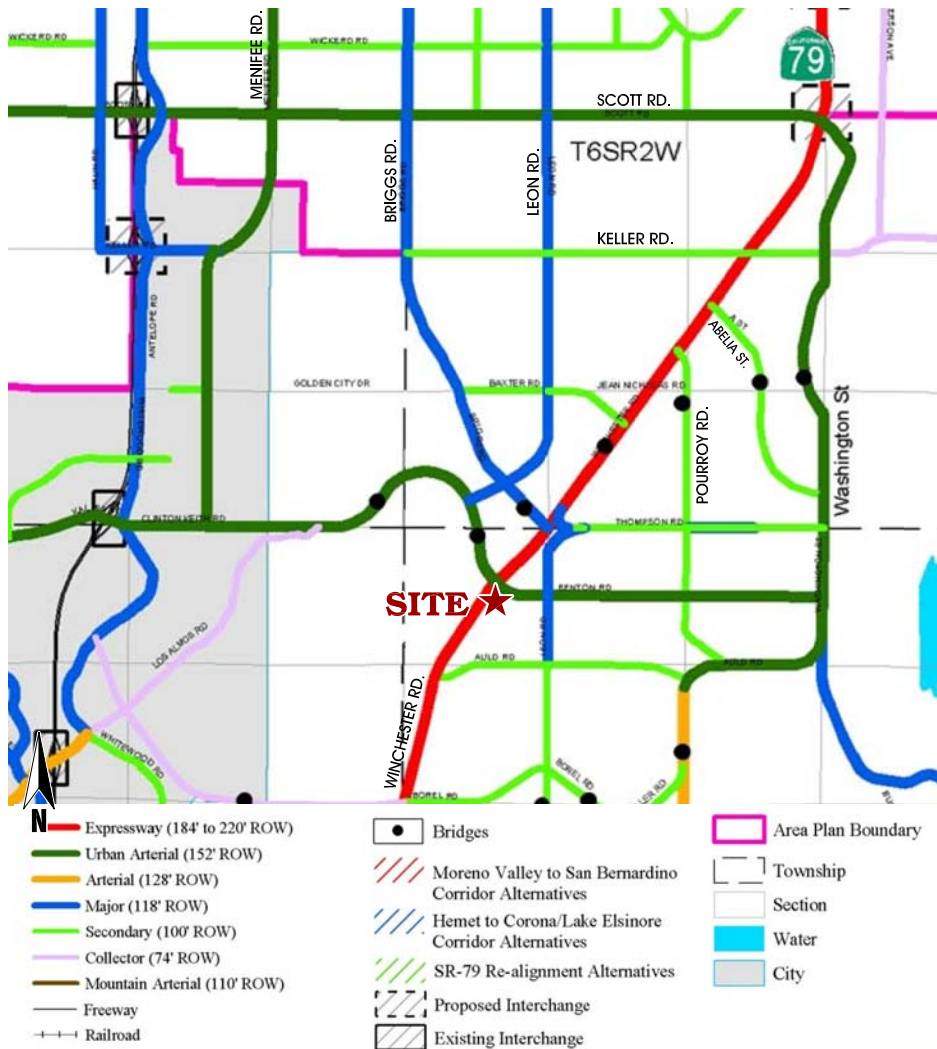


1. Winchester Rd. (SR-79) / Benton Rd.	2. Winchester Rd. (SR-79) / Thompson Rd.	3. Winchester Rd. (SR-79) / Auld Rd.
4. Temeku St. / Benton Rd.	5. Winchester Rd. (SR-79) / Project Dwy.	6. Briggs Rd. / Project Dwy. 2.
7. Briggs Rd. / Project Dwy. 3	8. Briggs Rd. / Project Dwy. 3	

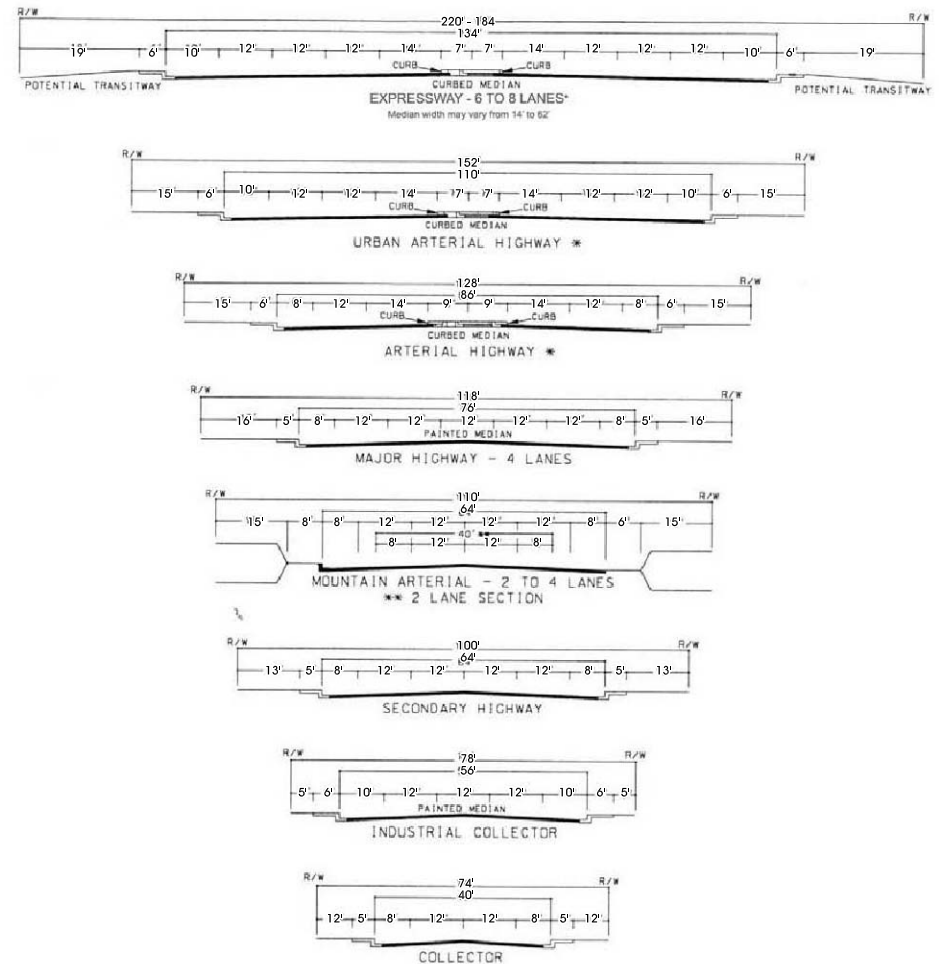


FIGURE 3-B RIVERSIDE COUNTY GENERAL PLAN CIRCULATION ELEMENT AND STREET CLASSIFICATION CROSS-SECTIONS

CIRCULATION ELEMENT MAP



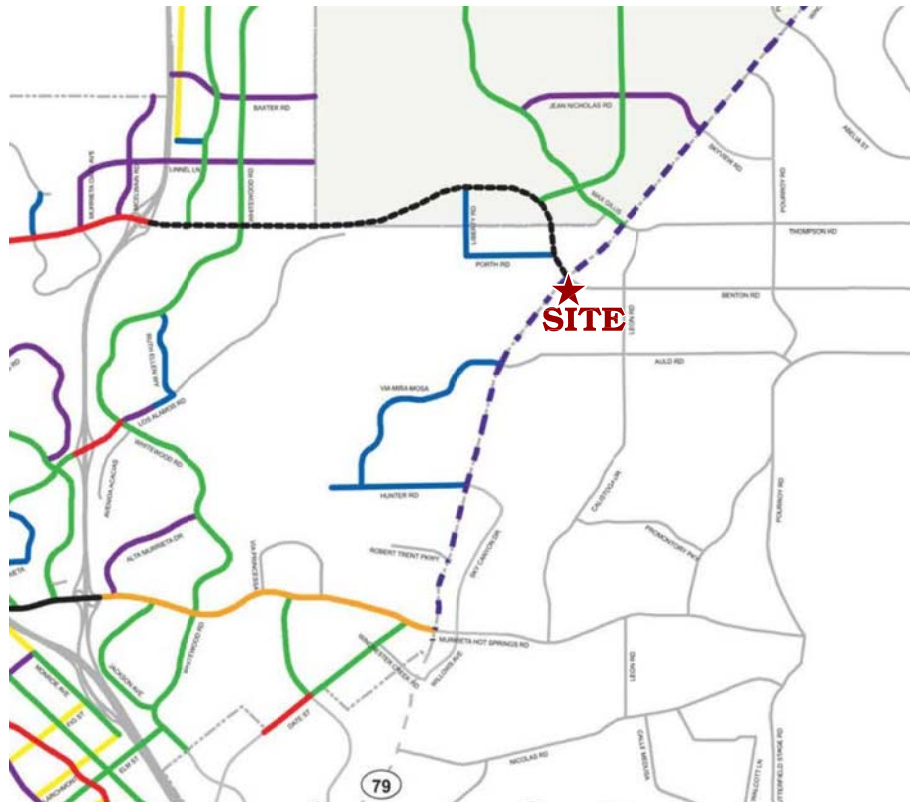
STREET CLASSIFICATION CROSS-SECTIONS



*IMPROVEMENTS MAY BE RECONFIGURED TO ACCOMMODATE EXCLUSIVE TRANSIT LANES OR ALTERNATIVE LANE ARRANGEMENTS. ADDITIONAL RIGHT OF WAY MAY BE REQUIRED AT INTERSECTIONS TO ACCOMMODATE. ULTIMATE IMPROVEMENTS FOR STATE HIGHWAYS SHALL CONFORM TO CALTRANS DESIGN STANDARDS.

FIGURE 3-C CITY OF MURRIETA GENERAL PLAN 2035 CIRCULATION MAP AND TYPICAL STREET SECTIONS

CIRCULATION MAP



LEGEND

* Curb to Curb / R/W		* Curb to Curb / R/W		Selected Roadways Shown for Clarity
County of Riverside Expressway	110' / 134'	Major	76' / 100'	City of Murrieta Boundary
Augmented Urban Arterial	126' / 150'	Secondary	64' / 88'	Sphere of Influence
Multi-Modal Transp. Corridor	86' / 134'	Industrial Collector	56' / 78'	
Urban Arterial	110' / 134'	Collector	44' / 66'	
Arterial	86' / 110'			

TYPICAL STREET SECTIONS

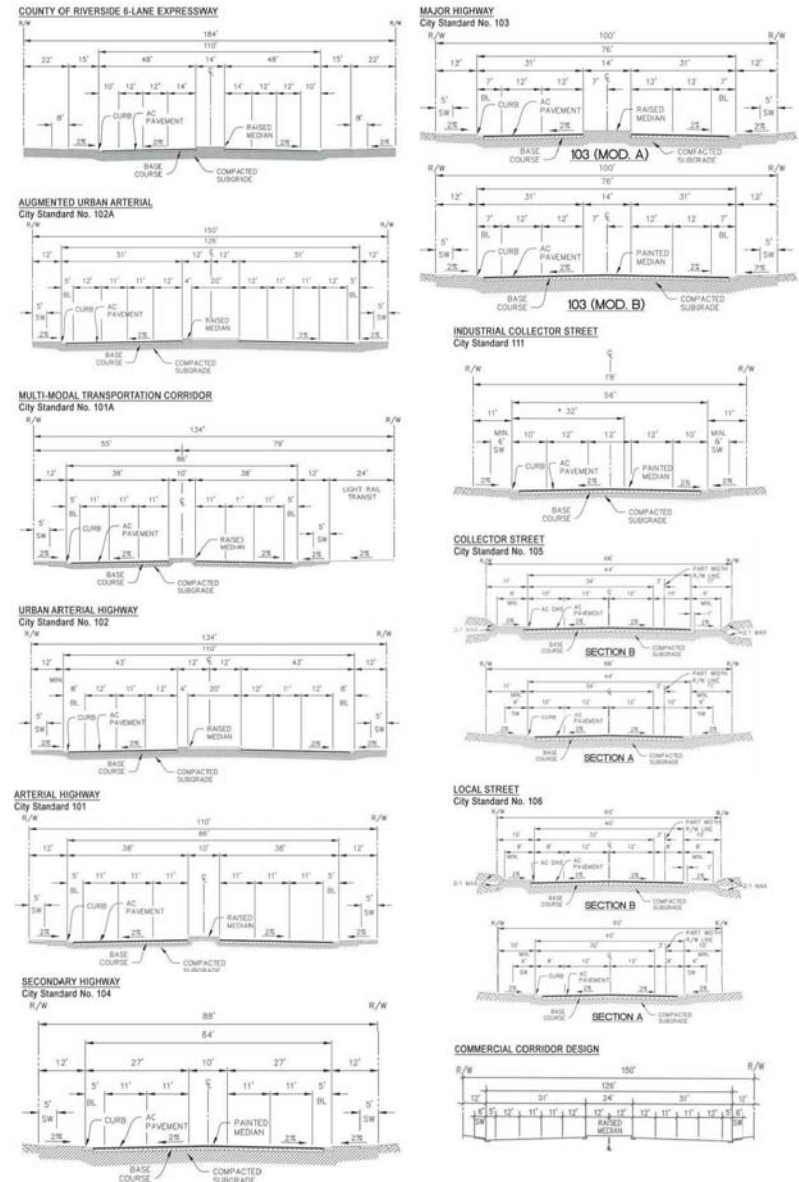


FIGURE 3-D EXISTING (2019) AM PEAK HOUR INTERSECTION VOLUMES

1. Winchester Rd. (SR-79) / Benton Rd.	2. Winchester Rd. (SR-79) / Thompson Rd.	3. Winchester Rd. (SR-79) / Auld Rd.
1634 374 251 291 705 151	176 1140 49 8 379 124 108 262 744 385 532 39	157 1628 110 23 30 247 110 28 29 15 767 272
4. Temeku St. / Benton Rd.	5. Winchester Rd. (SR-79) / Project Dwy.	6. Briggs Rd. / Project Dwy. 2.
364 82 183 78 62 47	1925 856 0	FUTURE INTERSECTION
7. Briggs Rd. / Project Dwy. 3	8. Briggs Rd. / Project Dwy. 3	
FUTURE INTERSECTION	FUTURE INTERSECTION	

LEGEND:

⑧ = INTERSECTION ID

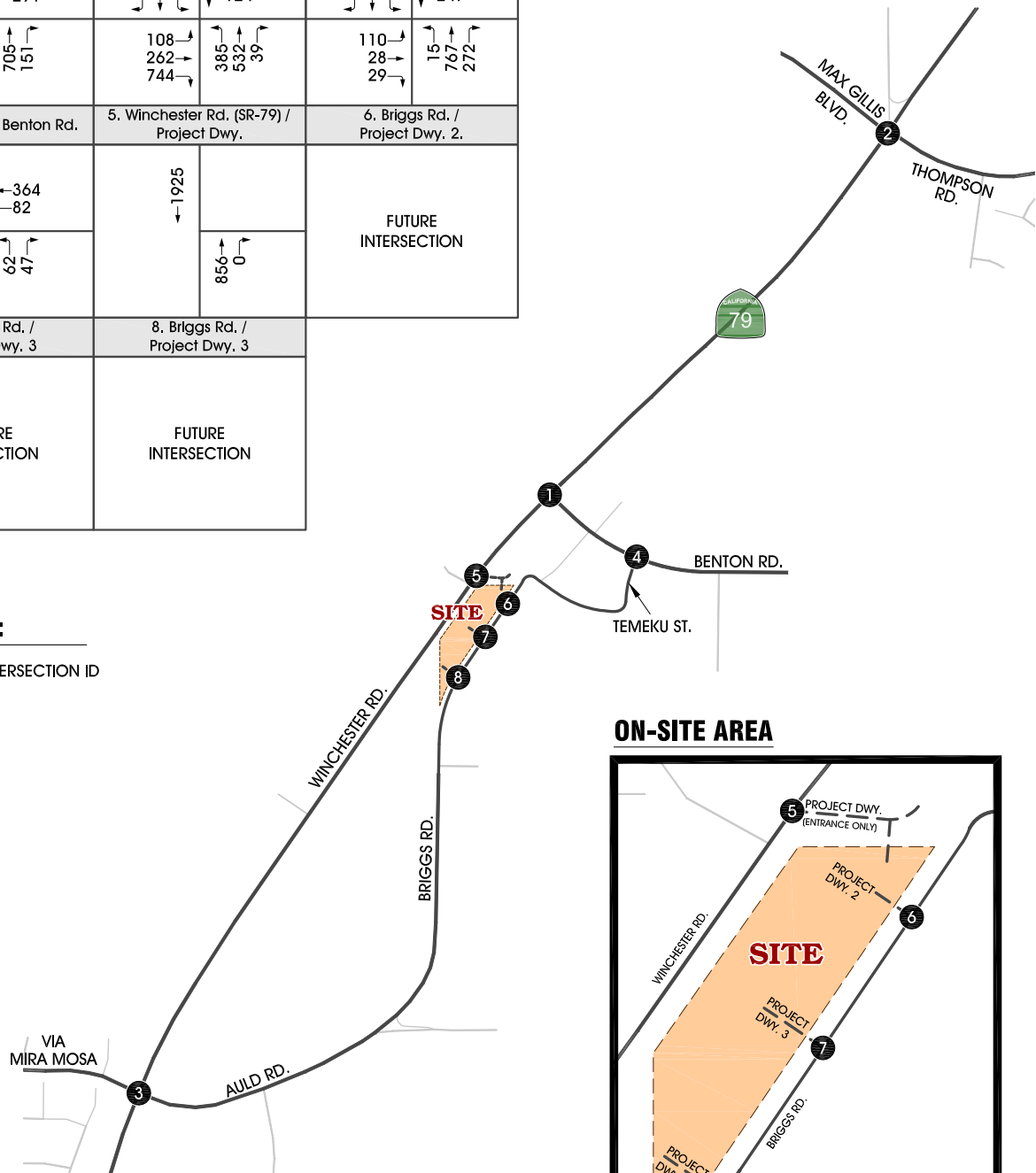
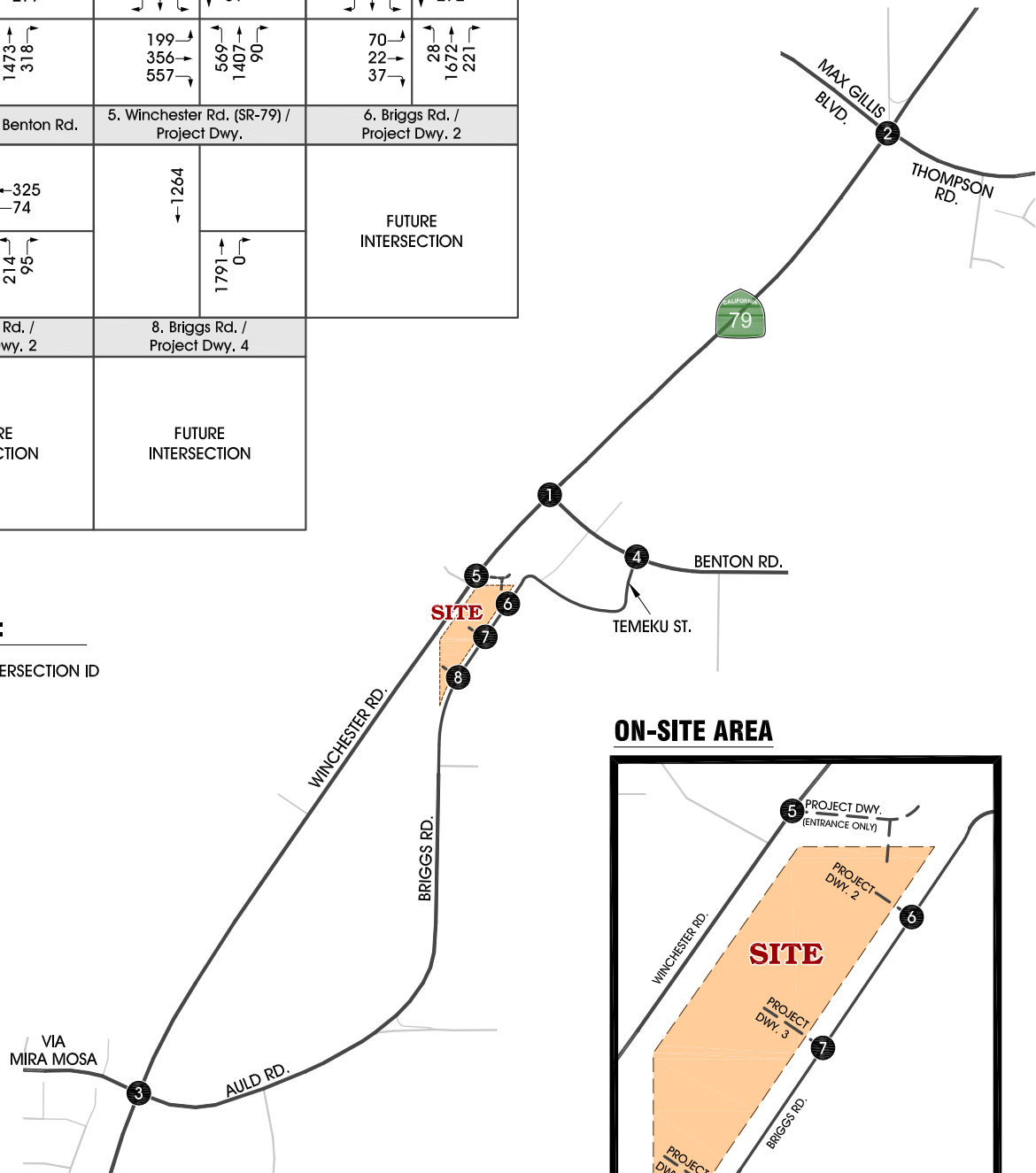


FIGURE 3-E EXISTING (2019) PM PEAK HOUR INTERSECTION VOLUMES

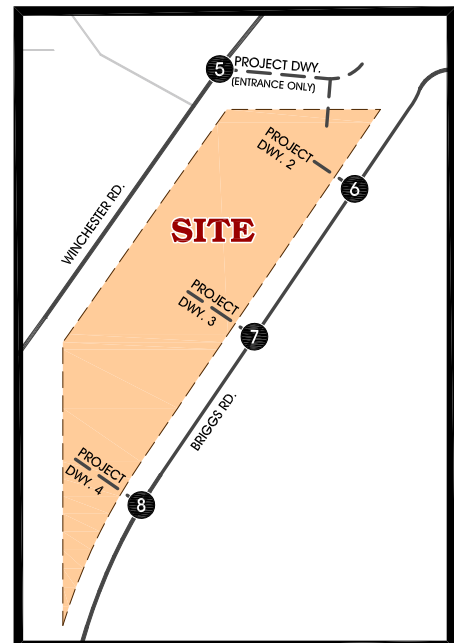
1. Winchester Rd. (SR-79) / Benton Rd.	2. Winchester Rd. (SR-79) / Thompson Rd.	3. Winchester Rd. (SR-79) / Auld Rd.
987 348 593 277 1473 318	184 697 53 12 325 81 199 356 557 569 1407 90	116 1054 45 53 26 272 70 22 37 28 1672 221
4. Temeku St. / Benton Rd.	5. Winchester Rd. (SR-79) / Project Dwy.	6. Briggs Rd. / Project Dwy. 2
325 74 262 64 214 95	1264 1791 0	FUTURE INTERSECTION
7. Briggs Rd. / Project Dwy. 2	8. Briggs Rd. / Project Dwy. 4	
FUTURE INTERSECTION	FUTURE INTERSECTION	

LEGEND:

⑧ = INTERSECTION ID



ON-SITE AREA



The results of the existing conditions intersection analysis are summarized in Table 3-1. The existing condition operations analysis worksheets are provided in Appendix "C". The intersection of Winchester Road (SR-79) / Thompson Road is currently operating at an unacceptable level of service (LOS "E" or worse) during the peak hours with the existing geometry and traffic controls.

E. Transit Service

The Riverside Transit Agency (RTA) Routes 23, 61, 79, 208, and 217 currently provide services the study area.

TABLE 3-1
INTERSECTION ANALYSIS FOR EXISTING (2019) CONDITIONS

ID	Intersection	Traffic Control ¹	Intersection Approach Lanes ²												Delay ³ (secs.)		Level of Service ³	
			Northbound			Southbound			Eastbound			Westbound			AM	PM	AM	PM
			L	T	R	L	T	R	L	T	R	L	T	R				
1	Winchester Rd. (SR-79) / Benton Rd.	TS	0	2	1	1	2	0	0	0	0	2	0	1>	22.5	37.7	C	D
2	Winchester Rd. (SR-79) / Thompson Rd.	TS	1	2	d	1	2	1	1	1	1>	1	1	0	89.2	108.4	F	F
3	Winchester Rd. (SR-79) / Auld Rd.	TS	1	2	1	1	2	d	1	1	0	1	1	0	23.7	25.3	C	C
4	Temeku St. / Benton Rd.	TS	1	1	d	1	0.5	1.5	2	2	d	1	2	d	34.4	40.1	C	D
5	Winchester Rd. (SR-79) / Project Dwy. (Entrance - Right In Only)	-	Future Intersection												-	-	-	-
6	Briggs Rd. / Project Dwy. 2	-	Future Intersection												-	-	-	-
7	Briggs Rd. / Project Dwy. 3	-	Future Intersection												-	-	-	-
8	Briggs Rd. / Project Dwy. 4	-	Future Intersection												-	-	-	-

¹ TS = Traffic Signal

² When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Shared Left-Through-Right Lane; 0.5 = Shared Lane ; d = Defacto right turn lane; > = Right Turn Overlap

³ Delay and level of service calculated using the following analysis software: Synchro 10 HCM6

BOLD = Unacceptable level of service

4.0 PROJECTED FUTURE TRAFFIC

This section of the report quantifies the number of trips generated by the proposed project and other known developments in the area.

A. Project Traffic

1. Ambient Growth Rate

Some traffic volume increases on roadways can be attributed to vehicles originating outside of the study area. These types of trips either end up within the study area or pass-through onto an outside destination. Therefore, to account for these trips (termed “ambient growth”), a growth rate can be applied to existing traffic volumes.

A 2% ambient growth rate that has been used in this study to account for traffic not attributed to the project or other planned developments within the study area. The County of Riverside Transportation Department staff has previously reviewed and approved this rate.

2. Project Trip Generation

Trip generation represents the amount of traffic which is attracted and produced by a development. The trip generation for the project is based upon the specific land use which has been planned for this development. For the purpose of this analysis, the following land use assumption is evaluated:

- A fast food restaurant with drive thru (1,860 square feet)
- A Convenience Store with 12 vehicle fueling positions
- A car wash with 90 linear feet of tunnel

Trip generation rates for the proposed development are shown in Table 4-1. The trip generation rates are based upon data collected by the Institute of Transportation Engineers (ITE).

The land uses are comprised of primary and “pass-by” traffic. Primary traffic refers to trips that are intending to go to the project as their primary destination. Pass-by trips are not new trips but those that are already on the roadway system but are anticipated to “pass-by” the project on their way to a primary destination.

TABLE 4-1
PROJECT TRIP GENERATION RATES¹

Land Use	ITE Code	Quantity ²	Peak Hour Trip Rates						Daily
			AM			PM			
			IN	OUT	Total	IN	OUT	Total	
Fast Food w/ Drive Thru	934	1.86 TSF	20.50	19.69	40.19	16.99	15.68	32.67	470.95
Convenience Mkt. w/Pumps	853	12 VFP	10.38	10.38	20.76	11.52	11.52	23.04	322.50
Car Wash	Data	90 LF	0.25	0.21	0.46	0.38	0.41	0.79	8.45

¹ Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017).

² VFP = Vehicle Fueling Positions; TSF = Thousand Square Feet; LF = Linear Feet of Tunnel

TABLE 4-2
PROJECT TRIP GENERATION SUMMARY

Land Use	ITE Code	Quantity ¹	Peak Hour						Daily
			AM			PM			
			In	Out	Total	In	Out	Total	
Fast Food w/ Drive Thru	934	1.86 TSF	38	37	75	32	29	61	876
- Pass-By Reduction (AM-49%, PM-50%)			-19	-19	-37	-15	-15	-30	-438
Convenience Mkt. w/Pumps	853	12 VFP	125	125	250	138	138	276	3,870
- Pass-By Reduction (AM-63%, PM-66%)			-79	-79	-158	-91	-91	-182	-2,438
Car Wash	Data	90 LF	23	19	42	34	37	71	761
- Pass-By Reduction (25%)			-6	-6	-12	-9	-9	-18	-190
- Internal Interaction (5%)			-4	-4	-8	-4	-4	-8	-122
TOTAL EXTERNAL TRIPS			79	74	152	85	85	170	2,319

¹ VFP = Vehicle Fueling Positions; TSF = Thousand Square Feet; LF = Linear Feet of Tunnel

The ITE Manual indicates that up to 50% of fast food trips are comprised of pass-by trips. Similarly, up to 66% of a convenience store's trips are comprised of pass-by traffic.

The daily and peak hour trip generations for the proposed project are shown on Table 4-2. The project is estimated to generate a total of approximately 2,319 new trip-ends per day with 152 new vehicle trips per hour during the AM peak hour and 170 new vehicle trips per hour during the PM peak hour.

3. Project Trip Distribution and Assignment

Trip distribution represents the directional orientation of traffic to and from the project site. The project's trip distribution patterns are based on the proximity of the residential units to the proposed driveway locations, the surrounding trip attractors (residential communities, commercial opportunities, etc.), and the regional freeway interchanges. The trip distribution pattern for the project is illustrated on Figure 4-A.

4. Project Peak Hour Turning Movement Traffic

The assignment of traffic from the site to the adjoining roadway system has been based upon the site's trip generation, trip distribution, proposed arterial highway and local street systems, which would be in place by the time of initial occupancy of the site. Based on the identified project traffic generation and distribution, Project AM and PM peak hour intersection traffic volumes are shown on Figures 4-B and 4-C, respectively.

B. Cumulative Traffic (Background)

1. Method of Projection

To assess existing plus ambient plus cumulative plus project traffic conditions, project traffic is combined with existing traffic, area-wide growth and other future developments which are approved or being processed concurrently in the study area. Developments which are being processed concurrently in the study area have been provided by the County of Riverside staff.

2. Other Approved or Proposed Development Projects

The cumulative developments have been included along with the land use associated with each project. The location of the cumulative projects provided by the County are shown on Figure 4-D.

FIGURE 4-A PROJECT TRIP DISTRIBUTION

ON-SITE AREA

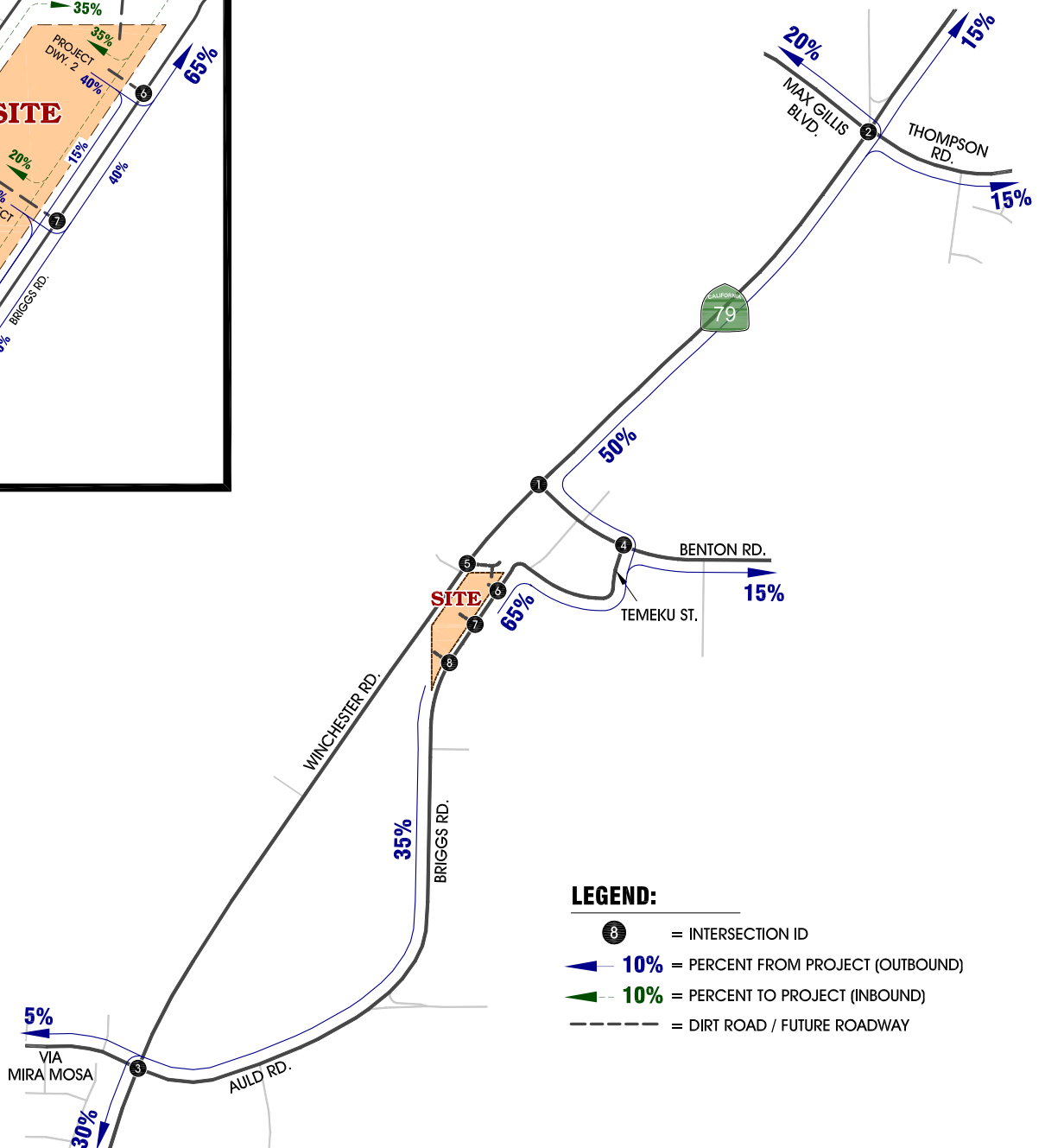
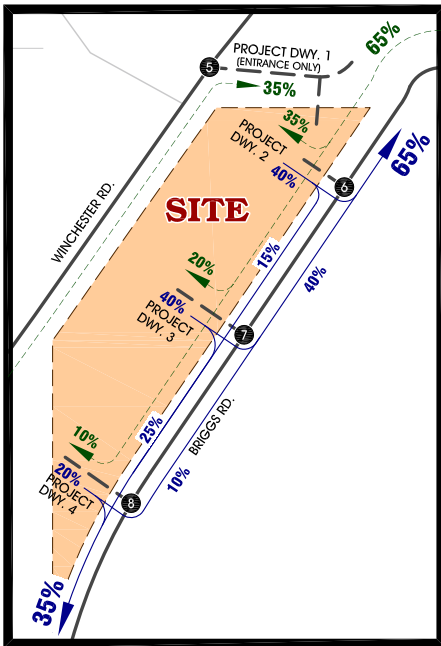
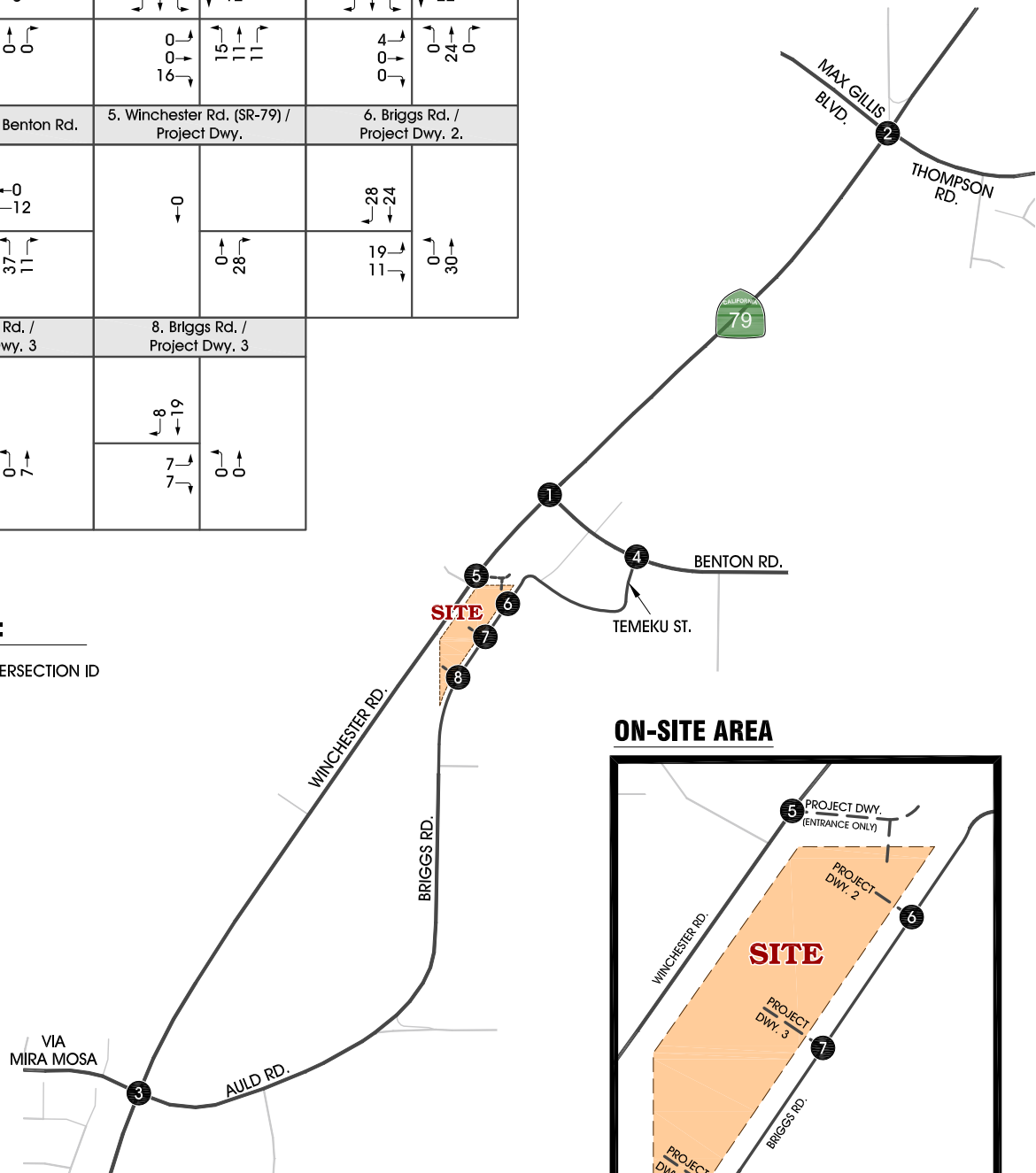


FIGURE 4-B (1 of 2) PROJECT ONLY AM PEAK HOUR INTERSECTION VOLUMES

1. Winchester Rd. (SR-79) / Benton Rd.	2. Winchester Rd. (SR-79) / Thompson Rd.	3. Winchester Rd. (SR79) / Auld Rd.
4. Temeku St. / Benton Rd.	5. Winchester Rd. (SR-79) / Project Dwy.	6. Briggs Rd. / Project Dwy. 2.
7. Briggs Rd. / Project Dwy. 3	8. Briggs Rd. / Project Dwy. 3	

LEGEND:

⑧ = INTERSECTION ID



ON-SITE AREA

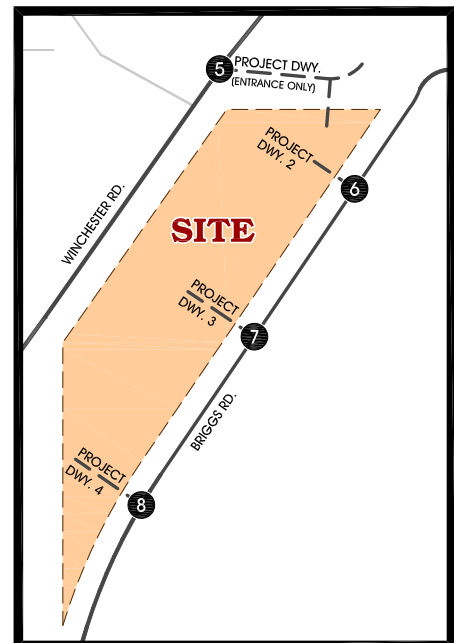


FIGURE 4-B (2 of 2) PROJECT ONLY PASS-BY AM PEAK HOUR TRAFFIC VOLUMES

1. Winchester Rd. (SR-79) / Benton Rd.	2. Winchester Rd. (SR-79) / Thompson Rd.	3. Winchester Rd. (SR79) / Auld Rd.
	PASS-BY NOT APPLICABLE	
4. Temeku St. / Benton Rd.	5. Winchester Rd. (SR-79) / Project Dwy.	6. Briggs Rd. / Project Dwy. 2.
7. Briggs Rd. / Project Dwy. 3	8. Briggs Rd. / Project Dwy. 3	

LEGEND:

⑧ = INTERSECTION ID

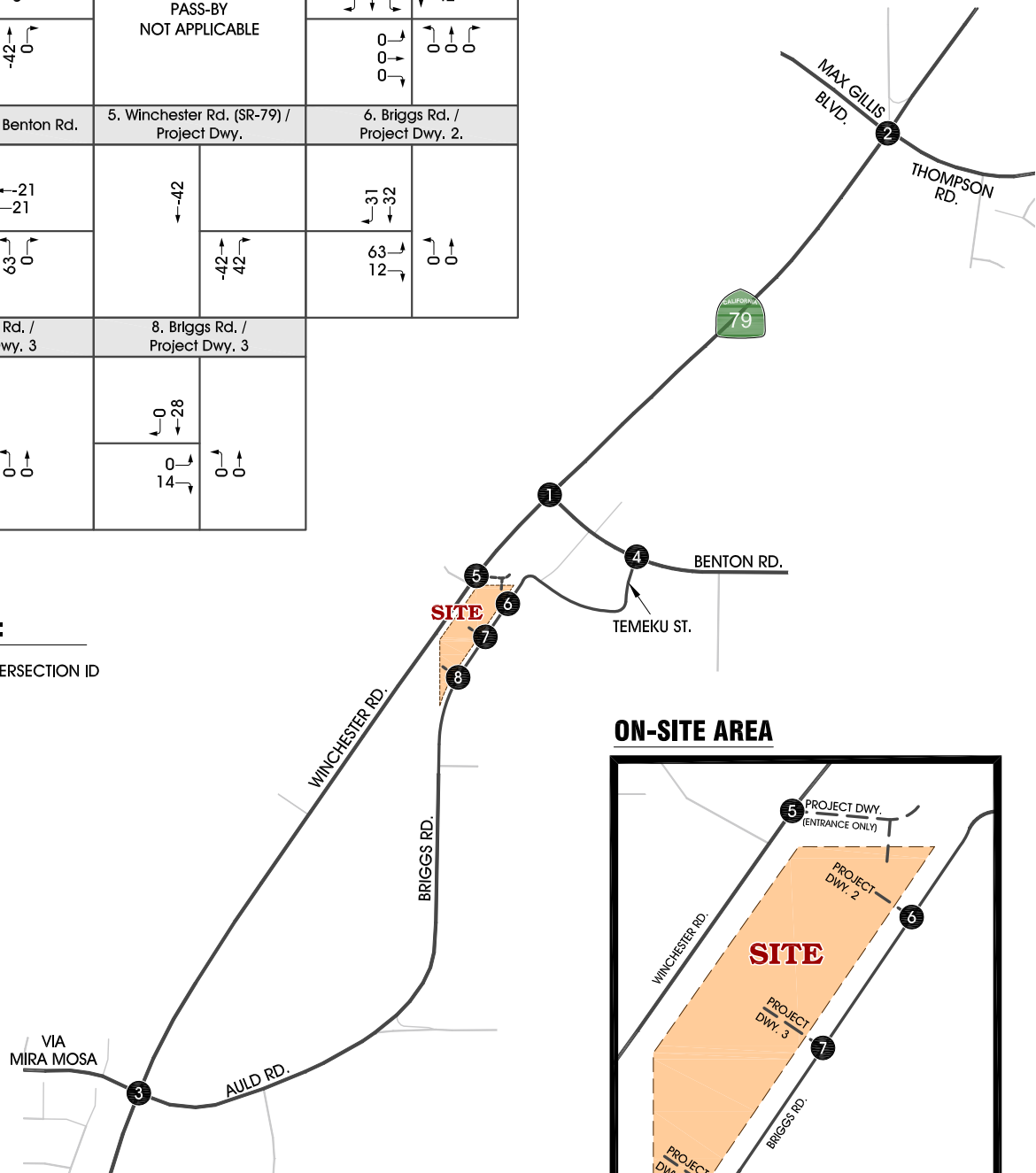
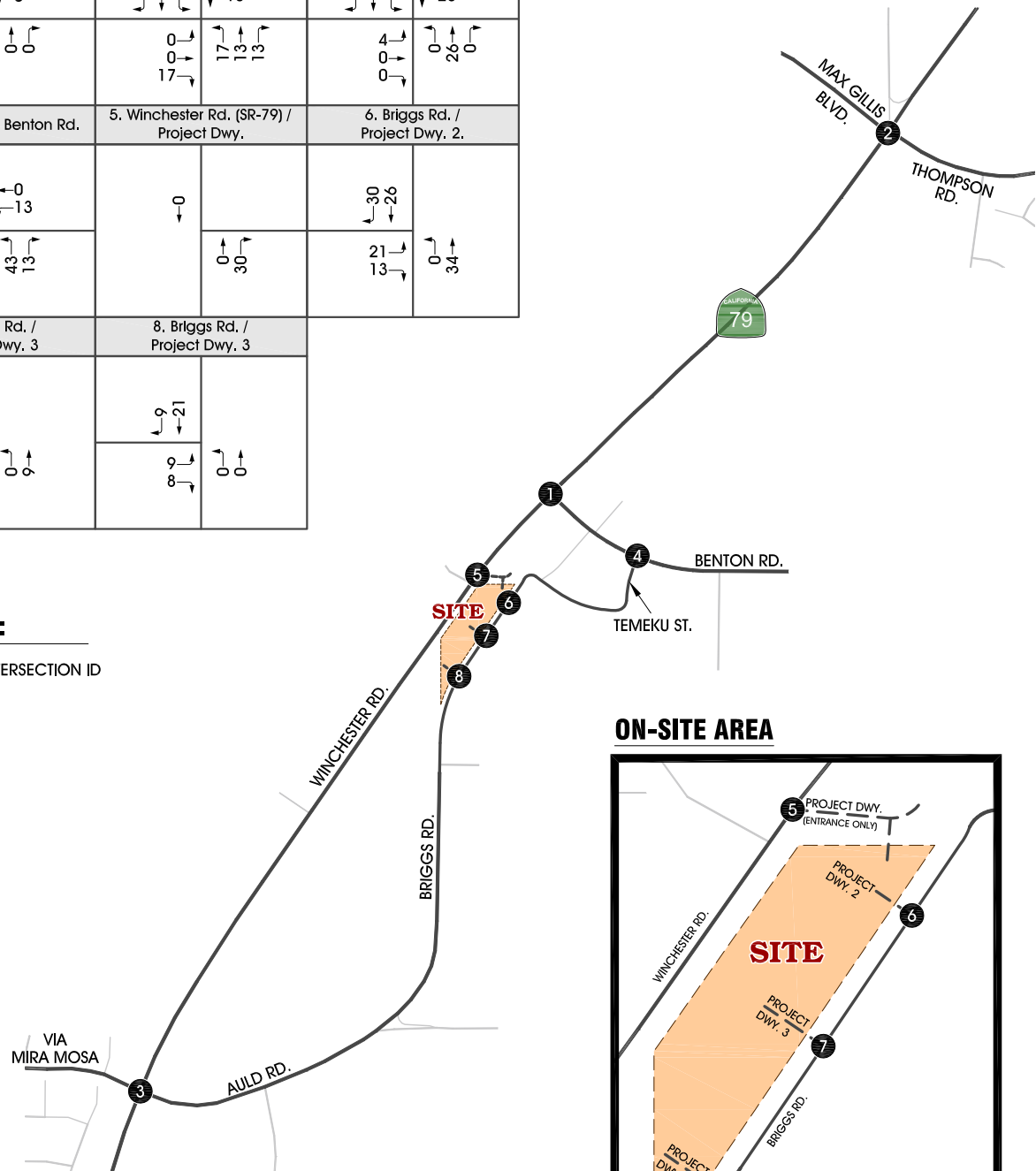


FIGURE 4-C (1 of 2) PROJECT ONLY PM PEAK HOUR INTERSECTION VOLUMES

1. Winchester Rd. (SR-79) / Benton Rd.	2. Winchester Rd. (SR-79) / Thompson Rd.	3. Winchester Rd. (SR79) / Auld Rd.
4. Temeku St. / Benton Rd.	5. Winchester Rd. (SR-79) / Project Dwy.	6. Briggs Rd. / Project Dwy. 2.
7. Briggs Rd. / Project Dwy. 3	8. Briggs Rd. / Project Dwy. 3	

LEGEND:

⑧ = INTERSECTION ID



ON-SITE AREA

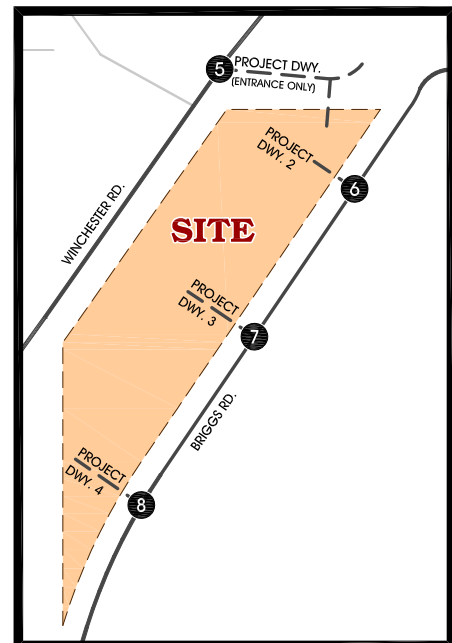
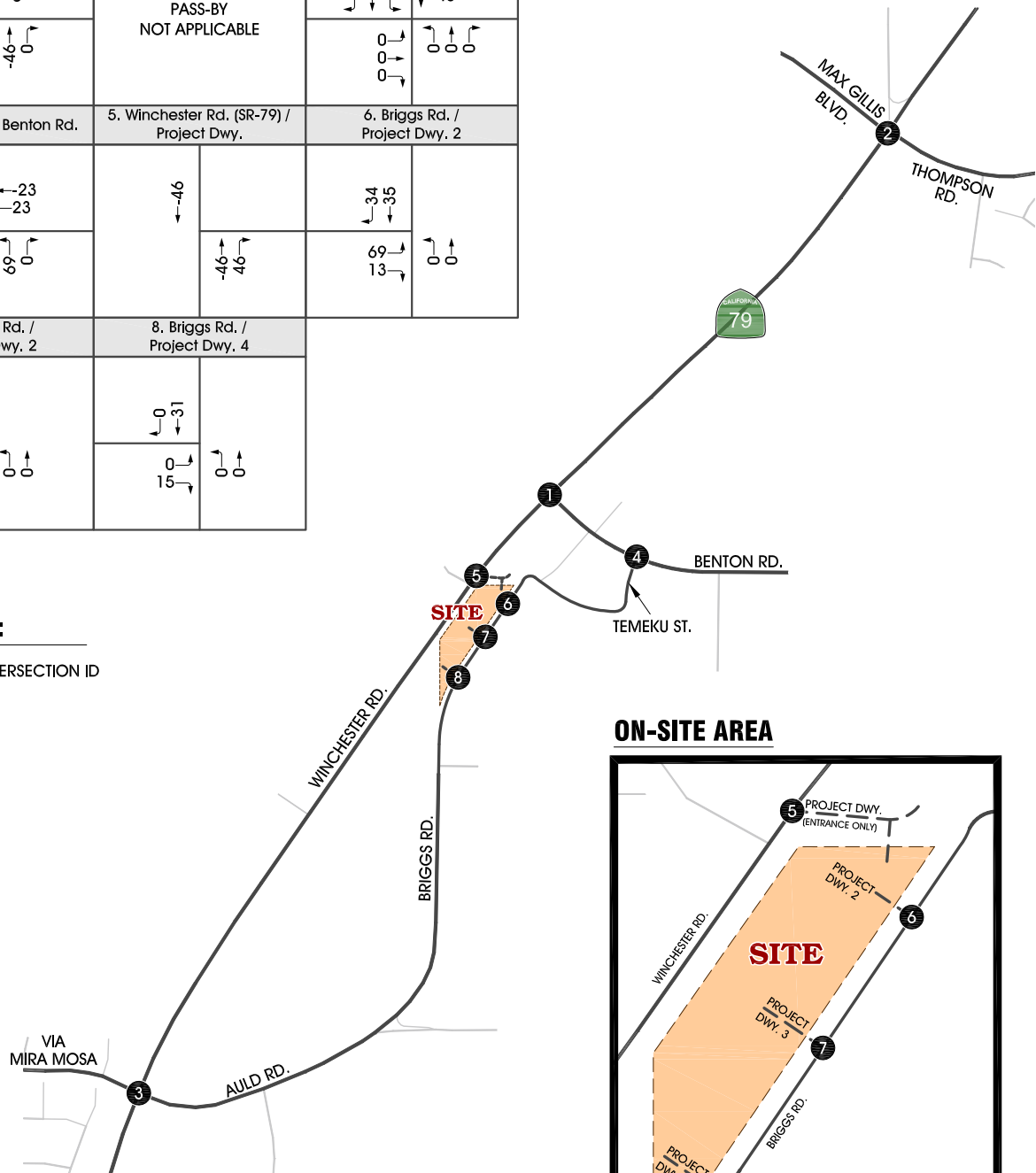


FIGURE 4-C (2 of 2) PROJECT ONLY PASS-BY PM PEAK HOUR TRAFFIC VOLUMES

1. Winchester Rd. (SR-79) / Benton Rd.	2. Winchester Rd. (SR-79) / Thompson Rd.	3. Winchester Rd. (SR79) / Auld Rd.
	PASS-BY NOT APPLICABLE	
4. Temeku St. / Benton Rd.	5. Winchester Rd. (SR-79) / Project Dwy.	6. Briggs Rd. / Project Dwy. 2
7. Briggs Rd. / Project Dwy. 2	8. Briggs Rd. / Project Dwy. 4	

LEGEND:

⑧ = INTERSECTION ID



ON-SITE AREA

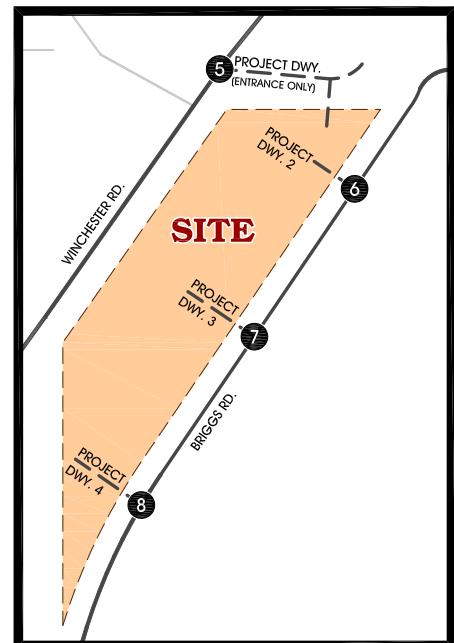
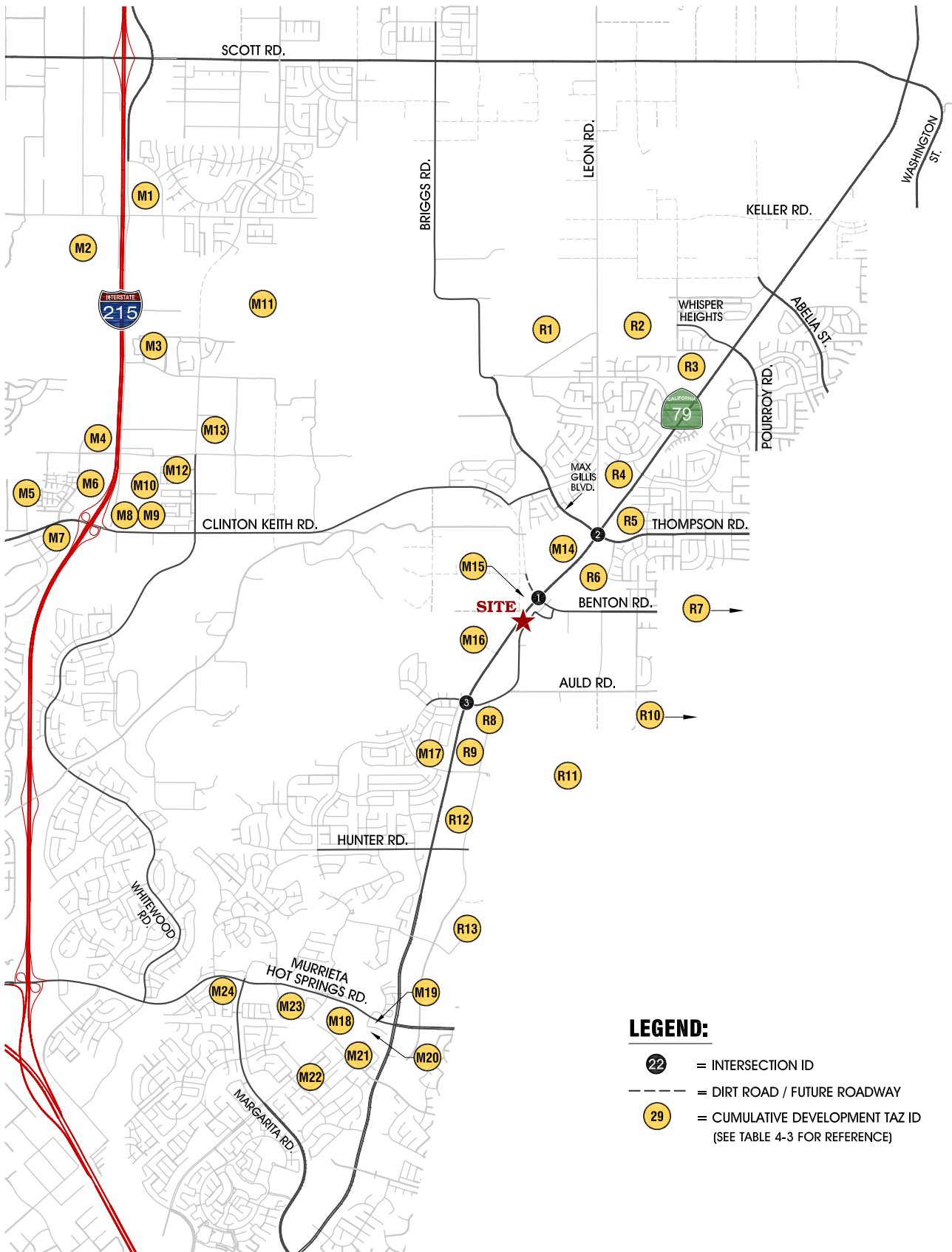


FIGURE 4-D CUMULATIVE DEVELOPMENTS LOCATION MAP



3. Other Approved Projects Trip Generation

Table 4-3 presents the cumulative development land uses and trip generation summary. As presented in Table 4-3 Cumulative developments are projected to generate a total of approximately 117,334 trip-ends per day with 5,442 vehicle trips per hour during the AM peak hour and 10,662 vehicle trips per hour during the PM peak hour.

4. Total Background Peak Hour Turning Movement Volumes

Based on the identified trip distribution for the cumulative development on arterial highways throughout the study area, cumulative development AM and PM peak hour intersection turning movement volumes are shown on Figure 4-E and 4-F, respectively.

Existing plus Project (E+P) AM and PM peak hour intersection turning movement volumes are shown on Figure 4-G and 4-H, respectively.

Existing plus Ambient plus Project (E+A+P) AM and PM peak hour intersection turning movement volumes are shown on Figure 4-I and 4-J, respectively.

Existing plus Ambient plus Project plus Cumulative (E+A+P+C) AM and PM peak hour intersection turning movement volumes are shown on Figure 4-K and 4-L, respectively.

TABLE 4-3

CUMULATIVE DEVELOPMENT TRIP GENERATION SUMMARY

ID	PROJECT NAME	LAND USE	QUANTITY ¹	PEAK HOUR						DAILY
				AM			PM			
				IN	OUT	TOTAL	IN	OUT	TOTAL	
R1	TR 37053	Single Fam. Detached	747 DU	142	418	560	463	276	739	7,052
R2	TR 32185	Single Fam. Detached	426 DU	81	239	320	264	158	422	4,021
TAZ 1 SUBTOTAL				223	657	880	727	434	1,161	11,073
R3	PPT 170003	Multifamily Housing (Low-Rise 1-2 floors)	168 DU	18	59	77	59	35	94	1,230
R4	PP 20682	Gasoline/Service Station w/Conven. Mkt.	12 VFP	76	73	149	86	82	168	2,464
		Gas Station Pass-by Reduction (Daily: 25%, AM: 62% PM: 56%)		-46	-46	-92	-47	-47	-94	-616
		Shopping Center	23.940 TSF	14	9	23	44	47	91	904
		Mini Warehouse	135.023 TSF	8	5	13	11	12	23	204
Subtotal				52	41	93	94	94	188	2,956
R5	PP 26344	Shopping Center	133.877 TSF	135	83	218	324	351	675	7,331
		Retail Pass-by Reduction (Daily: 25%, AM: 25% PM: 25%)		-27	-27	-54	-84	-84	-168	-1,833
		Subtotal		108	56	164	240	267	507	5,498
	CUP 03779	Gasoline/Service Station w/Conven. Mkt.	12 VFP	76	73	149	86	82	168	2,464
		Gas Station Pass-by Reduction (Daily: 25%, AM: 62% PM: 56%)		-46	-46	-92	-47	-47	-94	-616
		Subtotal		30	27	57	39	35	74	1,848
Subtotal				138	83	221	279	302	581	7,346
R6	PPT 180016	Shopping Center	143.565 TSF	139	85	224	340	369	709	7,688
		Retail Pass-by Reduction (Daily: 25%, AM: 25% PM: 25%)		-28	-28	-56	-88	-88	-176	-1,922
Subtotal				111	57	168	252	281	533	5,766
R7	TTM 37715	Single Fam. Detached	145 DU	28	81	109	90	54	144	1,369
	TR 32323	Single Fam. Detached	38 DU	7	21	28	24	14	38	359
	Subtotal			35	102	137	114	68	182	1,728
TAZ 5 SUBTOTAL				146	159	305	366	349	715	7,494
R8	PP 26047	General Office Building	2.880 TSF	3	1	4	1	3	4	28
R9	PP 26084	Shopping Center	351.06 TSF	204	123	327	660	716	1,376	14,123
		Retail Pass-by Reduction (Daily: 25%, AM: 25% PM: 25%)		-40	-40	-80	-172	-172	-344	-3,531
Subtotal				164	83	247	488	544	1,032	10,592
R12	PPT 180022	General Office Building	203.202 TSF	187	30	217	37	187	224	2,111
M17	DP-2019-1850	Gasoline/Service Station w/Conven. Mkt.	8 VFP	51	49	100	57	55	112	1,643
		Gas Station Pass-by Reduction (Daily: 25%, AM: 62% PM: 56%)		-31	-31	-62	-31	-31	-62	-411
	Subtotal			20	18	38	26	24	50	1,232
TAZ 6 SUBTOTAL				374	132	506	552	758	1,310	13,963
R10	CUP 180023	Gasoline/Service Station w/Conven. Mkt.	8 VFP	51	49	100	57	55	112	1,643
		Gas Station Pass-by Reduction (Daily: 25%, AM: 62% PM: 56%)		-31	-31	-62	-31	-31	-62	-411
Subtotal				20	18	38	26	24	50	1,232
R11	PP 25183	Gen. Lt. Industrial	331.003 TSF	205	26	231	26	182	208	1,642
TAZ 7 SUBTOTAL				225	44	269	52	206	258	2,874
R13	PP 25714	General Office Building	3.400 TSF	3	1	4	1	3	4	33
		Shopping Center	3.600 TSF	2	1	3	7	7	14	136
	Subtotal			5	2	7	8	10	18	169
Riverside County Trip Generation Subtotal				1,272	1,216	2,488	2,363	2,445	4,808	51,639

TABLE 4-3

CUMULATIVE DEVELOPMENT TRIP GENERATION SUMMARY

ID	PROJECT NAME	LAND USE	QUANTITY ¹	PEAK HOUR						DAILY
				AM			PM			
				IN	OUT	TOTAL	IN	OUT	TOTAL	
CITY OF MURRIETA										
M4	McElwain & Linnel	Hotel	120 RM	34	23	57	37	35	72	1,003
M5	Mitchell Crossing (DP-2014-364, DP-2014-301)	Multi-family	331 DU	33	136	169	132	73	205	2,201
		Specialty Retail	30 TSF	40	27	67	60	76	136	2,216
	Subtotal			73	163	236	192	149	341	4,417
M6	The Orchard (DP-003-161)	Shopping Center	186 TSF	153	93	246	413	446	859	9,168
		Pass-by (30%)		-37	-37	-74	-129	-129	-258	-2,750
	Subtotal			116	56	172	284	317	601	6,418
M7	Clinton Keith Service Station (DP-2019-1846)	Super Convenience Mkt./Gas Station	12 VFP	168	168	336	138	138	276	2,766
		Pass-by (25%)		-42	-42	-84	-34	-34	-68	-692
	Subtotal			126	126	252	104	104	208	2,074
M8	Curci (DP-2018-1691)	Mixed-Use	- -	171	140	311	198	197	395	4,433
M9	Vineyard Shopping Center (DP-2012-3260)	Mixed-Use	- -	111	70	181	258	273	531	6,254
M10	Costco (DP-2018-1652)	Mixed-Use	- -	180	148	328	531	584	1,115	12,667
M12	Medowlark (DP-2018-1624)	Multifamily Housing (Low-Rise 1-2 floors)	83 DU	9	29	38	29	17	46	608
M13	Healthsouth Rehabilitation Hospital (DP-2015-571)	Nursing Home	54.884 TSF	21	9	30	21	20	41	416
	Murrieta-Whitewood Skilled Nursing Facility (DP-2015-708)	Assisted Living	59 BEDS	7	4	11	9	8	17	244
	Subtotal			28	13	41	30	28	58	660
TAZ 9 SUBTOTAL				848	768	1,616	1,663	1,704	3,367	38,534
M14	Murrieta Marketplace (DP 2017-1370; CUP 2017-1442; CUP 2018-1568)	Shopping Center	450.9 TSF	234	144	378	794	861	1,655	16,742
		Pass-By Reduction (15%)		-28	-28	-56	-124	-124	-248	-2,511
		Gas/Service Station w/Food Mart and Car Wash	16 VFP	102	98	200	114	110	224	3,286
		Gasoline/Service Station	8 VFP	41	41	82	56	56	112	1,376
		Pass-By Reduction (56%)		-79	-79	-158	-94	-94	-188	-2,611
Subtotal			270	176	446	746	809	1,555	16,282	
M15	French Valley Crossing DP 2018-1720; CUP 2018-1722; TPM 35036	Shopping Center	37.8 TSF	106	65	171	127	138	265	3,103
		Pass-By Reduction (15%)		-13	-13	-26	-20	-20	-40	-465
	Subtotal			93	52	145	107	118	225	2,638
M16	Adobe Springs ⁴	Mixed-Use	-	303	205	508	244	293	537	5,196
M18	Murrieta Hot Springs (DP 2018-1768; TPM 37612; CUP 2018-1767)	Shopping Center	10.068 TSF	6	4	10	18	20	38	380
		Gasoline/Service Station w/Conven. Mkt.	12 VFP	76	73	149	86	82	168	2,464
	Subtotal			82	77	159	104	102	206	2,844
M19	Aldi Food Market (DP 2017-1529)	Supermarket	19.043 TSF	44	29	73	90	86	176	2,033
M20	Date Street Shopping Ctr. (Hot Springs Center; DP 2016-1176)	Shopping Center	24 TSF	14	9	23	44	48	92	906

TABLE 4-3

CUMULATIVE DEVELOPMENT TRIP GENERATION SUMMARY

ID	PROJECT NAME	LAND USE	QUANTITY ¹	PEAK HOUR						DAILY
				AM			PM			
				IN	OUT	TOTAL	IN	OUT	TOTAL	
CITY OF MURRIETA (Continued)										
M21	Rising Mill MHS 98 (DP 2018-1761)	Multifamily Housing (Low-Rise 1-2 floors)	235 DU	26	82	108	82	49	131	1,720
M22	Hamilton Tract (TM 31251; DP 2018-1807)	Single Fam. Detached	8 DU	2	4	6	5	3	8	76
TAZ 13 SUBTOTAL				168	201	369	325	288	613	7,579
Traffix Cumulative Trips				2,863	2,579	5,442	5,222	5,400	10,622	117,334

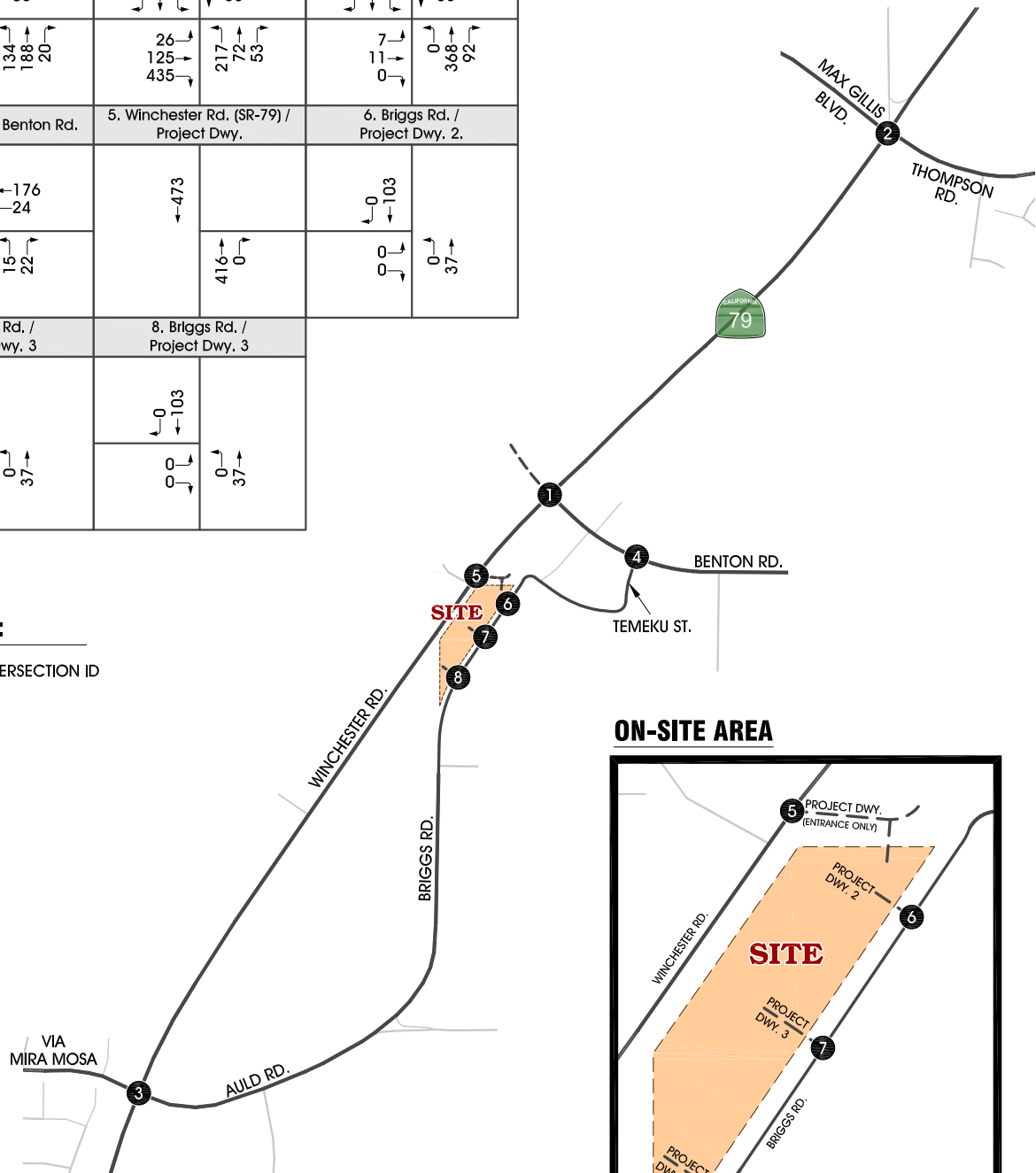
¹ TSF = Thousand Square Feet; DU = Dwelling Units; RM = Room; VFP = Vehicle Fueling Position

FIGURE 4-E CUMULATIVE DEVELOPMENTS ONLY AM PEAK HOUR INTERSECTION VOLUMES

1. Winchester Rd. (SR-79) / Benton Rd.	2. Winchester Rd. (SR-79) / Thompson Rd.	3. Winchester Rd. (SR79) / Auld Rd.
23 384 180 99 36 56	84 114 14 8 108 38	4 441 28 40 2 38
56 23 57 134 188 20	26 125 435 217 72 53	7 11 0 0 368 92
4. Temeku St. / Benton Rd.	5. Winchester Rd. (SR-79) / Project Dwy.	6. Briggs Rd. / Project Dwy. 2.
176 24 144 79	473 416 0	0 103 0 37
7. Briggs Rd. / Project Dwy. 3	8. Briggs Rd. / Project Dwy. 3	
0 103 0 37	0 103 0 37	

LEGEND:

⑧ = INTERSECTION ID



ON-SITE AREA

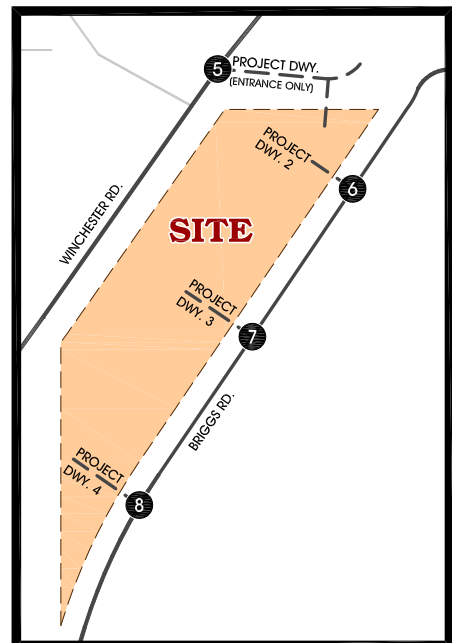


FIGURE 4-F CUMULATIVE DEVELOPMENTS ONLY PM PEAK HOUR INTERSECTION VOLUMES

1. Winchester Rd. (SR-79) / Benton Rd.	2. Winchester Rd. (SR-79) / Thompson Rd.	3. Winchester Rd. (SR79) / Auld Rd.
27 476 206 268 85 83	199 69 28 30 274 117	15 729 99 93 10 113
117 93 232 300 504 114	121 263 524 564 216 110	14 3 0 0 814 67
4. Temeku St. / Benton Rd.	5. Winchester Rd. (SR-79) / Project Dwy.	6. Briggs Rd. / Project Dwy. 2.
365 52 395 18	843 921 0	0 71 0 127
7. Briggs Rd. / Project Dwy. 3	8. Briggs Rd. / Project Dwy. 3	
0 71 0 127	0 71 0 127	

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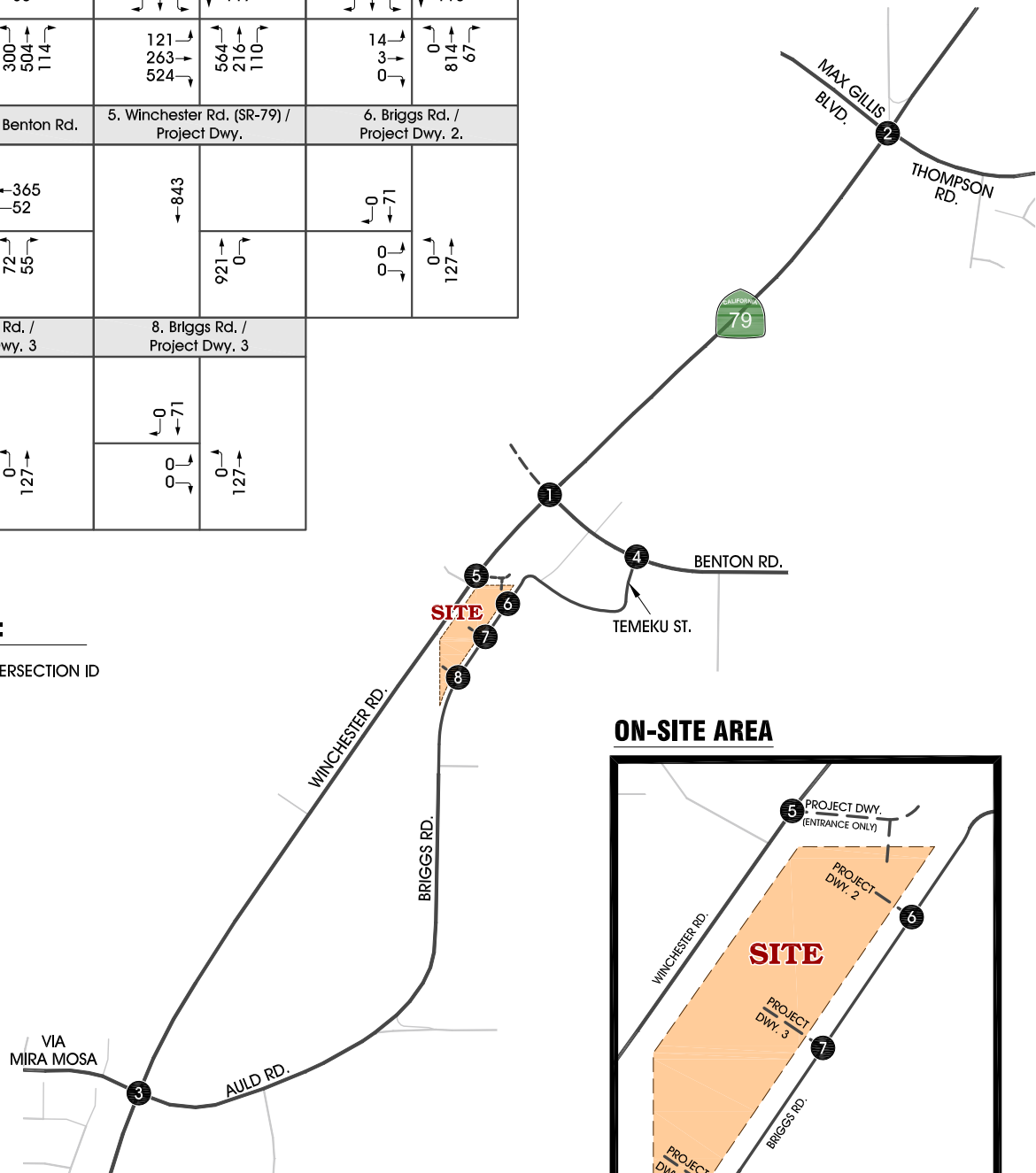
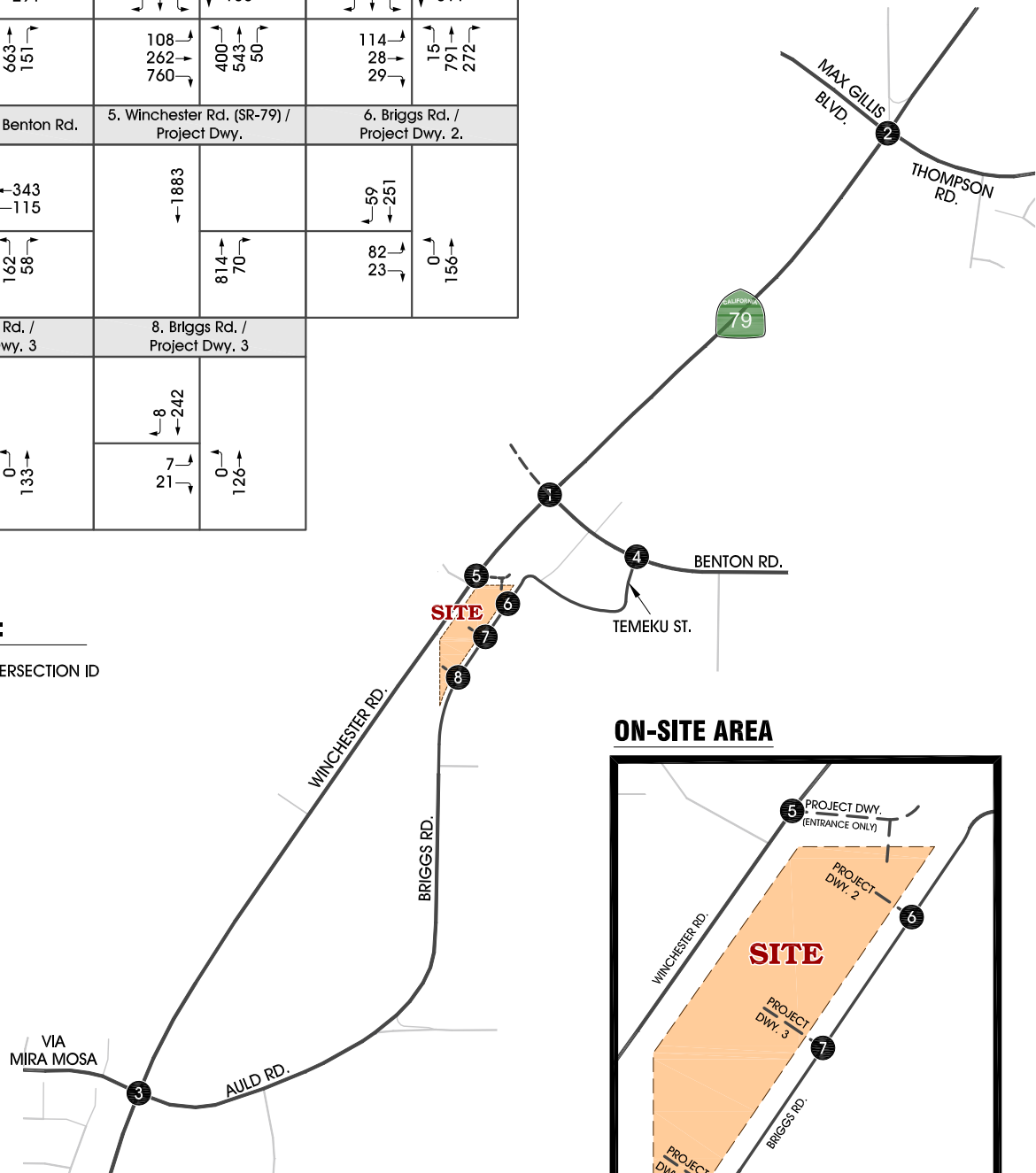


FIGURE 4-G EXISTING PLUS PROJECT AM PEAK HOUR INTERSECTION VOLUMES

1. Winchester Rd. (SR-79) / Benton Rd.	2. Winchester Rd. (SR-79) / Thompson Rd.	3. Winchester Rd. (SR79) / Auld Rd.
1592 456 330 291 663 151	176 1152 49 8 379 136 108 262 760 400 543 50	157 1586 110 23 34 311 114 28 29 15 791 272
4. Temeku St. / Benton Rd.	5. Winchester Rd. (SR-79) / Project Dwy.	6. Briggs Rd. / Project Dwy. 2.
343 115 183 160 162 58	1883 814 70	59 251 82 23 0 156
7. Briggs Rd. / Project Dwy. 3	8. Briggs Rd. / Project Dwy. 3	
48 226 22 23 0 133	8 242 7 21 0 126	

LEGEND:

8 = INTERSECTION ID



ON-SITE AREA

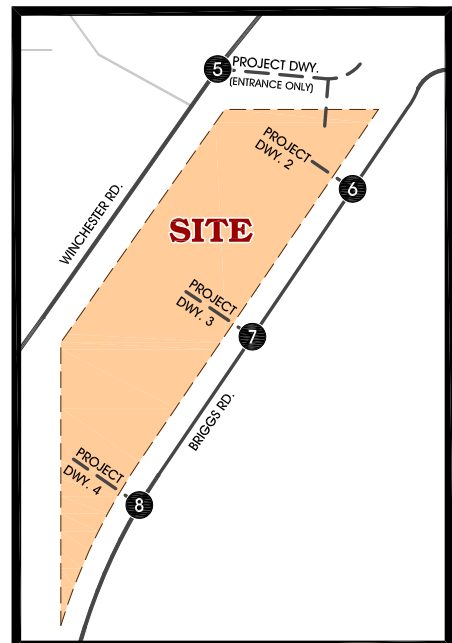
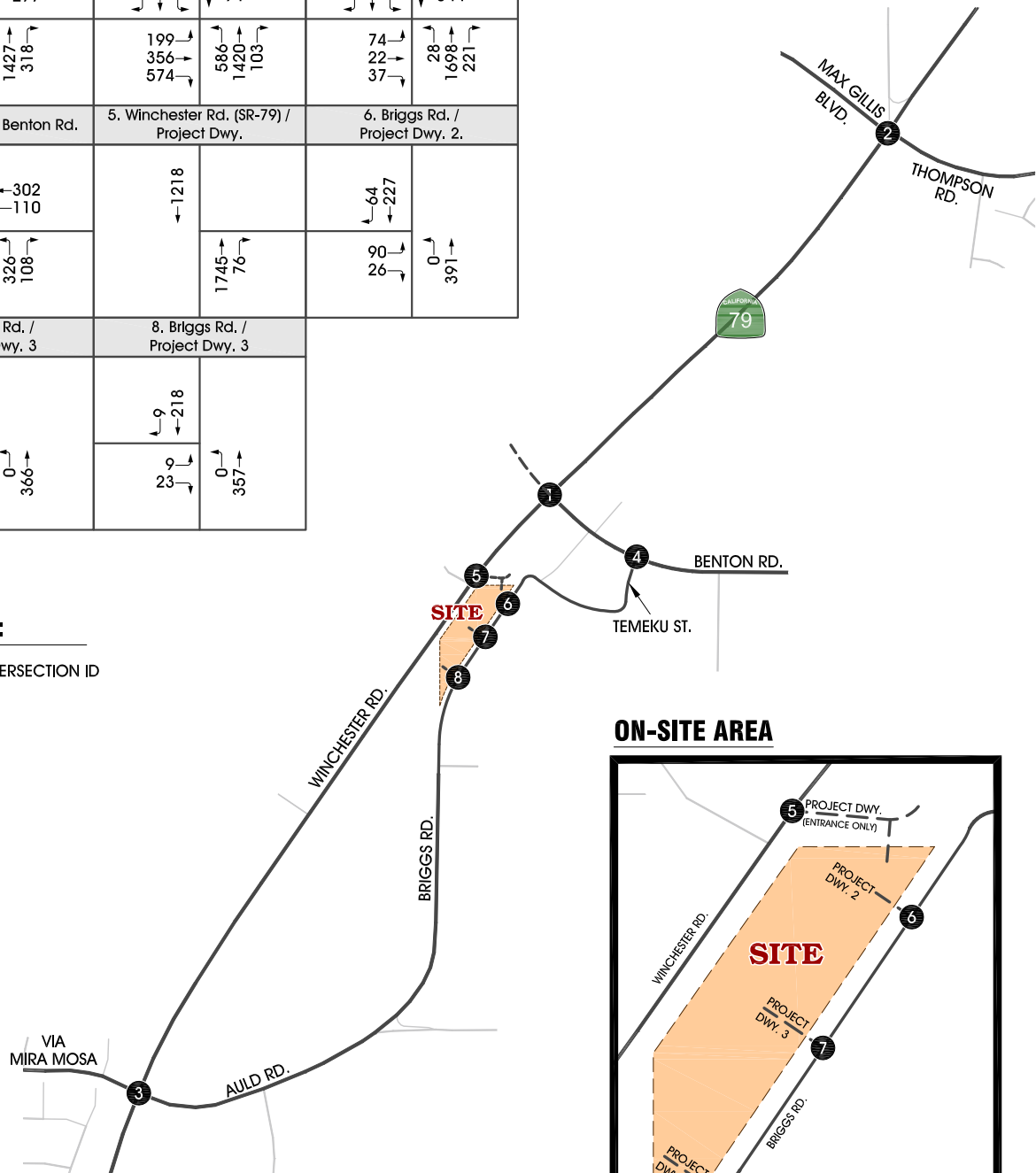


FIGURE 4-H EXISTING PLUS PROJECT PM PEAK HOUR INTERSECTION VOLUMES

1. Winchester Rd. (SR-79) / Benton Rd.	2. Winchester Rd. (SR-79) / Thompson Rd.	3. Winchester Rd. (SR79) / Auld Rd.
941 437 682 277 1427 318	184 710 53 12 325 94	116 1008 45 53 30 344
4. Temeku St. / Benton Rd.	5. Winchester Rd. (SR-79) / Project Dwy.	6. Briggs Rd. / Project Dwy. 2.
302 110 262 153 326 108	1218 1745 76	64 227 90 26 0 391
7. Briggs Rd. / Project Dwy. 3	8. Briggs Rd. / Project Dwy. 3	
52 200 26 26 0 366	9 218 9 23 0 357	

LEGEND:

⑧ = INTERSECTION ID



ON-SITE AREA

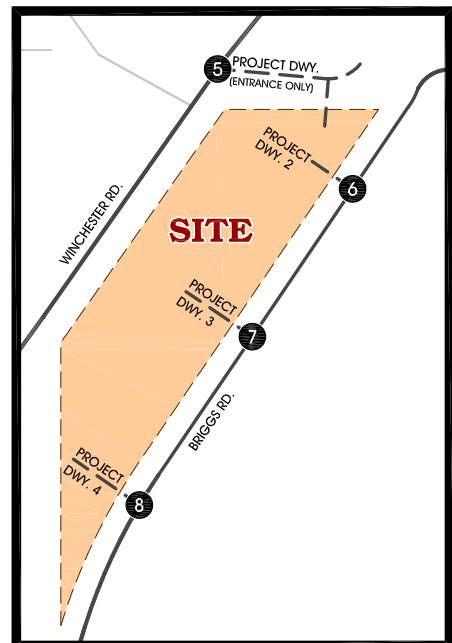


FIGURE 4-1 EXISTING PLUS AMBIENT PLUS PROJECT (2021) AM PEAK HOUR INTERSECTION VOLUMES

1. Winchester Rd. (SR-79) / Benton Rd.	2. Winchester Rd. (SR-79) / Thompson Rd.	3. Winchester Rd. (SR79) / Auld Rd.
1657 471 340 303 691 157	183 1198 51 8 394 141 112 272 790 415 564 52	163 1651 114 24 35 321 118 29 30 16 822 283
4. Temeku St. / Benton Rd.	5. Winchester Rd. (SR-79) / Project Dwy.	6. Briggs Rd. / Project Dwy. 2.
358 118 190 163 164 60	1960 848 70	59 259 82 23 0 161
7. Briggs Rd. / Project Dwy. 3	8. Briggs Rd. / Project Dwy. 3	
48 234 22 23 0 138	8 250 7 21 0 131	

LEGEND:

8 = INTERSECTION ID



ON-SITE AREA

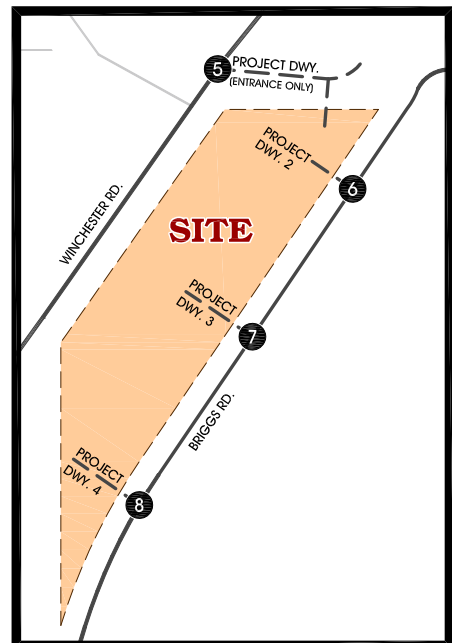


FIGURE 4-J EXISTING PLUS AMBIENT PLUS PROJECT (2021) PM PEAK HOUR INTERSECTION VOLUMES

1. Winchester Rd. (SR-79) / Benton Rd.	2. Winchester Rd. (SR-79) / Thompson Rd.	3. Winchester Rd. (SR79) / Auld Rd.
980 451 706 288 1486 331	191 738 55 12 338 97 207 370 596 609 1476 107	121 1050 47 55 31 355 77 23 38 29 1765 230
4. Temeku St. / Benton Rd.	5. Winchester Rd. (SR-79) / Project Dwy.	6. Briggs Rd. / Project Dwy. 2.
315 113 272 156 335 112	1269 1817 76	64 234 90 26 0 405
7. Briggs Rd. / Project Dwy. 3	8. Briggs Rd. / Project Dwy. 3	
52 207 26 26 0 380	9 225 9 23 0 371	

LEGEND:

8 = INTERSECTION ID



ON-SITE AREA

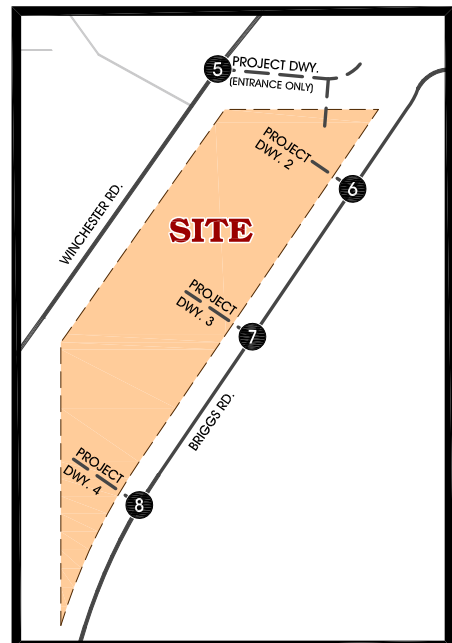
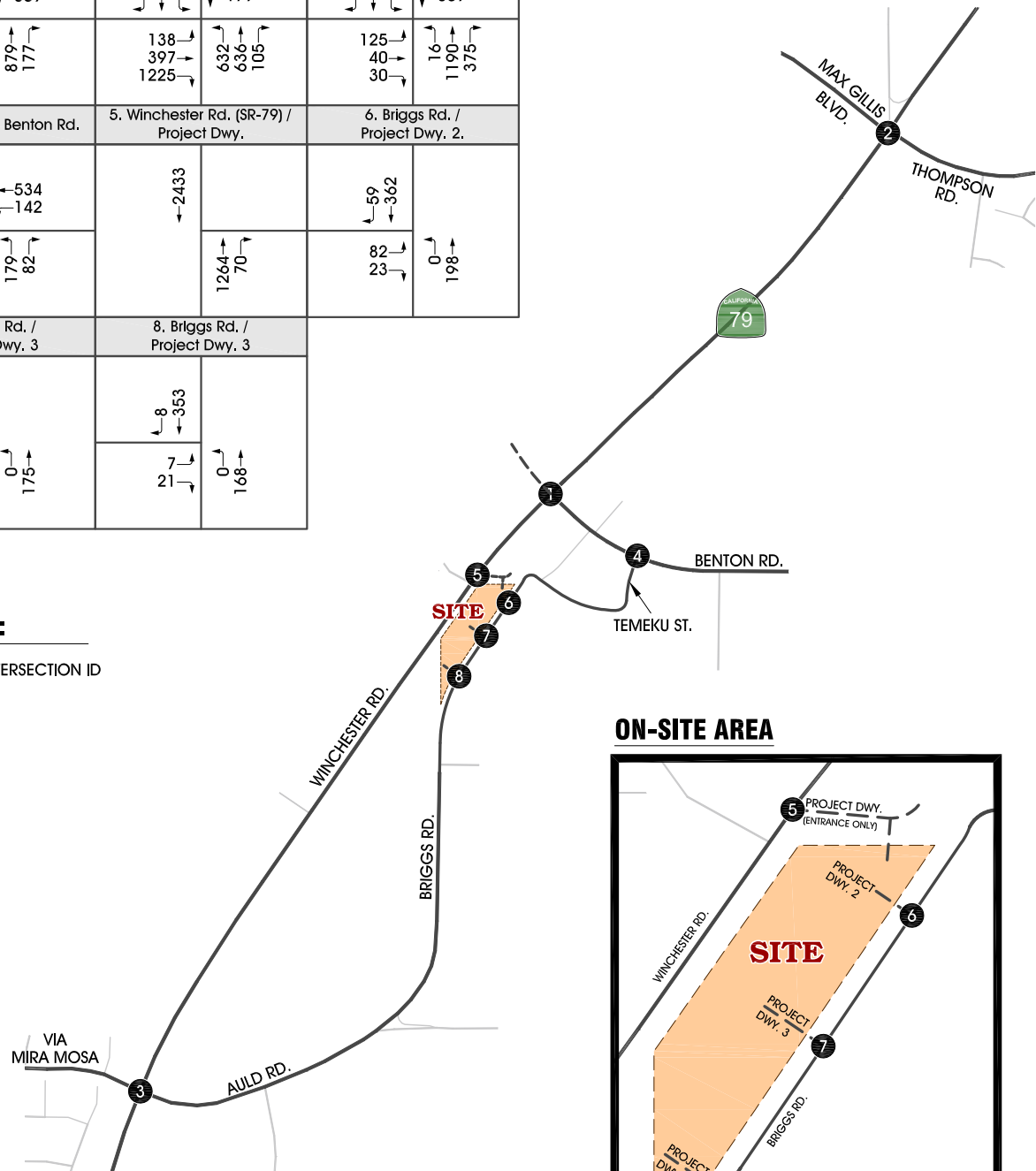


FIGURE 4-K EXISTING PLUS AMBIENT PLUS PROJECT PLUS CUMULATIVE (2021) AM PEAK HOUR INTERSECTION VOLUMES

1. Winchester Rd. (SR-79) / Benton Rd.	2. Winchester Rd. (SR-79) / Thompson Rd.	3. Winchester Rd. (SR79) / Auld Rd.
2041 651 439 359 879 177	267 1312 65 16 502 179 138 397 1225 632 636 105	167 2092 142 64 37 359 125 40 30 16 1190 375
4. Temeku St. / Benton Rd.	5. Winchester Rd. (SR-79) / Project Dwy.	6. Briggs Rd. / Project Dwy. 2.
534 142 334 242 179 82	2433 1264 70	59 362 82 23 0 198
7. Briggs Rd. / Project Dwy. 3	8. Briggs Rd. / Project Dwy. 3	
48 337 22 23 0 175	8 353 7 21 0 168	

LEGEND:

8 = INTERSECTION ID



ON-SITE AREA

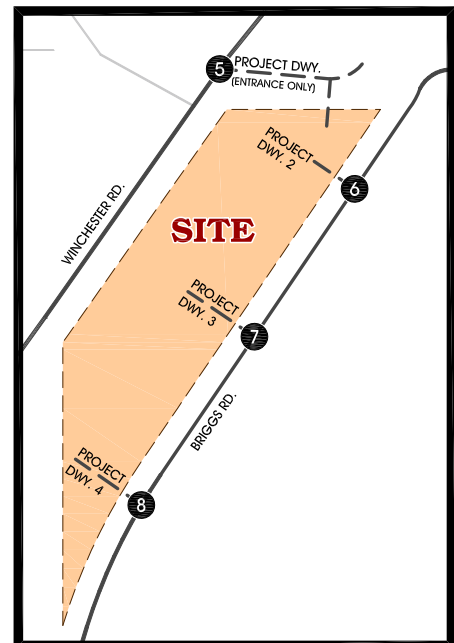
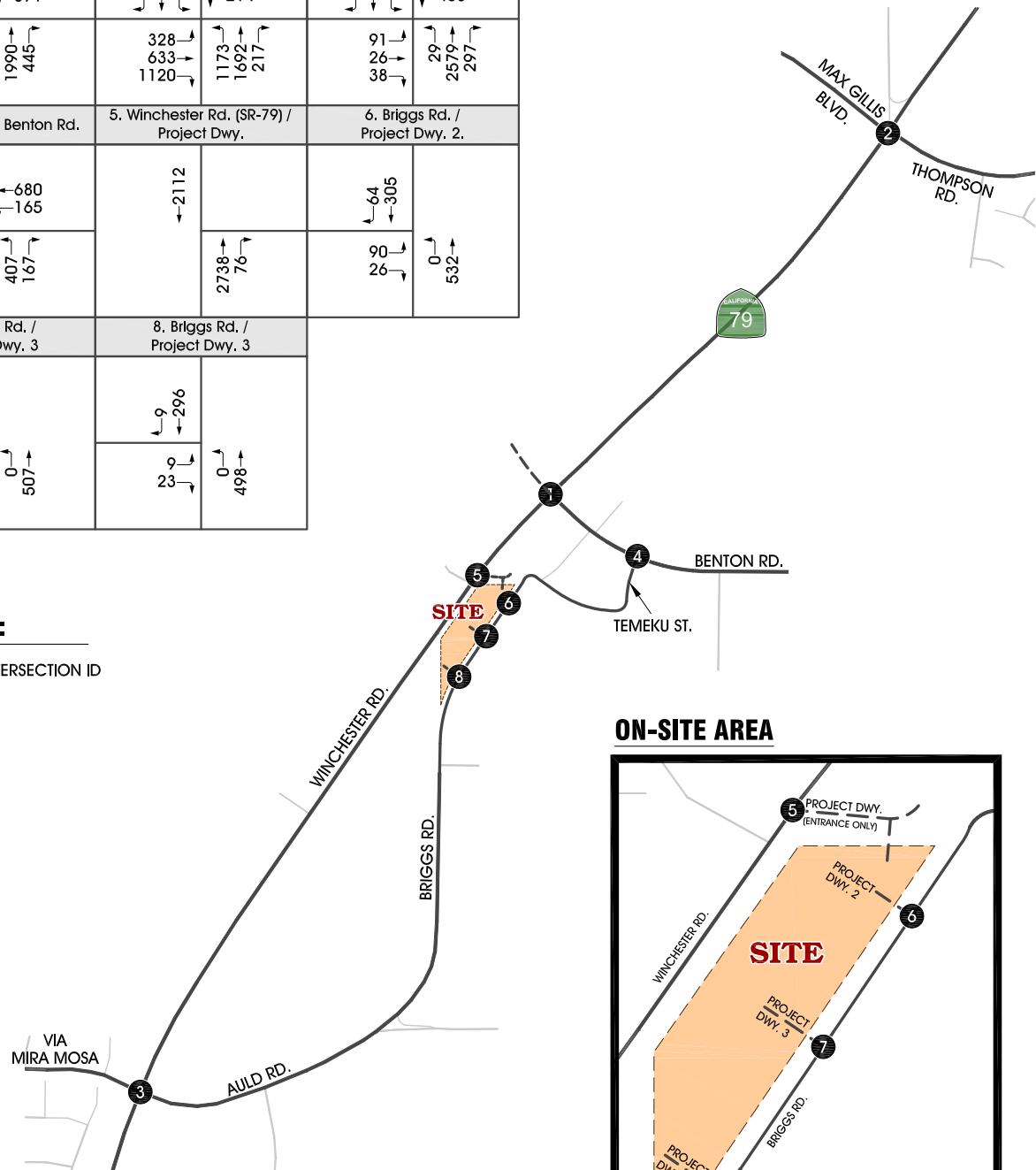


FIGURE 4-L EXISTING PLUS AMBIENT PLUS PROJECT PLUS CUMULATIVE (2021) PM PEAK HOUR INTERSECTION VOLUMES

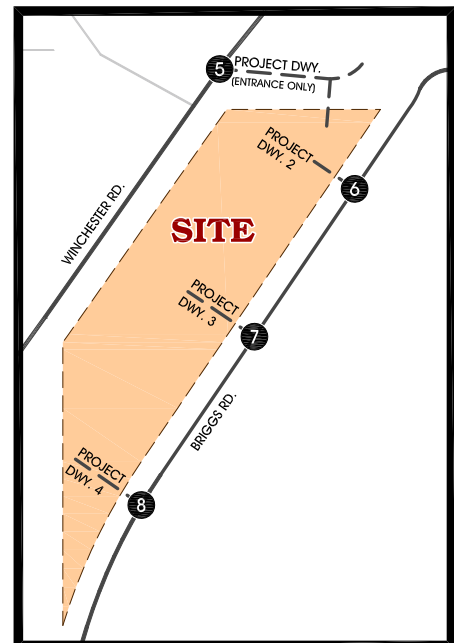
1. Winchester Rd. (SR-79) / Benton Rd.	2. Winchester Rd. (SR-79) / Thompson Rd.	3. Winchester Rd. (SR79) / Auld Rd.
1456 657 974 371 1990 445	390 807 83 42 612 214 328 633 1120 1173 1692 217	136 1779 146 148 41 468 91 26 38 29 2579 297
4. Temeku St. / Benton Rd.	5. Winchester Rd. (SR-79) / Project Dwy.	6. Briggs Rd. / Project Dwy. 2.
680 165 667 174 407 167	2112 2738 76	64 305 90 26 0 532
7. Briggs Rd. / Project Dwy. 3	8. Briggs Rd. / Project Dwy. 3	
52 278 26 26 0 507	9 296 9 23 0 498	

LEGEND:

8 = INTERSECTION ID



ON-SITE AREA



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5.0 TRAFFIC ANALYSIS

Peak hour intersection analysis has been performed at the study area intersections for each of the project scenarios and for projected future conditions. Improvements are recommended to satisfy the level of service requirements of the County of Riverside and if the following impacts are identified:

- 1) When existing traffic conditions (Analysis Scenario 1) exceed the General Plan target LOS.
- 2) When project traffic, when added to existing traffic (Analysis Scenario 2), will deteriorate the LOS to below the target LOS, and impacts cannot be mitigated through project conditions of approval.
- 3) When cumulative traffic (Analysis Scenario 3) exceeds the target LOS, and impacts cannot be mitigated through existing infrastructure funding mechanisms.

A. Existing plus Project (E+P) Conditions

The results of the E+P conditions intersection analysis are summarized in Table 5-1. The E+P condition operations analysis worksheets are provided in Appendix "D". The study area intersection of Winchester Road (SR-79) / Thompson Road is projected to continue to operate at an unacceptable level of service (LOS "E" or worse) during the peak hours with the existing geometry and traffic controls.

The following improvements (as shown on Table 5-1) are anticipated to improve intersection LOS to acceptable operations:

Winchester Road (SR-79) / Thompson Road (#2)

- Provide a 2nd northbound left turn lane.
- Provide a 2nd eastbound right turn lane.
- Provide a 2nd westbound through lane.

B. Existing plus Ambient plus Project (E+A+P) Conditions

The results of the E+A+P conditions intersection analysis are summarized in Table 5-2. The E+A+P condition operations analysis worksheets are provided in Appendix "E". The study area intersection of Winchester Road (SR-79) / Thompson Road is projected to continue to operate at an unacceptable level of service (LOS "E" or worse) during the peak hours with the existing geometry and traffic controls. The improvements previously identified under E+P conditions are anticipated to improve intersection operations acceptable LOS conditions.

TABLE 5-1
INTERSECTION ANALYSIS FOR
EXISTING PLUS PROJECT CONDITIONS

ID	Intersection	Traffic Control ¹	Intersection Approach Lanes ²												Delay ³ (secs.)		Level of Service ³	
			Northbound			Southbound			Eastbound			Westbound			AM	PM	AM	PM
			L	T	R	L	T	R	L	T	R	L	T	R				
1	Winchester Rd. (SR-79) / Benton Rd.	TS	0	2	1	1	2	0	0	0	0	2	0	1>	25.6	46.7	C	D
2	Winchester Rd. (SR-79) / Thompson Rd. - With Improvements	TS	1	2	d	1	2	1	1	1	1>	1	1	0	93.3	108.9	F	F
		TS	<u>2</u>	2	0	1	2	1	1	1	<u>2></u>	1	<u>2</u>	0	42.7	49.7	D	D
3	Winchester Rd. (SR-79) / Auld Rd.	TS	1	2	1	1	2	d	1	1	0	1	1	0	27.7	31.7	C	C
4	Temeku St. / Benton Rd.	TS	1	1	d	1	0.5	1.5	2	2	d	1	2	d	37.1	43.6	D	D
5	Winchester Rd. (SR-79) / Project Dwy. (Entrance - Right In Only)	UNC	0	2	0	0	2	0	0	0	0	0	0	0	0.0	0.0	A	A
6	Briggs Rd. / Project Dwy. 2	<u>CSS</u>	0	1	0	0	1	0	0	<u>1!</u>	0	0	0	0	12.5	15.6	B	C
7	Briggs Rd. / Project Dwy. 3	<u>CSS</u>	0	1	0	0	1	0	0	<u>1!</u>	0	0	0	0	10.7	11.9	B	B
8	Briggs Rd. / Project Dwy. 4	<u>CSS</u>	0	1	0	0	1	0	0	<u>1!</u>	0	0	0	0	10.1	10.7	B	B

¹ TS = Traffic Signal; CSS = Cross-Street Stop; UNC = Uncontrolled

² When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; 1! = Shared Left-Through-Right Lane; 0.5 = Shared Lane ; d = Defacto right turn lane; > = Right Turn Overlap; 1 = Improvement

³ Delay and level of service calculated using the following analysis software: Synchro 10 HCM6
BOLD = Unacceptable level of service

TABLE 5-2
INTERSECTION ANALYSIS FOR
EXISTING PLUS AMBIENT PLUS PROJECT (2021) CONDITIONS

ID	Intersection	Traffic Control ¹	Intersection Approach Lanes ²												Delay ³ (secs.)		Level of Service ³	
			Northbound			Southbound			Eastbound			Westbound			AM	PM	AM	PM
			L	T	R	L	T	R	L	T	R	L	T	R				
1	Winchester Rd. (SR-79) / Benton Rd.	TS	0	2	1	1	2	0	0	0	0	2	0	1>	26.3	52.9	C	D
2	Winchester Rd. (SR-79) / Thompson Rd. - With Improvements	TS	1	2	d	1	2	1	1	1	1>	1	1	0	103.4	113.0	F	F
		TS	<u>2</u>	2	0	1	2	1	1	1	<u>2></u>	1	<u>2</u>	0	44.8	53.9	D	D
3	Winchester Rd. (SR-79) / Auld Rd.	TS	1	2	1	1	2	d	1	1	0	1	1	0	29.7	35.0	C	C
4	Temeku St. / Benton Rd.	TS	1	1	d	1	0.5	1.5	2	2	d	1	2	d	37.2	44.2	D	D
5	Winchester Rd. (SR-79) / Project Dwy. (Entrance - Right In Only)	UNC	0	2	0	0	2	0	0	0	0	0	0	0	0.0	0.0	A	A
6	Briggs Rd. / Project Dwy. 2	<u>CSS</u>	0	1	0	0	1	0	0	<u>1!</u>	0	0	0	0	12.6	16.0	B	C
7	Briggs Rd. / Project Dwy. 3	<u>CSS</u>	0	1	0	0	1	0	0	<u>1!</u>	0	0	0	0	10.8	12.1	B	B
8	Briggs Rd. / Project Dwy. 4	<u>CSS</u>	0	1	0	0	1	0	0	<u>1!</u>	0	0	0	0	10.2	10.8	B	B

¹ TS = Traffic Signal; CSS = Cross-Street Stop; UNC = Uncontrolled

² When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; 1! = Shared Left-Through-Right Lane; 0.5 = Shared Lane ; d = Defacto right turn lane; > = Right Turn Overlap; 1 = Improvement

³ Delay and level of service calculated using the following analysis software: Synchro 10 HCM6
BOLD = Unacceptable level of service

C. Existing plus Ambient plus Project plus Cumulative (E+A+P+C) Conditions

The results of the E+A+P+C conditions intersection analysis are summarized in Table 5-3. The E+A+P+C condition operations analysis worksheets are provided in Appendix "F". The study area intersection of Winchester Road and Benton Road will require improvements to accommodate the proposed Clinton Keith Road extension. Table 5-2 provides the recommended improvements at this intersection to allow this location to operate at acceptable service levels (LOS D or better).

The following three intersections are anticipated to operate at unacceptable levels of service with the existing geometry:

- Winchester Road (SR-79) / Thompson Road
- Winchester Road (SR-79) / Benton Road
- Winchester Road (SR-79) / Auld Road

The study area intersections are projected to operate at an acceptable level of service (LOS "D" or better) during the peak hours with the recommended geometry and traffic controls (listed below). It is important to note that some of these improvements may not be feasible due to right-of-way constraints. Furthermore, four northbound through travel lanes on Winchester Road exceeds the General Plan Circulation Element for this roadway.

Winchester Road (SR-79) / Benton Road (#1)

- Northbound: Provide a separate left turn lane, a 3rd through lane, and a right turn overlap phase.
- Southbound: Provide a 2nd left turn lane and a 3rd through lane.
- Eastbound: Provide a separate left turn lane, 2 through lanes, and a separate right turn lane with overlap phase.
- Westbound: Provide one through lane and a 2nd right turn lane.

Winchester Road (SR-79) / Thompson Road (#2)

- Northbound: Provide a 2nd left turn lane and a 3rd through lane.
- Southbound: Provide a 3rd through lane and a right turn overlap phase.
- Eastbound: Provide a 2nd left turn lane, 3rd through lane, and a 2nd right turn lane.
- Westbound: Provide a 2nd left turn lane and a 2nd through lane.

Winchester Road (SR-79) / Auld Road (#3)

- Westbound: Provide a 2nd left turn lane.

TABLE 5-3

**INTERSECTION ANALYSIS FOR EXISTING (2019) CONDITIONS
EXISTING PLUS AMBIENT PLUS PROJECT PLUS CUMULATIVE (2021) CONDITIONS**

ID	Intersection	Traffic Control ¹	Intersection Approach Lanes ²												Delay ³ (secs.)		Level of Service ³	
			Northbound			Southbound			Eastbound			Westbound			AM	PM	AM	PM
			L	T	R	L	T	R	L	T	R	L	T	R				
1	Winchester Rd. (SR-79) / Benton Rd. - With Improvements	TS	<u>1</u>	<u>3</u>	<u>1></u>	<u>2</u>	<u>3</u>	0	<u>1</u>	<u>2</u>	<u>1></u>	2	<u>1</u>	<u>2></u>	35.6	51.6	D	D
2	Winchester Rd. (SR-79) / Thompson Rd. - With Improvements ⁴	TS	1	2	d	1	2	1	1	1	1>	1	1	0	264.8	442.1	F	F
		TS	<u>2</u>	<u>3</u>	0	1	<u>3</u>	<u>1></u>	<u>2</u>	1	<u>2></u>	<u>2</u>	<u>2</u>	0	51.9	79.1	D	E
3	Winchester Rd. (SR-79) / Auld Rd. - With Improvements	TS	1	2	1	1	2	d	1	1	0	1	1	0	60.7	156.6	E	F
		TS	1	2	1	1	2	d	1	1	0	<u>2</u>	1	0	29.9	30.4	C	C
4	Temeku St. / Benton Rd.	TS	1	1	d	1	0.5	1.5	2	2	d	1	2	d	39.3	48.7	D	D
5	Winchester Rd. (SR-79) / Project Dwy. (Entrance - Right In Only)	UNC	0	2	0	0	2	0	0	0	0	0	0	0	0.0	0.0	A	A
6	Briggs Rd. / Project Dwy. 2	<u>CSS</u>	0	1	0	0	1	0	0	<u>1!</u>	0	0	0	0	14.7	20.9	B	C
7	Briggs Rd. / Project Dwy. 3	<u>CSS</u>	0	1	0	0	1	0	0	<u>1!</u>	0	0	0	0	12.0	14.1	B	B
8	Briggs Rd. / Project Dwy. 4	<u>CSS</u>	0	1	0	0	1	0	0	<u>1!</u>	0	0	0	0	11.1	12.0	B	B

¹ TS = Traffic Signal; CSS = Cross-Street Stop; UNC = Uncontrolled

² When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Shared Left-Through-Right Lane; 0.5 = Shared Lane; d = Defacto right turn lane; > = Right Turn Overlap; 1 = Improvement

³ Delay and level of service calculated using the following analysis software: Synchro 10 HCM6

BOLD = Unacceptable level of service

³ Further improvements are not feasible. Intersection is anticipated to continue to operate at unacceptable LOS ("E" or worse).

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6.0 FINDINGS AND RECOMMENDATIONS

A. Traffic Impacts and Level of Service Intersections Analysis

For Existing (2019) and E+P traffic conditions, the study area intersections are operating at an acceptable level of service during the peak hours with existing geometry. For E+A+P and E+A+P+C conditions, additional improvements are recommended to address potential deficiencies.

B. Recommended Off-Site Improvements

Existing Plus Project (E+P) and Existing + Ambient + Project (EAP) Conditions

Figure 6-A illustrates the recommended improvements for E+P and EAP conditions. The improvements shown on the figure will allow the deficient intersection of Winchester Road (SR-79) / Thompson Road to operate at acceptable levels of service during the peak hour.

Existing + Ambient + Project + Cumulative Conditions

Figure 6-B illustrates the recommended improvements for EAPC conditions. Due to the proposed Clinton Keith Road extension, the intersection of Winchester Road/Benton Road will be revised to provide a fourth leg. The improvements shown on the figure will allow this location to operate at acceptable levels of service during the peak hour. It is important to note that some of these improvements may not be feasible due to right-of-way constraints. Furthermore, four northbound through travel lanes on Winchester Road exceeds the General Plan Circulation Element for this roadway.

Funding Mechanisms

In order to address the cumulate traffic impacts from the proposed project and other developments in the area, the City has the following funding mechanisms available.

Transportation Uniform Mitigation Fee (TUMF)

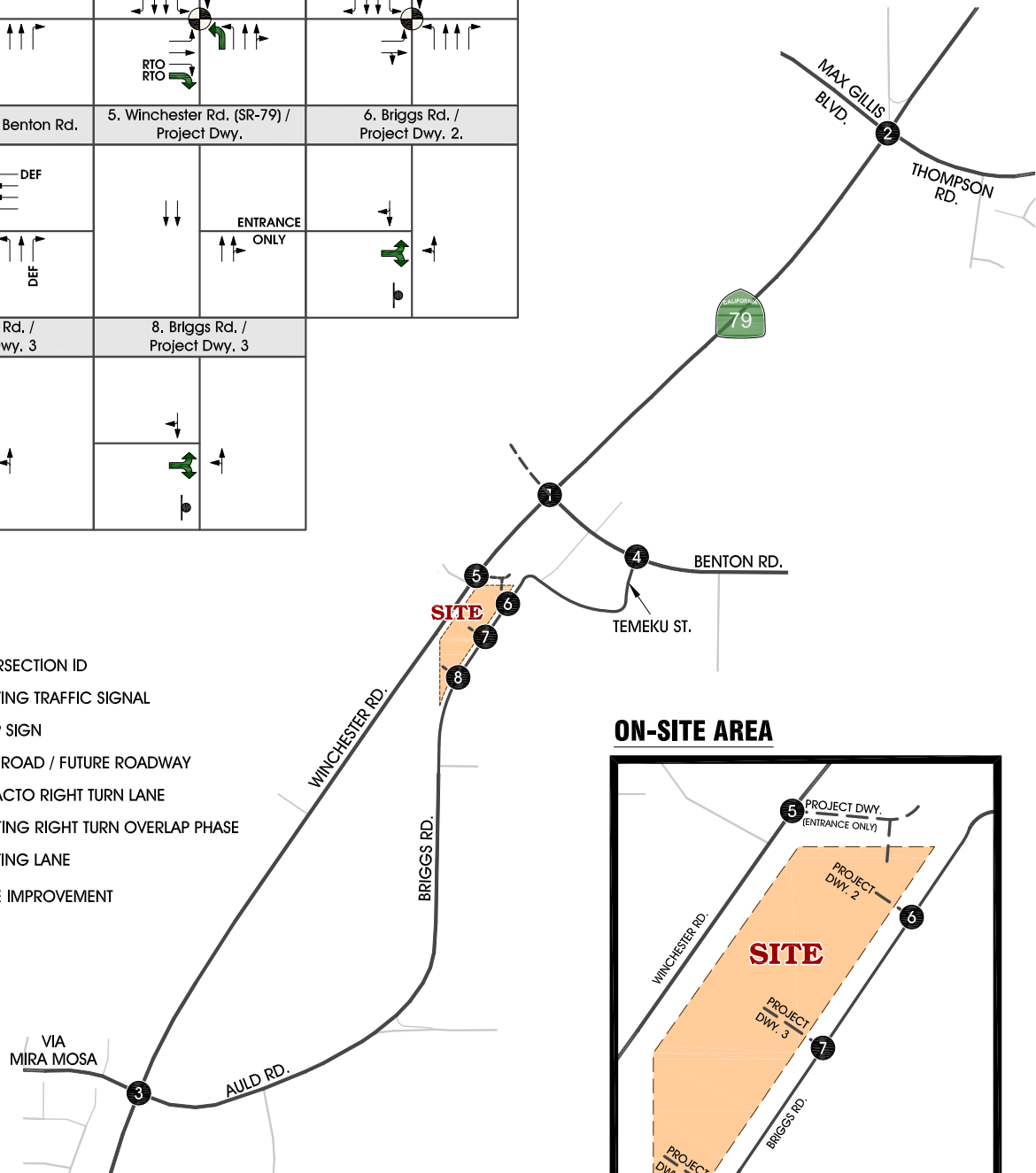
The Transportation Uniform Mitigation Fee (TUMF) Program was established to assist in funding the Regional System of Highways and Arterials throughout Riverside County. TUMF allows developers to contribute toward sustaining the regional transportation system on a “fair share” basis. Managed by the Western Riverside Council of Governments (WRCOG), the program is not designed to be the only source of revenue but would complement funds generated by Measure A, local transportation fee programs, etc.

FIGURE 6-A E+P AND EAP (2021) RECOMMENDED INTERSECTION IMPROVEMENTS

1. Winchester Rd. (SR-79) / Benton Rd.	2. Winchester Rd. (SR-79) / Thompson Rd.	3. Winchester Rd. (SR79) / Auld Rd.
4. Temeku St. / Benton Rd.	5. Winchester Rd. (SR-79) / Project Dwy.	6. Briggs Rd. / Project Dwy. 2.
7. Briggs Rd. / Project Dwy. 3	8. Briggs Rd. / Project Dwy. 3	

LEGEND:

- = INTERSECTION ID
- = EXISTING TRAFFIC SIGNAL
- = STOP SIGN
- = DIRT ROAD / FUTURE ROADWAY
- DEF = DEFACTO RIGHT TURN LANE
- RTO = EXISTING RIGHT TURN OVERLAP PHASE
- = EXISTING LANE
- = LANE IMPROVEMENT



ON-SITE AREA

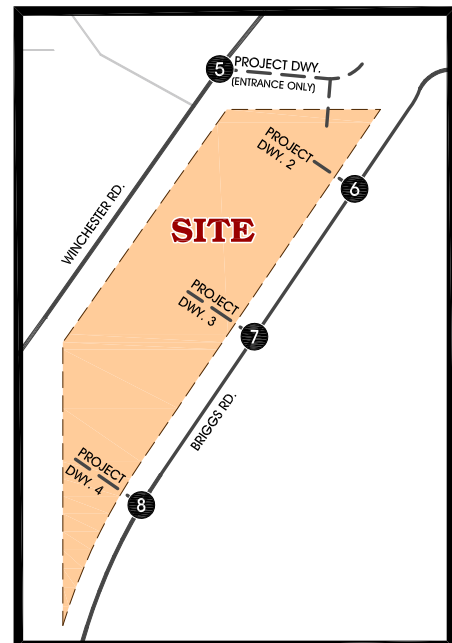


FIGURE 6-B EXISTING PLUS AMBIENT PLUS PROJECT PLUS CUMULATIVE (2021) RECOMMENDED INTERSECTION IMPROVEMENTS

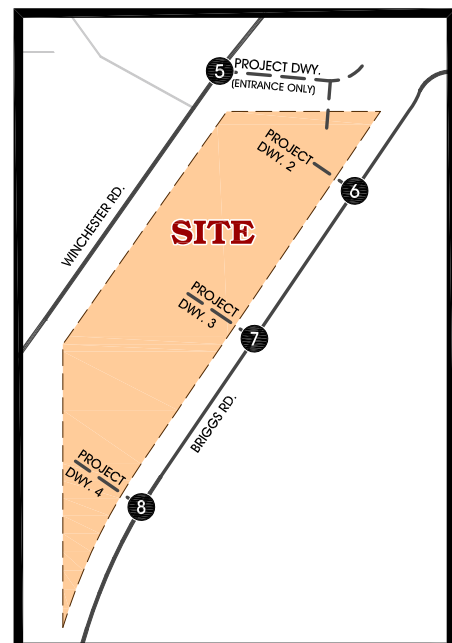
1. Winchester Rd. (SR-79) / Benton Rd.	2. Winchester Rd. (SR-79) / Thompson Rd.	3. Winchester Rd. (SR79) / Auld Rd.
4. Temeku St. / Benton Rd.	5. Winchester Rd. (SR-79) / Project Dwy.	6. Briggs Rd. / Project Dwy. 2.
7. Briggs Rd. / Project Dwy. 3	8. Briggs Rd. / Project Dwy. 3	

LEGEND:

- = INTERSECTION ID
- = EXISTING TRAFFIC SIGNAL
- = STOP SIGN
- = DIRT ROAD / FUTURE ROADWAY
- DEF = DEFACTO RIGHT TURN LANE
- RTO = EXISTING RIGHT TURN OVERLAP PHASE
- = RIGHT TURN OVERLAP PHASE IMPROVEMENT
- = EXISTING LANE
- = PREVIOUS LANE IMPROVEMENT
- = CURRENT LANE IMPROVEMENT



ON-SITE AREA



Development Impact Fees (DIF)

The development impact fee (DIF) is intended to construct or acquire needed facilities, preserve open space, and habitat needed to serve new developments. The transportation facilities include roads, bridges, and traffic signals.

C. Circulation Recommendations

On-Site

Figure 6-C illustrates the on-site recommended lane improvements. Construction of on-site improvements shall occur in conjunction with adjacent project development activity or as needed for project access purposes.

The recommended on-site roadway improvements are described below.

- Provide stop sign control at the project driveways
- On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the project.
- Verify that minimum sight distance is provided at the project driveways.

FIGURE 6-C CIRCULATION RECOMMENDATIONS

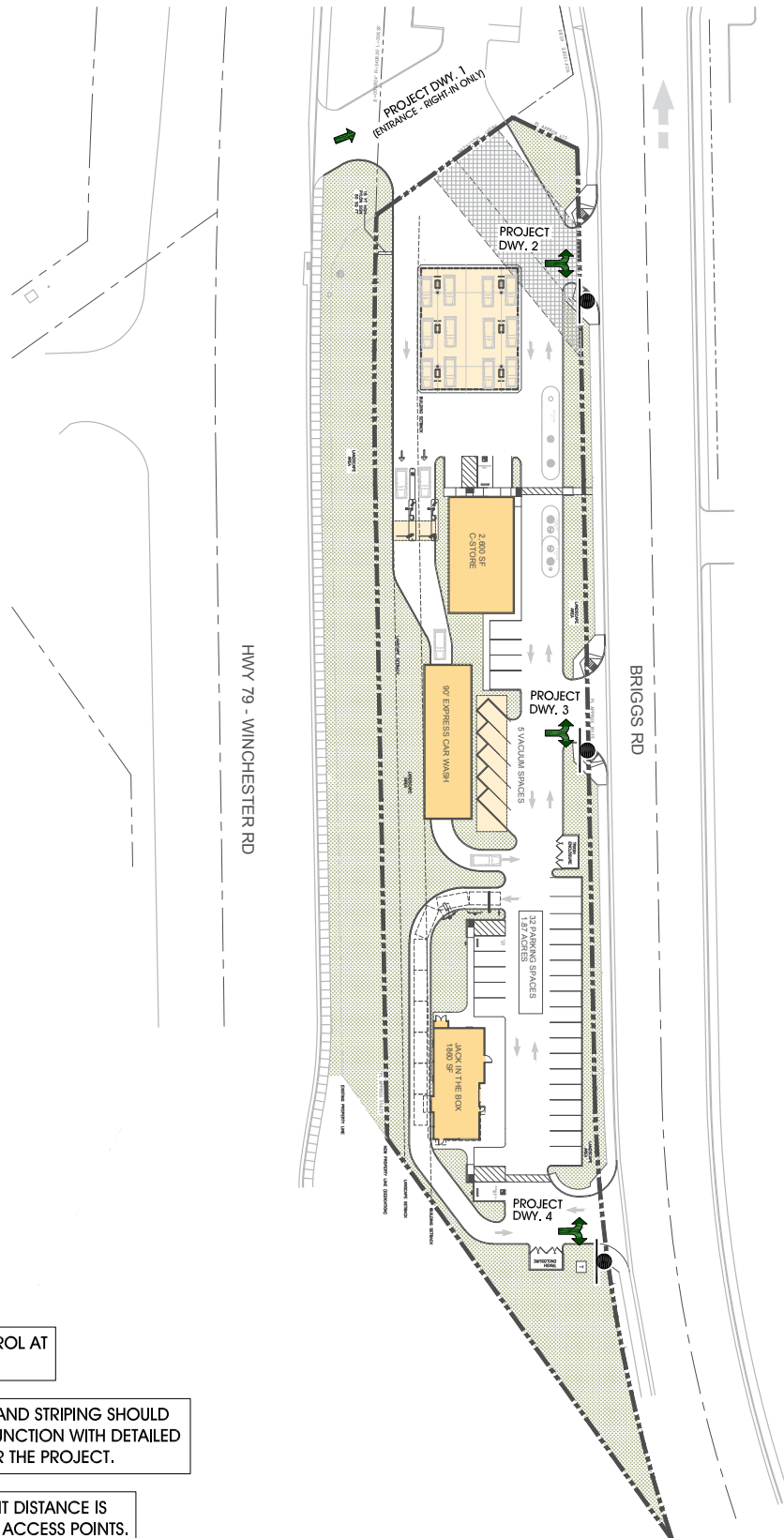
LEGEND:

● = STOP SIGN

PROVIDE STOP SIGN CONTROL AT THE PROJECT DRIVEWAYS.

ON-SITE TRAFFIC SIGNING AND STRIPING SHOULD BE IMPLEMENTED IN CONJUNCTION WITH DETAILED CONSTRUCTION PLANS FOR THE PROJECT.

VERIFY THAT MINIMUM SIGHT DISTANCE IS PROVIDED AT THE PROJECT ACCESS POINTS.



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APPENDIX A

SCOPING AGREEMENT

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the Riverside County Transportation Department requirements for traffic impact analysis of the following project. The analysis must follow the latest version of the Riverside County Transportation Department Traffic Study Guidelines.

Case No. _____
Related Cases - _____
SP No. _____
EIR No. _____
GPA No. _____
CZ No. _____
Project Name: Jack in the Box French Valley
Project Address: East of Winchester and south of Benton
Project Description: F-F Rest. (1,860 sf), a C-Store w/12 vehicle positions, and a car wash with a 90 foot long tunnel

	<u>Consultant</u>	<u>Developer</u>
Name:	<u>Scott Sato</u>	<u>Gabriela Marks</u>
Address:	<u>Trames Solutions, Inc.</u>	<u>Marks Architects</u>
	<u>4225 Oceanside Blvd., #354H</u>	<u>2643 4th Ave.</u>
	<u>Oceanside, CA 92056</u>	<u>San Diego, CA 92103</u>
Phone No:	<u>(760) 291-1400</u>	
Date:	<u>7/30/2019</u>	

A. Trip Generation Source: _____ ITE 10th Edition (See Tables 1 & 2)

Current GP Land Use:	<u>Commercial</u>	Proposed Land Use:	<u>Same</u>
Current Zoning:	<u>Commercial</u>	Proposed Zoning:	<u>Same</u>

Current Trip Generation			Proposed Trip Generation		
	<u>In</u>	<u>Out</u>	<u>In</u>	<u>Out</u>	<u>Total</u>
AM Trips	<u>-</u>	<u>-</u>	<u>79</u>	<u>74</u>	153
PM Trips	<u>-</u>	<u>-</u>	<u>85</u>	<u>85</u>	170

Internal Trip Allowance	<u>Yes</u>	(<u>5</u> % Trip Discount)
Pass-By Trip Allowance	<u>Yes</u>	(<u>Varies</u> % Trip Discount)

A passby trip discount of 25% is allowed for appropriate land uses. The passby trips at adjacent study area intersections and project driveways shall be indicated on a report figure.

B. Trip Geographic Distribution: (See attached exhibit for detailed assignment).
N 50% S 35% E 15% W 0%

C. Background Traffic
Project Build-out Year 2021 Annual Ambient Growth Rate: 2.0 %
Phase Years _____
Other projects to be analyzed: _____
Model/Forecast methodology: _____

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

1 <u>Winchester Rd. (Hwy 79)/Benton Rd.</u>	6 <u>Project Driveways/Briggs</u>
2 <u>Winchester Rd. (Hwy 79)/Max Gillis/Thompson</u>	7 _____
3 <u>Winchester Rd. (Hwy 79)/Via Mira Mosa-Auld</u>	8 _____
4 <u>Temeku St./Benton St.</u>	9 _____
5 <u>Project Dwy./Winchester Rd. (Hwy 79)</u>	10 _____

E. Study Roadway Segments:

1 _____
2 _____

3 _____
4 _____

F. Other Jurisdictional Impacts

Is this project within a City's Sphere of influence or one mile radius of City boundaries?

No

If so, name of City jurisdiction: _____

G. Site Plan

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

Existing

Existing+Project

Existing+Ambient Growth+Project

Existing+Ambient Growth+Project +Cumulative

I. Existing Conditions

Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.

Date of Counts _____

Recommended by:



7/31/2019

Consultant's Representative

Date

Approved By:

Riverside County Transportation Department

Date

Scoping Agreement Subitted on _____

Revised On _____

TABLE 1
PROJECT TRIP GENERATION RATES¹

Land Use	ITE Code	Quantity ²	Peak Hour Trip Rates						Daily
			AM			PM			
			IN	OUT	Total	IN	OUT	Total	
Fast Food w/ Drive Thru	934	1.86 TSF	20.50	19.69	40.19	16.99	15.68	32.67	470.95
Convenience Mkt. w/Pumps	853	12 VFP	10.38	10.38	20.76	11.52	11.52	23.04	322.50
Car Wash	Data	90 LF	0.25	0.21	0.46	0.38	0.41	0.79	8.45

¹ Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017).

² VFP = Vehicle Fueling Positions; TSF = Thousand Square Feet; LF = Linear Feet of Tunnel

TABLE 2
PROJECT TRIP GENERATION SUMMARY

Land Use	ITE Code	Quantity ¹	Peak Hour						Daily
			AM			PM			
			In	Out	Total	In	Out	Total	
Fast Food w/ Drive Thru	934	1.86 TSF	38	37	75	32	29	61	876
- Pass-By Reduction (AM-49%, PM-50%)			-19	-19	-37	-15	-15	-30	-438
Convenience Mkt. w/Pumps	853	12 VFP	125	125	250	138	138	276	3,870
- Pass-By Reduction (AM-63%, PM-66%)			-79	-79	-158	-91	-91	-182	-2,438
Car Wash	Data	90 LF	23	19	42	34	37	71	761
- Pass-By Reduction (25%)			-6	-6	-12	-9	-9	-18	-190
- Internal Interaction (5%)			-4	-4	-8	-4	-4	-8	-122
TOTAL EXTERNAL TRIPS			79	74	152	85	85	170	2,319

¹ VFP = Vehicle Fueling Positions; TSF = Thousand Square Feet; LF = Linear Feet of Tunnel

FIGURE 1 SITE PLAN

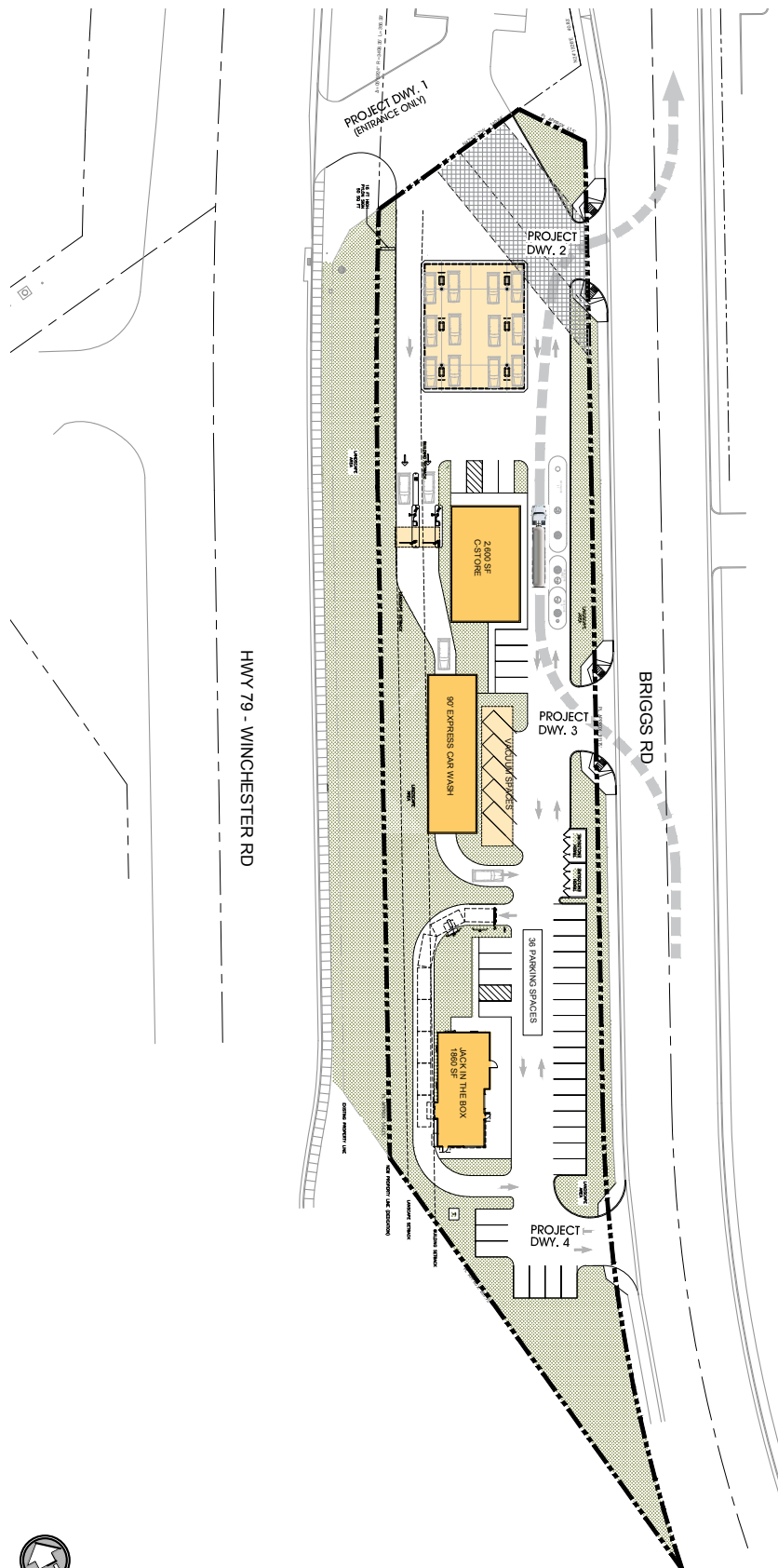
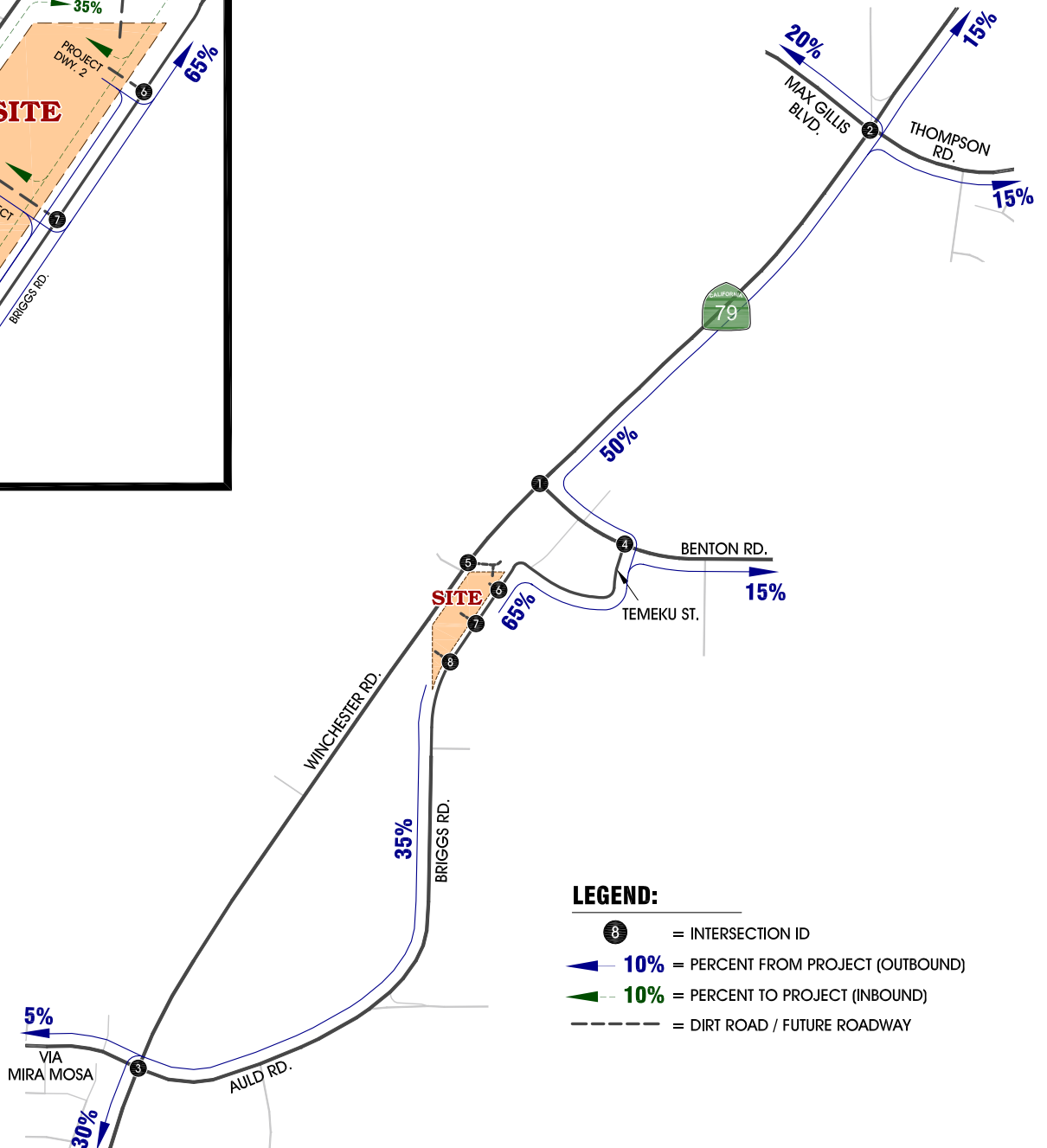
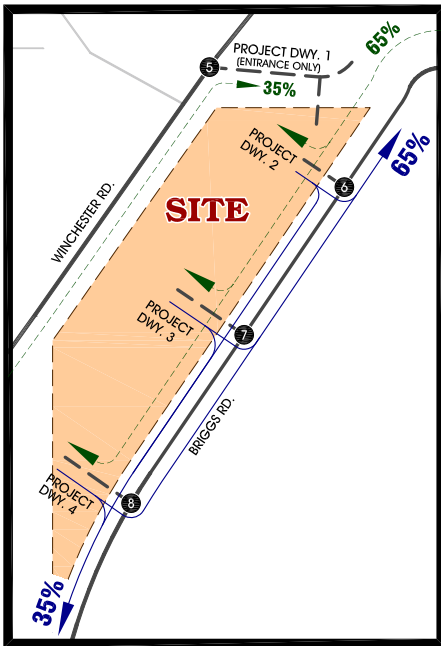


FIGURE 2 PROJECT TRIP DISTRIBUTION

ON-SITE AREA



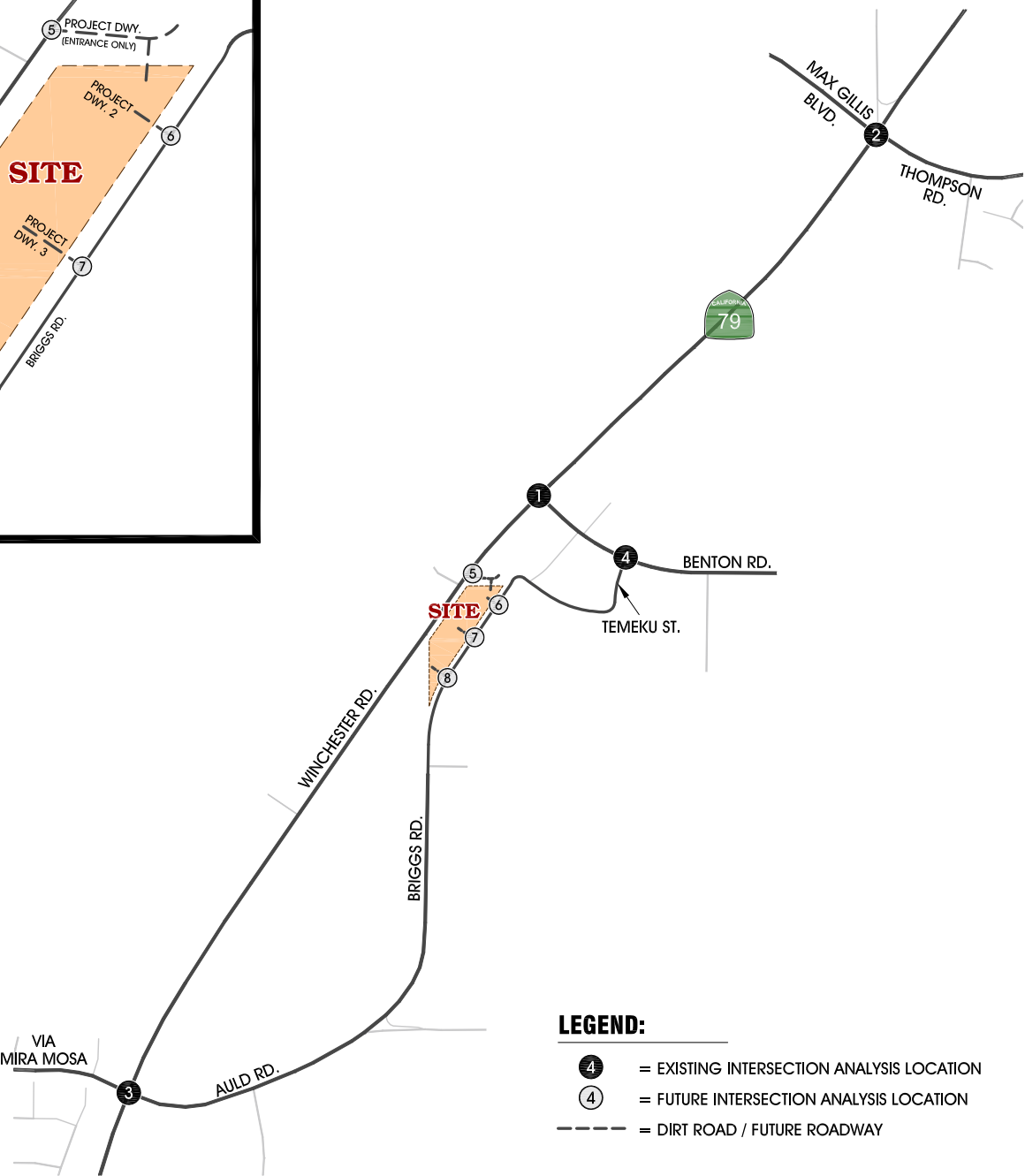
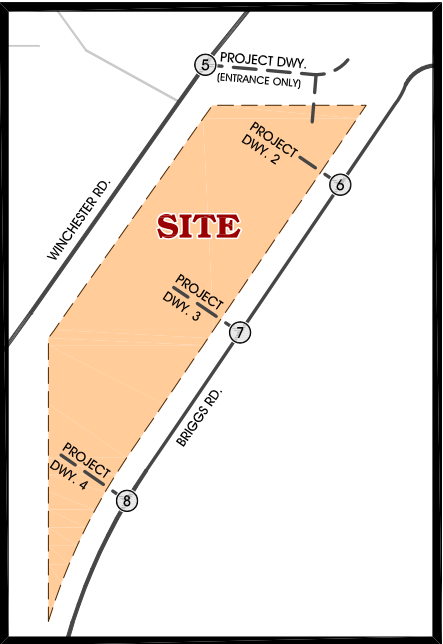
LEGEND:

- 8 = INTERSECTION ID
- ▶ 10% = PERCENT FROM PROJECT (OUTBOUND)
- ▶ 10% = PERCENT TO PROJECT (INBOUND)
- = DIRT ROAD / FUTURE ROADWAY



FIGURE 3
STUDY AREA

ON-SITE AREA



LEGEND:

- ④ = EXISTING INTERSECTION ANALYSIS LOCATION
- ④ = FUTURE INTERSECTION ANALYSIS LOCATION
- = DIRT ROAD / FUTURE ROADWAY

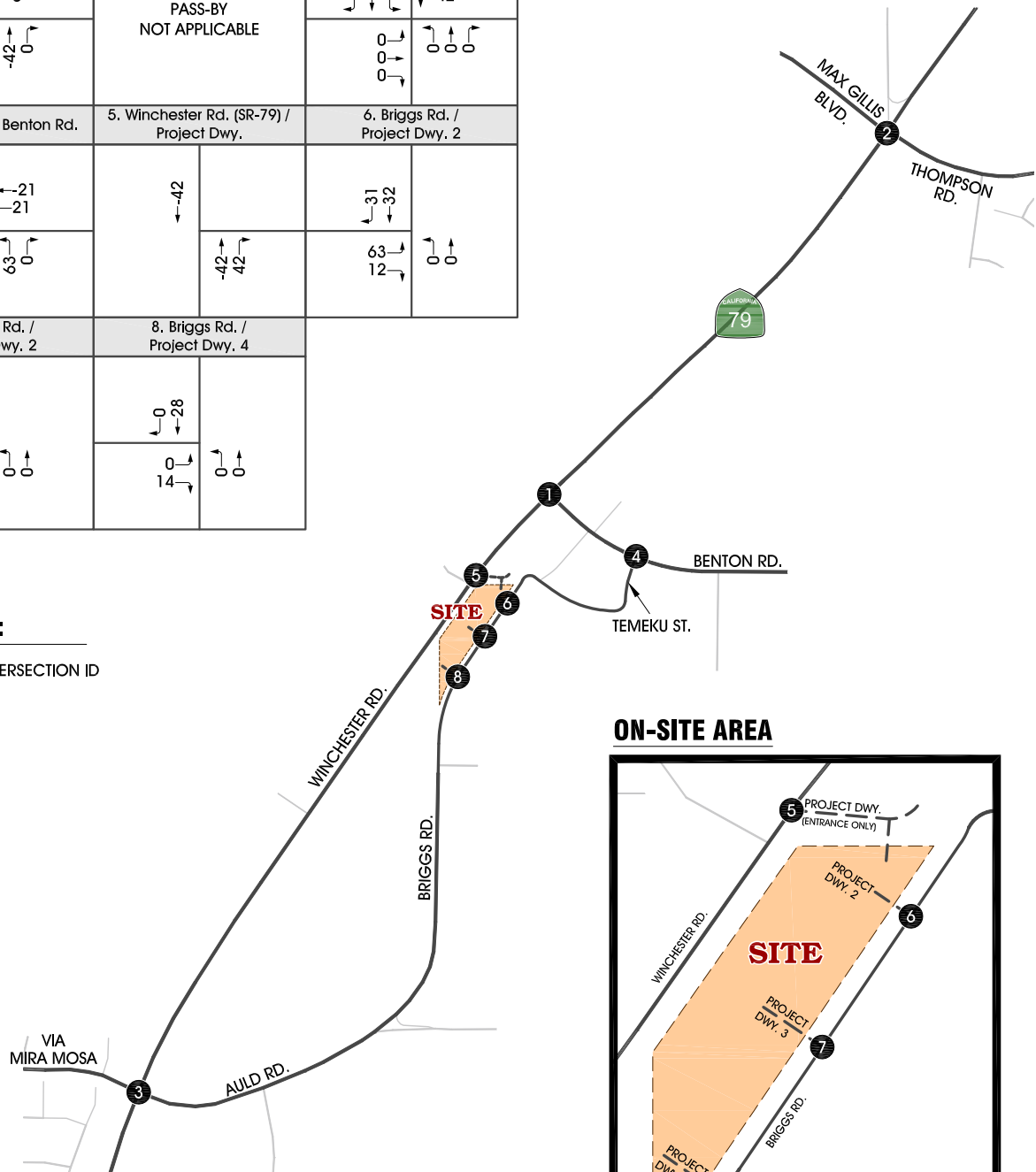


FIGURE 4 PROJECT ONLY PASS-BY AM PEAK HOUR TRAFFIC VOLUMES

1. Winchester Rd. (SR-79) / Benton Rd.	2. Winchester Rd. (SR-79) / Thompson Rd.	3. Winchester Rd. (SR79) / Auld Rd.
	PASS-BY NOT APPLICABLE	
4. Temeku St. / Benton Rd.	5. Winchester Rd. (SR-79) / Project Dwy.	6. Briggs Rd. / Project Dwy. 2
7. Briggs Rd. / Project Dwy. 2	8. Briggs Rd. / Project Dwy. 4	

LEGEND:

⑧ = INTERSECTION ID



ON-SITE AREA

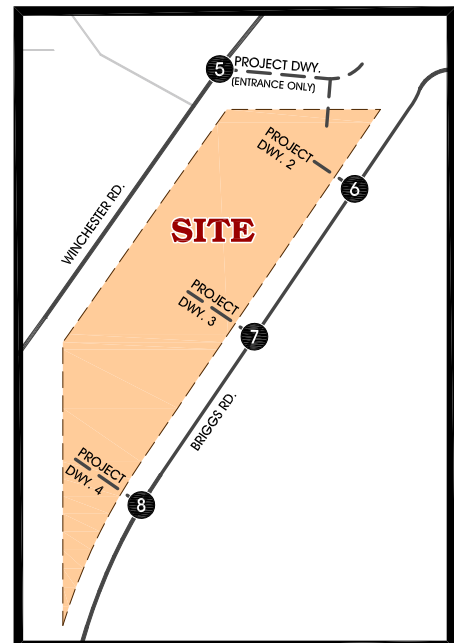
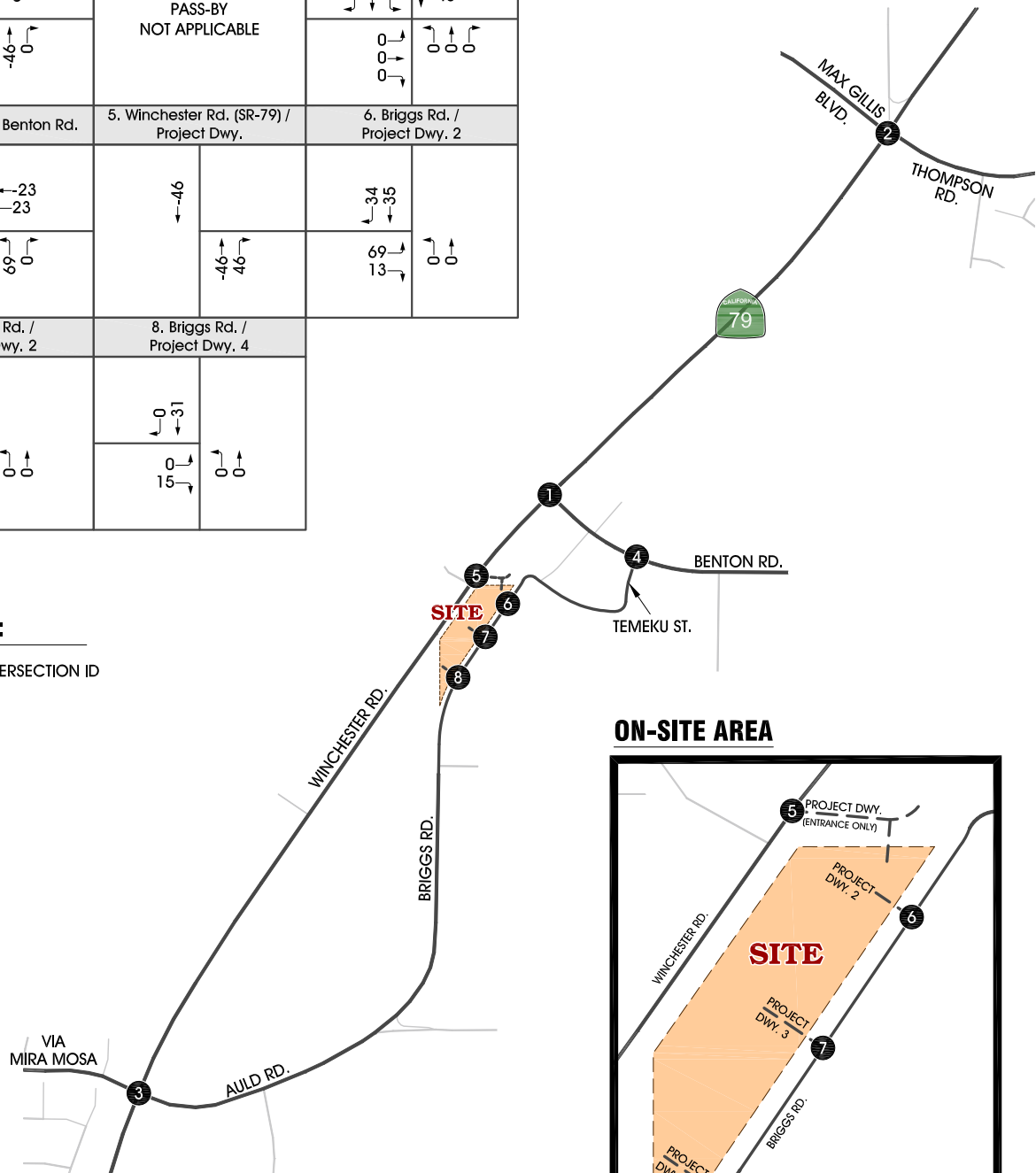


FIGURE 5 PROJECT ONLY PASS-BY PM PEAK HOUR TRAFFIC VOLUMES

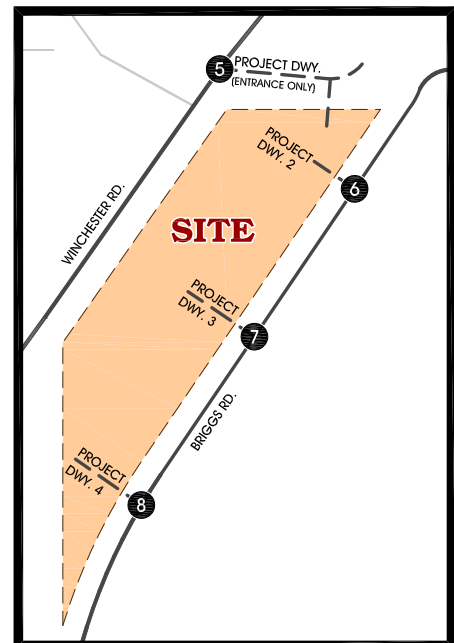
1. Winchester Rd. (SR-79) / Benton Rd.	2. Winchester Rd. (SR-79) / Thompson Rd.	3. Winchester Rd. (SR79) / Auld Rd.
	PASS-BY NOT APPLICABLE	
4. Temeku St. / Benton Rd.	5. Winchester Rd. (SR-79) / Project Dwy.	6. Briggs Rd. / Project Dwy. 2
7. Briggs Rd. / Project Dwy. 2	8. Briggs Rd. / Project Dwy. 4	

LEGEND:

⑧ = INTERSECTION ID



ON-SITE AREA



APPENDIX B

TRAFFIC COUNT WORKSHEETS

County of Riverside
N/S: Winchester Road (SR-79)
E/W: Benton Road
Weather: Clear

File Name : 01_CRV_Winchester_Benton AM
Site Code : 20119260
Start Date : 4/23/2019
Page No : 1

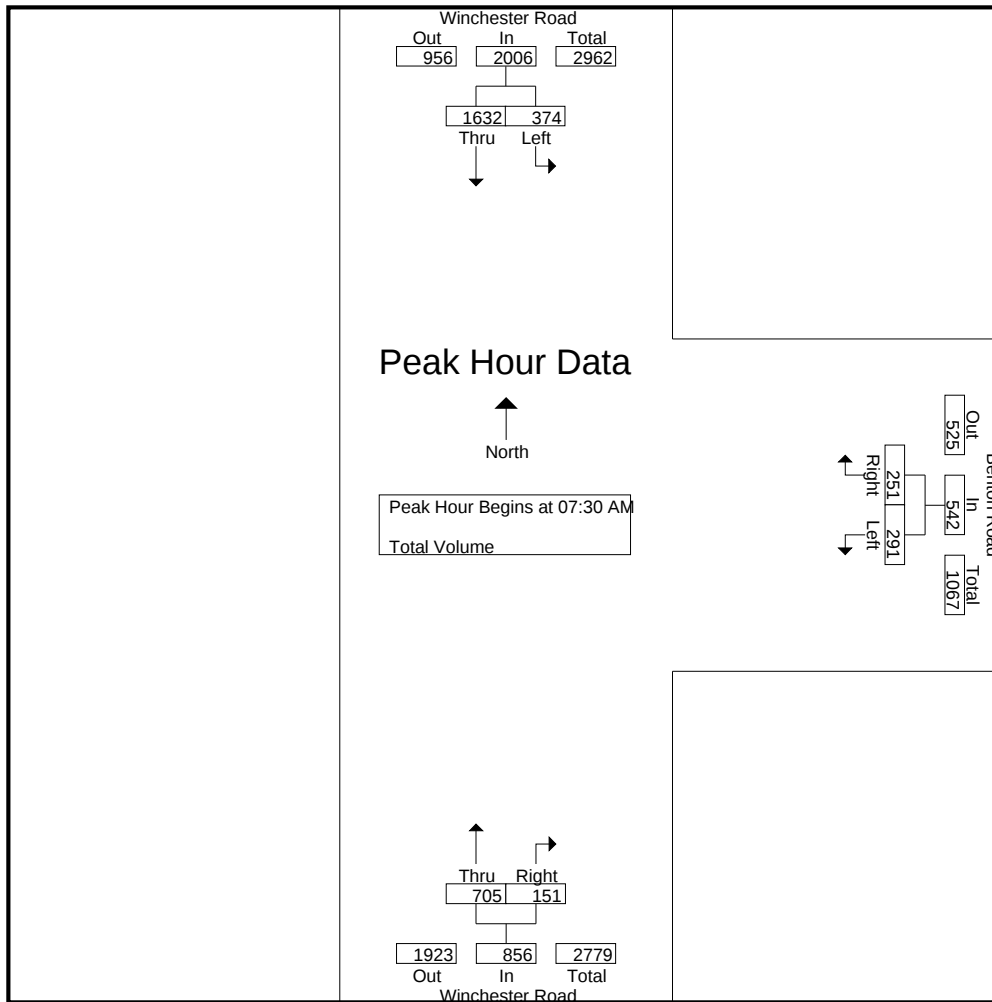
Groups Printed- Total Volume

	Winchester Road Southbound			Benton Road Westbound			Winchester Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	70	336	406	107	65	172	204	36	240	818
07:15 AM	94	349	443	96	60	156	176	39	215	814
07:30 AM	87	407	494	64	59	123	223	57	280	897
07:45 AM	86	410	496	71	56	127	135	28	163	786
Total	337	1502	1839	338	240	578	738	160	898	3315
08:00 AM	101	403	504	79	67	146	168	33	201	851
08:15 AM	100	412	512	77	69	146	179	33	212	870
08:30 AM	66	386	452	70	72	142	191	40	231	825
08:45 AM	96	334	430	94	94	188	167	60	227	845
Total	363	1535	1898	320	302	622	705	166	871	3391
Grand Total	700	3037	3737	658	542	1200	1443	326	1769	6706
Apprch %	18.7	81.3		54.8	45.2		81.6	18.4		
Total %	10.4	45.3	55.7	9.8	8.1	17.9	21.5	4.9	26.4	

	Winchester Road Southbound			Benton Road Westbound			Winchester Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	87	407	494	64	59	123	223	57	280	897
07:45 AM	86	410	496	71	56	127	135	28	163	786
08:00 AM	101	403	504	79	67	146	168	33	201	851
08:15 AM	100	412	512	77	69	146	179	33	212	870
Total Volume	374	1632	2006	291	251	542	705	151	856	3404
% App. Total	18.6	81.4		53.7	46.3		82.4	17.6		
PHF	.926	.990	.979	.921	.909	.928	.790	.662	.764	.949

County of Riverside
N/S: Winchester Road (SR-79)
E/W: Benton Road
Weather: Clear

File Name : 01_CRV_Winchester_Benton AM
Site Code : 20119260
Start Date : 4/23/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			08:00 AM			07:00 AM		
+0 mins.	87	407	494	79	67	146	204	36	240
+15 mins.	86	410	496	77	69	146	176	39	215
+30 mins.	101	403	504	70	72	142	223	57	280
+45 mins.	100	412	512	94	94	188	135	28	163
Total Volume	374	1632	2006	320	302	622	738	160	898
% App. Total	18.6	81.4		51.4	48.6		82.2	17.8	
PHF	.926	.990	.979	.851	.803	.827	.827	.702	.802

County of Riverside
N/S: Winchester Road (SR-79)
E/W: Benton Road
Weather: Clear

File Name : 01_CRV_Winchester_Benton PM
Site Code : 20119260
Start Date : 4/23/2019
Page No : 1

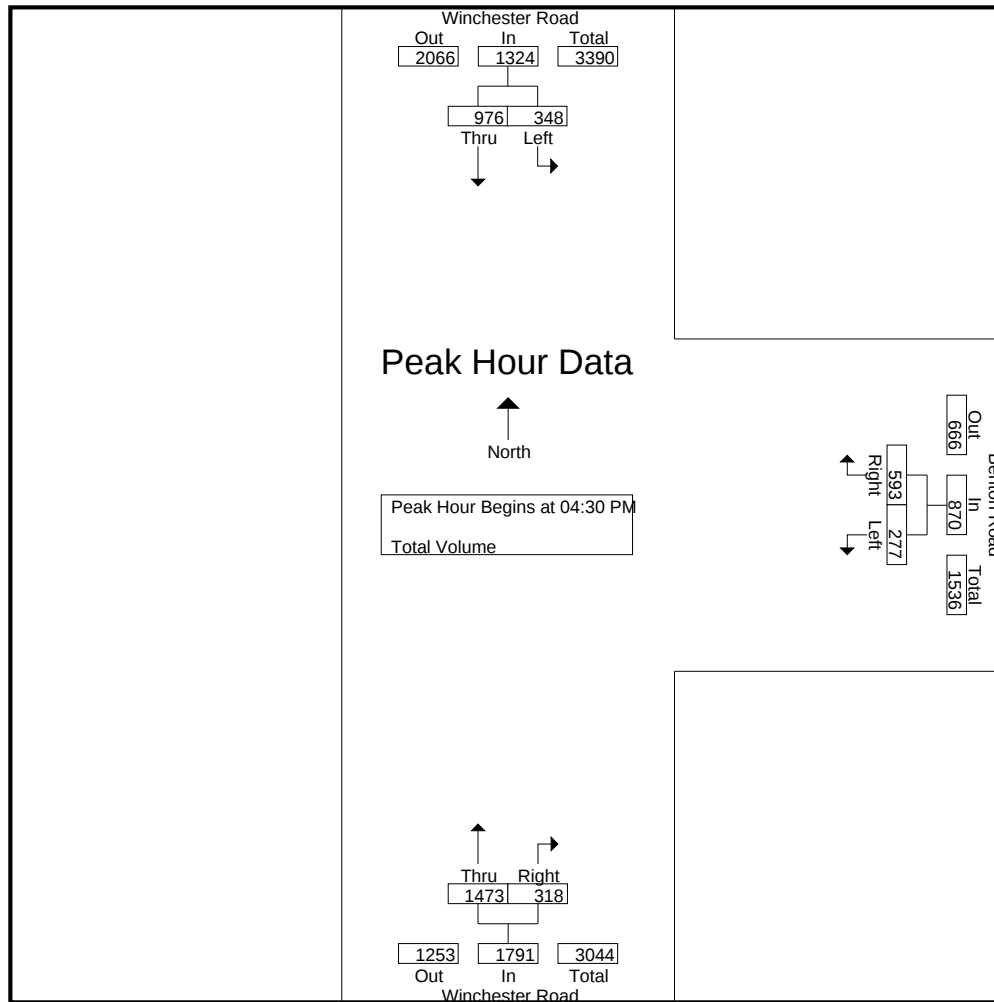
Groups Printed- Total Volume

	Winchester Road Southbound			Benton Road Westbound			Winchester Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	85	220	305	72	139	211	335	90	425	941
04:15 PM	106	233	339	67	110	177	331	91	422	938
04:30 PM	77	227	304	71	156	227	406	83	489	1020
04:45 PM	105	278	383	71	131	202	332	79	411	996
Total	373	958	1331	281	536	817	1404	343	1747	3895
05:00 PM	80	246	326	65	152	217	379	74	453	996
05:15 PM	86	225	311	70	154	224	356	82	438	973
05:30 PM	94	263	357	63	123	186	336	89	425	968
05:45 PM	90	244	334	62	105	167	335	84	419	920
Total	350	978	1328	260	534	794	1406	329	1735	3857
Grand Total	723	1936	2659	541	1070	1611	2810	672	3482	7752
Apprch %	27.2	72.8		33.6	66.4		80.7	19.3		
Total %	9.3	25	34.3	7	13.8	20.8	36.2	8.7	44.9	

	Winchester Road Southbound			Benton Road Westbound			Winchester Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	77	227	304	71	156	227	406	83	489	1020
04:45 PM	105	278	383	71	131	202	332	79	411	996
05:00 PM	80	246	326	65	152	217	379	74	453	996
05:15 PM	86	225	311	70	154	224	356	82	438	973
Total Volume	348	976	1324	277	593	870	1473	318	1791	3985
% App. Total	26.3	73.7		31.8	68.2		82.2	17.8		
PHF	.829	.878	.864	.975	.950	.958	.907	.958	.916	.977

County of Riverside
N/S: Winchester Road (SR-79)
E/W: Benton Road
Weather: Clear

File Name : 01_CRV_Winchester_Benton PM
Site Code : 20119260
Start Date : 4/23/2019
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:30 PM			04:30 PM		
+0 mins.	105	278	383	71	156	227	406	83	489
+15 mins.	80	246	326	71	131	202	332	79	411
+30 mins.	86	225	311	65	152	217	379	74	453
+45 mins.	94	263	357	70	154	224	356	82	438
Total Volume	365	1012	1377	277	593	870	1473	318	1791
% App. Total	26.5	73.5		31.8	68.2		82.2	17.8	
PHF	.869	.910	.899	.975	.950	.958	.907	.958	.916

County of Riverside
N/S: Winchester Road (SR-79)
E/W: Max Gilliss Blvd/Thompson Road
Weather: Clear

File Name : 02_CRV_Winchester_Max Gilliss_Thompson AM
Site Code : 20119260
Start Date : 4/23/2019
Page No : 1

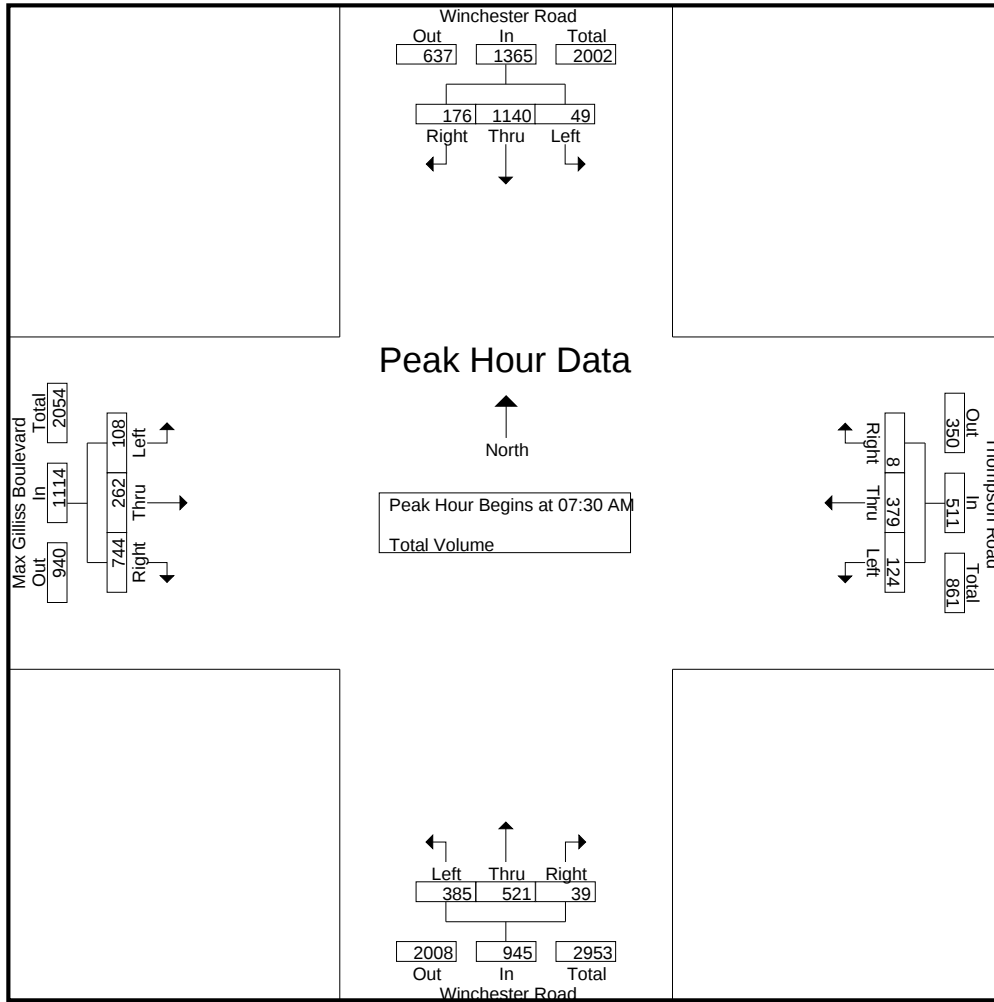
Groups Printed- Total Volume

	Winchester Road Southbound				Thompson Road Westbound				Winchester Road Northbound				Max Gilliss Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	9	251	59	319	39	111	2	152	111	140	14	265	18	38	117	173	909
07:15 AM	7	300	53	360	26	82	2	110	86	163	12	261	11	40	145	196	927
07:30 AM	15	259	42	316	24	105	4	133	107	164	16	287	27	65	185	277	1013
07:45 AM	7	310	45	362	24	104	1	129	89	107	3	199	35	57	184	276	966
Total	38	1120	199	1357	113	402	9	524	393	574	45	1012	91	200	631	922	3815
08:00 AM	19	304	49	372	32	83	1	116	89	123	9	221	22	65	157	244	953
08:15 AM	8	267	40	315	44	87	2	133	100	127	11	238	24	75	218	317	1003
08:30 AM	8	272	36	316	40	73	7	120	98	140	19	257	19	56	143	218	911
08:45 AM	10	203	35	248	29	101	2	132	108	138	14	260	18	51	181	250	890
Total	45	1046	160	1251	145	344	12	501	395	528	53	976	83	247	699	1029	3757
Grand Total	83	2166	359	2608	258	746	21	1025	788	1102	98	1988	174	447	1330	1951	7572
Apprch %	3.2	83.1	13.8		25.2	72.8	2		39.6	55.4	4.9		8.9	22.9	68.2		
Total %	1.1	28.6	4.7	34.4	3.4	9.9	0.3	13.5	10.4	14.6	1.3	26.3	2.3	5.9	17.6	25.8	

	Winchester Road Southbound				Thompson Road Westbound				Winchester Road Northbound				Max Gilliss Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	15	259	42	316	24	105	4	133	107	164	16	287	27	65	185	277	1013
07:45 AM	7	310	45	362	24	104	1	129	89	107	3	199	35	57	184	276	966
08:00 AM	19	304	49	372	32	83	1	116	89	123	9	221	22	65	157	244	953
08:15 AM	8	267	40	315	44	87	2	133	100	127	11	238	24	75	218	317	1003
Total Volume	49	1140	176	1365	124	379	8	511	385	521	39	945	108	262	744	1114	3935
% App. Total	3.6	83.5	12.9		24.3	74.2	1.6		40.7	55.1	4.1		9.7	23.5	66.8		
PHF	.645	.919	.898	.917	.705	.902	.500	.961	.900	.794	.609	.823	.771	.873	.853	.879	.971

County of Riverside
N/S: Winchester Road (SR-79)
E/W: Max Gilliss Blvd/Thompson Road
Weather: Clear

File Name : 02_CRV_Winchester_Max Gilliss_Thompson AM
Site Code : 20119260
Start Date : 4/23/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:00 AM				07:00 AM				07:30 AM			
+0 mins.	7	300	53	360	39	111	2	152	111	140	14	265	27	65	185	277
+15 mins.	15	259	42	316	26	82	2	110	86	163	12	261	35	57	184	276
+30 mins.	7	310	45	362	24	105	4	133	107	164	16	287	22	65	157	244
+45 mins.	19	304	49	372	24	104	1	129	89	107	3	199	24	75	218	317
Total Volume	48	1173	189	1410	113	402	9	524	393	574	45	1012	108	262	744	1114
% App. Total	3.4	83.2	13.4		21.6	76.7	1.7		38.8	56.7	4.4		9.7	23.5	66.8	
PHF	.632	.946	.892	.948	.724	.905	.563	.862	.885	.875	.703	.882	.771	.873	.853	.879

County of Riverside
N/S: Winchester Road (SR-79)
E/W: Max Gilliss Blvd/Thompson Road
Weather: Clear

File Name : 02_CRV_Winchester_Max Gilliss_Thompson PM
Site Code : 20119260
Start Date : 4/23/2019
Page No : 1

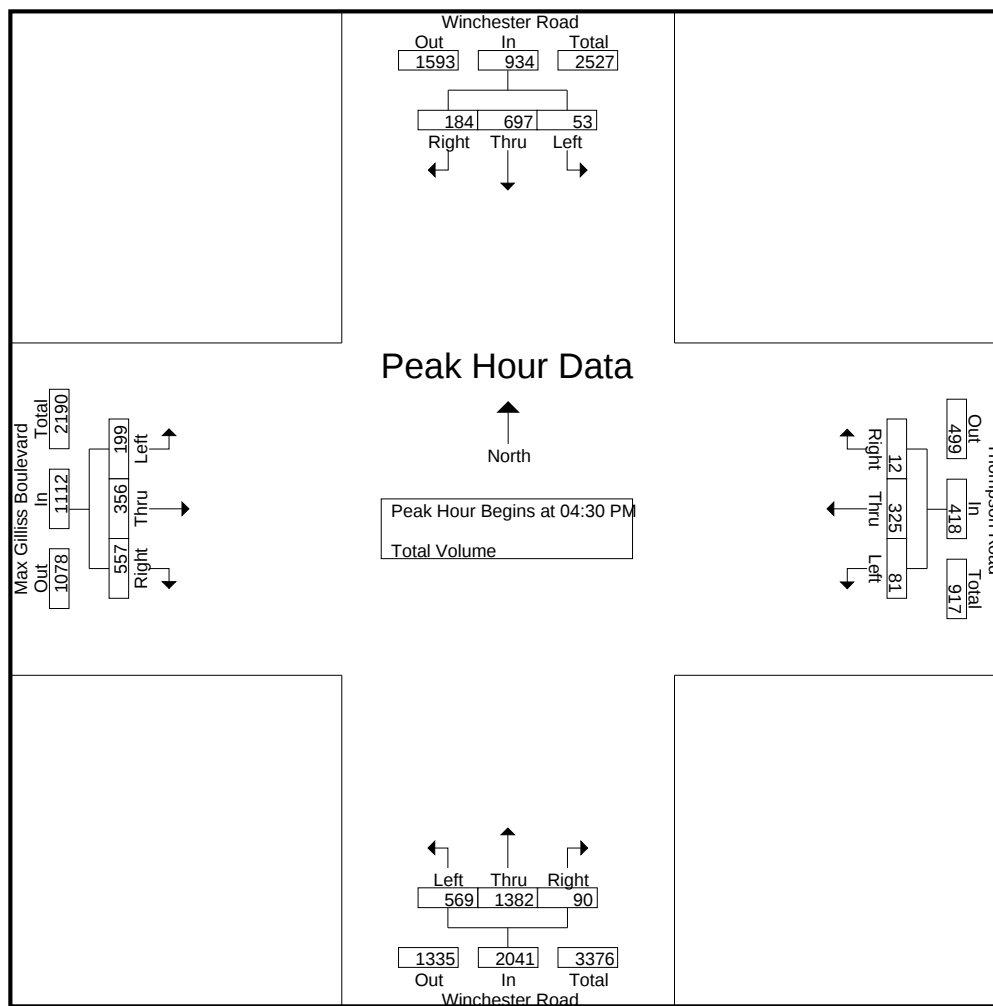
Groups Printed- Total Volume

	Winchester Road Southbound				Thompson Road Westbound				Winchester Road Northbound				Max Gilliss Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	11	157	27	195	30	83	4	117	134	319	14	467	49	93	124	266	1045
04:15 PM	9	160	24	193	21	78	5	104	132	315	29	476	65	94	141	300	1073
04:30 PM	12	195	51	258	21	76	4	101	152	386	21	559	54	83	114	251	1169
04:45 PM	13	177	39	229	24	93	4	121	127	342	28	497	46	97	161	304	1151
Total	45	689	141	875	96	330	17	443	545	1362	92	1999	214	367	540	1121	4438
05:00 PM	18	148	49	215	22	86	3	111	146	332	16	494	46	88	141	275	1095
05:15 PM	10	177	45	232	14	70	1	85	144	322	25	491	53	88	141	282	1090
05:30 PM	13	193	45	251	26	84	6	116	145	319	34	498	58	75	124	257	1122
05:45 PM	15	202	28	245	9	80	4	93	126	267	30	423	50	91	122	263	1024
Total	56	720	167	943	71	320	14	405	561	1240	105	1906	207	342	528	1077	4331
Grand Total	101	1409	308	1818	167	650	31	848	1106	2602	197	3905	421	709	1068	2198	8769
Apprch %	5.6	77.5	16.9		19.7	76.7	3.7		28.3	66.6	5		19.2	32.3	48.6		
Total %	1.2	16.1	3.5	20.7	1.9	7.4	0.4	9.7	12.6	29.7	2.2	44.5	4.8	8.1	12.2	25.1	

	Winchester Road Southbound				Thompson Road Westbound				Winchester Road Northbound				Max Gilliss Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	12	195	51	258	21	76	4	101	152	386	21	559	54	83	114	251	1169
04:45 PM	13	177	39	229	24	93	4	121	127	342	28	497	46	97	161	304	1151
05:00 PM	18	148	49	215	22	86	3	111	146	332	16	494	46	88	141	275	1095
05:15 PM	10	177	45	232	14	70	1	85	144	322	25	491	53	88	141	282	1090
Total Volume	53	697	184	934	81	325	12	418	569	1382	90	2041	199	356	557	1112	4505
% App. Total	5.7	74.6	19.7		19.4	77.8	2.9		27.9	67.7	4.4		17.9	32	50.1		
PHF	.736	.894	.902	.905	.844	.874	.750	.864	.936	.895	.804	.913	.921	.918	.865	.914	.963

County of Riverside
N/S: Winchester Road (SR-79)
E/W: Max Gilliss Blvd/Thompson Road
Weather: Clear

File Name : 02_CRV_Winchester_Max Gilliss_Thompson PM
Site Code : 20119260
Start Date : 4/23/2019
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				04:00 PM				04:30 PM				04:15 PM			
+0 mins.	18	148	49	215	30	83	4	117	152	386	21	559	65	94	141	300
+15 mins.	10	177	45	232	21	78	5	104	127	342	28	497	54	83	114	251
+30 mins.	13	193	45	251	21	76	4	101	146	332	16	494	46	97	161	304
+45 mins.	15	202	28	245	24	93	4	121	144	322	25	491	46	88	141	275
Total Volume	56	720	167	943	96	330	17	443	569	1382	90	2041	211	362	557	1130
% App. Total	5.9	76.4	17.7		21.7	74.5	3.8		27.9	67.7	4.4		18.7	32	49.3	
PHF	.778	.891	.852	.939	.800	.887	.850	.915	.936	.895	.804	.913	.812	.933	.865	.929

County of Riverside
N/S: Winchester Road (SR-79)
E/W: Via Mira Mosa/Auld Road
Weather: Clear

File Name : 03_CRV_Winchester_Via Mira Mosa_Auld AM
Site Code : 20119260
Start Date : 4/23/2019
Page No : 1

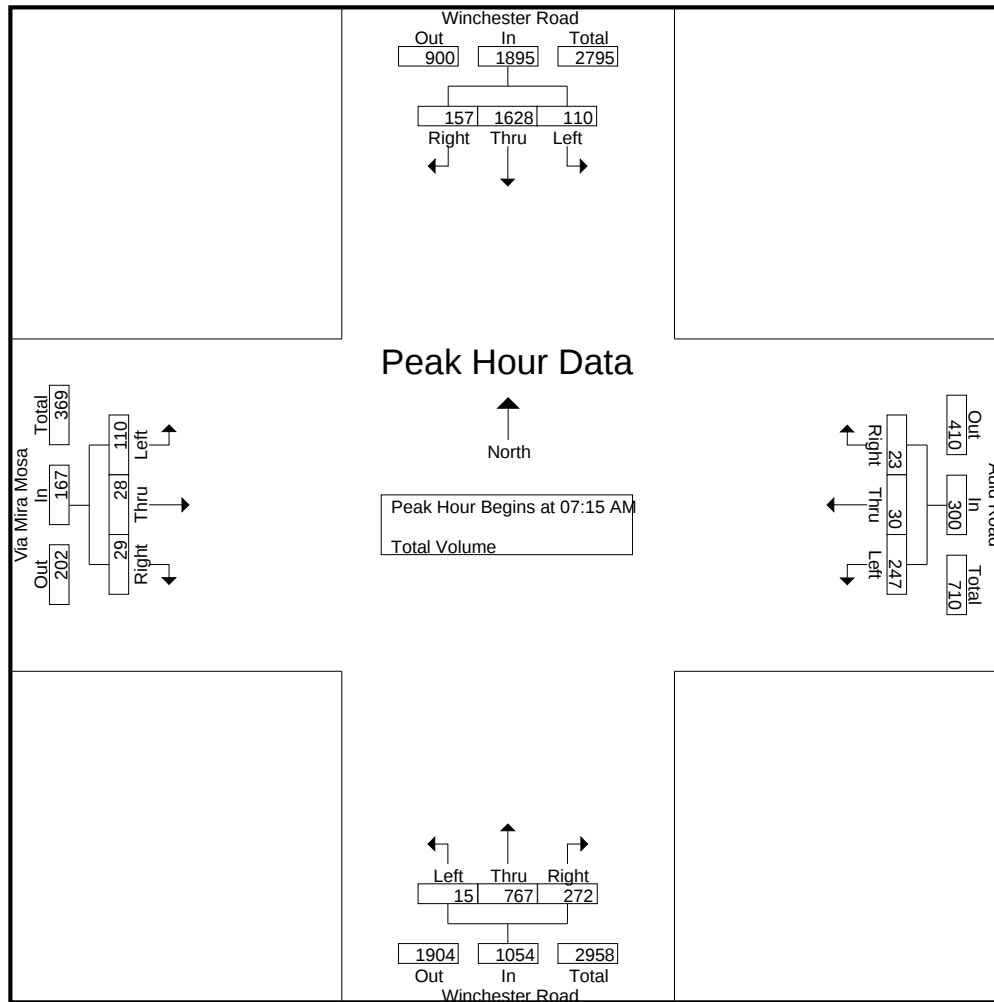
Groups Printed- Total Volume

	Winchester Road Southbound				Auld Road Westbound				Winchester Road Northbound				Via Mira Mosa Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	8	403	16	427	55	3	6	64	3	197	41	241	45	3	4	52	784
07:15 AM	27	428	32	487	63	2	7	72	3	225	66	294	20	6	7	33	886
07:30 AM	26	357	26	409	65	6	8	79	5	208	78	291	42	6	8	56	835
07:45 AM	31	403	56	490	62	7	5	74	2	165	71	238	22	9	5	36	838
Total	92	1591	130	1813	245	18	26	289	13	795	256	1064	129	24	24	177	3343
08:00 AM	26	440	43	509	57	15	3	75	5	169	57	231	26	7	9	42	857
08:15 AM	30	394	45	469	67	10	4	81	1	150	53	204	47	8	13	68	822
08:30 AM	16	356	36	408	72	5	7	84	1	178	54	233	57	5	13	75	800
08:45 AM	14	399	43	456	48	3	11	62	5	187	34	226	34	1	12	47	791
Total	86	1589	167	1842	244	33	25	302	12	684	198	894	164	21	47	232	3270
Grand Total	178	3180	297	3655	489	51	51	591	25	1479	454	1958	293	45	71	409	6613
Apprch %	4.9	87	8.1		82.7	8.6	8.6		1.3	75.5	23.2		71.6	11	17.4		
Total %	2.7	48.1	4.5	55.3	7.4	0.8	0.8	8.9	0.4	22.4	6.9	29.6	4.4	0.7	1.1	6.2	

	Winchester Road Southbound				Auld Road Westbound				Winchester Road Northbound				Via Mira Mosa Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	27	428	32	487	63	2	7	72	3	225	66	294	20	6	7	33	886
07:30 AM	26	357	26	409	65	6	8	79	5	208	78	291	42	6	8	56	835
07:45 AM	31	403	56	490	62	7	5	74	2	165	71	238	22	9	5	36	838
08:00 AM	26	440	43	509	57	15	3	75	5	169	57	231	26	7	9	42	857
Total Volume	110	1628	157	1895	247	30	23	300	15	767	272	1054	110	28	29	167	3416
% App. Total	5.8	85.9	8.3		82.3	10	7.7		1.4	72.8	25.8		65.9	16.8	17.4		
PHF	.887	.925	.701	.931	.950	.500	.719	.949	.750	.852	.872	.896	.655	.778	.806	.746	.964

County of Riverside
N/S: Winchester Road (SR-79)
E/W: Via Mira Mosa/Auld Road
Weather: Clear

File Name : 03_CRV_Winchester_Via Mira Mosa_Auld AM
Site Code : 20119260
Start Date : 4/23/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:45 AM				07:00 AM				08:00 AM			
+0 mins.	27	428	32	487	62	7	5	74	3	197	41	241	26	7	9	42
+15 mins.	26	357	26	409	57	15	3	75	3	225	66	294	47	8	13	68
+30 mins.	31	403	56	490	67	10	4	81	5	208	78	291	57	5	13	75
+45 mins.	26	440	43	509	72	5	7	84	2	165	71	238	34	1	12	47
Total Volume	110	1628	157	1895	258	37	19	314	13	795	256	1064	164	21	47	232
% App. Total	5.8	85.9	8.3		82.2	11.8	6.1		1.2	74.7	24.1		70.7	9.1	20.3	
PHF	.887	.925	.701	.931	.896	.617	.679	.935	.650	.883	.821	.905	.719	.656	.904	.773

County of Riverside
N/S: Winchester Road (SR-79)
E/W: Via Mira Mosa/Auld Road
Weather: Clear

File Name : 03_CRV_Winchester_Via Mira Mosa_Auld PM
Site Code : 20119260
Start Date : 4/23/2019
Page No : 1

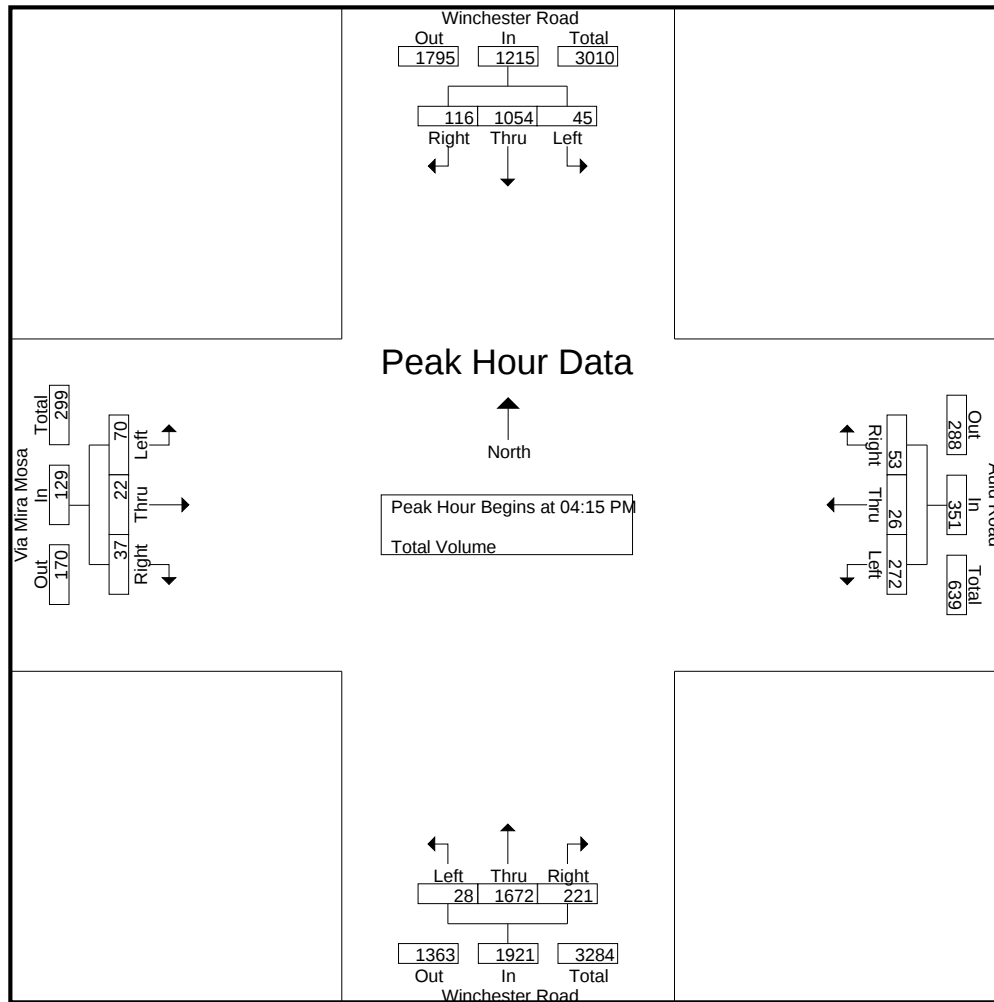
Groups Printed- Total Volume

	Winchester Road Southbound				Auld Road Westbound				Winchester Road Northbound				Via Mira Mosa Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	19	253	23	295	59	5	16	80	4	398	52	454	18	6	7	31	860
04:15 PM	12	250	29	291	38	4	10	52	7	464	64	535	12	4	10	26	904
04:30 PM	14	238	27	279	90	12	14	116	8	382	52	442	24	5	13	42	879
04:45 PM	11	304	31	346	64	3	8	75	5	421	56	482	15	6	6	27	930
Total	56	1045	110	1211	251	24	48	323	24	1665	224	1913	69	21	36	126	3573
05:00 PM	8	262	29	299	80	7	21	108	8	405	49	462	19	7	8	34	903
05:15 PM	14	246	30	290	55	10	6	71	8	413	76	497	20	11	5	36	894
05:30 PM	10	257	25	292	44	8	2	54	6	401	43	450	13	8	7	28	824
05:45 PM	10	253	26	289	44	9	7	60	8	369	53	430	27	10	10	47	826
Total	42	1018	110	1170	223	34	36	293	30	1588	221	1839	79	36	30	145	3447
Grand Total	98	2063	220	2381	474	58	84	616	54	3253	445	3752	148	57	66	271	7020
Apprch %	4.1	86.6	9.2		76.9	9.4	13.6		1.4	86.7	11.9		54.6	21	24.4		
Total %	1.4	29.4	3.1	33.9	6.8	0.8	1.2	8.8	0.8	46.3	6.3	53.4	2.1	0.8	0.9	3.9	

	Winchester Road Southbound				Auld Road Westbound				Winchester Road Northbound				Via Mira Mosa Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	12	250	29	291	38	4	10	52	7	464	64	535	12	4	10	26	904
04:30 PM	14	238	27	279	90	12	14	116	8	382	52	442	24	5	13	42	879
04:45 PM	11	304	31	346	64	3	8	75	5	421	56	482	15	6	6	27	930
05:00 PM	8	262	29	299	80	7	21	108	8	405	49	462	19	7	8	34	903
Total Volume	45	1054	116	1215	272	26	53	351	28	1672	221	1921	70	22	37	129	3616
% App. Total	3.7	86.7	9.5		77.5	7.4	15.1		1.5	87	11.5		54.3	17.1	28.7		
PHF	.804	.867	.935	.878	.756	.542	.631	.756	.875	.901	.863	.898	.729	.786	.712	.768	.972

County of Riverside
N/S: Winchester Road (SR-79)
E/W: Via Mira Mosa/Auld Road
Weather: Clear

File Name : 03_CRV_Winchester_Via Mira Mosa_Auld PM
Site Code : 20119260
Start Date : 4/23/2019
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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:30 PM				04:15 PM				05:00 PM			
+0 mins.	11	304	31	346	90	12	14	116	7	464	64	535	19	7	8	34
+15 mins.	8	262	29	299	64	3	8	75	8	382	52	442	20	11	5	36
+30 mins.	14	246	30	290	80	7	21	108	5	421	56	482	13	8	7	28
+45 mins.	10	257	25	292	55	10	6	71	8	405	49	462	27	10	10	47
Total Volume	43	1069	115	1227	289	32	49	370	28	1672	221	1921	79	36	30	145
% App. Total	3.5	87.1	9.4		78.1	8.6	13.2		1.5	87	11.5		54.5	24.8	20.7	
PHF	.768	.879	.927	.887	.803	.667	.583	.797	.875	.901	.863	.898	.731	.818	.750	.771

County of Riverside
N/S: Temeku Street
E/W: Benton Road
Weather: Clear

File Name : 04_CRV_Temeku_Benton AM
Site Code : 20119260
Start Date : 4/23/2019
Page No : 1

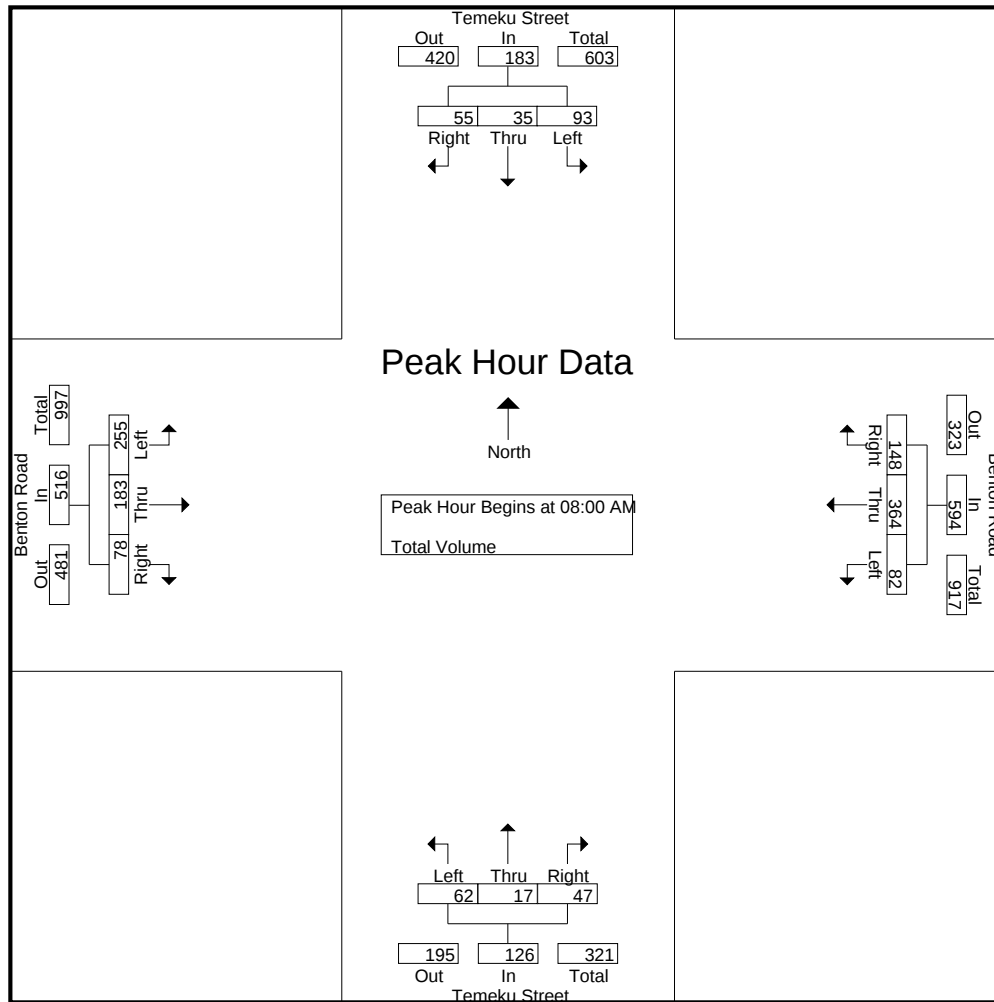
Groups Printed- Total Volume

	Temeku Street Southbound				Benton Road Westbound				Temeku Street Northbound				Benton Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	16	7	6	29	9	116	28	153	9	4	2	15	42	40	12	94	291
07:15 AM	19	8	5	32	18	100	27	145	19	3	4	26	48	45	17	110	313
07:30 AM	24	4	7	35	17	82	33	132	10	5	17	32	36	61	28	125	324
07:45 AM	30	10	4	44	24	84	32	140	19	2	10	31	47	31	21	99	314
Total	89	29	22	140	68	382	120	570	57	14	33	104	173	177	78	428	1242
08:00 AM	34	12	10	56	24	107	24	155	14	3	6	23	60	46	26	132	366
08:15 AM	17	5	14	36	22	73	32	127	16	3	15	34	60	46	23	129	326
08:30 AM	20	10	11	41	23	79	32	134	12	6	15	33	57	37	14	108	316
08:45 AM	22	8	20	50	13	105	60	178	20	5	11	36	78	54	15	147	411
Total	93	35	55	183	82	364	148	594	62	17	47	126	255	183	78	516	1419
Grand Total	182	64	77	323	150	746	268	1164	119	31	80	230	428	360	156	944	2661
Apprch %	56.3	19.8	23.8		12.9	64.1	23		51.7	13.5	34.8		45.3	38.1	16.5		
Total %	6.8	2.4	2.9	12.1	5.6	28	10.1	43.7	4.5	1.2	3	8.6	16.1	13.5	5.9	35.5	

	Temeku Street Southbound				Benton Road Westbound				Temeku Street Northbound				Benton Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	34	12	10	56	24	107	24	155	14	3	6	23	60	46	26	132	366
08:15 AM	17	5	14	36	22	73	32	127	16	3	15	34	60	46	23	129	326
08:30 AM	20	10	11	41	23	79	32	134	12	6	15	33	57	37	14	108	316
08:45 AM	22	8	20	50	13	105	60	178	20	5	11	36	78	54	15	147	411
Total Volume	93	35	55	183	82	364	148	594	62	17	47	126	255	183	78	516	1419
% App. Total	50.8	19.1	30.1		13.8	61.3	24.9		49.2	13.5	37.3		49.4	35.5	15.1		
PHF	.684	.729	.688	.817	.854	.850	.617	.834	.775	.708	.783	.875	.817	.847	.750	.878	.863

County of Riverside
N/S: Temeku Street
E/W: Benton Road
Weather: Clear

File Name : 04_CRV_Temeku_Benton AM
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Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM				08:00 AM				08:00 AM				08:00 AM			
+0 mins.	34	12	10	56	24	107	24	155	14	3	6	23	60	46	26	132
+15 mins.	17	5	14	36	22	73	32	127	16	3	15	34	60	46	23	129
+30 mins.	20	10	11	41	23	79	32	134	12	6	15	33	57	37	14	108
+45 mins.	22	8	20	50	13	105	60	178	20	5	11	36	78	54	15	147
Total Volume	93	35	55	183	82	364	148	594	62	17	47	126	255	183	78	516
% App. Total	50.8	19.1	30.1		13.8	61.3	24.9		49.2	13.5	37.3		49.4	35.5	15.1	
PHF	.684	.729	.688	.817	.854	.850	.617	.834	.775	.708	.783	.875	.817	.847	.750	.878

County of Riverside
N/S: Temeku Street
E/W: Benton Road
Weather: Clear

File Name : 04_CRV_Temeku_Benton PM
Site Code : 20119260
Start Date : 4/23/2019
Page No : 1

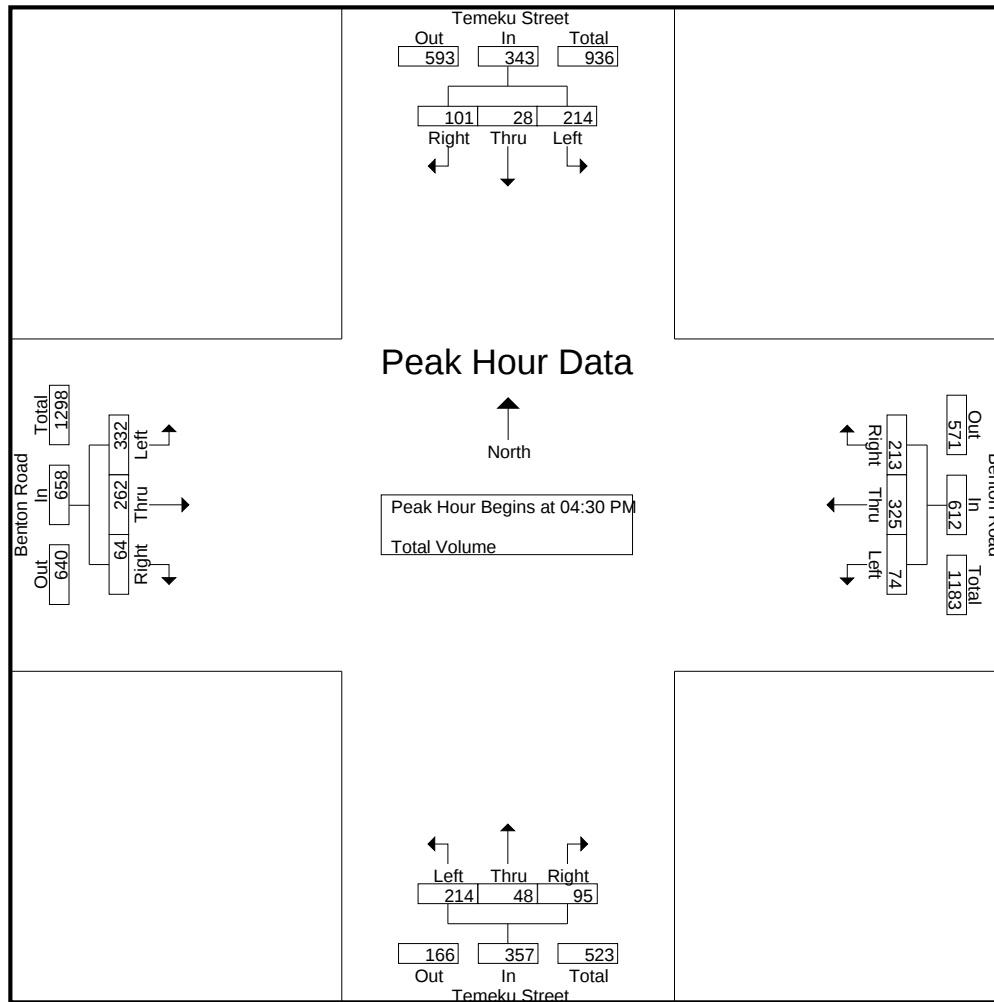
Groups Printed- Total Volume

	Temeku Street Southbound				Benton Road Westbound				Temeku Street Northbound				Benton Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	51	2	22	75	7	78	37	122	31	13	17	61	104	62	15	181	439
04:15 PM	47	9	21	77	15	57	41	113	27	12	19	58	89	72	14	175	423
04:30 PM	62	7	21	90	17	92	42	151	65	8	15	88	89	56	16	161	490
04:45 PM	54	9	24	87	20	83	65	168	41	13	30	84	97	89	15	201	540
Total	214	27	88	329	59	310	185	554	164	46	81	291	379	279	60	718	1892
05:00 PM	47	5	28	80	13	72	50	135	69	9	27	105	71	49	18	138	458
05:15 PM	51	7	28	86	24	78	56	158	39	18	23	80	75	68	15	158	482
05:30 PM	46	11	29	86	17	71	45	133	33	9	15	57	81	72	19	172	448
05:45 PM	54	10	18	82	21	61	47	129	26	10	25	61	79	70	17	166	438
Total	198	33	103	334	75	282	198	555	167	46	90	303	306	259	69	634	1826
Grand Total	412	60	191	663	134	592	383	1109	331	92	171	594	685	538	129	1352	3718
Apprch %	62.1	9	28.8		12.1	53.4	34.5		55.7	15.5	28.8		50.7	39.8	9.5		
Total %	11.1	1.6	5.1	17.8	3.6	15.9	10.3	29.8	8.9	2.5	4.6	16	18.4	14.5	3.5	36.4	

	Temeku Street Southbound				Benton Road Westbound				Temeku Street Northbound				Benton Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	62	7	21	90	17	92	42	151	65	8	15	88	89	56	16	161	490
04:45 PM	54	9	24	87	20	83	65	168	41	13	30	84	97	89	15	201	540
05:00 PM	47	5	28	80	13	72	50	135	69	9	27	105	71	49	18	138	458
05:15 PM	51	7	28	86	24	78	56	158	39	18	23	80	75	68	15	158	482
Total Volume	214	28	101	343	74	325	213	612	214	48	95	357	332	262	64	658	1970
% App. Total	62.4	8.2	29.4		12.1	53.1	34.8		59.9	13.4	26.6		50.5	39.8	9.7		
PHF	.863	.778	.902	.953	.771	.883	.819	.911	.775	.667	.792	.850	.856	.736	.889	.818	.912

County of Riverside
N/S: Temeku Street
E/W: Benton Road
Weather: Clear

File Name : 04_CRV_Temeku_Benton PM
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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:00 PM			
+0 mins.	62	7	21	90	17	92	42	151	65	8	15	88	104	62	15	181
+15 mins.	54	9	24	87	20	83	65	168	41	13	30	84	89	72	14	175
+30 mins.	47	5	28	80	13	72	50	135	69	9	27	105	89	56	16	161
+45 mins.	51	7	28	86	24	78	56	158	39	18	23	80	97	89	15	201
Total Volume	214	28	101	343	74	325	213	612	214	48	95	357	379	279	60	718
% App. Total	62.4	8.2	29.4		12.1	53.1	34.8		59.9	13.4	26.6		52.8	38.9	8.4	
PHF	.863	.778	.902	.953	.771	.883	.819	.911	.775	.667	.792	.850	.911	.784	.938	.893

APPENDIX C

EXISTING (2019) CONDITIONS
INTERSECTION ANALYSIS CALCULATION WORKSHEETS

Lanes, Volumes, Timings

Existing (2019) AM Peak Hour

1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	291	251	705	151	374	1634
Future Volume (vph)	291	251	705	151	374	1634
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		550	300	
Storage Lanes	1	1		1	1	
Taper Length (ft)	90				180	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	45		55			55
Link Distance (ft)	673		685			1232
Travel Time (s)	10.2		8.5			15.3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	10%	2%	2%	10%
Shared Lane Traffic (%)						
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	27.8	10.1	48.5	48.5	10.1	20.0
Total Split (s)	27.8	43.0	49.2	49.2	43.0	92.2
Total Split (%)	23.2%	35.8%	41.0%	41.0%	35.8%	76.8%
Yellow Time (s)	4.8	4.1	5.5	5.5	4.1	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.1	6.5	6.5	5.1	6.5
Lead/Lag		Lead	Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

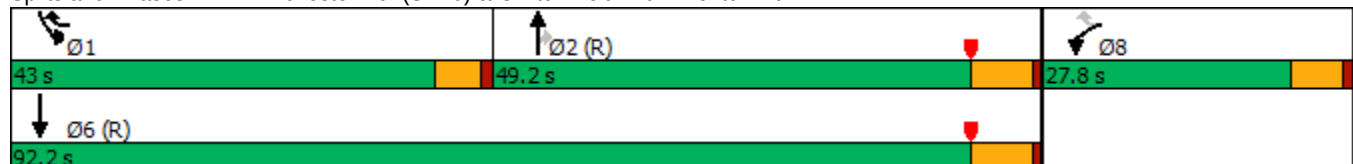
Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.



HCM 6th Signalized Intersection Summary

Existing (2019) AM Peak Hour

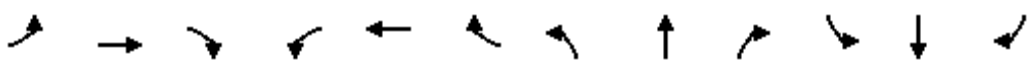
1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	291	251	705	151	374	1634
Future Volume (veh/h)	291	251	705	151	374	1634
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1752	1870	1870	1752
Adj Flow Rate, veh/h	306	264	742	159	394	1720
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	10	2	2	10
Cap, veh/h	517	605	1657	750	422	2636
Arrive On Green	0.15	0.15	0.47	0.47	0.24	0.75
Sat Flow, veh/h	3563	1585	3504	1585	1781	3504
Grp Volume(v), veh/h	306	264	742	159	394	1720
Grp Sat Flow(s),veh/h/ln	1781	1585	1752	1585	1781	1752
Q Serve(g_s), s	9.6	14.8	17.0	7.1	26.0	28.7
Cycle Q Clear(g_c), s	9.6	14.8	17.0	7.1	26.0	28.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	517	605	1657	750	422	2636
V/C Ratio(X)	0.59	0.44	0.45	0.21	0.93	0.65
Avail Cap(c_a), veh/h	653	666	1657	750	563	2636
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.0	27.5	21.1	18.5	44.9	7.2
Incr Delay (d2), s/veh	0.4	0.2	0.9	0.6	17.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	5.4	6.6	2.5	12.8	7.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	48.4	27.7	22.0	19.2	62.0	8.5
LnGrp LOS	D	C	C	B	E	A
Approach Vol, veh/h	570		901			2114
Approach Delay, s/veh	38.8		21.5			18.5
Approach LOS	D		C			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	33.5	63.3			96.8	23.2
Change Period (Y+Rc), s	5.1	6.5			6.5	5.8
Max Green Setting (Gmax), s	37.9	42.7			85.7	22.0
Max Q Clear Time (g_c+I1), s	28.0	19.0			30.7	16.8
Green Ext Time (p_c), s	0.4	3.1			10.4	0.6
Intersection Summary						
HCM 6th Ctrl Delay			22.5			
HCM 6th LOS			C			

Lanes, Volumes, Timings

Existing (2019) AM Peak Hour

2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	262	744	124	379	8	385	532	39	49	1140	176
Future Volume (vph)	108	262	744	124	379	8	385	532	39	49	1140	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	195		0	150		0	430		50	630		105
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	60			120			120			120		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		692			817			1397			2514	
Travel Time (s)		10.5			12.4			17.3			31.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	27.8	10.1	10.1	10.8		10.1	38.5	38.5	10.1	47.5	47.5
Total Split (s)	12.0	28.0	29.0	13.0	29.0		29.0	64.9	64.9	14.1	50.0	50.0
Total Split (%)	10.0%	23.3%	24.2%	10.8%	24.2%		24.2%	54.1%	54.1%	11.8%	41.7%	41.7%
Yellow Time (s)	4.1	4.8	4.1	4.1	4.8		4.1	5.5	5.5	4.1	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.1	5.8		5.1	6.5	6.5	5.1	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 52 (43%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.



HCM 6th Signalized Intersection Summary
2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

Existing (2019) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	262	744	124	379	8	385	532	39	49	1140	176
Future Volume (veh/h)	108	262	744	124	379	8	385	532	39	49	1140	176
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1870
Adj Flow Rate, veh/h	111	270	767	128	391	8	397	548	40	51	1175	181
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	2
Cap, veh/h	102	346	609	117	353	7	355	1839	832	66	1270	575
Arrive On Green	0.06	0.19	0.19	0.07	0.19	0.19	0.20	0.52	0.52	0.04	0.36	0.36
Sat Flow, veh/h	1781	1870	1585	1781	1826	37	1781	3504	1585	1781	3504	1585
Grp Volume(v), veh/h	111	270	767	128	0	399	397	548	40	51	1175	181
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1864	1781	1752	1585	1781	1752	1585
Q Serve(g_s), s	6.9	16.5	22.2	7.9	0.0	23.2	23.9	10.6	1.5	3.4	38.6	9.9
Cycle Q Clear(g_c), s	6.9	16.5	22.2	7.9	0.0	23.2	23.9	10.6	1.5	3.4	38.6	9.9
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	102	346	609	117	0	360	355	1839	832	66	1270	575
V/C Ratio(X)	1.08	0.78	1.26	1.09	0.00	1.11	1.12	0.30	0.05	0.78	0.93	0.32
Avail Cap(c_a), veh/h	102	346	609	117	0	360	355	1839	832	134	1270	575
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.5	46.6	37.0	56.0	0.0	48.4	48.0	16.1	13.9	57.3	36.7	27.5
Incr Delay (d2), s/veh	113.3	10.0	129.7	109.8	0.0	79.6	84.0	0.4	0.1	7.1	12.7	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	8.4	38.7	7.0	0.0	18.4	18.3	4.0	0.5	1.6	17.5	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	169.9	56.6	166.7	165.9	0.0	128.0	132.0	16.5	14.0	64.4	49.4	29.0
LnGrp LOS	F	E	F	F	A	F	F	B	B	E	D	C
Approach Vol, veh/h	1148			527			985			1407		
Approach Delay, s/veh	141.1			137.2			63.0			47.3		
Approach LOS	F			F			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	69.5	13.0	28.0	29.0	50.0	12.0	29.0				
Change Period (Y+Rc), s	5.1	6.5	5.1	5.8	5.1	6.5	5.1	5.8				
Max Green Setting (Gmax), s	9.0	58.4	7.9	22.2	23.9	43.5	6.9	23.2				
Max Q Clear Time (g_c+I1), s	5.4	12.6	9.9	24.2	25.9	40.6	8.9	25.2				
Green Ext Time (p_c), s	0.0	2.1	0.0	0.0	0.0	1.6	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	89.2											
HCM 6th LOS	F											

Lanes, Volumes, Timings
3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

Existing (2019) AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	28	29	247	30	23	15	767	272	110	1628	157
Future Volume (vph)	110	28	29	247	30	23	15	767	272	110	1628	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	95		0	345		0	200		200	190		100
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	60			120			105			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		635			679			843			1788	
Travel Time (s)		14.4			15.4			10.5			22.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.0	20.0		40.0	40.0		10.0	31.4	31.4	10.0	31.4	31.4
Total Split (s)	40.0	40.0		40.0	40.0		10.0	60.0	60.0	20.0	70.0	70.0
Total Split (%)	33.3%	33.3%		33.3%	33.3%		8.3%	50.0%	50.0%	16.7%	58.3%	58.3%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	5.4	5.4	4.0	5.4	5.4
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	6.4	6.4	5.0	6.4	6.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

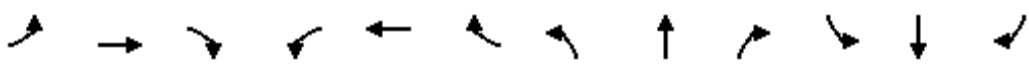
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 72 (60%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated

Splits and Phases: 3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.



HCM 6th Signalized Intersection Summary
3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

Existing (2019) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	28	29	247	30	23	15	767	272	110	1628	157
Future Volume (veh/h)	110	28	29	247	30	23	15	767	272	110	1628	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1870
Adj Flow Rate, veh/h	115	29	30	257	31	24	16	799	283	115	1696	164
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	2
Cap, veh/h	343	198	204	339	229	177	31	1927	872	141	2143	969
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.02	0.55	0.55	0.08	0.61	0.61
Sat Flow, veh/h	1349	842	871	1344	977	757	1781	3504	1585	1781	3504	1585
Grp Volume(v), veh/h	115	0	59	257	0	55	16	799	283	115	1696	164
Grp Sat Flow(s),veh/h/ln	1349	0	1714	1344	0	1734	1781	1752	1585	1781	1752	1585
Q Serve(g_s), s	8.8	0.0	3.3	22.5	0.0	3.0	1.1	16.0	11.7	7.6	43.7	5.4
Cycle Q Clear(g_c), s	11.9	0.0	3.3	25.8	0.0	3.0	1.1	16.0	11.7	7.6	43.7	5.4
Prop In Lane	1.00		0.51	1.00		0.44	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	343	0	402	339	0	407	31	1927	872	141	2143	969
V/C Ratio(X)	0.34	0.00	0.15	0.76	0.00	0.14	0.52	0.41	0.32	0.82	0.79	0.17
Avail Cap(c_a), veh/h	420	0	500	415	0	506	74	1927	872	223	2143	969
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.0	0.0	36.4	46.6	0.0	36.3	58.5	15.7	14.8	54.4	17.5	10.1
Incr Delay (d2), s/veh	0.2	0.0	0.1	4.8	0.0	0.1	5.0	0.7	1.0	5.9	3.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	1.4	7.9	0.0	1.3	0.5	5.9	4.0	3.5	15.7	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.2	0.0	36.5	51.4	0.0	36.4	63.5	16.4	15.8	60.4	20.6	10.5
LnGrp LOS	D	A	D	D	A	D	E	B	B	E	C	B
Approach Vol, veh/h	174			312			1098			1975		
Approach Delay, s/veh	39.6			48.8			16.9			22.1		
Approach LOS	D			D			B			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.5	72.4		33.1	7.1	79.8		33.1				
Change Period (Y+Rc), s	5.0	6.4		5.0	5.0	6.4		5.0				
Max Green Setting (Gmax), s	15.0	53.6		35.0	5.0	63.6		35.0				
Max Q Clear Time (g_c+I1), s	9.6	18.0		13.9	3.1	45.7		27.8				
Green Ext Time (p_c), s	0.1	8.3		0.3	0.0	12.8		0.4				
Intersection Summary												
HCM 6th Ctrl Delay	23.7											
HCM 6th LOS	C											

Lanes, Volumes, Timings
4: Clinton Keith Rd. - Benton Rd.

Existing (2019) AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	183	78	82	364	148	62	17	47	93	35	55
Future Volume (vph)	255	183	78	82	364	148	62	17	47	93	35	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		50	120		50	60		0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (ft)	60			60			60			60		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		673			696			285			219	
Travel Time (s)		10.2			10.5			6.5			5.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Shared Lane Traffic (%)												23%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	30.0	45.0	45.0	25.0	40.0	40.0	20.0	23.0	23.0	27.0	30.0	30.0
Total Split (%)	25.0%	37.5%	37.5%	20.8%	33.3%	33.3%	16.7%	19.2%	19.2%	22.5%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (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
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max

Intersection Summary

Area Type: Other

Cycle Length: 120

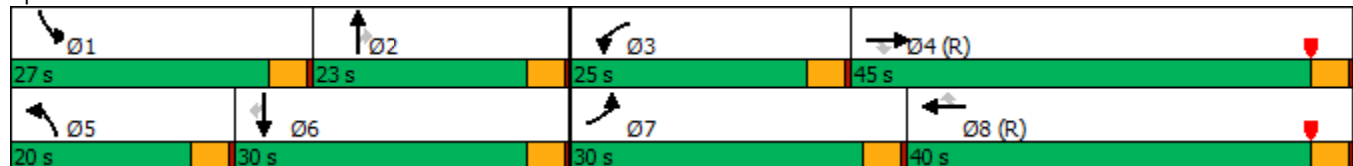
Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 4: Clinton Keith Rd. - Benton Rd.



HCM 6th Signalized Intersection Summary 4: Clinton Keith Rd. - Benton Rd.

Existing (2019) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 							
Traffic Volume (veh/h)	255	183	78	82	364	148	62	17	47	93	35	55
Future Volume (veh/h)	255	183	78	82	364	148	62	17	47	93	35	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	297	213	91	95	423	172	72	20	55	108	58	52
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	371	1885	841	120	1743	777	93	361	306	135	405	343
Arrive On Green	0.11	0.53	0.53	0.07	0.49	0.49	0.05	0.19	0.19	0.08	0.22	0.22
Sat Flow, veh/h	3456	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	297	213	91	95	423	172	72	20	55	108	58	52
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	10.1	3.6	3.4	6.3	8.3	7.4	4.8	1.0	3.5	7.2	3.0	3.2
Cycle Q Clear(g_c), s	10.1	3.6	3.4	6.3	8.3	7.4	4.8	1.0	3.5	7.2	3.0	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	371	1885	841	120	1743	777	93	361	306	135	405	343
V/C Ratio(X)	0.80	0.11	0.11	0.79	0.24	0.22	0.78	0.06	0.18	0.80	0.14	0.15
Avail Cap(c_a), veh/h	749	1885	841	312	1743	777	238	361	306	341	405	343
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.69	0.69	0.69	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.3	14.1	14.0	55.1	17.7	17.5	56.2	39.5	40.5	54.6	38.0	38.1
Incr Delay (d2), s/veh	2.8	0.1	0.2	10.9	0.3	0.7	12.9	0.3	1.3	10.3	0.7	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	1.4	1.2	3.1	3.3	2.7	2.5	0.5	1.4	3.6	1.5	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.1	14.2	14.2	66.1	18.0	18.1	69.0	39.8	41.8	64.8	38.7	39.0
LnGrp LOS	E	B	B	E	B	B	E	D	D	E	D	D
Approach Vol, veh/h	601			690			147			218		
Approach Delay, s/veh	34.4			24.7			54.9			51.7		
Approach LOS	C			C			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.1	27.2	12.1	67.7	10.3	30.0	16.9	62.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	23.0	19.0	21.0	41.0	16.0	26.0	26.0	36.0				
Max Q Clear Time (g_c+I1), s	9.2	5.5	8.3	5.6	6.8	5.2	12.1	10.3				
Green Ext Time (p_c), s	0.2	0.2	0.1	1.5	0.1	0.4	0.8	3.1				
Intersection Summary												
HCM 6th Ctrl Delay	34.4											
HCM 6th LOS	C											
Notes												

Lanes, Volumes, Timings

Existing (2019) PM Peak Hour

1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	277	593	1473	318	348	987
Future Volume (vph)	277	593	1473	318	348	987
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		550	300	
Storage Lanes	1	1		1	1	
Taper Length (ft)	90				180	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	45		55			55
Link Distance (ft)	673		685			1232
Travel Time (s)	10.2		8.5			15.3
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	10%	2%	2%	10%
Shared Lane Traffic (%)						
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	27.8	10.1	48.5	48.5	10.1	20.0
Total Split (s)	27.8	31.0	61.2	61.2	31.0	92.2
Total Split (%)	23.2%	25.8%	51.0%	51.0%	25.8%	76.8%
Yellow Time (s)	4.8	4.1	5.5	5.5	4.1	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.1	6.5	6.5	5.1	6.5
Lead/Lag		Lead	Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 116 (97%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.



HCM 6th Signalized Intersection Summary

Existing (2019) PM Peak Hour

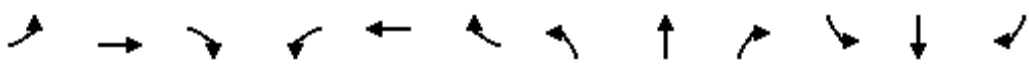
1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↕↕	↔	↔	↕↕
Traffic Volume (veh/h)	277	593	1473	318	348	987
Future Volume (veh/h)	277	593	1473	318	348	987
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1752	1870	1870	1752
Adj Flow Rate, veh/h	283	605	1503	324	355	1007
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	10	2	2	10
Cap, veh/h	653	628	1608	727	379	2502
Arrive On Green	0.18	0.18	0.46	0.46	0.21	0.71
Sat Flow, veh/h	3563	1585	3504	1585	1781	3504
Grp Volume(v), veh/h	283	605	1503	324	355	1007
Grp Sat Flow(s),veh/h/ln	1781	1585	1752	1585	1781	1752
Q Serve(g_s), s	8.5	22.0	48.8	16.7	23.5	13.8
Cycle Q Clear(g_c), s	8.5	22.0	48.8	16.7	23.5	13.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	653	628	1608	727	379	2502
V/C Ratio(X)	0.43	0.96	0.93	0.45	0.94	0.40
Avail Cap(c_a), veh/h	653	628	1608	727	384	2502
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	35.4	30.8	22.1	46.4	6.9
Incr Delay (d2), s/veh	0.1	23.3	11.5	2.0	29.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	20.3	21.1	6.1	13.0	4.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.6	58.7	42.3	24.1	76.0	7.4
LnGrp LOS	D	E	D	C	E	A
Approach Vol, veh/h	888		1827			1362
Approach Delay, s/veh	53.9		39.1			25.2
Approach LOS	D		D			C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	30.6	61.6			92.2	27.8
Change Period (Y+Rc), s	5.1	6.5			6.5	5.8
Max Green Setting (Gmax), s	25.9	54.7			85.7	22.0
Max Q Clear Time (g_c+I1), s	25.5	50.8			15.8	24.0
Green Ext Time (p_c), s	0.0	2.6			4.4	0.0
Intersection Summary						
HCM 6th Ctrl Delay			37.7			
HCM 6th LOS			D			

Lanes, Volumes, Timings

Existing (2019) PM Peak Hour

2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	356	557	81	325	12	569	1407	90	53	697	184
Future Volume (vph)	199	356	557	81	325	12	569	1407	90	53	697	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	195		0	150		0	430		50	630		105
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	60			120			120			120		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		692			817			1397			2514	
Travel Time (s)		10.5			12.4			17.3			31.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	27.8	10.1	10.1	10.8		10.1	38.5	38.5	10.1	47.5	47.5
Total Split (s)	15.0	28.0	29.0	10.1	23.1		29.0	71.1	71.1	10.8	52.9	52.9
Total Split (%)	12.5%	23.3%	24.2%	8.4%	19.3%		24.2%	59.3%	59.3%	9.0%	44.1%	44.1%
Yellow Time (s)	4.1	4.8	4.1	4.1	4.8		4.1	5.5	5.5	4.1	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.1	5.8		5.1	6.5	6.5	5.1	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 32 (27%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

10.8 s	71.1 s		10.1 s	28 s		15 s	23.1 s		15 s	23.1 s	
29 s	52.9 s		15 s	23.1 s		15 s	23.1 s		15 s	23.1 s	

HCM 6th Signalized Intersection Summary
2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

Existing (2019) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	199	356	557	81	325	12	569	1407	90	53	697	184
Future Volume (veh/h)	199	356	557	81	325	12	569	1407	90	53	697	184
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1870
Adj Flow Rate, veh/h	207	371	580	84	339	12	593	1466	94	55	726	192
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	2
Cap, veh/h	147	346	609	74	259	9	355	1913	866	71	1355	613
Arrive On Green	0.08	0.19	0.19	0.04	0.14	0.14	0.20	0.55	0.55	0.04	0.39	0.39
Sat Flow, veh/h	1781	1870	1585	1781	1795	64	1781	3504	1585	1781	3504	1585
Grp Volume(v), veh/h	207	371	580	84	0	351	593	1466	94	55	726	192
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1859	1781	1752	1585	1781	1752	1585
Q Serve(g_s), s	9.9	22.2	22.2	5.0	0.0	17.3	23.9	39.2	3.4	3.7	19.2	10.1
Cycle Q Clear(g_c), s	9.9	22.2	22.2	5.0	0.0	17.3	23.9	39.2	3.4	3.7	19.2	10.1
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	147	346	609	74	0	268	355	1913	866	71	1355	613
V/C Ratio(X)	1.41	1.07	0.95	1.13	0.00	1.31	1.67	0.77	0.11	0.78	0.54	0.31
Avail Cap(c_a), veh/h	147	346	609	74	0	268	355	1913	866	85	1355	613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.0	48.9	35.9	57.5	0.0	51.4	48.0	21.3	13.1	57.1	28.5	25.7
Incr Delay (d2), s/veh	219.3	68.9	25.0	144.7	0.0	163.6	314.3	3.0	0.3	25.3	1.5	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.3	16.6	19.7	5.2	0.0	20.0	41.0	14.8	1.2	2.1	7.8	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	274.3	117.8	60.8	202.2	0.0	214.9	362.4	24.2	13.4	82.4	30.0	27.0
LnGrp LOS	F	F	E	F	A	F	F	C	B	F	C	C
Approach Vol, veh/h	1158				435				2153			
Approach Delay, s/veh	117.3				212.5				116.9			
Approach LOS	F				F				F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	72.0	10.1	28.0	29.0	52.9	15.0	23.1				
Change Period (Y+Rc), s	5.1	6.5	5.1	5.8	5.1	6.5	5.1	5.8				
Max Green Setting (Gmax), s	5.7	64.6	5.0	22.2	23.9	46.4	9.9	17.3				
Max Q Clear Time (g_c+I1), s	5.7	41.2	7.0	24.2	25.9	21.2	11.9	19.3				
Green Ext Time (p_c), s	0.0	7.1	0.0	0.0	0.0	3.1	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	108.4											
HCM 6th LOS	F											

Lanes, Volumes, Timings
3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

Existing (2019) PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	22	37	272	26	53	28	1672	221	45	1054	116
Future Volume (vph)	70	22	37	272	26	53	28	1672	221	45	1054	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	95		0	345		0	200		200	190		100
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	60			120			105			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		635			679			843			1788	
Travel Time (s)		14.4			15.4			10.5			22.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.0	20.0		40.0	40.0		10.0	31.4	31.4	10.0	31.4	31.4
Total Split (s)	40.0	40.0		40.0	40.0		11.0	70.0	70.0	10.0	69.0	69.0
Total Split (%)	33.3%	33.3%		33.3%	33.3%		9.2%	58.3%	58.3%	8.3%	57.5%	57.5%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	5.4	5.4	4.0	5.4	5.4
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	6.4	6.4	5.0	6.4	6.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 60 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 105

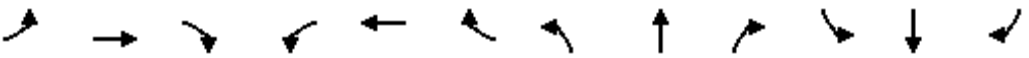
Control Type: Actuated-Coordinated

Splits and Phases: 3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.



HCM 6th Signalized Intersection Summary 3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

Existing (2019) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	22	37	272	26	53	28	1672	221	45	1054	116
Future Volume (veh/h)	70	22	37	272	26	53	28	1672	221	45	1054	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1870
Adj Flow Rate, veh/h	72	23	38	280	27	55	29	1724	228	46	1087	120
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	2
Cap, veh/h	342	160	265	361	139	283	46	2024	915	59	2049	927
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.03	0.58	0.58	0.03	0.58	0.58
Sat Flow, veh/h	1316	634	1048	1341	550	1119	1781	3504	1585	1781	3504	1585
Grp Volume(v), veh/h	72	0	61	280	0	82	29	1724	228	46	1087	120
Grp Sat Flow(s),veh/h/ln	1316	0	1682	1341	0	1669	1781	1752	1585	1781	1752	1585
Q Serve(g_s), s	5.5	0.0	3.4	24.5	0.0	4.6	1.9	49.1	8.5	3.1	22.4	4.1
Cycle Q Clear(g_c), s	10.1	0.0	3.4	27.9	0.0	4.6	1.9	49.1	8.5	3.1	22.4	4.1
Prop In Lane	1.00		0.62	1.00		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	342	0	425	361	0	422	46	2024	915	59	2049	927
V/C Ratio(X)	0.21	0.00	0.14	0.78	0.00	0.19	0.63	0.85	0.25	0.78	0.53	0.13
Avail Cap(c_a), veh/h	393	0	491	414	0	487	89	2024	915	74	2049	927
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.2	0.0	34.8	45.6	0.0	35.2	57.9	21.1	12.5	57.6	15.0	11.2
Incr Delay (d2), s/veh	0.1	0.0	0.1	6.6	0.0	0.1	5.2	4.8	0.7	25.6	1.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	1.4	8.8	0.0	1.9	0.9	18.4	2.8	1.8	8.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.3	0.0	34.8	52.2	0.0	35.3	63.1	25.9	13.2	83.2	16.0	11.5
LnGrp LOS	D	A	C	D	A	D	E	C	B	F	B	B
Approach Vol, veh/h	133			362			1981			1253		
Approach Delay, s/veh	37.3			48.4			24.9			18.0		
Approach LOS	D			D			C			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	75.7		35.3	8.1	76.6		35.3				
Change Period (Y+Rc), s	5.0	6.4		5.0	5.0	6.4		5.0				
Max Green Setting (Gmax), s	5.0	63.6		35.0	6.0	62.6		35.0				
Max Q Clear Time (g_c+I1), s	5.1	51.1		12.1	3.9	24.4		29.9				
Green Ext Time (p_c), s	0.0	9.8		0.3	0.0	11.0		0.4				
Intersection Summary												
HCM 6th Ctrl Delay	25.3											
HCM 6th LOS	C											

Lanes, Volumes, Timings
4: Clinton Keith Rd. - Benton Rd.

Existing (2019) PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	332	262	64	74	325	213	214	48	95	214	28	101
Future Volume (vph)	332	262	64	74	325	213	214	48	95	214	28	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		50	120		50	60		0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (ft)	60			60			60			60		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		673			696			285			219	
Travel Time (s)		10.2			10.5			6.5			5.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												38%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	11.0	21.0	21.0	11.0	21.0	21.0	13.0	20.0	20.0	13.0	20.0	20.0
Total Split (%)	16.9%	32.3%	32.3%	16.9%	32.3%	32.3%	20.0%	30.8%	30.8%	20.0%	30.8%	30.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (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
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 4: Clinton Keith Rd. - Benton Rd.

			
Ø1	Ø2	Ø3	Ø4 (R)
13 s	20 s	11 s	21 s
			
Ø5	Ø6	Ø7	Ø8 (R)
13 s	20 s	11 s	21 s

HCM 6th Signalized Intersection Summary 4: Clinton Keith Rd. - Benton Rd.

Existing (2019) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	332	262	64	74	325	213	214	48	95	214	28	101
Future Volume (veh/h)	332	262	64	74	325	213	214	48	95	214	28	101
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	365	288	70	81	357	234	235	53	104	235	91	71
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	372	1105	493	104	929	415	247	460	390	247	460	390
Arrive On Green	0.11	0.31	0.31	0.06	0.26	0.26	0.14	0.25	0.25	0.14	0.25	0.25
Sat Flow, veh/h	3456	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	365	288	70	81	357	234	235	53	104	235	91	71
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	6.8	4.0	2.1	2.9	5.4	8.3	8.5	1.4	3.4	8.5	2.5	2.3
Cycle Q Clear(g_c), s	6.8	4.0	2.1	2.9	5.4	8.3	8.5	1.4	3.4	8.5	2.5	2.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	372	1105	493	104	929	415	247	460	390	247	460	390
V/C Ratio(X)	0.98	0.26	0.14	0.78	0.38	0.56	0.95	0.12	0.27	0.95	0.20	0.18
Avail Cap(c_a), veh/h	372	1105	493	192	929	415	247	460	390	247	460	390
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.9	16.8	16.1	30.2	19.7	20.8	27.8	19.0	19.8	27.8	19.4	19.3
Incr Delay (d2), s/veh	36.6	0.5	0.5	11.7	1.2	5.5	44.2	0.5	1.7	44.2	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	1.5	0.7	1.5	2.1	3.3	6.5	0.6	1.3	6.5	1.1	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.5	17.3	16.6	41.9	20.9	26.3	72.0	19.5	21.4	72.0	20.4	20.4
LnGrp LOS	E	B	B	D	C	C	E	B	C	E	C	C
Approach Vol, veh/h		723			672			392			397	
Approach Delay, s/veh		41.6			25.3			51.5			51.0	
Approach LOS		D			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	20.0	7.8	24.2	13.0	20.0	11.0	21.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	16.0	7.0	17.0	9.0	16.0	7.0	17.0				
Max Q Clear Time (g_c+I1), s	10.5	5.4	4.9	6.0	10.5	4.5	8.8	10.3				
Green Ext Time (p_c), s	0.0	0.4	0.0	1.4	0.0	0.5	0.0	1.6				

Intersection Summary

HCM 6th Ctrl Delay	40.1
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX D

EXISTING PLUS PROJECT (E+P) CONDITIONS
INTERSECTION ANALYSIS CALCULATION WORKSHEETS

Lanes, Volumes, Timings

Existing Plus Project AM Peak Hour

1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	291	330	663	151	456	1592
Future Volume (vph)	291	330	663	151	456	1592
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		550	300	
Storage Lanes	1	1		1	1	
Taper Length (ft)	90				180	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	45		55			55
Link Distance (ft)	673		685			1232
Travel Time (s)	10.2		8.5			15.3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	10%	2%	2%	10%
Shared Lane Traffic (%)						
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	27.8	10.1	48.5	48.5	10.1	20.0
Total Split (s)	27.8	43.5	48.7	48.7	43.5	92.2
Total Split (%)	23.2%	36.3%	40.6%	40.6%	36.3%	76.8%
Yellow Time (s)	4.8	4.1	5.5	5.5	4.1	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.1	6.5	6.5	5.1	6.5
Lead/Lag		Lead	Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

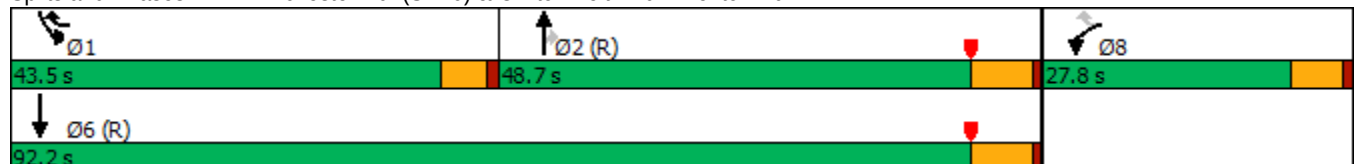
Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.



HCM 6th Signalized Intersection Summary

Existing Plus Project AM Peak Hour

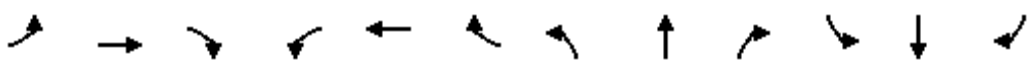
1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↕↕	↔	↔	↕↕
Traffic Volume (veh/h)	291	330	663	151	456	1592
Future Volume (veh/h)	291	330	663	151	456	1592
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1752	1870	1870	1752
Adj Flow Rate, veh/h	306	347	698	159	480	1676
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	10	2	2	10
Cap, veh/h	612	722	1399	633	506	2543
Arrive On Green	0.17	0.17	0.40	0.40	0.28	0.73
Sat Flow, veh/h	3563	1585	3504	1585	1781	3504
Grp Volume(v), veh/h	306	347	698	159	480	1676
Grp Sat Flow(s),veh/h/ln	1781	1585	1752	1585	1781	1752
Q Serve(g_s), s	9.3	18.3	17.9	8.0	31.7	30.2
Cycle Q Clear(g_c), s	9.3	18.3	17.9	8.0	31.7	30.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	612	722	1399	633	506	2543
V/C Ratio(X)	0.50	0.48	0.50	0.25	0.95	0.66
Avail Cap(c_a), veh/h	653	741	1399	633	570	2543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.0	22.8	27.0	24.1	42.1	8.7
Incr Delay (d2), s/veh	0.2	0.2	1.3	1.0	23.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	6.5	7.2	3.0	16.3	8.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.2	22.9	28.3	25.0	65.5	10.0
LnGrp LOS	D	C	C	C	E	B
Approach Vol, veh/h	653		857			2156
Approach Delay, s/veh	33.4		27.7			22.4
Approach LOS	C		C			C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	39.2	54.4			93.6	26.4
Change Period (Y+Rc), s	5.1	6.5			6.5	5.8
Max Green Setting (Gmax), s	38.4	42.2			85.7	22.0
Max Q Clear Time (g_c+I1), s	33.7	19.9			32.2	20.3
Green Ext Time (p_c), s	0.4	2.8			9.9	0.3
Intersection Summary						
HCM 6th Ctrl Delay			25.6			
HCM 6th LOS			C			

Lanes, Volumes, Timings

Existing Plus Project AM Peak Hour

2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	262	760	136	379	8	400	543	50	49	1152	176
Future Volume (vph)	108	262	760	136	379	8	400	543	50	49	1152	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	195		0	150		0	430		50	630		105
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	60			120			120			120		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		692			817			1397			2514	
Travel Time (s)		10.5			12.4			17.3			31.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	27.8	10.1	10.1	10.8		10.1	38.5	38.5	10.1	47.5	47.5
Total Split (s)	12.0	27.8	29.0	14.0	29.8		29.0	64.1	64.1	14.1	49.2	49.2
Total Split (%)	10.0%	23.2%	24.2%	11.7%	24.8%		24.2%	53.4%	53.4%	11.8%	41.0%	41.0%
Yellow Time (s)	4.1	4.8	4.1	4.1	4.8		4.1	5.5	5.5	4.1	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.1	5.8		5.1	6.5	6.5	5.1	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 52 (43%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.



HCM 6th Signalized Intersection Summary

Existing Plus Project AM Peak Hour

2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	262	760	136	379	8	400	543	50	49	1152	176
Future Volume (veh/h)	108	262	760	136	379	8	400	543	50	49	1152	176
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1870
Adj Flow Rate, veh/h	111	270	784	140	391	8	412	560	52	51	1188	181
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	2
Cap, veh/h	102	343	606	132	365	7	355	1815	821	66	1247	564
Arrive On Green	0.06	0.18	0.18	0.07	0.20	0.20	0.20	0.52	0.52	0.04	0.36	0.36
Sat Flow, veh/h	1781	1870	1585	1781	1826	37	1781	3504	1585	1781	3504	1585
Grp Volume(v), veh/h	111	270	784	140	0	399	412	560	52	51	1188	181
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1864	1781	1752	1585	1781	1752	1585
Q Serve(g_s), s	6.9	16.5	22.0	8.9	0.0	24.0	23.9	11.0	2.0	3.4	39.7	10.0
Cycle Q Clear(g_c), s	6.9	16.5	22.0	8.9	0.0	24.0	23.9	11.0	2.0	3.4	39.7	10.0
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	102	343	606	132	0	373	355	1815	821	66	1247	564
V/C Ratio(X)	1.08	0.79	1.29	1.06	0.00	1.07	1.16	0.31	0.06	0.78	0.95	0.32
Avail Cap(c_a), veh/h	102	343	606	132	0	373	355	1815	821	134	1247	564
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.5	46.8	37.0	55.5	0.0	48.0	48.0	16.6	14.4	57.3	37.7	28.1
Incr Delay (d2), s/veh	113.3	10.7	143.9	95.1	0.0	66.6	99.3	0.4	0.1	7.1	16.4	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	8.5	40.9	7.4	0.0	17.7	19.8	4.1	0.7	1.6	18.5	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	169.9	57.4	181.0	150.7	0.0	114.6	147.3	17.0	14.6	64.4	54.1	29.6
LnGrp LOS	F	E	F	F	A	F	F	B	B	E	D	C
Approach Vol, veh/h	1165				539				1024			
Approach Delay, s/veh	151.3				124.0				69.3			
Approach LOS	F				F				E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	68.7	14.0	27.8	29.0	49.2	12.0	29.8				
Change Period (Y+Rc), s	5.1	6.5	5.1	5.8	5.1	6.5	5.1	5.8				
Max Green Setting (Gmax), s	9.0	57.6	8.9	22.0	23.9	42.7	6.9	24.0				
Max Q Clear Time (g_c+I1), s	5.4	13.0	10.9	24.0	25.9	41.7	8.9	26.0				
Green Ext Time (p_c), s	0.0	2.2	0.0	0.0	0.0	0.6	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	93.3											
HCM 6th LOS	F											

Lanes, Volumes, Timings

2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

Existing Plus Project AM Peak Hour

With Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	262	760	136	379	8	400	543	50	49	1152	176
Future Volume (vph)	108	262	760	136	379	8	400	543	50	49	1152	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	195		0	150		0	430		50	630		105
Storage Lanes	1		2	1		0	2		0	1		1
Taper Length (ft)	60			120			120			120		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		692			817			1397			2514	
Travel Time (s)		10.5			12.4			17.3			31.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									6
Detector Phase	7	4	5	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	10.1	27.8	10.1	10.1	10.8		10.1	38.5		10.1	47.5	47.5
Total Split (s)	16.4	27.8	22.0	17.0	28.4		22.0	61.1		14.1	53.2	53.2
Total Split (%)	13.7%	23.2%	18.3%	14.2%	23.7%		18.3%	50.9%		11.8%	44.3%	44.3%
Yellow Time (s)	4.1	4.8	4.1	4.1	4.8		4.1	5.5		4.1	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.1	5.8		5.1	6.5		5.1	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 52 (43%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

			
Ø1	Ø2 (R)	Ø3	Ø4
14.1 s	61.1 s	17 s	27.8 s
			
Ø5	Ø6 (R)	Ø7	Ø8
22 s	53.2 s	16.4 s	28.4 s

HCM 6th Signalized Intersection Summary

Existing Plus Project AM Peak Hour

2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

With Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	262	760	136	379	8	400	543	50	49	1152	176
Future Volume (veh/h)	108	262	760	136	379	8	400	543	50	49	1152	176
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1752	1870	1752	1870
Adj Flow Rate, veh/h	111	270	784	140	391	8	412	560	52	51	1188	181
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	10	2	10	2
Cap, veh/h	136	343	998	166	713	15	468	1576	146	66	1418	641
Arrive On Green	0.08	0.18	0.18	0.09	0.20	0.20	0.13	0.50	0.50	0.04	0.40	0.40
Sat Flow, veh/h	1781	1870	3170	1781	3561	73	3563	3158	293	1781	3504	1585
Grp Volume(v), veh/h	111	270	784	140	195	204	412	310	302	51	1188	181
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1857	1781	1752	1699	1781	1752	1585
Q Serve(g_s), s	7.4	16.5	22.0	9.3	11.8	11.9	13.6	12.9	13.0	3.4	36.7	9.2
Cycle Q Clear(g_c), s	7.4	16.5	22.0	9.3	11.8	11.9	13.6	12.9	13.0	3.4	36.7	9.2
Prop In Lane	1.00		1.00	1.00		0.04	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	136	343	998	166	356	372	468	874	848	66	1418	641
V/C Ratio(X)	0.82	0.79	0.79	0.84	0.55	0.55	0.88	0.35	0.36	0.78	0.84	0.28
Avail Cap(c_a), veh/h	168	343	998	177	356	372	502	874	848	134	1418	641
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.6	46.8	37.4	53.5	43.1	43.1	51.2	18.3	18.3	57.3	32.2	24.0
Incr Delay (d2), s/veh	18.3	10.7	3.9	26.3	1.0	1.0	14.9	1.1	1.2	7.1	6.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	8.5	10.6	5.3	5.2	5.4	6.8	5.1	4.9	1.6	15.4	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.9	57.4	41.3	79.8	44.1	44.1	66.1	19.4	19.5	64.4	38.2	25.1
LnGrp LOS	E	E	D	E	D	D	E	B	B	E	D	C
Approach Vol, veh/h	1165			539			1024			1420		
Approach Delay, s/veh	48.0			53.4			38.2			37.5		
Approach LOS	D			D			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	66.4	16.3	27.8	20.9	55.1	14.3	29.8				
Change Period (Y+Rc), s	5.1	6.5	5.1	5.8	5.1	6.5	5.1	5.8				
Max Green Setting (Gmax), s	9.0	54.6	11.9	22.0	16.9	46.7	11.3	22.6				
Max Q Clear Time (g_c+I1), s	5.4	15.0	11.3	24.0	15.6	38.7	9.4	13.9				
Green Ext Time (p_c), s	0.0	1.9	0.0	0.0	0.1	3.5	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay	42.7											
HCM 6th LOS	D											

Lanes, Volumes, Timings
3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

Existing Plus Project AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	28	29	311	34	23	15	791	272	110	1586	157
Future Volume (vph)	114	28	29	311	34	23	15	791	272	110	1586	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	95		0	345		0	200		200	190		100
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	60			120			105			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		635			679			843			1788	
Travel Time (s)		14.4			15.4			10.5			22.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.0	20.0		40.0	40.0		10.0	31.4	31.4	10.0	31.4	31.4
Total Split (s)	40.0	40.0		40.0	40.0		10.0	60.0	60.0	20.0	70.0	70.0
Total Split (%)	33.3%	33.3%		33.3%	33.3%		8.3%	50.0%	50.0%	16.7%	58.3%	58.3%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	5.4	5.4	4.0	5.4	5.4
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	6.4	6.4	5.0	6.4	6.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

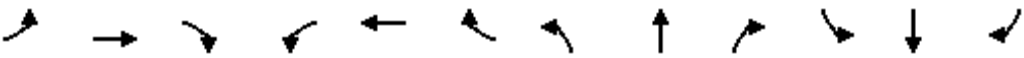
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 72 (60%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated

Splits and Phases: 3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.



HCM 6th Signalized Intersection Summary 3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

Existing Plus Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	28	29	311	34	23	15	791	272	110	1586	157
Future Volume (veh/h)	114	28	29	311	34	23	15	791	272	110	1586	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1870
Adj Flow Rate, veh/h	119	29	30	324	35	24	16	824	283	115	1652	164
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	2
Cap, veh/h	403	236	244	402	290	199	31	1766	799	141	1982	897
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.02	0.50	0.50	0.08	0.57	0.57
Sat Flow, veh/h	1344	842	871	1344	1034	709	1781	3504	1585	1781	3504	1585
Grp Volume(v), veh/h	119	0	59	324	0	59	16	824	283	115	1652	164
Grp Sat Flow(s),veh/h/ln	1344	0	1714	1344	0	1743	1781	1752	1585	1781	1752	1585
Q Serve(g_s), s	8.7	0.0	3.1	28.4	0.0	3.0	1.1	18.3	12.9	7.6	46.5	6.0
Cycle Q Clear(g_c), s	11.7	0.0	3.1	31.5	0.0	3.0	1.1	18.3	12.9	7.6	46.5	6.0
Prop In Lane	1.00		0.51	1.00		0.41	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	403	0	480	402	0	489	31	1766	799	141	1982	897
V/C Ratio(X)	0.30	0.00	0.12	0.81	0.00	0.12	0.52	0.47	0.35	0.82	0.83	0.18
Avail Cap(c_a), veh/h	418	0	500	417	0	508	74	1766	799	223	1982	897
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.5	0.0	32.2	43.9	0.0	32.2	58.5	19.3	18.0	54.4	21.4	12.6
Incr Delay (d2), s/veh	0.2	0.0	0.0	9.8	0.0	0.0	5.0	0.9	1.2	5.9	4.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	1.3	10.5	0.0	1.3	0.5	7.0	4.6	3.5	17.6	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	0.0	32.2	53.7	0.0	32.2	63.5	20.2	19.2	60.4	25.7	13.1
LnGrp LOS	D	A	C	D	A	C	E	C	B	E	C	B
Approach Vol, veh/h	178			383			1123			1931		
Approach Delay, s/veh	35.2			50.4			20.5			26.7		
Approach LOS	D			D			C			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.5	66.9		38.6	7.1	74.3		38.6				
Change Period (Y+Rc), s	5.0	6.4		5.0	5.0	6.4		5.0				
Max Green Setting (Gmax), s	15.0	53.6		35.0	5.0	63.6		35.0				
Max Q Clear Time (g_c+I1), s	9.6	20.3		13.7	3.1	48.5		33.5				
Green Ext Time (p_c), s	0.1	8.4		0.3	0.0	11.0		0.1				
Intersection Summary												
HCM 6th Ctrl Delay	27.7											
HCM 6th LOS	C											

Lanes, Volumes, Timings
4: Clinton Keith Rd. - Benton Rd.

Existing Plus Project AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	183	160	115	343	148	162	17	58	93	35	55
Future Volume (vph)	255	183	160	115	343	148	162	17	58	93	35	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		50	120		50	60		0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (ft)	60			60			60			60		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		673			696			285			219	
Travel Time (s)		10.2			10.5			6.5			5.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Shared Lane Traffic (%)												23%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	28.0	36.0	36.0	28.0	36.0	36.0	33.0	31.0	31.0	25.0	23.0	23.0
Total Split (%)	23.3%	30.0%	30.0%	23.3%	30.0%	30.0%	27.5%	25.8%	25.8%	20.8%	19.2%	19.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (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
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 4: Clinton Keith Rd. - Benton Rd.

 Ø1	 Ø2	 Ø3	 Ø4 (R)
25 s	31 s	28 s	36 s
 Ø5	 Ø6	 Ø7	 Ø8 (R)
33 s	23 s	28 s	36 s

HCM 6th Signalized Intersection Summary 4: Clinton Keith Rd. - Benton Rd.

Existing Plus Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	  	 			 						 	
Traffic Volume (veh/h)	255	183	160	115	343	148	162	17	58	93	35	55
Future Volume (veh/h)	255	183	160	115	343	148	162	17	58	93	35	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	297	213	186	134	399	172	188	20	67	108	58	52
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	370	1686	752	163	1631	727	220	421	357	135	332	281
Arrive On Green	0.11	0.47	0.47	0.09	0.46	0.46	0.12	0.22	0.22	0.08	0.18	0.18
Sat Flow, veh/h	3456	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	297	213	186	134	399	172	188	20	67	108	58	52
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	10.1	4.0	8.4	8.9	8.2	7.9	12.4	1.0	4.1	7.2	3.2	3.3
Cycle Q Clear(g_c), s	10.1	4.0	8.4	8.9	8.2	7.9	12.4	1.0	4.1	7.2	3.2	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	370	1686	752	163	1631	727	220	421	357	135	332	281
V/C Ratio(X)	0.80	0.13	0.25	0.82	0.24	0.24	0.86	0.05	0.19	0.80	0.17	0.19
Avail Cap(c_a), veh/h	691	1686	752	356	1631	727	430	421	357	312	332	281
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.64	0.64	0.64	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.3	17.6	18.8	53.5	19.8	19.7	51.5	36.4	37.6	54.6	41.9	42.0
Incr Delay (d2), s/veh	2.7	0.1	0.5	9.8	0.4	0.8	9.2	0.2	1.2	10.4	1.1	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	1.6	3.0	4.3	3.3	2.9	6.1	0.5	1.7	3.6	1.6	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.0	17.7	19.3	63.3	20.1	20.5	60.7	36.6	38.8	65.0	43.1	43.4
LnGrp LOS	E	B	B	E	C	C	E	D	D	E	D	D
Approach Vol, veh/h	696				705				275			
Approach Delay, s/veh	34.1				28.4				53.6			
Approach LOS	C				C				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.1	31.0	15.0	60.9	18.8	25.3	16.8	59.1				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	21.0	27.0	24.0	32.0	29.0	19.0	24.0	32.0				
Max Q Clear Time (g_c+I1), s	9.2	6.1	10.9	10.4	14.4	5.3	12.1	10.2				
Green Ext Time (p_c), s	0.2	0.2	0.2	1.7	0.4	0.3	0.8	2.9				

Intersection Summary

HCM 6th Ctrl Delay	37.1
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings
5: Winchester Rd. (SR79) & Project Dwy.

Existing Plus Project AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	0	0	814	70	0	1883
Future Volume (vph)	0	0	814	70	0	1883
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		55			55
Link Distance (ft)	146		1805			685
Travel Time (s)	3.3		22.4			8.5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
5: Winchester Rd. (SR79) & Project Dwy.

Existing Plus Project AM Peak Hour

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕			↕
Traffic Vol, veh/h	0	0	814	70	0	1883
Future Vol, veh/h	0	0	814	70	0	1883
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	857	74	0	1982
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	-	466	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	543	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	543	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	0	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT			
Capacity (veh/h)	-	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	-	-	0	-	-	-
HCM Lane LOS	-	-	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-	-

Lanes, Volumes, Timings
6: Briggs Rd. & Project Dwy. 2

Existing Plus Project AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	82	23	0	156	251	59
Future Volume (vph)	82	23	0	156	251	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	144			374	131	
Travel Time (s)	3.3			8.5	3.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
6: Briggs Rd. & Project Dwy. 2

Existing Plus Project AM Peak Hour

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	82	23	0	156	251	59
Future Vol, veh/h	82	23	0	156	251	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	86	24	0	164	264	62
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	459	295	326	0	-	0
Stage 1	295	-	-	-	-	-
Stage 2	164	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	560	744	1234	-	-	-
Stage 1	755	-	-	-	-	-
Stage 2	865	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	560	744	1234	-	-	-
Mov Cap-2 Maneuver	560	-	-	-	-	-
Stage 1	755	-	-	-	-	-
Stage 2	865	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	12.5	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1234	-	592	-	-	
HCM Lane V/C Ratio	-	-	0.187	-	-	
HCM Control Delay (s)	0	-	12.5	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.7	-	-	

Lanes, Volumes, Timings
7: Briggs Rd. & Project Dwy. 3

Existing Plus Project AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	22	23	0	133	226	48
Future Volume (vph)	22	23	0	133	226	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	161			302	374	
Travel Time (s)	3.7			6.9	8.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
7: Briggs Rd. & Project Dwy. 3

Existing Plus Project AM Peak Hour

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	23	0	133	226	48
Future Vol, veh/h	22	23	0	133	226	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	24	0	140	238	51
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	404	264	289	0	-	0
Stage 1	264	-	-	-	-	-
Stage 2	140	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	603	775	1273	-	-	-
Stage 1	780	-	-	-	-	-
Stage 2	887	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	603	775	1273	-	-	-
Mov Cap-2 Maneuver	603	-	-	-	-	-
Stage 1	780	-	-	-	-	-
Stage 2	887	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.7	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1273	-	680	-	-	
HCM Lane V/C Ratio	-	-	0.07	-	-	
HCM Control Delay (s)	0	-	10.7	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

Lanes, Volumes, Timings
8: Briggs Rd. & Project Dwy. 4

Existing Plus Project AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	21	0	126	242	8
Future Volume (vph)	7	21	0	126	242	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	177			169	302	
Travel Time (s)	4.0			3.8	6.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
8: Briggs Rd. & Project Dwy. 4

Existing Plus Project AM Peak Hour

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	21	0	126	242	8
Future Vol, veh/h	7	21	0	126	242	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	22	0	133	255	8
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	392	259	263	0	-	0
Stage 1	259	-	-	-	-	-
Stage 2	133	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	612	780	1301	-	-	-
Stage 1	784	-	-	-	-	-
Stage 2	893	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	612	780	1301	-	-	-
Mov Cap-2 Maneuver	612	-	-	-	-	-
Stage 1	784	-	-	-	-	-
Stage 2	893	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.1	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1301	-	730	-	-	
HCM Lane V/C Ratio	-	-	0.04	-	-	
HCM Control Delay (s)	0	-	10.1	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

Lanes, Volumes, Timings

Existing Plus Project PM Peak Hour

1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	277	682	1427	318	437	941
Future Volume (vph)	277	682	1427	318	437	941
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		550	300	
Storage Lanes	1	1		1	1	
Taper Length (ft)	90				180	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	45		55			55
Link Distance (ft)	673		685			1232
Travel Time (s)	10.2		8.5			15.3
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	10%	2%	2%	10%
Shared Lane Traffic (%)						
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	27.8	10.1	48.5	48.5	10.1	20.0
Total Split (s)	27.8	35.0	57.2	57.2	35.0	92.2
Total Split (%)	23.2%	29.2%	47.7%	47.7%	29.2%	76.8%
Yellow Time (s)	4.8	4.1	5.5	5.5	4.1	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.1	6.5	6.5	5.1	6.5
Lead/Lag		Lead	Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 116 (97%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.



HCM 6th Signalized Intersection Summary

Existing Plus Project PM Peak Hour

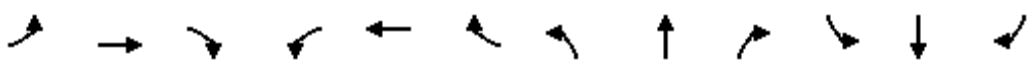
1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	277	682	1427	318	437	941
Future Volume (veh/h)	277	682	1427	318	437	941
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1752	1870	1870	1752
Adj Flow Rate, veh/h	283	696	1456	324	446	960
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	10	2	2	10
Cap, veh/h	653	686	1480	670	444	2502
Arrive On Green	0.18	0.18	0.42	0.42	0.25	0.71
Sat Flow, veh/h	3563	1585	3504	1585	1781	3504
Grp Volume(v), veh/h	283	696	1456	324	446	960
Grp Sat Flow(s),veh/h/ln	1781	1585	1752	1585	1781	1752
Q Serve(g_s), s	8.5	22.0	49.3	17.8	29.9	12.9
Cycle Q Clear(g_c), s	8.5	22.0	49.3	17.8	29.9	12.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	653	686	1480	670	444	2502
V/C Ratio(X)	0.43	1.02	0.98	0.48	1.00	0.38
Avail Cap(c_a), veh/h	653	686	1480	670	444	2502
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	34.0	34.2	25.2	45.0	6.8
Incr Delay (d2), s/veh	0.1	34.8	19.8	2.5	43.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	25.2	23.0	6.7	17.8	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.6	68.8	54.0	27.6	89.0	7.2
LnGrp LOS	D	F	D	C	F	A
Approach Vol, veh/h	979		1780			1406
Approach Delay, s/veh	61.5		49.2			33.1
Approach LOS	E		D			C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	35.0	57.2			92.2	27.8
Change Period (Y+Rc), s	5.1	6.5			6.5	5.8
Max Green Setting (Gmax), s	29.9	50.7			85.7	22.0
Max Q Clear Time (g_c+I1), s	31.9	51.3			14.9	24.0
Green Ext Time (p_c), s	0.0	0.0			4.1	0.0
Intersection Summary						
HCM 6th Ctrl Delay			46.7			
HCM 6th LOS			D			

Lanes, Volumes, Timings

Existing Plus Project PM Peak Hour

2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	356	574	94	325	12	586	1420	103	53	710	184
Future Volume (vph)	199	356	574	94	325	12	586	1420	103	53	710	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	195		0	150		0	430		50	630		105
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	60			120			120			120		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		692			817			1397			2514	
Travel Time (s)		10.5			12.4			17.3			31.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	27.8	10.1	10.1	10.8		10.1	38.5	38.5	10.1	47.5	47.5
Total Split (s)	16.0	29.0	28.0	12.0	25.0		28.0	66.0	66.0	13.0	51.0	51.0
Total Split (%)	13.3%	24.2%	23.3%	10.0%	20.8%		23.3%	55.0%	55.0%	10.8%	42.5%	42.5%
Yellow Time (s)	4.1	4.8	4.1	4.1	4.8		4.1	5.5	5.5	4.1	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.1	5.8		5.1	6.5	6.5	5.1	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 32 (27%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.



HCM 6th Signalized Intersection Summary

Existing Plus Project PM Peak Hour

2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	199	356	574	94	325	12	586	1420	103	53	710	184
Future Volume (veh/h)	199	356	574	94	325	12	586	1420	103	53	710	184
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1870
Adj Flow Rate, veh/h	207	371	598	98	339	12	610	1479	107	55	740	192
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	2
Cap, veh/h	162	362	609	102	287	10	340	1829	827	71	1299	588
Arrive On Green	0.09	0.19	0.19	0.06	0.16	0.16	0.19	0.52	0.52	0.04	0.37	0.37
Sat Flow, veh/h	1781	1870	1585	1781	1795	64	1781	3504	1585	1781	3504	1585
Grp Volume(v), veh/h	207	371	598	98	0	351	610	1479	107	55	740	192
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1859	1781	1752	1585	1781	1752	1585
Q Serve(g_s), s	10.9	23.2	23.2	6.6	0.0	19.2	22.9	41.9	4.2	3.7	20.2	10.4
Cycle Q Clear(g_c), s	10.9	23.2	23.2	6.6	0.0	19.2	22.9	41.9	4.2	3.7	20.2	10.4
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	162	362	609	102	0	297	340	1829	827	71	1299	588
V/C Ratio(X)	1.28	1.03	0.98	0.96	0.00	1.18	1.79	0.81	0.13	0.78	0.57	0.33
Avail Cap(c_a), veh/h	162	362	609	102	0	297	340	1829	827	117	1299	588
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.5	48.4	36.5	56.4	0.0	50.4	48.5	23.7	14.7	57.1	30.1	27.0
Incr Delay (d2), s/veh	164.6	54.1	31.7	74.3	0.0	110.2	369.1	4.0	0.3	6.7	1.8	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.2	15.9	21.7	5.0	0.0	17.7	44.5	16.3	1.5	1.7	8.3	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	219.2	102.5	68.3	130.7	0.0	160.6	417.7	27.7	15.0	63.7	31.9	28.5
LnGrp LOS	F	F	E	F	A	F	F	C	B	E	C	C
Approach Vol, veh/h	1176			449			2196			987		
Approach Delay, s/veh	105.6			154.1			135.4			33.0		
Approach LOS	F			F			F			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	69.1	12.0	29.0	28.0	51.0	16.0	25.0				
Change Period (Y+Rc), s	5.1	6.5	5.1	5.8	5.1	6.5	5.1	5.8				
Max Green Setting (Gmax), s	7.9	59.5	6.9	23.2	22.9	44.5	10.9	19.2				
Max Q Clear Time (g_c+I1), s	5.7	43.9	8.6	25.2	24.9	22.2	12.9	21.2				
Green Ext Time (p_c), s	0.0	6.2	0.0	0.0	0.0	3.1	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	108.9											
HCM 6th LOS	F											

Lanes, Volumes, Timings

2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

Existing Plus Project PM Peak Hour

With Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	356	574	94	325	12	586	1420	103	53	710	184
Future Volume (vph)	199	356	574	94	325	12	586	1420	103	53	710	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	195		0	150		0	430		50	630		105
Storage Lanes	1		2	1		0	2		0	1		1
Taper Length (ft)	60			120			120			120		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		692			817			1397			2514	
Travel Time (s)		10.5			12.4			17.3			31.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									6
Detector Phase	7	4	5	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	10.1	27.8	10.1	10.1	10.8		10.1	38.5		10.1	47.5	47.5
Total Split (s)	21.0	31.0	27.0	13.0	23.0		27.0	65.6		10.4	49.0	49.0
Total Split (%)	17.5%	25.8%	22.5%	10.8%	19.2%		22.5%	54.7%		8.7%	40.8%	40.8%
Yellow Time (s)	4.1	4.8	4.1	4.1	4.8		4.1	5.5		4.1	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.1	5.8		5.1	6.5		5.1	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 32 (27%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.



HCM 6th Signalized Intersection Summary

Existing Plus Project PM Peak Hour

2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

With Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	199	356	574	94	325	12	586	1420	103	53	710	184
Future Volume (veh/h)	199	356	574	94	325	12	586	1420	103	53	710	184
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1752	1870	1752	1870
Adj Flow Rate, veh/h	207	371	598	98	339	12	610	1479	107	55	740	192
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	10	2	10	2
Cap, veh/h	233	393	1244	117	508	18	650	1605	116	71	1241	561
Arrive On Green	0.13	0.21	0.21	0.07	0.14	0.14	0.18	0.50	0.50	0.04	0.35	0.35
Sat Flow, veh/h	1781	1870	3170	1781	3501	124	3563	3229	232	1781	3504	1585
Grp Volume(v), veh/h	207	371	598	98	172	179	610	799	787	55	740	192
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1848	1781	1752	1710	1781	1752	1585
Q Serve(g_s), s	13.7	23.5	16.9	6.5	11.0	11.0	20.3	50.6	51.5	3.7	20.8	10.7
Cycle Q Clear(g_c), s	13.7	23.5	16.9	6.5	11.0	11.0	20.3	50.6	51.5	3.7	20.8	10.7
Prop In Lane	1.00		1.00	1.00		0.07	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	233	393	1244	117	258	268	650	871	850	71	1241	561
V/C Ratio(X)	0.89	0.94	0.48	0.84	0.67	0.67	0.94	0.92	0.93	0.78	0.60	0.34
Avail Cap(c_a), veh/h	236	393	1244	117	258	268	650	871	850	79	1241	561
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.3	46.7	27.3	55.4	48.6	48.6	48.4	27.9	28.1	57.1	31.7	28.5
Incr Delay (d2), s/veh	29.8	31.2	0.1	36.5	5.2	5.2	21.2	16.1	17.5	30.5	2.1	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	13.9	6.2	4.0	5.1	5.3	10.5	22.6	22.7	2.2	8.6	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.1	77.9	27.4	91.9	53.8	53.7	69.5	44.0	45.6	87.6	33.8	30.1
LnGrp LOS	F	E	C	F	D	D	E	D	D	F	C	C
Approach Vol, veh/h	1176			449			2196			987		
Approach Delay, s/veh	52.8			62.1			51.7			36.1		
Approach LOS	D			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	66.1	13.0	31.0	27.0	49.0	20.8	23.2				
Change Period (Y+Rc), s	5.1	6.5	5.1	5.8	5.1	6.5	5.1	5.8				
Max Green Setting (Gmax), s	5.3	59.1	7.9	25.2	21.9	42.5	15.9	17.2				
Max Q Clear Time (g_c+I1), s	5.7	53.5	8.5	25.5	22.3	22.8	15.7	13.0				
Green Ext Time (p_c), s	0.0	3.1	0.0	0.0	0.0	3.0	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay	49.7											
HCM 6th LOS	D											

Lanes, Volumes, Timings
3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

Existing Plus Project PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	22	37	344	30	53	28	1698	221	45	1008	116
Future Volume (vph)	74	22	37	344	30	53	28	1698	221	45	1008	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	95		0	345		0	200		200	190		100
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	60			120			105			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		635			679			843			1788	
Travel Time (s)		14.4			15.4			10.5			22.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.0	20.0		40.0	40.0		10.0	31.4	31.4	10.0	31.4	31.4
Total Split (s)	40.0	40.0		40.0	40.0		11.0	70.0	70.0	10.0	69.0	69.0
Total Split (%)	33.3%	33.3%		33.3%	33.3%		9.2%	58.3%	58.3%	8.3%	57.5%	57.5%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	5.4	5.4	4.0	5.4	5.4
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	6.4	6.4	5.0	6.4	6.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 60 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 105
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.



HCM 6th Signalized Intersection Summary 3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

Existing Plus Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	22	37	344	30	53	28	1698	221	45	1008	116
Future Volume (veh/h)	74	22	37	344	30	53	28	1698	221	45	1008	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1870
Adj Flow Rate, veh/h	76	23	38	355	31	55	29	1751	228	46	1039	120
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	2
Cap, veh/h	392	185	306	416	176	313	46	1887	854	59	1912	865
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.03	0.54	0.54	0.03	0.55	0.55
Sat Flow, veh/h	1311	634	1048	1341	605	1073	1781	3504	1585	1781	3504	1585
Grp Volume(v), veh/h	76	0	61	355	0	86	29	1751	228	46	1039	120
Grp Sat Flow(s),veh/h/ln	1311	0	1682	1341	0	1677	1781	1752	1585	1781	1752	1585
Q Serve(g_s), s	5.5	0.0	3.2	31.7	0.0	4.6	1.9	55.3	9.3	3.1	23.0	4.5
Cycle Q Clear(g_c), s	10.1	0.0	3.2	34.9	0.0	4.6	1.9	55.3	9.3	3.1	23.0	4.5
Prop In Lane	1.00		0.62	1.00		0.64	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	392	0	491	416	0	489	46	1887	854	59	1912	865
V/C Ratio(X)	0.19	0.00	0.12	0.85	0.00	0.18	0.63	0.93	0.27	0.78	0.54	0.14
Avail Cap(c_a), veh/h	392	0	491	416	0	489	89	1887	854	74	1912	865
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.5	0.0	31.2	44.1	0.0	31.7	57.9	25.5	14.9	57.6	17.6	13.4
Incr Delay (d2), s/veh	0.1	0.0	0.0	15.1	0.0	0.1	5.2	9.5	0.8	25.6	1.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	1.3	12.2	0.0	1.9	0.9	22.4	3.2	1.8	8.5	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.6	0.0	31.3	59.2	0.0	31.8	63.1	35.1	15.7	83.2	18.7	13.7
LnGrp LOS	D	A	C	E	A	C	E	D	B	F	B	B
Approach Vol, veh/h		137			441			2008			1205	
Approach Delay, s/veh		33.7			53.9			33.3			20.7	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	71.0		40.0	8.1	71.9		40.0				
Change Period (Y+Rc), s	5.0	6.4		5.0	5.0	6.4		5.0				
Max Green Setting (Gmax), s	5.0	63.6		35.0	6.0	62.6		35.0				
Max Q Clear Time (g_c+I1), s	5.1	57.3		12.1	3.9	25.0		36.9				
Green Ext Time (p_c), s	0.0	5.4		0.3	0.0	10.3		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			31.7									
HCM 6th LOS			C									

Lanes, Volumes, Timings
4: Clinton Keith Rd. - Benton Rd.

Existing Plus Project PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	332	262	153	110	302	213	326	48	108	214	28	101
Future Volume (vph)	332	262	153	110	302	213	326	48	108	214	28	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		50	120		50	60		0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (ft)	60			60			60			60		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		673			696			285			219	
Travel Time (s)		10.2			10.5			6.5			5.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												38%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	25.0	37.0	37.0	20.0	32.0	32.0	43.0	31.0	31.0	32.0	20.0	20.0
Total Split (%)	20.8%	30.8%	30.8%	16.7%	26.7%	26.7%	35.8%	25.8%	25.8%	26.7%	16.7%	16.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (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
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max

Intersection Summary

Area Type: Other

Cycle Length: 120

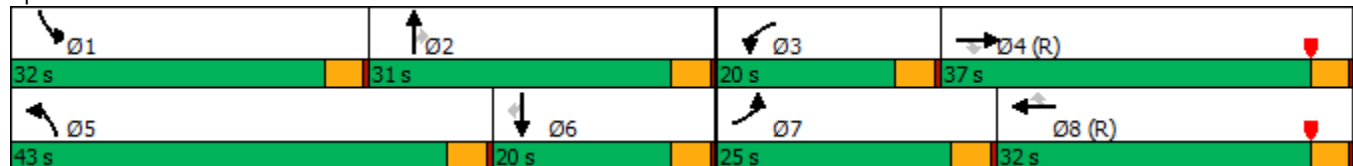
Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Splits and Phases: 4: Clinton Keith Rd. - Benton Rd.



HCM 6th Signalized Intersection Summary 4: Clinton Keith Rd. - Benton Rd.

Existing Plus Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	332	262	153	110	302	213	326	48	108	214	28	101
Future Volume (veh/h)	332	262	153	110	302	213	326	48	108	214	28	101
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	365	288	168	121	332	234	358	53	119	235	91	71
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	435	1453	648	148	1301	580	393	421	357	267	289	245
Arrive On Green	0.13	0.41	0.41	0.08	0.37	0.37	0.22	0.22	0.22	0.15	0.15	0.15
Sat Flow, veh/h	3456	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	365	288	168	121	332	234	358	53	119	235	91	71
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	12.4	6.3	8.4	8.0	7.8	13.2	23.5	2.7	7.5	15.5	5.2	4.8
Cycle Q Clear(g_c), s	12.4	6.3	8.4	8.0	7.8	13.2	23.5	2.7	7.5	15.5	5.2	4.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	435	1453	648	148	1301	580	393	421	357	267	289	245
V/C Ratio(X)	0.84	0.20	0.26	0.82	0.26	0.40	0.91	0.13	0.33	0.88	0.32	0.29
Avail Cap(c_a), veh/h	605	1453	648	238	1301	580	579	421	357	416	289	245
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.73	0.73	0.73	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.3	22.8	23.5	54.1	26.6	28.3	45.6	37.1	39.0	50.0	45.1	44.9
Incr Delay (d2), s/veh	5.6	0.2	0.7	11.1	0.5	2.1	14.0	0.6	2.5	12.8	2.8	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	2.6	3.2	4.0	3.3	5.2	11.9	1.3	3.1	7.8	2.6	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.8	23.0	24.2	65.3	27.1	30.4	59.6	37.7	41.5	62.7	47.9	47.9
LnGrp LOS	E	C	C	E	C	C	E	D	D	E	D	D
Approach Vol, veh/h		821			687			530			397	
Approach Delay, s/veh		38.3			34.9			53.4			56.7	
Approach LOS		D			C			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.0	31.0	14.0	53.1	30.5	22.5	19.1	47.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	28.0	27.0	16.0	33.0	39.0	16.0	21.0	28.0				
Max Q Clear Time (g_c+I1), s	17.5	9.5	10.0	10.4	25.5	7.2	14.4	15.2				
Green Ext Time (p_c), s	0.5	0.6	0.1	2.2	0.9	0.4	0.7	2.2				

Intersection Summary

HCM 6th Ctrl Delay	43.6
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings
5: Winchester Rd. (SR79) & Project Dwy.

Existing Plus Project PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	0	0	1745	76	0	1218
Future Volume (vph)	0	0	1745	76	0	1218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		55			55
Link Distance (ft)	146		1805			685
Travel Time (s)	3.3		22.4			8.5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
5: Winchester Rd. (SR79) & Project Dwy.

Existing Plus Project PM Peak Hour

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1745	76	0	1218
Future Vol, veh/h	0	0	1745	76	0	1218
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1837	80	0	1282
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	959	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	257	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	257	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBT		
Capacity (veh/h)	-	-		-		
HCM Lane V/C Ratio	-	-		-		
HCM Control Delay (s)	-	0		-		
HCM Lane LOS	-	A		-		
HCM 95th %tile Q(veh)	-	-		-		

Lanes, Volumes, Timings
6: Briggs Rd. & Project Dwy. 2

Existing Plus Project PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	90	26	0	391	227	64
Future Volume (vph)	90	26	0	391	227	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	144			374	131	
Travel Time (s)	3.3			8.5	3.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
6: Briggs Rd. & Project Dwy. 2

Existing Plus Project PM Peak Hour

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	90	26	0	391	227	64
Future Vol, veh/h	90	26	0	391	227	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	95	27	0	412	239	67
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	685	273	306	0	-	0
Stage 1	273	-	-	-	-	-
Stage 2	412	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	414	766	1255	-	-	-
Stage 1	773	-	-	-	-	-
Stage 2	669	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	414	766	1255	-	-	-
Mov Cap-2 Maneuver	414	-	-	-	-	-
Stage 1	773	-	-	-	-	-
Stage 2	669	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	15.6	0		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1255	-	462	-	-	
HCM Lane V/C Ratio	-	-	0.264	-	-	
HCM Control Delay (s)	0	-	15.6	-	-	
HCM Lane LOS	A	-	C	-	-	
HCM 95th %tile Q(veh)	0	-	1.1	-	-	

Lanes, Volumes, Timings
7: Briggs Rd. & Project Dwy. 3

Existing Plus Project PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	26	26	0	366	200	52
Future Volume (vph)	26	26	0	366	200	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	161			302	374	
Travel Time (s)	3.7			6.9	8.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
7: Briggs Rd. & Project Dwy. 3

Existing Plus Project PM Peak Hour

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	26	0	366	200	52
Future Vol, veh/h	26	26	0	366	200	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	27	0	385	211	55
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	624	239	266	0	-	0
Stage 1	239	-	-	-	-	-
Stage 2	385	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	449	800	1298	-	-	-
Stage 1	801	-	-	-	-	-
Stage 2	688	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	449	800	1298	-	-	-
Mov Cap-2 Maneuver	449	-	-	-	-	-
Stage 1	801	-	-	-	-	-
Stage 2	688	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.9	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1298	-	575	-	-	
HCM Lane V/C Ratio	-	-	0.095	-	-	
HCM Control Delay (s)	0	-	11.9	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.3	-	-	

Lanes, Volumes, Timings
8: Briggs Rd. & Project Dwy. 4

Existing Plus Project PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	9	23	0	357	218	9
Future Volume (vph)	9	23	0	357	218	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	177			169	302	
Travel Time (s)	4.0			3.8	6.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
8: Briggs Rd. & Project Dwy. 4

Existing Plus Project PM Peak Hour

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	23	0	357	218	9
Future Vol, veh/h	9	23	0	357	218	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	24	0	376	229	9
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	610	234	238	0	-	0
Stage 1	234	-	-	-	-	-
Stage 2	376	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	458	805	1329	-	-	-
Stage 1	805	-	-	-	-	-
Stage 2	694	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	458	805	1329	-	-	-
Mov Cap-2 Maneuver	458	-	-	-	-	-
Stage 1	805	-	-	-	-	-
Stage 2	694	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.7	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1329	-	664	-	-	
HCM Lane V/C Ratio	-	-	0.051	-	-	
HCM Control Delay (s)	0	-	10.7	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

APPENDIX E

EXISTING PLUS AMBIENT PLUS PROJECT (E+A+P 2021) CONDITIONS
INTERSECTION ANALYSIS CALCULATION WORKSHEETS

1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	303	340	691	157	471	1657
Future Volume (vph)	303	340	691	157	471	1657
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		550	300	
Storage Lanes	1	1		1	1	
Taper Length (ft)	90				180	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	45		55			55
Link Distance (ft)	673		685			1232
Travel Time (s)	10.2		8.5			15.3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	10%	2%	2%	10%
Shared Lane Traffic (%)						
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	27.8	10.1	48.5	48.5	10.1	20.0
Total Split (s)	27.8	43.0	49.2	49.2	43.0	92.2
Total Split (%)	23.2%	35.8%	41.0%	41.0%	35.8%	76.8%
Yellow Time (s)	4.8	4.1	5.5	5.5	4.1	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.1	6.5	6.5	5.1	6.5
Lead/Lag		Lead	Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

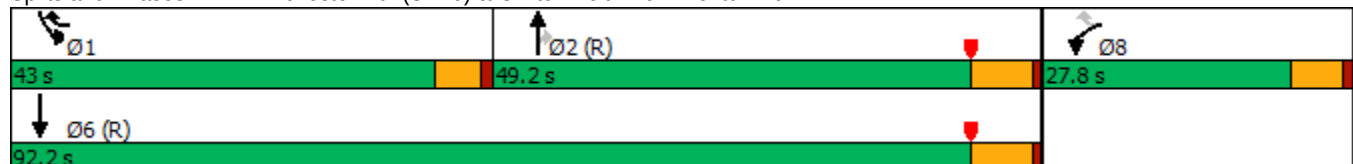
Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.



HCM 6th Signalized Intersection Summary

EAP (2021) AM Peak Hour

1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	303	340	691	157	471	1657
Future Volume (veh/h)	303	340	691	157	471	1657
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1752	1870	1870	1752
Adj Flow Rate, veh/h	319	358	727	165	496	1744
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	10	2	2	10
Cap, veh/h	621	740	1361	616	521	2533
Arrive On Green	0.17	0.17	0.39	0.39	0.29	0.72
Sat Flow, veh/h	3563	1585	3504	1585	1781	3504
Grp Volume(v), veh/h	319	358	727	165	496	1744
Grp Sat Flow(s),veh/h/ln	1781	1585	1752	1585	1781	1752
Q Serve(g_s), s	9.7	18.7	19.2	8.5	32.8	32.9
Cycle Q Clear(g_c), s	9.7	18.7	19.2	8.5	32.8	32.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	621	740	1361	616	521	2533
V/C Ratio(X)	0.51	0.48	0.53	0.27	0.95	0.69
Avail Cap(c_a), veh/h	653	754	1361	616	563	2533
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.9	22.0	28.3	25.1	41.7	9.2
Incr Delay (d2), s/veh	0.2	0.2	1.5	1.1	25.1	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	6.6	7.8	3.2	17.1	9.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.1	22.2	29.8	26.1	66.7	10.7
LnGrp LOS	D	C	C	C	E	B
Approach Vol, veh/h	677		892			2240
Approach Delay, s/veh	33.0		29.1			23.1
Approach LOS	C		C			C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	40.2	53.1			93.3	26.7
Change Period (Y+Rc), s	5.1	6.5			6.5	5.8
Max Green Setting (Gmax), s	37.9	42.7			85.7	22.0
Max Q Clear Time (g_c+I1), s	34.8	21.2			34.9	20.7
Green Ext Time (p_c), s	0.3	3.0			10.6	0.3
Intersection Summary						
HCM 6th Ctrl Delay			26.3			
HCM 6th LOS			C			

Lanes, Volumes, Timings
2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

EAP (2021) AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	272	790	141	394	8	415	564	52	51	1198	183
Future Volume (vph)	112	272	790	141	394	8	415	564	52	51	1198	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	195		0	150		0	430		50	630		105
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	60			120			120			120		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		692			817			1397			2514	
Travel Time (s)		10.5			12.4			17.3			31.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	27.8	10.1	10.1	10.8		10.1	38.5	38.5	10.1	47.5	47.5
Total Split (s)	12.0	27.8	29.0	14.0	29.8		29.0	64.0	64.0	14.2	49.2	49.2
Total Split (%)	10.0%	23.2%	24.2%	11.7%	24.8%		24.2%	53.3%	53.3%	11.8%	41.0%	41.0%
Yellow Time (s)	4.1	4.8	4.1	4.1	4.8		4.1	5.5	5.5	4.1	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.1	5.8		5.1	6.5	6.5	5.1	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 52 (43%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.



HCM 6th Signalized Intersection Summary
2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

EAP (2021) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	272	790	141	394	8	415	564	52	51	1198	183
Future Volume (veh/h)	112	272	790	141	394	8	415	564	52	51	1198	183
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1870
Adj Flow Rate, veh/h	115	280	814	145	406	8	428	581	54	53	1235	189
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	2
Cap, veh/h	102	343	606	132	366	7	355	1810	819	68	1247	564
Arrive On Green	0.06	0.18	0.18	0.07	0.20	0.20	0.20	0.52	0.52	0.04	0.36	0.36
Sat Flow, veh/h	1781	1870	1585	1781	1828	36	1781	3504	1585	1781	3504	1585
Grp Volume(v), veh/h	115	280	814	145	0	414	428	581	54	53	1235	189
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1864	1781	1752	1585	1781	1752	1585
Q Serve(g_s), s	6.9	17.3	22.0	8.9	0.0	24.0	23.9	11.5	2.0	3.5	42.1	10.5
Cycle Q Clear(g_c), s	6.9	17.3	22.0	8.9	0.0	24.0	23.9	11.5	2.0	3.5	42.1	10.5
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	102	343	606	132	0	373	355	1810	819	68	1247	564
V/C Ratio(X)	1.12	0.82	1.34	1.10	0.00	1.11	1.21	0.32	0.07	0.78	0.99	0.34
Avail Cap(c_a), veh/h	102	343	606	132	0	373	355	1810	819	135	1247	564
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.5	47.1	37.0	55.5	0.0	48.0	48.0	16.8	14.5	57.2	38.5	28.3
Incr Delay (d2), s/veh	125.8	13.3	165.0	106.9	0.0	79.9	116.5	0.5	0.2	6.9	23.3	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	9.1	44.5	7.8	0.0	19.0	21.5	4.3	0.7	1.7	20.7	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	182.4	60.4	202.1	162.4	0.0	127.9	164.6	17.3	14.7	64.0	61.8	29.9
LnGrp LOS	F	E	F	F	A	F	F	B	B	E	E	C
Approach Vol, veh/h	1209				559			1063			1477	
Approach Delay, s/veh	167.4				136.9			76.4			57.8	
Approach LOS	F				F			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	68.5	14.0	27.8	29.0	49.2	12.0	29.8				
Change Period (Y+Rc), s	5.1	6.5	5.1	5.8	5.1	6.5	5.1	5.8				
Max Green Setting (Gmax), s	9.1	57.5	8.9	22.0	23.9	42.7	6.9	24.0				
Max Q Clear Time (g_c+I1), s	5.5	13.5	10.9	24.0	25.9	44.1	8.9	26.0				
Green Ext Time (p_c), s	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	103.4											
HCM 6th LOS	F											

Lanes, Volumes, Timings
2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

EAP (2021) AM Peak Hour
With Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	272	790	141	394	8	415	564	52	51	1198	183
Future Volume (vph)	112	272	790	141	394	8	415	564	52	51	1198	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	195		0	150		0	430		50	630		105
Storage Lanes	1		2	1		0	2		0	1		1
Taper Length (ft)	60			120			120			120		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		692			817			1397			2514	
Travel Time (s)		10.5			12.4			17.3			31.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									6
Detector Phase	7	4	5	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	10.1	27.8	10.1	10.1	10.8		10.1	38.5		10.1	47.5	47.5
Total Split (s)	16.6	28.0	21.0	17.0	28.4		21.0	60.8		14.2	54.0	54.0
Total Split (%)	13.8%	23.3%	17.5%	14.2%	23.7%		17.5%	50.7%		11.8%	45.0%	45.0%
Yellow Time (s)	4.1	4.8	4.1	4.1	4.8		4.1	5.5		4.1	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.1	5.8		5.1	6.5		5.1	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	C-Min

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 52 (43%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

				
Ø1	Ø2 (R)		Ø3	Ø4
14.2 s	60.8 s		17 s	28 s
				
Ø5	Ø6 (R)		Ø7	Ø8
21 s	54 s		16.6 s	28.4 s

HCM 6th Signalized Intersection Summary
2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

EAP (2021) AM Peak Hour
With Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	272	790	141	394	8	415	564	52	51	1198	183
Future Volume (veh/h)	112	272	790	141	394	8	415	564	52	51	1198	183
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1752	1870	1752	1870
Adj Flow Rate, veh/h	115	280	814	145	406	8	428	581	54	53	1235	189
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	10	2	10	2
Cap, veh/h	140	346	1007	171	721	14	472	1557	144	68	1398	632
Arrive On Green	0.08	0.19	0.19	0.10	0.20	0.20	0.13	0.49	0.49	0.04	0.40	0.40
Sat Flow, veh/h	1781	1870	3170	1781	3564	70	3563	3158	293	1781	3504	1585
Grp Volume(v), veh/h	115	280	814	145	202	212	428	322	313	53	1235	189
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1858	1781	1752	1699	1781	1752	1585
Q Serve(g_s), s	7.6	17.2	22.2	9.6	12.3	12.3	14.2	13.7	13.7	3.5	39.3	9.8
Cycle Q Clear(g_c), s	7.6	17.2	22.2	9.6	12.3	12.3	14.2	13.7	13.7	3.5	39.3	9.8
Prop In Lane	1.00		1.00	1.00		0.04	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	140	346	1007	171	360	376	472	864	838	68	1398	632
V/C Ratio(X)	0.82	0.81	0.81	0.85	0.56	0.56	0.91	0.37	0.37	0.78	0.88	0.30
Avail Cap(c_a), veh/h	171	346	1007	177	360	376	472	864	838	135	1398	632
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.4	46.9	37.6	53.4	43.1	43.1	51.3	18.9	18.9	57.2	33.5	24.6
Incr Delay (d2), s/veh	19.0	12.5	4.7	27.9	1.2	1.2	20.6	1.2	1.3	6.9	8.4	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	9.0	11.2	5.5	5.4	5.6	7.4	5.4	5.2	1.7	16.9	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.4	59.4	42.3	81.3	44.3	44.3	71.9	20.1	20.2	64.0	41.9	25.8
LnGrp LOS	E	E	D	F	D	D	E	C	C	E	D	C
Approach Vol, veh/h		1209			559			1063			1477	
Approach Delay, s/veh		49.2			53.9			41.0			40.6	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	65.7	16.6	28.0	21.0	54.4	14.5	30.1				
Change Period (Y+Rc), s	5.1	6.5	5.1	5.8	5.1	6.5	5.1	5.8				
Max Green Setting (Gmax), s	9.1	54.3	11.9	22.2	15.9	47.5	11.5	22.6				
Max Q Clear Time (g_c+I1), s	5.5	15.7	11.6	24.2	16.2	41.3	9.6	14.3				
Green Ext Time (p_c), s	0.0	2.0	0.0	0.0	0.0	3.0	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay			44.8									
HCM 6th LOS			D									

Lanes, Volumes, Timings
3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

EAP (2021) AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	29	30	321	35	24	16	822	283	114	1651	163
Future Volume (vph)	118	29	30	321	35	24	16	822	283	114	1651	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	95		0	345		0	200		200	190		100
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	60			120			105			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		635			679			843			1788	
Travel Time (s)		14.4			15.4			10.5			22.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.0	20.0		40.0	40.0		10.0	31.4	31.4	10.0	31.4	31.4
Total Split (s)	40.0	40.0		40.0	40.0		10.0	60.0	60.0	20.0	70.0	70.0
Total Split (%)	33.3%	33.3%		33.3%	33.3%		8.3%	50.0%	50.0%	16.7%	58.3%	58.3%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	5.4	5.4	4.0	5.4	5.4
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	6.4	6.4	5.0	6.4	6.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

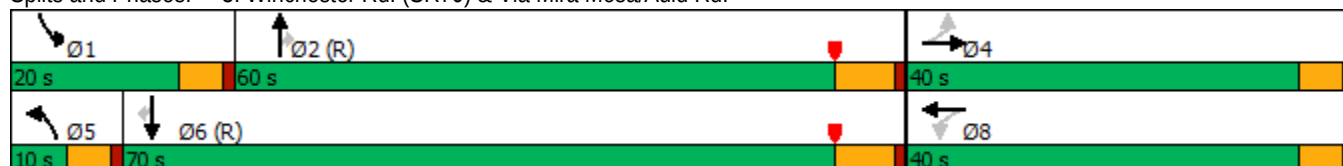
Actuated Cycle Length: 120

Offset: 72 (60%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 105

Control Type: Actuated-Coordinated

Splits and Phases: 3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.



HCM 6th Signalized Intersection Summary
3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

EAP (2021) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	29	30	321	35	24	16	822	283	114	1651	163
Future Volume (veh/h)	118	29	30	321	35	24	16	822	283	114	1651	163
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1870
Adj Flow Rate, veh/h	123	30	31	334	36	25	17	856	295	119	1720	170
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	2
Cap, veh/h	412	243	251	411	296	206	32	1731	783	145	1952	883
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.02	0.49	0.49	0.08	0.56	0.56
Sat Flow, veh/h	1341	843	871	1341	1028	714	1781	3504	1585	1781	3504	1585
Grp Volume(v), veh/h	123	0	61	334	0	61	17	856	295	119	1720	170
Grp Sat Flow(s),veh/h/ln	1341	0	1714	1341	0	1742	1781	1752	1585	1781	1752	1585
Q Serve(g_s), s	8.9	0.0	3.2	29.4	0.0	3.1	1.1	19.6	13.9	7.9	51.2	6.4
Cycle Q Clear(g_c), s	12.0	0.0	3.2	32.5	0.0	3.1	1.1	19.6	13.9	7.9	51.2	6.4
Prop In Lane	1.00		0.51	1.00		0.41	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	412	0	494	411	0	502	32	1731	783	145	1952	883
V/C Ratio(X)	0.30	0.00	0.12	0.81	0.00	0.12	0.53	0.49	0.38	0.82	0.88	0.19
Avail Cap(c_a), veh/h	417	0	500	416	0	508	74	1731	783	223	1952	883
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.0	0.0	31.5	43.5	0.0	31.5	58.4	20.3	18.9	54.3	23.1	13.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	10.7	0.0	0.0	4.9	1.0	1.4	7.5	6.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	1.3	10.9	0.0	1.3	0.5	7.5	5.0	3.7	19.9	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.1	0.0	31.6	54.2	0.0	31.6	63.4	21.3	20.3	61.8	29.2	13.7
LnGrp LOS	D	A	C	D	A	C	E	C	C	E	C	B
Approach Vol, veh/h	184			395			1168			2009		
Approach Delay, s/veh	34.6			50.7			21.7			29.8		
Approach LOS	C			D			C			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.8	65.7		39.6	7.2	73.3		39.6				
Change Period (Y+Rc), s	5.0	6.4		5.0	5.0	6.4		5.0				
Max Green Setting (Gmax), s	15.0	53.6		35.0	5.0	63.6		35.0				
Max Q Clear Time (g_c+I1), s	9.9	21.6		14.0	3.1	53.2		34.5				
Green Ext Time (p_c), s	0.1	8.8		0.4	0.0	8.3		0.1				
Intersection Summary												
HCM 6th Ctrl Delay	29.7											
HCM 6th LOS	C											

Lanes, Volumes, Timings
4: Clinton Keith Rd. - Benton Rd.

EAP (2021) AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	265	190	163	118	358	154	164	18	60	97	36	57
Future Volume (vph)	265	190	163	118	358	154	164	18	60	97	36	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		50	120		50	60		0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (ft)	60			60			60			60		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		673			696			285			219	
Travel Time (s)		10.2			10.5			6.5			5.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Shared Lane Traffic (%)												23%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	28.0	36.0	36.0	28.0	36.0	36.0	33.0	31.0	31.0	25.0	23.0	23.0
Total Split (%)	23.3%	30.0%	30.0%	23.3%	30.0%	30.0%	27.5%	25.8%	25.8%	20.8%	19.2%	19.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (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
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 4: Clinton Keith Rd. - Benton Rd.

 Ø1	 Ø2	 Ø3	 Ø4 (R)
25 s	31 s	28 s	36 s
 Ø5	 Ø6	 Ø7	 Ø8 (R)
33 s	23 s	28 s	36 s

HCM 6th Signalized Intersection Summary 4: Clinton Keith Rd. - Benton Rd.

EAP (2021) AM Peak Hour

																												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR																
Lane Configurations																												
Traffic Volume (veh/h)	265	190	163	118	358	154	164	18	60	97	36	57																
Future Volume (veh/h)	265	190	163	118	358	154	164	18	60	97	36	57																
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0																
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00																
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00																
Work Zone On Approach	No			No			No			No																		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870																
Adj Flow Rate, veh/h	308	221	190	137	416	179	191	21	70	113	60	54																
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86																
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2																
Cap, veh/h	381	1669	744	166	1608	717	223	421	357	140	334	283																
Arrive On Green	0.11	0.47	0.47	0.09	0.45	0.45	0.13	0.22	0.22	0.08	0.18	0.18																
Sat Flow, veh/h	3456	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585																
Grp Volume(v), veh/h	308	221	190	137	416	179	191	21	70	113	60	54																
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585																
Q Serve(g_s), s	10.4	4.2	8.7	9.1	8.7	8.4	12.6	1.1	4.3	7.5	3.3	3.5																
Cycle Q Clear(g_c), s	10.4	4.2	8.7	9.1	8.7	8.4	12.6	1.1	4.3	7.5	3.3	3.5																
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00																
Lane Grp Cap(c), veh/h	381	1669	744	166	1608	717	223	421	357	140	334	283																
V/C Ratio(X)	0.81	0.13	0.26	0.82	0.26	0.25	0.86	0.05	0.20	0.81	0.18	0.19																
Avail Cap(c_a), veh/h	691	1669	744	356	1608	717	430	421	357	312	334	283																
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00																
Upstream Filter(I)	0.63	0.63	0.63	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00																
Uniform Delay (d), s/veh	52.1	18.0	19.2	53.4	20.4	20.3	51.4	36.4	37.7	54.4	41.8	41.9																
Incr Delay (d2), s/veh	2.6	0.1	0.5	9.8	0.4	0.8	9.1	0.2	1.2	10.3	1.2	1.5																
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																
%ile BackOfQ(50%),veh/ln	4.5	1.7	3.2	4.4	3.5	3.1	6.2	0.5	1.8	3.8	1.6	1.4																
Unsig. Movement Delay, s/veh																												
LnGrp Delay(d),s/veh	54.8	18.1	19.7	63.2	20.8	21.1	60.6	36.7	38.9	64.6	43.0	43.4																
LnGrp LOS	D	B	B	E	C	C	E	D	D	E	D	D																
Approach Vol, veh/h	719				732				282																			
Approach Delay, s/veh	34.2				28.8				53.4																			
Approach LOS	C				C				D																			
Timer - Assigned Phs	1	2	3	4	5	6	7	8																				
Phs Duration (G+Y+Rc), s	13.5	31.0	15.2	60.3	19.0	25.4	17.2	58.3																				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0																				
Max Green Setting (Gmax), s	21.0	27.0	24.0	32.0	29.0	19.0	24.0	32.0																				
Max Q Clear Time (g_c+I1), s	9.5	6.3	11.1	10.7	14.6	5.5	12.4	10.7																				
Green Ext Time (p_c), s	0.2	0.3	0.2	1.8	0.4	0.3	0.8	3.0																				
Intersection Summary																												
HCM 6th Ctrl Delay	37.2																											
HCM 6th LOS	D																											
Notes																												
User approved volume balancing among the lanes for turning movement.																												

Lanes, Volumes, Timings
5: Winchester Rd. (SR79) & Project Dwy.

EAP (2021) AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	848	70	0	1960
Future Volume (vph)	0	0	848	70	0	1960
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		55			55
Link Distance (ft)	146		1805			685
Travel Time (s)	3.3		22.4			8.5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
5: Winchester Rd. (SR79) & Project Dwy.

EAP (2021) AM Peak Hour

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕			↕
Traffic Vol, veh/h	0	0	848	70	0	1960
Future Vol, veh/h	0	0	848	70	0	1960
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	893	74	0	2063
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	-	484	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	529	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	529	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	0	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT			
Capacity (veh/h)	-	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	-	-	0	-	-	-
HCM Lane LOS	-	-	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-	-

Lanes, Volumes, Timings
6: Briggs Rd. & Project Dwy. 2

EAP (2021) AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	82	23	0	161	259	59
Future Volume (vph)	82	23	0	161	259	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	144			374	131	
Travel Time (s)	3.3			8.5	3.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
6: Briggs Rd. & Project Dwy. 2

EAP (2021) AM Peak Hour

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	82	23	0	161	259	59
Future Vol, veh/h	82	23	0	161	259	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	86	24	0	169	273	62
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	473	304	335	0	-	0
Stage 1	304	-	-	-	-	-
Stage 2	169	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	550	736	1224	-	-	-
Stage 1	748	-	-	-	-	-
Stage 2	861	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	550	736	1224	-	-	-
Mov Cap-2 Maneuver	550	-	-	-	-	-
Stage 1	748	-	-	-	-	-
Stage 2	861	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	12.6	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1224	-	582	-	-	
HCM Lane V/C Ratio	-	-	0.19	-	-	
HCM Control Delay (s)	0	-	12.6	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.7	-	-	

Lanes, Volumes, Timings
7: Briggs Rd. & Project Dwy. 3

EAP (2021) AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	22	23	0	138	234	48
Future Volume (vph)	22	23	0	138	234	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	161			302	374	
Travel Time (s)	3.7			6.9	8.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
7: Briggs Rd. & Project Dwy. 3

EAP (2021) AM Peak Hour

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	23	0	138	234	48
Future Vol, veh/h	22	23	0	138	234	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	24	0	145	246	51
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	417	272	297	0	-	0
Stage 1	272	-	-	-	-	-
Stage 2	145	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	592	767	1264	-	-	-
Stage 1	774	-	-	-	-	-
Stage 2	882	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	592	767	1264	-	-	-
Mov Cap-2 Maneuver	592	-	-	-	-	-
Stage 1	774	-	-	-	-	-
Stage 2	882	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.8	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1264	-	670	-	-	
HCM Lane V/C Ratio	-	-	0.071	-	-	
HCM Control Delay (s)	0	-	10.8	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

Lanes, Volumes, Timings
8: Briggs Rd. & Project Dwy. 4

EAP (2021) AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	21	0	131	250	8
Future Volume (vph)	7	21	0	131	250	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	177			169	302	
Travel Time (s)	4.0			3.8	6.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
8: Briggs Rd. & Project Dwy. 4

EAP (2021) AM Peak Hour

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	21	0	131	250	8
Future Vol, veh/h	7	21	0	131	250	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	22	0	138	263	8
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	405	267	271	0	-	0
Stage 1	267	-	-	-	-	-
Stage 2	138	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	602	772	1292	-	-	-
Stage 1	778	-	-	-	-	-
Stage 2	889	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	602	772	1292	-	-	-
Mov Cap-2 Maneuver	602	-	-	-	-	-
Stage 1	778	-	-	-	-	-
Stage 2	889	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.2	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1292	-	721	-	-	
HCM Lane V/C Ratio	-	-	0.041	-	-	
HCM Control Delay (s)	0	-	10.2	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	288	706	1486	331	451	980
Future Volume (vph)	288	706	1486	331	451	980
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		550	300	
Storage Lanes	1	1		1	1	
Taper Length (ft)	90				180	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	45		55			55
Link Distance (ft)	673		685			1232
Travel Time (s)	10.2		8.5			15.3
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	10%	2%	2%	10%
Shared Lane Traffic (%)						
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	27.8	10.1	48.5	48.5	10.1	20.0
Total Split (s)	27.8	35.0	57.2	57.2	35.0	92.2
Total Split (%)	23.2%	29.2%	47.7%	47.7%	29.2%	76.8%
Yellow Time (s)	4.8	4.1	5.5	5.5	4.1	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.1	6.5	6.5	5.1	6.5
Lead/Lag		Lead	Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 116 (97%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.



HCM 6th Signalized Intersection Summary

EAP (2021) PM Peak Hour

1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	288	706	1486	331	451	980
Future Volume (veh/h)	288	706	1486	331	451	980
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1752	1870	1870	1752
Adj Flow Rate, veh/h	294	720	1516	338	460	1000
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	10	2	2	10
Cap, veh/h	653	686	1480	670	444	2502
Arrive On Green	0.18	0.18	0.42	0.42	0.25	0.71
Sat Flow, veh/h	3563	1585	3504	1585	1781	3504
Grp Volume(v), veh/h	294	720	1516	338	460	1000
Grp Sat Flow(s),veh/h/ln	1781	1585	1752	1585	1781	1752
Q Serve(g_s), s	8.8	22.0	50.7	18.8	29.9	13.7
Cycle Q Clear(g_c), s	8.8	22.0	50.7	18.8	29.9	13.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	653	686	1480	670	444	2502
V/C Ratio(X)	0.45	1.05	1.02	0.50	1.04	0.40
Avail Cap(c_a), veh/h	653	686	1480	670	444	2502
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	34.0	34.7	25.4	45.0	6.9
Incr Delay (d2), s/veh	0.1	44.8	29.7	2.7	52.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	27.1	25.6	7.0	18.9	4.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.8	78.8	64.4	28.1	97.5	7.3
LnGrp LOS	D	F	F	C	F	A
Approach Vol, veh/h	1014		1854			1460
Approach Delay, s/veh	68.7		57.8			35.7
Approach LOS	E		E			D
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	35.0	57.2			92.2	27.8
Change Period (Y+Rc), s	5.1	6.5			6.5	5.8
Max Green Setting (Gmax), s	29.9	50.7			85.7	22.0
Max Q Clear Time (g_c+I1), s	31.9	52.7			15.7	24.0
Green Ext Time (p_c), s	0.0	0.0			4.3	0.0
Intersection Summary						
HCM 6th Ctrl Delay			52.9			
HCM 6th LOS			D			

Lanes, Volumes, Timings
2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

EAP (2021) PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	207	370	596	97	338	12	609	1476	107	55	738	191
Future Volume (vph)	207	370	596	97	338	12	609	1476	107	55	738	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	195		0	150		0	430		50	630		105
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	60			120			120			120		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		692			817			1397			2514	
Travel Time (s)		10.5			12.4			17.3			31.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	27.8	10.1	10.1	10.8		10.1	38.5	38.5	10.1	47.5	47.5
Total Split (s)	16.0	29.0	29.0	12.0	25.0		29.0	67.0	67.0	12.0	50.0	50.0
Total Split (%)	13.3%	24.2%	24.2%	10.0%	20.8%		24.2%	55.8%	55.8%	10.0%	41.7%	41.7%
Yellow Time (s)	4.1	4.8	4.1	4.1	4.8		4.1	5.5	5.5	4.1	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.1	5.8		5.1	6.5	6.5	5.1	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 32 (27%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.



HCM 6th Signalized Intersection Summary
2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

EAP (2021) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	207	370	596	97	338	12	609	1476	107	55	738	191
Future Volume (veh/h)	207	370	596	97	338	12	609	1476	107	55	738	191
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1870
Adj Flow Rate, veh/h	216	385	621	101	352	12	634	1538	111	57	769	199
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	2
Cap, veh/h	162	362	622	102	288	10	355	1824	825	73	1270	575
Arrive On Green	0.09	0.19	0.19	0.06	0.16	0.16	0.20	0.52	0.52	0.04	0.36	0.36
Sat Flow, veh/h	1781	1870	1585	1781	1798	61	1781	3504	1585	1781	3504	1585
Grp Volume(v), veh/h	216	385	621	101	0	364	634	1538	111	57	769	199
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1859	1781	1752	1585	1781	1752	1585
Q Serve(g_s), s	10.9	23.2	23.2	6.8	0.0	19.2	23.9	45.0	4.3	3.8	21.5	11.0
Cycle Q Clear(g_c), s	10.9	23.2	23.2	6.8	0.0	19.2	23.9	45.0	4.3	3.8	21.5	11.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	162	362	622	102	0	297	355	1824	825	73	1270	575
V/C Ratio(X)	1.33	1.06	1.00	0.99	0.00	1.22	1.79	0.84	0.13	0.78	0.61	0.35
Avail Cap(c_a), veh/h	162	362	622	102	0	297	355	1824	825	102	1270	575
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.5	48.4	36.4	56.5	0.0	50.4	48.0	24.6	14.8	57.0	31.2	27.9
Incr Delay (d2), s/veh	186.6	65.5	35.6	84.1	0.0	126.9	365.3	5.0	0.3	13.9	2.1	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.1	17.0	23.2	5.4	0.0	19.1	46.1	17.7	1.6	1.9	8.9	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	241.1	113.9	72.0	140.6	0.0	177.3	413.4	29.6	15.2	70.9	33.4	29.5
LnGrp LOS	F	F	E	F	A	F	F	C	B	E	C	C
Approach Vol, veh/h		1222			465			2283			1025	
Approach Delay, s/veh		115.1			169.3			135.4			34.7	
Approach LOS		F			F			F			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	69.0	12.0	29.0	29.0	50.0	16.0	25.0				
Change Period (Y+Rc), s	5.1	6.5	5.1	5.8	5.1	6.5	5.1	5.8				
Max Green Setting (Gmax), s	6.9	60.5	6.9	23.2	23.9	43.5	10.9	19.2				
Max Q Clear Time (g_c+I1), s	5.8	47.0	8.8	25.2	25.9	23.5	12.9	21.2				
Green Ext Time (p_c), s	0.0	6.0	0.0	0.0	0.0	3.2	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			113.0									
HCM 6th LOS			F									

Lanes, Volumes, Timings
2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

EAP (2021) PM Peak Hour
With Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	207	370	596	97	338	12	609	1476	107	55	738	191
Future Volume (vph)	207	370	596	97	338	12	609	1476	107	55	738	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	195		0	150		0	430		50	630		105
Storage Lanes	1		2	1		0	2		0	1		1
Taper Length (ft)	60			120			120			120		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		692			817			1397			2514	
Travel Time (s)		10.5			12.4			17.3			31.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									6
Detector Phase	7	4	5	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	10.1	27.8	10.1	10.1	10.8		10.1	38.5		10.1	47.5	47.5
Total Split (s)	20.9	31.6	27.6	12.9	23.6		27.6	65.1		10.4	47.9	47.9
Total Split (%)	17.4%	26.3%	23.0%	10.8%	19.7%		23.0%	54.3%		8.7%	39.9%	39.9%
Yellow Time (s)	4.1	4.8	4.1	4.1	4.8		4.1	5.5		4.1	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.1	5.8		5.1	6.5		5.1	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	C-Min

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 32 (27%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

							
Ø1	Ø2 (R)					Ø3	Ø4
10.4 s	65.1 s					12.9 s	31.6 s
							
Ø5	Ø6 (R)					Ø7	Ø8
27.6 s	47.9 s					20.9 s	23.6 s

HCM 6th Signalized Intersection Summary
2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

EAP (2021) PM Peak Hour
With Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	207	370	596	97	338	12	609	1476	107	55	738	191
Future Volume (veh/h)	207	370	596	97	338	12	609	1476	107	55	738	191
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1752	1870	1752	1870
Adj Flow Rate, veh/h	216	385	621	101	352	12	634	1538	111	57	769	199
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	10	2	10	2
Cap, veh/h	235	402	1276	116	520	18	668	1587	114	73	1209	547
Arrive On Green	0.13	0.21	0.21	0.06	0.15	0.15	0.19	0.49	0.49	0.04	0.34	0.34
Sat Flow, veh/h	1781	1870	3170	1781	3506	119	3563	3230	232	1781	3504	1585
Grp Volume(v), veh/h	216	385	621	101	178	186	634	830	819	57	769	199
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1849	1781	1752	1710	1781	1752	1585
Q Serve(g_s), s	14.4	24.4	17.5	6.7	11.4	11.4	21.1	54.9	56.1	3.8	22.1	11.3
Cycle Q Clear(g_c), s	14.4	24.4	17.5	6.7	11.4	11.4	21.1	54.9	56.1	3.8	22.1	11.3
Prop In Lane	1.00		1.00	1.00		0.06	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	235	402	1276	116	264	274	668	861	840	73	1209	547
V/C Ratio(X)	0.92	0.96	0.49	0.87	0.68	0.68	0.95	0.96	0.98	0.78	0.64	0.36
Avail Cap(c_a), veh/h	235	402	1276	116	264	274	668	861	840	79	1209	547
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	46.6	26.6	55.6	48.4	48.4	48.2	29.5	29.8	57.0	33.0	29.4
Incr Delay (d2), s/veh	37.3	33.7	0.1	45.4	5.5	5.4	22.8	23.1	25.6	32.1	2.6	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	14.7	6.3	4.4	5.3	5.6	11.0	26.0	26.3	2.3	9.2	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.8	80.2	26.7	101.0	53.9	53.8	71.0	52.6	55.4	89.1	35.5	31.3
LnGrp LOS	F	F	C	F	D	D	E	D	E	F	D	C
Approach Vol, veh/h	1222			465			2283			1025		
Approach Delay, s/veh	54.6			64.1			58.7			37.7		
Approach LOS	D			E			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	65.5	12.9	31.6	27.6	47.9	20.9	23.6				
Change Period (Y+Rc), s	5.1	6.5	5.1	5.8	5.1	6.5	5.1	5.8				
Max Green Setting (Gmax), s	5.3	58.6	7.8	25.8	22.5	41.4	15.8	17.8				
Max Q Clear Time (g_c+I1), s	5.8	58.1	8.7	26.4	23.1	24.1	16.4	13.4				
Green Ext Time (p_c), s	0.0	0.3	0.0	0.0	0.0	3.1	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay	53.9											
HCM 6th LOS	D											

Lanes, Volumes, Timings
3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

EAP (2021) PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	23	38	355	31	55	29	1765	230	47	1050	121
Future Volume (vph)	77	23	38	355	31	55	29	1765	230	47	1050	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	95		0	345		0	200		200	190		100
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	60			120			105			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		635			679			843			1788	
Travel Time (s)		14.4			15.4			10.5			22.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.0	20.0		40.0	40.0		10.0	31.4	31.4	10.0	31.4	31.4
Total Split (s)	40.0	40.0		40.0	40.0		11.0	70.0	70.0	10.0	69.0	69.0
Total Split (%)	33.3%	33.3%		33.3%	33.3%		9.2%	58.3%	58.3%	8.3%	57.5%	57.5%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	5.4	5.4	4.0	5.4	5.4
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	6.4	6.4	5.0	6.4	6.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 60 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 105

Control Type: Actuated-Coordinated

Splits and Phases: 3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.



HCM 6th Signalized Intersection Summary
3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

EAP (2021) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	23	38	355	31	55	29	1765	230	47	1050	121
Future Volume (veh/h)	77	23	38	355	31	55	29	1765	230	47	1050	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1870
Adj Flow Rate, veh/h	79	24	39	366	32	57	30	1820	237	48	1082	125
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	2
Cap, veh/h	390	187	304	414	176	313	47	1882	851	62	1911	864
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.03	0.54	0.54	0.03	0.55	0.55
Sat Flow, veh/h	1308	641	1042	1339	603	1074	1781	3504	1585	1781	3504	1585
Grp Volume(v), veh/h	79	0	63	366	0	89	30	1820	237	48	1082	125
Grp Sat Flow(s),veh/h/ln	1308	0	1683	1339	0	1677	1781	1752	1585	1781	1752	1585
Q Serve(g_s), s	5.8	0.0	3.3	31.7	0.0	4.8	2.0	60.1	9.8	3.2	24.4	4.7
Cycle Q Clear(g_c), s	10.5	0.0	3.3	35.0	0.0	4.8	2.0	60.1	9.8	3.2	24.4	4.7
Prop In Lane	1.00		0.62	1.00		0.64	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	390	0	491	414	0	489	47	1882	851	62	1911	864
V/C Ratio(X)	0.20	0.00	0.13	0.88	0.00	0.18	0.64	0.97	0.28	0.78	0.57	0.14
Avail Cap(c_a), veh/h	390	0	491	414	0	489	89	1882	851	74	1911	864
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.7	0.0	31.3	44.7	0.0	31.8	57.9	26.8	15.1	57.5	17.9	13.5
Incr Delay (d2), s/veh	0.1	0.0	0.0	19.2	0.0	0.1	5.3	14.3	0.8	28.0	1.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	1.4	13.1	0.0	2.0	0.9	25.4	3.4	1.9	9.1	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	0.0	31.3	63.9	0.0	31.9	63.1	41.1	15.9	85.4	19.2	13.8
LnGrp LOS	D	A	C	E	A	C	E	D	B	F	B	B
Approach Vol, veh/h		142			455			2087			1255	
Approach Delay, s/veh		33.8			57.6			38.6			21.2	
Approach LOS		C			E			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	70.8		40.0	8.2	71.8		40.0				
Change Period (Y+Rc), s	5.0	6.4		5.0	5.0	6.4		5.0				
Max Green Setting (Gmax), s	5.0	63.6		35.0	6.0	62.6		35.0				
Max Q Clear Time (g_c+I1), s	5.2	62.1		12.5	4.0	26.4		37.0				
Green Ext Time (p_c), s	0.0	1.4		0.3	0.0	10.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			35.0									
HCM 6th LOS			D									

Lanes, Volumes, Timings
4: Clinton Keith Rd. - Benton Rd.

EAP (2021) PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	345	272	156	113	315	222	335	50	112	223	29	105
Future Volume (vph)	345	272	156	113	315	222	335	50	112	223	29	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		50	120		50	60		0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (ft)	60			60			60			60		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		673			696			285			219	
Travel Time (s)		10.2			10.5			6.5			5.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												38%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	25.0	37.0	37.0	20.0	32.0	32.0	43.0	31.0	31.0	32.0	20.0	20.0
Total Split (%)	20.8%	30.8%	30.8%	16.7%	26.7%	26.7%	35.8%	25.8%	25.8%	26.7%	16.7%	16.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (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
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max

Intersection Summary

Area Type: Other

Cycle Length: 120

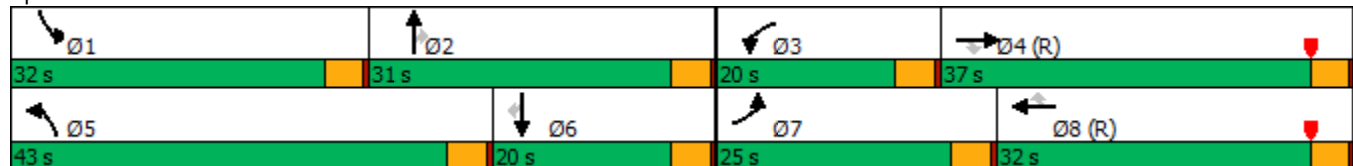
Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Splits and Phases: 4: Clinton Keith Rd. - Benton Rd.



HCM 6th Signalized Intersection Summary

4: Clinton Keith Rd. - Benton Rd.

EAP (2021) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	345	272	156	113	315	222	335	50	112	223	29	105
Future Volume (veh/h)	345	272	156	113	315	222	335	50	112	223	29	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	379	299	171	124	346	244	368	55	123	245	94	74
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	448	1427	636	151	1267	565	403	421	357	277	289	245
Arrive On Green	0.13	0.40	0.40	0.08	0.36	0.36	0.23	0.22	0.22	0.16	0.15	0.15
Sat Flow, veh/h	3456	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	379	299	171	124	346	244	368	55	123	245	94	74
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	12.9	6.6	8.7	8.2	8.3	14.1	24.2	2.8	7.8	16.2	5.4	5.0
Cycle Q Clear(g_c), s	12.9	6.6	8.7	8.2	8.3	14.1	24.2	2.8	7.8	16.2	5.4	5.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	448	1427	636	151	1267	565	403	421	357	277	289	245
V/C Ratio(X)	0.85	0.21	0.27	0.82	0.27	0.43	0.91	0.13	0.34	0.88	0.33	0.30
Avail Cap(c_a), veh/h	605	1427	636	238	1267	565	579	421	357	416	289	245
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.72	0.72	0.72	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.0	23.5	24.1	54.0	27.5	29.4	45.3	37.1	39.1	49.6	45.2	45.0
Incr Delay (d2), s/veh	6.0	0.2	0.7	11.9	0.5	2.4	14.7	0.6	2.6	14.0	3.0	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	2.7	3.3	4.1	3.5	5.5	12.3	1.4	3.2	8.3	2.7	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.1	23.7	24.8	65.9	28.1	31.8	60.0	37.8	41.7	63.6	48.2	48.2
LnGrp LOS	E	C	C	E	C	C	E	D	D	E	D	D
Approach Vol, veh/h		849			714			546			413	
Approach Delay, s/veh		38.8			35.9			53.7			57.3	
Approach LOS		D			D			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.7	31.0	14.2	52.2	31.1	22.5	19.6	46.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	28.0	27.0	16.0	33.0	39.0	16.0	21.0	28.0				
Max Q Clear Time (g_c+I1), s	18.2	9.8	10.2	10.7	26.2	7.4	14.9	16.1				
Green Ext Time (p_c), s	0.5	0.6	0.1	2.2	0.9	0.4	0.7	2.3				
Intersection Summary												
HCM 6th Ctrl Delay			44.2									
HCM 6th LOS			D									
Notes												
User approved volume balancing among the lanes for turning movement.												

Lanes, Volumes, Timings
5: Winchester Rd. (SR79) & Project Dwy.

EAP (2021) PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	0	0	1817	76	0	1269
Future Volume (vph)	0	0	1817	76	0	1269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		55			55
Link Distance (ft)	146		1805			685
Travel Time (s)	3.3		22.4			8.5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
5: Winchester Rd. (SR79) & Project Dwy.

EAP (2021) PM Peak Hour

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕			↕
Traffic Vol, veh/h	0	0	1817	76	0	1269
Future Vol, veh/h	0	0	1817	76	0	1269
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1913	80	0	1336
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	-	997	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	243	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	243	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	0	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT			
Capacity (veh/h)	-	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	-	-	0	-	-	-
HCM Lane LOS	-	-	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-	-

Lanes, Volumes, Timings
6: Briggs Rd. & Project Dwy. 2

EAP (2021) PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	90	26	0	405	234	64
Future Volume (vph)	90	26	0	405	234	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	144			374	131	
Travel Time (s)	3.3			8.5	3.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
6: Briggs Rd. & Project Dwy. 2

EAP (2021) PM Peak Hour

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	90	26	0	405	234	64
Future Vol, veh/h	90	26	0	405	234	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	95	27	0	426	246	67
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	706	280	313	0	-	0
Stage 1	280	-	-	-	-	-
Stage 2	426	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	402	759	1247	-	-	-
Stage 1	767	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	402	759	1247	-	-	-
Mov Cap-2 Maneuver	402	-	-	-	-	-
Stage 1	767	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	16	0		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1247	-	449	-	-	
HCM Lane V/C Ratio	-	-	0.272	-	-	
HCM Control Delay (s)	0	-	16	-	-	
HCM Lane LOS	A	-	C	-	-	
HCM 95th %tile Q(veh)	0	-	1.1	-	-	

Lanes, Volumes, Timings
7: Briggs Rd. & Project Dwy. 3

EAP (2021) PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	26	26	0	380	207	52
Future Volume (vph)	26	26	0	380	207	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	161			302	374	
Travel Time (s)	3.7			6.9	8.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	26	0	380	207	52
Future Vol, veh/h	26	26	0	380	207	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	27	0	400	218	55

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	646	246	273
Stage 1	246	-	-
Stage 2	400	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	436	793	1290
Stage 1	795	-	-
Stage 2	677	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	436	793	1290
Mov Cap-2 Maneuver	436	-	-
Stage 1	795	-	-
Stage 2	677	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1290	-	563	-	-
HCM Lane V/C Ratio	-	-	0.097	-	-
HCM Control Delay (s)	0	-	12.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Lanes, Volumes, Timings
8: Briggs Rd. & Project Dwy. 4

EAP (2021) PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	9	23	0	371	225	9
Future Volume (vph)	9	23	0	371	225	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	177			169	302	
Travel Time (s)	4.0			3.8	6.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
8: Briggs Rd. & Project Dwy. 4

EAP (2021) PM Peak Hour

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	23	0	371	225	9
Future Vol, veh/h	9	23	0	371	225	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	24	0	391	237	9
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	633	242	246	0	-	0
Stage 1	242	-	-	-	-	-
Stage 2	391	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	444	797	1320	-	-	-
Stage 1	798	-	-	-	-	-
Stage 2	683	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	444	797	1320	-	-	-
Mov Cap-2 Maneuver	444	-	-	-	-	-
Stage 1	798	-	-	-	-	-
Stage 2	683	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.8	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1320	-	651	-	-	
HCM Lane V/C Ratio	-	-	0.052	-	-	
HCM Control Delay (s)	0	-	10.8	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

APPENDIX F

EXISTING PLUS AMBIENT PLUS CUMULATIVE PLUS PROJECT
(E+A+C+P 2021) CONDITIONS
INTERSECTION ANALYSIS CALCULATION WORKSHEETS

Lanes, Volumes, Timings

EAPC (2021) AM Peak Hour

1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.

With Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	23	57	359	36	439	134	879	177	651	2041	23
Future Volume (vph)	56	23	57	359	36	439	134	879	177	651	2041	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	225		150	150		550	300		300
Storage Lanes	1		1	2		1	1		1	2		0
Taper Length (ft)	60			90			60			180		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		384			674			410			1232	
Travel Time (s)		5.8			10.2			5.1			15.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	4.0	5.0	5.0	
Minimum Split (s)	8.0	20.0	8.0	8.0	27.8	10.1	8.0	48.5	8.0	10.1	20.0	
Total Split (s)	10.0	20.0	17.0	19.0	29.0	32.1	17.0	48.9	19.0	32.1	64.0	
Total Split (%)	8.3%	16.7%	14.2%	15.8%	24.2%	26.8%	14.2%	40.8%	15.8%	26.8%	53.3%	
Yellow Time (s)	3.5	3.5	3.5	3.5	4.8	4.1	3.5	5.5	3.5	4.1	5.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	1.0	1.0	0.5	1.0	0.5	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	5.8	5.1	4.0	6.5	4.0	5.1	6.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Min	None	None	C-Min	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 105

Control Type: Actuated-Coordinated

Splits and Phases: 1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.



HCM 6th Signalized Intersection Summary

EAPC (2021) AM Peak Hour

1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.

With Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	23	57	359	36	439	134	879	177	651	2041	23
Future Volume (veh/h)	56	23	57	359	36	439	134	879	177	651	2041	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1752
Adj Flow Rate, veh/h	59	24	60	378	38	462	141	925	186	685	2148	24
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	10
Cap, veh/h	76	251	261	433	280	1000	168	2211	860	743	2825	32
Arrive On Green	0.04	0.07	0.07	0.12	0.15	0.15	0.09	0.42	0.42	0.21	0.54	0.54
Sat Flow, veh/h	1781	3554	1585	3563	1870	2790	1781	5255	1585	3563	5187	58
Grp Volume(v), veh/h	59	24	60	378	38	462	141	925	186	685	1450	722
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1870	1395	1781	1752	1585	1781	1752	1741
Q Serve(g_s), s	3.9	0.8	3.9	12.5	2.1	15.3	9.3	14.8	7.3	22.6	38.6	38.7
Cycle Q Clear(g_c), s	3.9	0.8	3.9	12.5	2.1	15.3	9.3	14.8	7.3	22.6	38.6	38.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	76	251	261	433	280	1000	168	2211	860	743	1908	948
V/C Ratio(X)	0.78	0.10	0.23	0.87	0.14	0.46	0.84	0.42	0.22	0.92	0.76	0.76
Avail Cap(c_a), veh/h	89	474	360	445	362	1121	193	2211	860	802	1908	948
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.84	0.84	0.84	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.9	52.2	43.5	51.8	44.3	29.6	53.5	24.4	14.2	46.5	21.2	21.3
Incr Delay (d2), s/veh	30.2	0.2	0.4	14.6	0.1	0.1	24.5	0.6	0.6	14.7	2.9	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.3	1.5	6.3	1.0	4.9	5.2	5.8	2.6	11.0	14.6	15.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.0	52.3	44.0	66.4	44.4	29.7	78.0	25.0	14.8	61.2	24.1	27.0
LnGrp LOS	F	D	D	E	D	C	E	C	B	E	C	C
Approach Vol, veh/h	143				878				1252			
Approach Delay, s/veh	63.1				46.1				29.5			
Approach LOS	E				D				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.1	57.0	18.6	14.3	15.3	71.8	9.1	23.8				
Change Period (Y+Rc), s	5.1	6.5	4.0	* 5.8	4.0	6.5	4.0	5.8				
Max Green Setting (Gmax), s	27.0	42.4	15.0	* 16	13.0	57.5	6.0	23.2				
Max Q Clear Time (g_c+I1), s	24.6	16.8	14.5	5.9	11.3	40.7	5.9	17.3				
Green Ext Time (p_c), s	0.4	4.1	0.1	0.1	0.0	8.8	0.0	0.7				

Intersection Summary

HCM 6th Ctrl Delay 35.6

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings
2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

EAPC (2021) AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	397	1225	179	502	16	632	636	105	65	1312	267
Future Volume (vph)	138	397	1225	179	502	16	632	636	105	65	1312	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	195		0	150		0	430		50	630		105
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	60			120			120			120		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		692			817			1397			2514	
Travel Time (s)		10.5			12.4			17.3			31.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	27.8	10.1	10.1	10.8		10.1	38.5	38.5	10.1	47.5	47.5
Total Split (s)	12.0	29.0	26.0	13.0	30.0		26.0	62.8	62.8	15.2	52.0	52.0
Total Split (%)	10.0%	24.2%	21.7%	10.8%	25.0%		21.7%	52.3%	52.3%	12.7%	43.3%	43.3%
Yellow Time (s)	4.1	4.8	4.1	4.1	4.8		4.1	5.5	5.5	4.1	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.1	5.8		5.1	6.5	6.5	5.1	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 52 (43%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.



HCM 6th Signalized Intersection Summary
2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

EAPC (2021) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	138	397	1225	179	502	16	632	636	105	65	1312	267
Future Volume (veh/h)	138	397	1225	179	502	16	632	636	105	65	1312	267
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1870
Adj Flow Rate, veh/h	142	409	1263	185	518	16	652	656	108	67	1353	275
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	2
Cap, veh/h	102	362	583	117	364	11	310	1770	801	86	1328	601
Arrive On Green	0.06	0.19	0.19	0.07	0.20	0.20	0.17	0.51	0.51	0.05	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	1781	1805	56	1781	3504	1585	1781	3504	1585
Grp Volume(v), veh/h	142	409	1263	185	0	534	652	656	108	67	1353	275
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1860	1781	1752	1585	1781	1752	1585
Q Serve(g_s), s	6.9	23.2	23.2	7.9	0.0	24.2	20.9	13.7	4.3	4.5	45.5	15.6
Cycle Q Clear(g_c), s	6.9	23.2	23.2	7.9	0.0	24.2	20.9	13.7	4.3	4.5	45.5	15.6
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	102	362	583	117	0	375	310	1770	801	86	1328	601
V/C Ratio(X)	1.39	1.13	2.17	1.58	0.00	1.42	2.10	0.37	0.13	0.78	1.02	0.46
Avail Cap(c_a), veh/h	102	362	583	117	0	375	310	1770	801	150	1328	601
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.5	48.4	38.0	56.0	0.0	47.9	49.5	18.1	15.8	56.5	37.2	28.0
Incr Delay (d2), s/veh	223.0	87.8	531.4	296.6	0.0	205.5	506.5	0.6	0.4	5.6	29.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.4	19.3	102.1	13.1	0.0	32.2	52.5	5.2	1.6	2.1	23.3	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	279.6	136.2	569.3	352.7	0.0	253.4	556.1	18.7	16.1	62.1	66.7	30.5
LnGrp LOS	F	F	F	F	A	F	F	B	B	E	F	C
Approach Vol, veh/h		1814			719			1416			1695	
Approach Delay, s/veh		449.0			278.9			265.9			60.6	
Approach LOS		F			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.9	67.1	13.0	29.0	26.0	52.0	12.0	30.0				
Change Period (Y+Rc), s	5.1	6.5	5.1	5.8	5.1	6.5	5.1	5.8				
Max Green Setting (Gmax), s	10.1	56.3	7.9	23.2	20.9	45.5	6.9	24.2				
Max Q Clear Time (g_c+I1), s	6.5	15.7	9.9	25.2	22.9	47.5	8.9	26.2				
Green Ext Time (p_c), s	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			264.8									
HCM 6th LOS			F									

Lanes, Volumes, Timings

EAPC (2021) AM Peak Hour

2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

With Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	397	1225	179	502	16	632	636	105	65	1312	267
Future Volume (vph)	138	397	1225	179	502	16	632	636	105	65	1312	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	195		200	150		0	430		0	630		105
Storage Lanes	2		1	2		0	2		0	1		1
Taper Length (ft)	60			120			120			120		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		692			817			1397			2514	
Travel Time (s)		10.5			12.4			17.3			31.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									6
Detector Phase	7	4	5	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	10.1	27.8	10.1	10.1	10.8		10.1	38.5		10.1	47.5	47.5
Total Split (s)	12.4	32.0	27.2	12.0	31.6		27.2	60.8		15.2	48.8	48.8
Total Split (%)	10.3%	26.7%	22.7%	10.0%	26.3%		22.7%	50.7%		12.7%	40.7%	40.7%
Yellow Time (s)	4.1	4.8	4.1	4.1	4.8		4.1	5.5		4.1	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.1	5.8		5.1	6.5		5.1	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 52 (43%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

				
Ø1	Ø2 (R)		Ø3	Ø4
15.2 s	60.8 s		12 s	32 s
				
Ø5	Ø6 (R)		Ø7	Ø8
27.2 s	48.8 s		12.4 s	31.6 s

HCM 6th Signalized Intersection Summary
2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

EAPC (2021) AM Peak Hour
With Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	138	397	1225	179	502	16	632	636	105	65	1312	267
Future Volume (veh/h)	138	397	1225	179	502	16	632	636	105	65	1312	267
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1752	1870	1752	1870
Adj Flow Rate, veh/h	142	409	1263	185	518	16	652	656	108	67	1353	275
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	10	2	10	2
Cap, veh/h	198	408	1276	205	775	24	656	2154	350	86	1853	559
Arrive On Green	0.06	0.22	0.22	0.06	0.22	0.22	0.18	0.49	0.49	0.05	0.35	0.35
Sat Flow, veh/h	3563	1870	3170	3563	3519	109	3563	4410	716	1781	5255	1585
Grp Volume(v), veh/h	142	409	1263	185	261	273	652	519	245	67	1353	275
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1851	1781	1752	1623	1781	1752	1585
Q Serve(g_s), s	4.7	26.2	26.2	6.2	16.1	16.2	21.9	10.7	10.9	4.5	26.9	16.3
Cycle Q Clear(g_c), s	4.7	26.2	26.2	6.2	16.1	16.2	21.9	10.7	10.9	4.5	26.9	16.3
Prop In Lane	1.00		1.00	1.00		0.06	1.00		0.44	1.00		1.00
Lane Grp Cap(c), veh/h	198	408	1276	205	392	408	656	1711	793	86	1853	559
V/C Ratio(X)	0.72	1.00	0.99	0.90	0.67	0.67	0.99	0.30	0.31	0.78	0.73	0.49
Avail Cap(c_a), veh/h	217	408	1276	205	392	408	656	1711	793	150	1853	559
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.7	46.9	35.6	56.2	42.8	42.8	48.9	18.4	18.5	56.5	33.9	30.4
Incr Delay (d2), s/veh	8.0	44.9	22.7	36.6	3.5	3.4	33.4	0.5	1.0	5.6	2.6	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	16.8	21.2	3.8	7.2	7.6	12.3	4.1	4.0	2.1	11.1	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.7	91.8	58.3	92.8	46.3	46.2	82.3	18.9	19.5	62.1	36.5	33.5
LnGrp LOS	E	F	E	F	D	D	F	B	B	E	D	C
Approach Vol, veh/h		1814			719			1416			1695	
Approach Delay, s/veh		66.3			58.2			48.2			37.0	
Approach LOS		E			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.9	65.1	12.0	32.0	27.2	48.8	11.8	32.2				
Change Period (Y+Rc), s	5.1	6.5	5.1	5.8	5.1	6.5	5.1	5.8				
Max Green Setting (Gmax), s	10.1	54.3	6.9	26.2	22.1	42.3	7.3	25.8				
Max Q Clear Time (g_c+I1), s	6.5	12.9	8.2	28.2	23.9	28.9	6.7	18.2				
Green Ext Time (p_c), s	0.0	2.8	0.0	0.0	0.0	5.3	0.0	1.2				
Intersection Summary												
HCM 6th Ctrl Delay			51.9									
HCM 6th LOS			D									

Lanes, Volumes, Timings
3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

EAPC (2021) AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	40	30	359	37	64	16	1190	375	142	2092	167
Future Volume (vph)	125	40	30	359	37	64	16	1190	375	142	2092	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	95		0	345		0	200		200	190		100
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	60			120			105			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		635			679			843			1788	
Travel Time (s)		14.4			15.4			10.5			22.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.0	20.0		40.0	40.0		10.0	31.4	31.4	10.0	31.4	31.4
Total Split (s)	40.0	40.0		40.0	40.0		10.0	62.0	62.0	18.0	70.0	70.0
Total Split (%)	33.3%	33.3%		33.3%	33.3%		8.3%	51.7%	51.7%	15.0%	58.3%	58.3%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	5.4	5.4	4.0	5.4	5.4
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	6.4	6.4	5.0	6.4	6.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

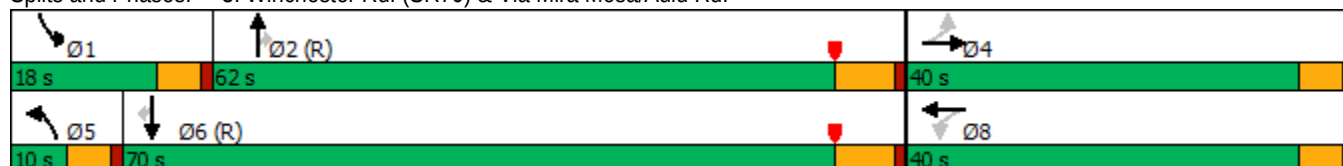
Actuated Cycle Length: 120

Offset: 72 (60%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 105

Control Type: Actuated-Coordinated

Splits and Phases: 3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.



HCM 6th Signalized Intersection Summary
3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

EAPC (2021) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	40	30	359	37	64	16	1190	375	142	2092	167
Future Volume (veh/h)	125	40	30	359	37	64	16	1190	375	142	2092	167
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1870
Adj Flow Rate, veh/h	130	42	31	374	39	67	17	1240	391	148	2179	174
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	2
Cap, veh/h	374	292	215	406	180	310	32	1660	751	174	1940	878
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.02	0.47	0.47	0.10	0.55	0.55
Sat Flow, veh/h	1288	1000	738	1327	618	1061	1781	3504	1585	1781	3504	1585
Grp Volume(v), veh/h	130	0	73	374	0	106	17	1240	391	148	2179	174
Grp Sat Flow(s),veh/h/ln	1288	0	1738	1327	0	1679	1781	1752	1585	1781	1752	1585
Q Serve(g_s), s	10.2	0.0	3.7	31.3	0.0	5.7	1.1	34.6	20.7	9.8	66.4	6.6
Cycle Q Clear(g_c), s	15.9	0.0	3.7	35.0	0.0	5.7	1.1	34.6	20.7	9.8	66.4	6.6
Prop In Lane	1.00		0.42	1.00		0.63	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	374	0	507	406	0	490	32	1660	751	174	1940	878
V/C Ratio(X)	0.35	0.00	0.14	0.92	0.00	0.22	0.53	0.75	0.52	0.85	1.12	0.20
Avail Cap(c_a), veh/h	374	0	507	406	0	490	74	1660	751	193	1940	878
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	0.0	31.4	45.5	0.0	32.1	58.4	25.7	22.1	53.3	26.8	13.4
Incr Delay (d2), s/veh	0.2	0.0	0.0	25.8	0.0	0.1	4.9	3.1	2.6	24.4	63.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	1.6	14.2	0.0	2.4	0.5	13.7	7.6	5.4	40.6	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.4	0.0	31.5	71.3	0.0	32.2	63.4	28.8	24.6	77.6	89.7	13.9
LnGrp LOS	D	A	C	E	A	C	E	C	C	E	F	B
Approach Vol, veh/h		203			480			1648			2501	
Approach Delay, s/veh		35.9			62.7			28.2			83.7	
Approach LOS		D			E			C			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.7	63.3		40.0	7.2	72.8		40.0				
Change Period (Y+Rc), s	5.0	6.4		5.0	5.0	6.4		5.0				
Max Green Setting (Gmax), s	13.0	55.6		35.0	5.0	63.6		35.0				
Max Q Clear Time (g_c+I1), s	11.8	36.6		17.9	3.1	68.4		37.0				
Green Ext Time (p_c), s	0.0	10.9		0.4	0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				60.7								
HCM 6th LOS				E								

Lanes, Volumes, Timings
3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

EAPC (2021) AM Peak Hour
With Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	40	30	359	37	64	16	1190	375	142	2092	167
Future Volume (vph)	125	40	30	359	37	64	16	1190	375	142	2092	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	95		0	345		0	200		200	190		100
Storage Lanes	1		0	2		0	1		1	1		1
Taper Length (ft)	60			120			105			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		635			679			843			1788	
Travel Time (s)		14.4			15.4			10.5			22.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.0	20.0		40.0	40.0		10.0	31.4	31.4	10.0	31.4	31.4
Total Split (s)	40.0	40.0		40.0	40.0		10.0	62.0	62.0	18.0	70.0	70.0
Total Split (%)	33.3%	33.3%		33.3%	33.3%		8.3%	51.7%	51.7%	15.0%	58.3%	58.3%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	5.4	5.4	4.0	5.4	5.4
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	6.4	6.4	5.0	6.4	6.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 72 (60%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated

Splits and Phases: 3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.



HCM 6th Signalized Intersection Summary
3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

EAPC (2021) AM Peak Hour
With Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	40	30	359	37	64	16	1190	375	142	2092	167
Future Volume (veh/h)	125	40	30	359	37	64	16	1190	375	142	2092	167
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1870
Adj Flow Rate, veh/h	130	42	31	374	39	67	17	1240	391	148	2179	174
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	2
Cap, veh/h	245	198	146	551	122	210	32	1989	900	174	2269	1026
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.02	0.57	0.57	0.10	0.65	0.65
Sat Flow, veh/h	1288	1000	738	2654	618	1061	1781	3504	1585	1781	3504	1585
Grp Volume(v), veh/h	130	0	73	374	0	106	17	1240	391	148	2179	174
Grp Sat Flow(s),veh/h/ln	1288	0	1738	1327	0	1679	1781	1752	1585	1781	1752	1585
Q Serve(g_s), s	11.5	0.0	4.2	16.5	0.0	6.5	1.1	28.4	17.0	9.8	69.6	5.2
Cycle Q Clear(g_c), s	18.0	0.0	4.2	20.7	0.0	6.5	1.1	28.4	17.0	9.8	69.6	5.2
Prop In Lane	1.00		0.42	1.00		0.63	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	245	0	344	551	0	332	32	1989	900	174	2269	1026
V/C Ratio(X)	0.53	0.00	0.21	0.68	0.00	0.32	0.53	0.62	0.43	0.85	0.96	0.17
Avail Cap(c_a), veh/h	366	0	507	801	0	490	74	1989	900	193	2269	1026
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.9	0.0	40.3	49.0	0.0	41.2	58.4	17.4	14.9	53.3	19.7	8.4
Incr Delay (d2), s/veh	0.7	0.0	0.1	0.6	0.0	0.2	4.9	1.5	1.5	24.4	11.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	1.8	5.5	0.0	2.7	0.5	10.4	5.8	5.4	25.9	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	0.0	40.4	49.5	0.0	41.4	63.4	18.8	16.4	77.6	31.3	8.7
LnGrp LOS	D	A	D	D	A	D	E	B	B	E	C	A
Approach Vol, veh/h		203			480			1648			2501	
Approach Delay, s/veh		46.3			47.7			18.7			32.5	
Approach LOS		D			D			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.7	74.5		28.7	7.2	84.1		28.7				
Change Period (Y+Rc), s	5.0	6.4		5.0	5.0	6.4		5.0				
Max Green Setting (Gmax), s	13.0	55.6		35.0	5.0	63.6		35.0				
Max Q Clear Time (g_c+I1), s	11.8	30.4		20.0	3.1	71.6		22.7				
Green Ext Time (p_c), s	0.0	12.8		0.4	0.0	0.0		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			29.9									
HCM 6th LOS			C									

Lanes, Volumes, Timings
4: Benton Rd./Clinton Keith Rd. - Benton Rd.

EAPC (2021) AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	265	334	242	142	534	154	179	18	82	97	36	57
Future Volume (vph)	265	334	242	142	534	154	179	18	82	97	36	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		50	120		50	60		0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (ft)	60			60			60			60		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		674			696			285			219	
Travel Time (s)		10.2			10.5			6.5			5.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Shared Lane Traffic (%)												23%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	25.0	40.0	40.0	28.0	43.0	43.0	31.0	30.0	30.0	22.0	21.0	21.0
Total Split (%)	20.8%	33.3%	33.3%	23.3%	35.8%	35.8%	25.8%	25.0%	25.0%	18.3%	17.5%	17.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (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
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 4: Benton Rd./Clinton Keith Rd. - Benton Rd.

 Ø1	 Ø2	 Ø3	 Ø4 (R)
22 s	30 s	28 s	40 s
 Ø5	 Ø6	 Ø7	 Ø8 (R)
31 s	21 s	25 s	43 s

HCM 6th Signalized Intersection Summary
4: Benton Rd./Clinton Keith Rd. - Benton Rd.

EAPC (2021) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	265	334	242	142	534	154	179	18	82	97	36	57
Future Volume (veh/h)	265	334	242	142	534	154	179	18	82	97	36	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	308	388	281	165	621	179	208	21	95	113	60	54
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	382	1642	732	195	1638	730	240	405	343	140	300	255
Arrive On Green	0.04	0.15	0.15	0.11	0.46	0.46	0.13	0.22	0.22	0.08	0.16	0.16
Sat Flow, veh/h	3456	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	308	388	281	165	621	179	208	21	95	113	60	54
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	10.6	11.5	19.2	10.9	13.7	8.2	13.7	1.1	6.0	7.5	3.3	3.6
Cycle Q Clear(g_c), s	10.6	11.5	19.2	10.9	13.7	8.2	13.7	1.1	6.0	7.5	3.3	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	382	1642	732	195	1638	730	240	405	343	140	300	255
V/C Ratio(X)	0.81	0.24	0.38	0.85	0.38	0.25	0.87	0.05	0.28	0.81	0.20	0.21
Avail Cap(c_a), veh/h	605	1642	732	356	1638	730	401	405	343	267	300	255
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.31	0.31	0.31	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.5	32.2	35.5	52.4	21.1	19.7	50.9	37.2	39.2	54.4	43.7	43.8
Incr Delay (d2), s/veh	1.4	0.1	0.5	9.6	0.7	0.8	10.3	0.2	2.0	10.4	1.5	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	5.3	8.2	5.3	5.6	3.1	6.8	0.5	2.5	3.8	1.7	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.9	32.4	36.0	62.0	21.8	20.5	61.2	37.5	41.2	64.8	45.2	45.7
LnGrp LOS	E	C	D	E	C	C	E	D	D	E	D	D
Approach Vol, veh/h		977			965			324			227	
Approach Delay, s/veh		41.4			28.4			53.8			55.1	
Approach LOS		D			C			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.4	30.0	17.1	59.4	20.1	23.3	17.3	59.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	18.0	26.0	24.0	36.0	27.0	17.0	21.0	39.0				
Max Q Clear Time (g_c+I1), s	9.5	8.0	12.9	21.2	15.7	5.6	12.6	15.7				
Green Ext Time (p_c), s	0.2	0.3	0.3	2.9	0.4	0.3	0.7	4.5				
Intersection Summary												
HCM 6th Ctrl Delay			39.3									
HCM 6th LOS			D									
Notes												
User approved volume balancing among the lanes for turning movement.												

Lanes, Volumes, Timings
5: Winchester Rd. (SR79) & Project Dwy.

EAPC (2021) AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	1264	70	0	2433
Future Volume (vph)	0	0	1264	70	0	2433
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		55			55
Link Distance (ft)	146		1805			685
Travel Time (s)	3.3		22.4			8.5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
5: Winchester Rd. (SR79) & Project Dwy.

EAPC (2021) AM Peak Hour

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1264	70	0	2433
Future Vol, veh/h	0	0	1264	70	0	2433
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1331	74	0	2561
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	703	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	380	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	380	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBT		
Capacity (veh/h)	-	-		-		
HCM Lane V/C Ratio	-	-		-		
HCM Control Delay (s)	-	0		-		
HCM Lane LOS	-	A		-		
HCM 95th %tile Q(veh)	-	-		-		

Lanes, Volumes, Timings
6: Briggs Rd. & Project Dwy. 2

EAPC (2021) AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	82	23	0	198	362	59
Future Volume (vph)	82	23	0	198	362	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	144			374	131	
Travel Time (s)	3.3			8.5	3.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
6: Briggs Rd. & Project Dwy. 2

EAPC (2021) AM Peak Hour

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	82	23	0	198	362	59
Future Vol, veh/h	82	23	0	198	362	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	86	24	0	208	381	62
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	620	412	443	0	-	0
Stage 1	412	-	-	-	-	-
Stage 2	208	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	452	640	1117	-	-	-
Stage 1	669	-	-	-	-	-
Stage 2	827	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	452	640	1117	-	-	-
Mov Cap-2 Maneuver	452	-	-	-	-	-
Stage 1	669	-	-	-	-	-
Stage 2	827	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	14.7	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1117	-	483	-	-	
HCM Lane V/C Ratio	-	-	0.229	-	-	
HCM Control Delay (s)	0	-	14.7	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.9	-	-	

Lanes, Volumes, Timings
7: Briggs Rd. & Project Dwy. 3

EAPC (2021) AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	22	23	0	175	337	48
Future Volume (vph)	22	23	0	175	337	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	161			302	374	
Travel Time (s)	3.7			6.9	8.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
7: Briggs Rd. & Project Dwy. 3

EAPC (2021) AM Peak Hour

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	23	0	175	337	48
Future Vol, veh/h	22	23	0	175	337	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	24	0	184	355	51
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	565	381	406	0	-	0
Stage 1	381	-	-	-	-	-
Stage 2	184	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	486	666	1153	-	-	-
Stage 1	691	-	-	-	-	-
Stage 2	848	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	486	666	1153	-	-	-
Mov Cap-2 Maneuver	486	-	-	-	-	-
Stage 1	691	-	-	-	-	-
Stage 2	848	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	12	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1153	-	564	-	-	
HCM Lane V/C Ratio	-	-	0.084	-	-	
HCM Control Delay (s)	0	-	12	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.3	-	-	

Lanes, Volumes, Timings
8: Briggs Rd. & Project Dwy. 4

EAPC (2021) AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	21	0	168	353	8
Future Volume (vph)	7	21	0	168	353	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	177			169	302	
Travel Time (s)	4.0			3.8	6.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
8: Briggs Rd. & Project Dwy. 4

EAPC (2021) AM Peak Hour

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	21	0	168	353	8
Future Vol, veh/h	7	21	0	168	353	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	22	0	177	372	8
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	553	376	380	0	-	0
Stage 1	376	-	-	-	-	-
Stage 2	177	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	494	670	1178	-	-	-
Stage 1	694	-	-	-	-	-
Stage 2	854	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	494	670	1178	-	-	-
Mov Cap-2 Maneuver	494	-	-	-	-	-
Stage 1	694	-	-	-	-	-
Stage 2	854	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.1	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1178	-	615	-	-	
HCM Lane V/C Ratio	-	-	0.048	-	-	
HCM Control Delay (s)	0	-	11.1	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

Lanes, Volumes, Timings

EAPC (2021) PM Peak Hour

1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.

With Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	93	232	371	85	974	300	1990	445	657	1456	27
Future Volume (vph)	117	93	232	371	85	974	300	1990	445	657	1456	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	225		150	150		550	300		300
Storage Lanes	1		1	2		1	1		1	2		0
Taper Length (ft)	60			90			60			180		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		384			673			410			1232	
Travel Time (s)		5.8			10.2			5.1			15.3	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	20.0	20.0	8.0	27.8	27.8	10.1	8.0	48.5	27.8	10.1	11.5	
Total Split (s)	20.0	20.0	25.0	27.8	27.8	22.0	25.0	50.2	27.8	22.0	47.2	
Total Split (%)	16.7%	16.7%	20.8%	23.2%	23.2%	18.3%	20.8%	41.8%	23.2%	18.3%	39.3%	
Yellow Time (s)	3.5	3.5	3.5	4.8	4.8	4.1	3.5	5.5	4.8	4.1	5.5	
All-Red Time (s)	0.5	0.5	0.5	1.0	1.0	1.0	0.5	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	5.8	5.8	5.1	4.0	6.5	5.8	5.1	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Min	None	None	C-Min	

Intersection Summary

Area Type: Other

Cycle Length: 120

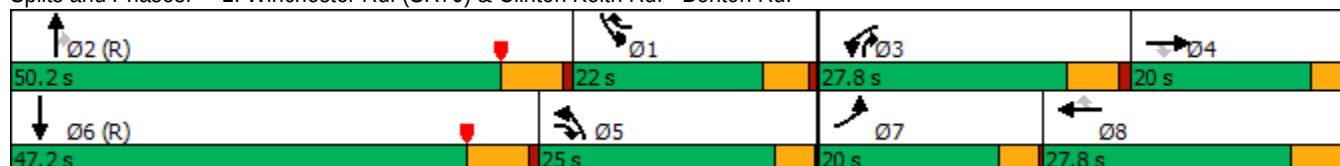
Actuated Cycle Length: 120

Offset: 29 (24%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.



HCM 6th Signalized Intersection Summary

EAPC (2021) PM Peak Hour

1: Winchester Rd. (SR79) & Clinton Keith Rd. - Benton Rd.

With Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	93	232	371	85	974	300	1990	445	657	1456	27
Future Volume (veh/h)	117	93	232	371	85	974	300	1990	445	657	1456	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1752
Adj Flow Rate, veh/h	119	95	237	379	87	994	306	2031	454	670	1486	28
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	10
Cap, veh/h	148	196	575	449	211	1044	548	1914	777	931	1635	31
Arrive On Green	0.08	0.06	0.06	0.04	0.04	0.04	0.31	0.36	0.36	0.26	0.32	0.32
Sat Flow, veh/h	1781	3554	1585	3563	1870	2790	1781	5255	1585	3563	5141	97
Grp Volume(v), veh/h	119	95	237	379	87	994	306	2031	454	670	1013	501
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1870	1395	1781	1752	1585	1781	1752	1734
Q Serve(g_s), s	7.9	3.1	3.7	12.7	5.5	6.3	17.2	43.7	5.0	20.5	33.3	33.3
Cycle Q Clear(g_c), s	7.9	3.1	3.7	12.7	5.5	6.3	17.2	43.7	5.0	20.5	33.3	33.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.06
Lane Grp Cap(c), veh/h	148	196	575	449	211	1044	548	1914	777	931	1114	552
V/C Ratio(X)	0.80	0.49	0.41	0.84	0.41	0.95	0.56	1.06	0.58	0.72	0.91	0.91
Avail Cap(c_a), veh/h	238	474	699	653	343	1241	548	1914	777	931	1188	588
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.53	0.53	0.53	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.0	55.0	11.9	56.3	53.9	19.9	34.7	38.2	8.7	40.3	39.2	39.2
Incr Delay (d2), s/veh	9.6	1.9	0.5	2.5	0.3	8.3	1.3	39.0	3.2	2.4	12.4	21.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	1.4	2.5	6.2	2.6	10.3	7.2	24.2	4.9	8.8	15.2	16.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.7	56.9	12.4	58.9	54.1	28.3	36.0	77.2	11.9	42.7	51.6	60.6
LnGrp LOS	E	E	B	E	D	C	D	F	B	D	D	E
Approach Vol, veh/h	451			1460			2791			2184		
Approach Delay, s/veh	35.3			37.7			62.1			50.9		
Approach LOS	D			D			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	36.5	50.2	20.9	12.4	42.0	44.7	14.0	19.3				
Change Period (Y+Rc), s	5.1	6.5	5.8	* 5.8	5.1	* 6.5	4.0	5.8				
Max Green Setting (Gmax), s	16.9	43.7	22.0	* 16	21.0	* 41	16.0	22.0				
Max Q Clear Time (g_c+I1), s	22.5	45.7	14.7	5.7	19.2	35.3	9.9	8.3				
Green Ext Time (p_c), s	0.0	0.0	0.5	0.9	0.2	2.9	0.1	2.5				

Intersection Summary

HCM 6th Ctrl Delay 51.6

HCM 6th LOS D

Notes

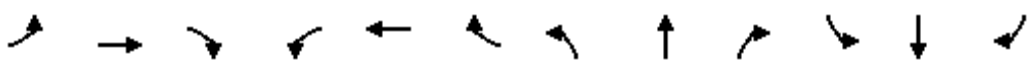
User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings

EAPC (2021) PM Peak Hour

2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	328	633	1120	214	612	42	1173	1692	217	83	807	390
Future Volume (vph)	328	633	1120	214	612	42	1173	1692	217	83	807	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	195		0	150		0	430		50	630		105
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	60			120			120			120		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		692			817			1397			2514	
Travel Time (s)		10.5			12.4			17.3			31.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	27.8	10.1	10.1	10.8		10.1	38.5	38.5	10.1	47.5	47.5
Total Split (s)	13.0	31.0	26.0	12.0	30.0		26.0	66.9	66.9	10.1	51.0	51.0
Total Split (%)	10.8%	25.8%	21.7%	10.0%	25.0%		21.7%	55.8%	55.8%	8.4%	42.5%	42.5%
Yellow Time (s)	4.1	4.8	4.1	4.1	4.8		4.1	5.5	5.5	4.1	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.1	5.8		5.1	6.5	6.5	5.1	6.5	6.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 32 (27%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.



HCM 6th Signalized Intersection Summary
2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

EAPC (2021) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	328	633	1120	214	612	42	1173	1692	217	83	807	390
Future Volume (veh/h)	328	633	1120	214	612	42	1173	1692	217	83	807	390
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1870
Adj Flow Rate, veh/h	342	659	1167	223	638	44	1222	1762	226	86	841	406
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	2
Cap, veh/h	117	393	609	102	349	24	310	1763	798	74	1299	588
Arrive On Green	0.07	0.21	0.21	0.06	0.20	0.20	0.17	0.50	0.50	0.04	0.37	0.37
Sat Flow, veh/h	1781	1870	1585	1781	1730	119	1781	3504	1585	1781	3504	1585
Grp Volume(v), veh/h	342	659	1167	223	0	682	1222	1762	226	86	841	406
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1849	1781	1752	1585	1781	1752	1585
Q Serve(g_s), s	7.9	25.2	25.2	6.9	0.0	24.2	20.9	60.3	9.9	5.0	23.8	26.0
Cycle Q Clear(g_c), s	7.9	25.2	25.2	6.9	0.0	24.2	20.9	60.3	9.9	5.0	23.8	26.0
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	117	393	609	102	0	373	310	1763	798	74	1299	588
V/C Ratio(X)	2.92	1.68	1.92	2.18	0.00	1.83	3.94	1.00	0.28	1.16	0.65	0.69
Avail Cap(c_a), veh/h	117	393	609	102	0	373	310	1763	798	74	1299	588
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.0	47.4	36.9	56.5	0.0	47.9	49.5	29.8	17.3	57.5	31.3	31.9
Incr Delay (d2), s/veh	885.1	316.0	418.5	560.5	0.0	383.5	1330.2	21.2	0.9	153.7	2.5	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	32.3	45.8	87.6	19.0	0.0	50.5	123.5	27.4	3.6	5.3	9.8	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	941.2	363.4	455.5	617.0	0.0	431.4	1379.8	51.0	18.2	211.2	33.8	38.5
LnGrp LOS	F	F	F	F	A	F	F	D	B	F	C	D
Approach Vol, veh/h	2168				905				3210			
Approach Delay, s/veh	504.1				477.1				554.5			
Approach LOS	F				F				F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.1	66.9	12.0	31.0	26.0	51.0	13.0	30.0				
Change Period (Y+Rc), s	5.1	6.5	5.1	5.8	5.1	6.5	5.1	5.8				
Max Green Setting (Gmax), s	5.0	60.4	6.9	25.2	20.9	44.5	7.9	24.2				
Max Q Clear Time (g_c+I1), s	7.0	62.3	8.9	27.2	22.9	28.0	9.9	26.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	3.7	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	442.1											
HCM 6th LOS	F											

Lanes, Volumes, Timings

EAPC (2021) PM Peak Hour

2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

With Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	328	633	1120	214	612	42	1173	1692	217	83	807	390
Future Volume (vph)	328	633	1120	214	612	42	1173	1692	217	83	807	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	195		200	150		0	430		0	630		105
Storage Lanes	2		1	2		0	2		0	1		1
Taper Length (ft)	60			120			120			120		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		692			817			1397			2514	
Travel Time (s)		10.5			12.4			17.3			31.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases			4									6
Detector Phase	7	4	5	3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	10.1	27.8	10.1	10.1	10.8		10.1	38.5		10.1	47.5	10.1
Total Split (s)	17.6	35.0	25.0	11.0	28.4		25.0	61.2		12.8	49.0	17.6
Total Split (%)	14.7%	29.2%	20.8%	9.2%	23.7%		20.8%	51.0%		10.7%	40.8%	14.7%
Yellow Time (s)	4.1	4.8	4.1	4.1	4.8		4.1	5.5		4.1	5.5	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.1	5.8		5.1	6.5		5.1	6.5	5.1
Lead/Lag	Lag	Lag	Lag	Lead	Lead		Lag	Lag		Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	None

Intersection Summary

Area Type: Other

Cycle Length: 120

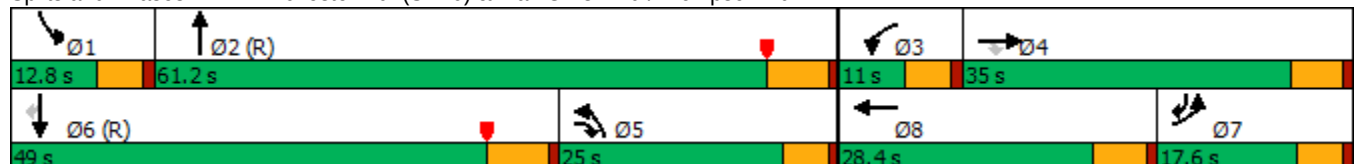
Actuated Cycle Length: 120

Offset: 39 (33%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.



HCM 6th Signalized Intersection Summary 2: Winchester Rd. (SR79) & Max Gillis Blvd./Thompson Rd.

EAPC (2021) PM Peak Hour
With Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	328	633	1120	214	612	42	1173	1692	217	83	807	390
Future Volume (veh/h)	328	633	1120	214	612	42	1173	1692	217	83	807	390
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1752	1870	1752	1870
Adj Flow Rate, veh/h	342	659	1167	223	638	44	1222	1762	226	86	841	406
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	10	2	10	2
Cap, veh/h	371	466	1742	175	635	44	1070	2072	264	108	1063	486
Arrive On Green	0.10	0.25	0.25	0.05	0.19	0.19	0.30	0.45	0.45	0.06	0.20	0.20
Sat Flow, veh/h	3563	1870	3170	3563	3373	232	3563	4568	582	1781	5255	1585
Grp Volume(v), veh/h	342	659	1167	223	336	346	1222	1349	639	86	841	406
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1829	1781	1752	1647	1781	1752	1585
Q Serve(g_s), s	11.4	29.9	6.4	5.9	22.6	22.6	36.0	41.1	41.6	5.7	18.2	16.2
Cycle Q Clear(g_c), s	11.4	29.9	6.4	5.9	22.6	22.6	36.0	41.1	41.6	5.7	18.2	16.2
Prop In Lane	1.00		1.00	1.00		0.13	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	371	466	1742	175	335	344	1070	1589	747	108	1063	486
V/C Ratio(X)	0.92	1.41	0.67	1.27	1.00	1.01	1.14	0.85	0.86	0.80	0.79	0.84
Avail Cap(c_a), veh/h	371	466	1742	175	335	344	1070	1597	751	114	1861	726
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.3	45.1	7.0	57.1	48.7	48.7	42.0	29.1	29.3	55.6	45.5	38.8
Incr Delay (d2), s/veh	27.4	198.7	0.8	159.8	50.0	49.9	75.5	5.9	12.1	27.3	6.0	15.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	39.0	4.8	6.5	14.3	14.7	26.0	16.9	17.3	3.3	8.1	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.7	243.7	7.9	216.8	98.7	98.6	117.4	35.0	41.3	82.9	51.5	54.4
LnGrp LOS	F	F	A	F	F	F	F	C	D	F	D	D
Approach Vol, veh/h		2168			905			3210			1333	
Approach Delay, s/veh		91.1			127.8			67.6			54.4	
Approach LOS		F			F			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.4	60.9	11.0	35.7	42.5	30.8	18.3	28.4				
Change Period (Y+Rc), s	5.1	6.5	5.1	5.8	6.5	* 6.5	5.8	* 5.8				
Max Green Setting (Gmax), s	7.7	54.7	5.9	29.2	19.9	* 43	12.5	* 23				
Max Q Clear Time (g_c+I1), s	7.7	43.6	7.9	31.9	38.0	20.2	13.4	24.6				
Green Ext Time (p_c), s	0.0	6.3	0.0	0.0	0.0	4.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 79.1
HCM 6th LOS E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings
3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

EAPC (2021) PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	26	38	468	41	148	29	2579	297	146	1779	136
Future Volume (vph)	91	26	38	468	41	148	29	2579	297	146	1779	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	95		0	345		0	200		200	190		100
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	60			120			105			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		635			679			843			1788	
Travel Time (s)		14.4			15.4			10.5			22.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.0	20.0		40.0	40.0		10.0	31.4	31.4	10.0	31.4	31.4
Total Split (s)	42.0	42.0		42.0	42.0		10.0	66.0	66.0	12.0	68.0	68.0
Total Split (%)	35.0%	35.0%		35.0%	35.0%		8.3%	55.0%	55.0%	10.0%	56.7%	56.7%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	5.4	5.4	4.0	5.4	5.4
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	6.4	6.4	5.0	6.4	6.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 60 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 105

Control Type: Actuated-Coordinated

Splits and Phases: 3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.



HCM 6th Signalized Intersection Summary
3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

EAPC (2021) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	26	38	468	41	148	29	2579	297	146	1779	136
Future Volume (veh/h)	91	26	38	468	41	148	29	2579	297	146	1779	136
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1870
Adj Flow Rate, veh/h	94	27	39	482	42	153	30	2659	306	151	1834	140
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	2
Cap, veh/h	315	213	308	434	109	396	47	1740	787	104	1852	838
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.03	0.50	0.50	0.06	0.53	0.53
Sat Flow, veh/h	1188	692	999	1335	353	1286	1781	3504	1585	1781	3504	1585
Grp Volume(v), veh/h	94	0	66	482	0	195	30	2659	306	151	1834	140
Grp Sat Flow(s),veh/h/ln	1188	0	1691	1335	0	1639	1781	1752	1585	1781	1752	1585
Q Serve(g_s), s	8.1	0.0	3.4	33.6	0.0	11.2	2.0	59.6	14.5	7.0	62.1	5.5
Cycle Q Clear(g_c), s	19.3	0.0	3.4	37.0	0.0	11.2	2.0	59.6	14.5	7.0	62.1	5.5
Prop In Lane	1.00		0.59	1.00		0.78	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	315	0	521	434	0	505	47	1740	787	104	1852	838
V/C Ratio(X)	0.30	0.00	0.13	1.11	0.00	0.39	0.64	1.53	0.39	1.45	0.99	0.17
Avail Cap(c_a), veh/h	315	0	521	434	0	505	74	1740	787	104	1852	838
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	0.0	29.9	45.5	0.0	32.6	57.9	30.2	18.8	56.5	28.0	14.6
Incr Delay (d2), s/veh	0.2	0.0	0.0	76.6	0.0	0.2	5.3	240.6	1.4	249.4	18.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	1.4	22.4	0.0	4.5	0.9	80.2	5.2	10.2	27.4	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.4	0.0	29.9	122.1	0.0	32.8	63.1	270.8	20.3	305.9	46.7	15.1
LnGrp LOS	D	A	C	F	A	C	E	F	C	F	D	B
Approach Vol, veh/h		160			677			2995			2125	
Approach Delay, s/veh		36.0			96.3			243.1			63.0	
Approach LOS		D			F			F			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	66.0		42.0	8.2	69.8		42.0				
Change Period (Y+Rc), s	5.0	6.4		5.0	5.0	6.4		5.0				
Max Green Setting (Gmax), s	7.0	59.6		37.0	5.0	61.6		37.0				
Max Q Clear Time (g_c+I1), s	9.0	61.6		21.3	4.0	64.1		39.0				
Green Ext Time (p_c), s	0.0	0.0		0.3	0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			156.6									
HCM 6th LOS			F									

Lanes, Volumes, Timings
3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

EAPC (2021) PM Peak Hour
With Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	26	38	468	41	148	29	2579	297	146	1779	136
Future Volume (vph)	91	26	38	468	41	148	29	2579	297	146	1779	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	95		0	345		0	200		200	190		100
Storage Lanes	1		0	2		0	1		1	1		1
Taper Length (ft)	60			120			105			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		635			679			843			1788	
Travel Time (s)		14.4			15.4			10.5			22.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	10%	2%	2%	10%	2%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases		4		3	8		5	2	3	1	6	
Permitted Phases	4								2			6
Detector Phase	4	4		3	8		5	2	3	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		4.0	5.0		5.0	5.0	4.0	5.0	5.0	5.0
Minimum Split (s)	20.0	20.0		8.0	40.0		10.0	31.4	8.0	10.0	31.4	31.4
Total Split (s)	20.0	20.0		20.0	40.0		10.0	67.0	20.0	13.0	70.0	70.0
Total Split (%)	16.7%	16.7%		16.7%	33.3%		8.3%	55.8%	16.7%	10.8%	58.3%	58.3%
Yellow Time (s)	4.0	4.0		3.5	4.0		4.0	5.4	3.5	4.0	5.4	5.4
All-Red Time (s)	1.0	1.0		0.5	1.0		1.0	1.0	0.5	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		4.0	5.0		5.0	6.4	4.0	5.0	6.4	6.4
Lead/Lag	Lead	Lead		Lag			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min	None	None	C-Min	C-Min

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 51 (43%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 105

Control Type: Actuated-Coordinated

Splits and Phases: 3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.



HCM 6th Signalized Intersection Summary

3: Winchester Rd. (SR79) & Via Mira Mosa/Auld Rd.

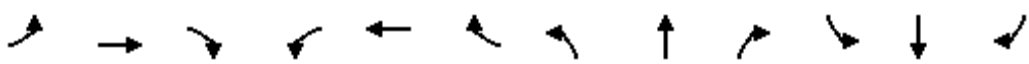
EAPC (2021) PM Peak Hour
With Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	26	38	468	41	148	29	2579	297	146	1779	136
Future Volume (veh/h)	91	26	38	468	41	148	29	2579	297	146	1779	136
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1752	1870	1870	1752	1870
Adj Flow Rate, veh/h	94	27	39	482	42	153	30	2659	306	151	1834	140
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	10	2	2	10	2
Cap, veh/h	96	86	125	475	106	386	47	2733	1448	119	2874	1300
Arrive On Green	0.13	0.13	0.13	0.13	0.30	0.30	0.03	0.78	0.78	0.07	0.82	0.82
Sat Flow, veh/h	1188	692	999	3563	353	1286	1781	3504	1585	1781	3504	1585
Grp Volume(v), veh/h	94	0	66	482	0	195	30	2659	306	151	1834	140
Grp Sat Flow(s),veh/h/ln	1188	0	1691	1781	0	1639	1781	1752	1585	1781	1752	1585
Q Serve(g_s), s	3.7	0.0	4.3	16.0	0.0	11.3	2.0	83.1	3.1	8.0	23.7	2.1
Cycle Q Clear(g_c), s	15.0	0.0	4.3	16.0	0.0	11.3	2.0	83.1	3.1	8.0	23.7	2.1
Prop In Lane	1.00		0.59	1.00		0.78	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	96	0	211	475	0	492	47	2733	1448	119	2874	1300
V/C Ratio(X)	0.98	0.00	0.31	1.01	0.00	0.40	0.64	0.97	0.21	1.27	0.64	0.11
Avail Cap(c_a), veh/h	96	0	211	475	0	492	74	2733	1448	119	2874	1300
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.3	0.0	47.8	52.0	0.0	33.4	57.9	12.0	2.9	56.0	4.1	2.1
Incr Delay (d2), s/veh	83.8	0.0	0.3	45.0	0.0	0.2	5.3	12.0	0.3	172.5	1.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.0	1.8	10.1	0.0	4.5	0.9	22.9	1.1	9.1	4.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	143.1	0.0	48.1	97.0	0.0	33.6	63.1	24.0	3.3	228.5	5.2	2.3
LnGrp LOS	F	A	D	F	A	C	E	C	A	F	A	A
Approach Vol, veh/h	160			677			2995			2125		
Approach Delay, s/veh	103.9			78.8			22.3			20.8		
Approach LOS	F			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	13.0	101.0	21.0	20.0	8.2	105.8	41.0					
Change Period (Y+Rc), s	5.0	6.4	5.0	* 5	5.0	6.4	5.0					
Max Green Setting (Gmax), s	8.0	60.6	16.0	* 15	5.0	63.6	35.0					
Max Q Clear Time (g_c+I1), s	10.0	85.1	18.0	17.0	4.0	25.7	13.3					
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	23.2	0.7					
Intersection Summary												
HCM 6th Ctrl Delay	30.4											
HCM 6th LOS	C											
Notes												

Lanes, Volumes, Timings

EAPC (2021) PM Peak Hour

4: Benton Rd./Clinton Keith Rd. - Benton Rd.

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	345	667	174	165	680	222	407	50	167	223	29	105
Future Volume (vph)	345	667	174	165	680	222	407	50	167	223	29	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		50	120		50	60		0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (ft)	60			60			60			60		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		673			696			285			219	
Travel Time (s)		10.2			10.5			6.5			5.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												38%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	21.0	35.0	35.0	22.0	36.0	36.0	43.0	33.0	33.0	30.0	20.0	20.0
Total Split (%)	17.5%	29.2%	29.2%	18.3%	30.0%	30.0%	35.8%	27.5%	27.5%	25.0%	16.7%	16.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (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
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 4: Benton Rd./Clinton Keith Rd. - Benton Rd.

Ø1	Ø2	Ø3	Ø4 (R)
30 s	33 s	22 s	35 s
Ø5	Ø6	Ø7	Ø8 (R)
43 s	20 s	21 s	36 s

HCM 6th Signalized Intersection Summary
4: Benton Rd./Clinton Keith Rd. - Benton Rd.

EAPC (2021) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	345	667	174	165	680	222	407	50	167	223	29	105
Future Volume (veh/h)	345	667	174	165	680	222	407	50	167	223	29	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	379	733	191	181	747	244	447	55	184	245	94	74
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	442	1231	549	209	1194	533	480	463	393	276	249	211
Arrive On Green	0.04	0.11	0.11	0.12	0.34	0.34	0.27	0.25	0.25	0.15	0.13	0.13
Sat Flow, veh/h	3456	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	379	733	191	181	747	244	447	55	184	245	94	74
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	13.1	23.5	13.3	12.0	21.2	14.5	29.4	2.7	11.9	16.2	5.5	5.1
Cycle Q Clear(g_c), s	13.1	23.5	13.3	12.0	21.2	14.5	29.4	2.7	11.9	16.2	5.5	5.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	442	1231	549	209	1194	533	480	463	393	276	249	211
V/C Ratio(X)	0.86	0.60	0.35	0.86	0.63	0.46	0.93	0.12	0.47	0.89	0.38	0.35
Avail Cap(c_a), veh/h	490	1231	549	267	1194	533	579	463	393	386	249	211
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.4	45.1	40.6	52.0	33.5	31.3	42.8	35.0	38.4	49.7	47.5	47.3
Incr Delay (d2), s/veh	1.4	0.2	0.2	20.3	2.5	2.8	20.0	0.5	4.0	16.6	4.3	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	11.2	5.7	6.4	9.2	5.8	15.5	1.3	4.9	8.5	2.9	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.8	45.3	40.8	72.3	36.0	34.1	62.7	35.5	42.4	66.2	51.8	51.8
LnGrp LOS	E	D	D	E	D	C	E	D	D	E	D	D
Approach Vol, veh/h	1303			1172			686			413		
Approach Delay, s/veh	48.3			41.2			55.1			60.4		
Approach LOS	D			D			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.6	33.7	18.1	45.6	36.3	20.0	19.4	44.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	26.0	29.0	18.0	31.0	39.0	16.0	17.0	32.0				
Max Q Clear Time (g_c+I1), s	18.2	13.9	14.0	25.5	31.4	7.5	15.1	23.2				
Green Ext Time (p_c), s	0.4	0.8	0.2	2.5	0.9	0.4	0.3	3.6				

Intersection Summary

HCM 6th Ctrl Delay	48.7
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings
5: Winchester Rd. (SR79) & Project Dwy.

EAPC (2021) PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	2738	76	0	2112
Future Volume (vph)	0	0	2738	76	0	2112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30		55			55
Link Distance (ft)	146		1805			685
Travel Time (s)	3.3		22.4			8.5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
5: Winchester Rd. (SR79) & Project Dwy.

EAPC (2021) PM Peak Hour

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	2738	76	0	2112
Future Vol, veh/h	0	0	2738	76	0	2112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	2882	80	0	2223
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	-	1481	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	114	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	114	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	0	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT			
Capacity (veh/h)	-	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	-	-	0	-	-	-
HCM Lane LOS	-	-	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-	-

Lanes, Volumes, Timings
6: Briggs Rd. & Project Dwy. 2

EAPC (2021) PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	90	26	0	532	305	64
Future Volume (vph)	90	26	0	532	305	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	144			374	131	
Travel Time (s)	3.3			8.5	3.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
6: Briggs Rd. & Project Dwy. 2

EAPC (2021) PM Peak Hour

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	90	26	0	532	305	64
Future Vol, veh/h	90	26	0	532	305	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	95	27	0	560	321	67
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	915	355	388	0	-	0
Stage 1	355	-	-	-	-	-
Stage 2	560	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	303	689	1170	-	-	-
Stage 1	710	-	-	-	-	-
Stage 2	572	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	303	689	1170	-	-	-
Mov Cap-2 Maneuver	303	-	-	-	-	-
Stage 1	710	-	-	-	-	-
Stage 2	572	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	20.9	0		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1170	-	347	-	-	
HCM Lane V/C Ratio	-	-	0.352	-	-	
HCM Control Delay (s)	0	-	20.9	-	-	
HCM Lane LOS	A	-	C	-	-	
HCM 95th %tile Q(veh)	0	-	1.5	-	-	

Lanes, Volumes, Timings
7: Briggs Rd. & Project Dwy. 3

EAPC (2021) PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	26	26	0	507	278	52
Future Volume (vph)	26	26	0	507	278	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	161			302	374	
Travel Time (s)	3.7			6.9	8.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	26	0	507	278	52
Future Vol, veh/h	26	26	0	507	278	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	27	0	534	293	55
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	855	321	348	0	-	0
Stage 1	321	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	329	720	1211	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	588	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	329	720	1211	-	-	-
Mov Cap-2 Maneuver	329	-	-	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	588	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	14.1	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1211	-	452	-	-	
HCM Lane V/C Ratio	-	-	0.121	-	-	
HCM Control Delay (s)	0	-	14.1	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.4	-	-	

Lanes, Volumes, Timings
8: Briggs Rd. & Project Dwy. 4

EAPC (2021) PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	9	23	0	498	296	9
Future Volume (vph)	9	23	0	498	296	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	177			169	302	
Travel Time (s)	4.0			3.8	6.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
8: Briggs Rd. & Project Dwy. 4

EAPC (2021) PM Peak Hour

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	23	0	498	296	9
Future Vol, veh/h	9	23	0	498	296	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	24	0	524	312	9
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	841	317	321	0	-	0
Stage 1	317	-	-	-	-	-
Stage 2	524	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	335	724	1239	-	-	-
Stage 1	738	-	-	-	-	-
Stage 2	594	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	335	724	1239	-	-	-
Mov Cap-2 Maneuver	335	-	-	-	-	-
Stage 1	738	-	-	-	-	-
Stage 2	594	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	12	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1239	-	546	-	-	
HCM Lane V/C Ratio	-	-	0.062	-	-	
HCM Control Delay (s)	0	-	12	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	