



July 6, 2022

Mr. Brian Oh  
Permit Sonoma  
2550 Ventura Avenue  
Santa Rosa, CA 95403-2859

## **Focused Traffic Operation Analysis for the SDC Specific Plan**

Dear Mr. Oh;

W-Trans has prepared the following focused traffic analysis for the Sonoma Developmental Center (SDC) Specific Plan. The purpose of this letter is to supplement the transportation analysis contained in the Specific Plan's EIR, providing the public and decision makers with information related to traffic Levels of Service (LOS). While LOS is no longer considered in CEQA assessments, the County's General Plan still refers to the measure, and many in the community still have an interest in understanding the potential effects of a project or plan on traffic congestion.

### **Study Area and Periods**

The study area consists of the following intersections and roadway segments.

#### **Intersections**

1. SR 12/Arnold Drive
2. Arnold Drive/Warm Springs Road
3. Arnold Drive/Harney Street
4. Arnold Drive/Madrone Road
5. SR 12/Madrone Road
6. Arnold Drive/Agua Caliente Road
7. Arnold Drive/Boyes Boulevard
8. Arnold Drive/W. Verano Avenue
9. Arnold Drive/Petaluma Avenue
10. SR 116 (Stage Gulch)/Arnold Drive
11. SR 12/New SDC Connector Road

#### **Roadway Segments**

1. SR 12 – Arnold Drive to Trinity Road
2. SR 12 – Madrone Road to Agua Caliente Road
3. Arnold – Glen Ellen to SR 12
4. Arnold – Glen Ellen to SDC
5. Arnold – SDC to Madrone Road
6. Arnold – Boyes Boulevard to W Verano Avenue

Operating conditions for intersections during the a.m. and p.m. peak periods were evaluated to capture the highest volumes on the local transportation network. The morning peak hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute. The highest-volume hour during the two-hour peak period for each location was used for the analysis. Operating conditions on the roadway segments were analyzed during the p.m. peak hour, which typically reflect worst-case traffic operation and is consistent with the period referred to in Figure CT-3 of the Sonoma County General Plan.

## Traffic Operation Standards

While the operation of local intersections and roadways is no longer evaluated for purposes of determining potential impacts under CEQA, an analysis of the potential effects on operation was performed for policy compliance purposes and compared to the LOS standard contained in the County's General Plan.

The County of Sonoma's Level of Service standard for intersection operations is to maintain LOS D or better operation pursuant to General Plan Policy CT-4.2. A project would have an adverse effect if its traffic would cause an intersection currently operating at an acceptable service level (LOS D or better) to operate at an unacceptable service level (LOS E or worse).

The County's Level of Service standard for roadway operations is to maintain LOS C operation pursuant to General Plan Policy CT-4.1; or, for specific roadway segments, the Level of Service standard adopted in the General Plan Figure CT-3. In the study area, General Plan Figure CT-3 identifies the following segments that have an LOS standard that differs from LOS C.

- SR 12 northbound and southbound between Madrone Road and the City of Sonoma: LOS F
- Arnold Drive northbound between Verano Avenue and Boyes Boulevard: LOS F
- Arnold Drive southbound between Boyes Boulevard and Verano Avenue: LOS E
- Arnold Drive northbound between Petaluma Avenue and Verano Avenue: LOS E
- Arnold Drive northbound between Leveroni Road and Petaluma Avenue: LOS D

A project would have an adverse effect if its traffic would cause a road currently operating at an acceptable Level of Service (LOS C or better) to operate at an unacceptable service level (LOS D or worse). If an intersection currently operates or is projected to operate below the County standard, the project's effect is considered adverse if it causes the average delay to increase by five seconds or more.

## Applied Traffic Volumes

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes. Traffic count data were collected on April 6, 2022, while all area schools were in session. Future traffic volumes were obtained from the STCM19 travel demand model maintained and operated by the Sonoma County Transportation Authority (SCTA). Two custom model runs were completed for the analysis. The first is referred to as the "Future without Plan" scenario and reflects year 2040 conditions assuming that the SDC site remains in its current vacant state, while remaining areas of the County beyond SDC and in the region continue to develop according to their adopted General Plan land uses. The second custom model run is referred to as the "Future plus Plan" scenario and adds full buildout of the SDC Specific Plan to the 2040 scenario. Segment volumes from the model were translated to peak hour turning movement volumes at the study intersections using the "Furness" method, which is an iterative process that employs existing turn movement data, existing link volumes, and future link volumes to project likely future turning movement volumes at intersections. This method was supplemented by post-processing and refinement of model data at the Arnold Drive/Harney Street and SR 12/New SDC Connector intersections to reflect the model's projected volumes on the new roadway link.

## Intersection Operation

LOS is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, LOS A represents free flow conditions and LOS F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation for intersections. The study intersections were analyzed using methodologies published in the *Highway Capacity Manual* (HCM) 6<sup>th</sup> Edition, Transportation Research Board, 2016. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

All ten existing study intersections are currently operating at acceptable Levels of Service during both the a.m. and p.m. peak hours and are projected to continue operating acceptably in the Future without implementation of the Specific Plan.

Under future conditions with implementation of the SDC Specific Plan, two intersections are projected to operate unacceptably if no modifications to the current roadway configurations are made. The intersection at Arnold Drive/Harney Street would operate unacceptably at LOS F during the p.m. peak hour, but would operate acceptably at LOS A or B with the installation of a traffic signal. Signalization of this intersection would also benefit pedestrian circulation and safety, as crossing volumes are anticipated to be relatively high at this location. The future new intersection on SR 12 at the new SDC Connector Road would have unacceptable LOS E operation on the stop-controlled connector road approach but would operate acceptably at LOS C with the addition of a center turn lane on SR 12. The center lane on SR 12 would serve drivers making northbound left-turns onto the connector road, as well as drivers making outbound left-turns from the connector road onto SR 12, who could make this maneuver in two stages (first into the center turn lane and then merging into northbound traffic).

A summary of the intersection Level of Service analyses is shown in Tables 1 and 2 for the a.m. and p.m. peak hours, respectively. Copies of the Level of Service calculations are enclosed.

**Table 1 – AM Peak Hour Intersection Levels of Service**

Study Intersection Approach	Control	Existing Conditions		Future without Plan		Future plus Plan	
		Delay	LOS	Delay	LOS	Delay	LOS
1. SR 12/Arnold Dr	Signal	7.9	A	9.5	A	9.4	A
2. Arnold Dr/Warm Springs Rd	AWSC	8.9	A	9.4	A	9.2	A
3. Arnold Dr/Harney St	AWSC	9.1	A	9.4	A	14.8	B
Signalize		-	-	-	-	6.6	A
4. Arnold Dr/Madrone Rd	AWSC	13.1	B	15.0	B	23.9	C
5. SR 12/Madrone Rd	AWSC	13.5	B	15.9	B	16.4	B
6. Arnold Dr/Agua Caliente Rd	Roundabout	9.2	A	10.7	B	13.8	B
7. Arnold Dr/Boyes Blvd	Signal	12.9	B	14.1	B	15.9	B
8. Arnold Dr/W. Verano Ave	Signal	15.0	B	22.1	C	28.5	C
9. Arnold Dr/Petaluma Ave	Signal	10.2	B	11.6	B	12.7	B
10. SR 116 (Stage Gulch)/Arnold Dr	Signal	16.4	B	23.6	C	26.1	C
11. SR 12/New SDC Connector Rd	TWSC	-	-	-	-	2.0	A
Eastbound Approach		-	-	-	-	<b>39.8</b>	<b>E</b>
Add 2WLTL on SR 12	TWSC	-	-	-	-	1.0	A
Eastbound Approach		-	-	-	-	19.8	C

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*; NB=northbound; **Bold** text = operation below County standard; **Shaded cells** = conditions with intersection improvements

**Table 2 – PM Peak Hour Intersection Levels of Service**

Study Intersection Approach	Control	Existing Conditions		Future without Plan		Future plus Plan	
		Delay	LOS	Delay	LOS	Delay	LOS
1. SR 12/Arnold Dr	Signal	8.2	A	9.0	A	9.2	A
2. Arnold Dr/Warm Springs Rd	AWSC	9.5	A	10.1	B	10.0	A
3. Arnold Dr/Harney St	AWSC	11.0	B	14.6	B	<b>57.6</b>	<b>F</b>
Signalize		-	-	-	-	15.4	B
4. Arnold Dr/Madrone Rd	AWSC	13.9	B	16.0	C	28.2	D
5. SR 12/Madrone Rd	AWSC	13.1	B	15.5	B	16.0	B
6. Arnold Dr/Agua Caliente Rd	Roundabout	8.5	A	9.5	A	11.8	B
7. Arnold Dr/Boyes Blvd	Signal	11.4	B	12.4	B	14.3	B
8. Arnold Dr/W. Verano Ave	Signal	14.0	B	16.7	B	20.4	C
9. Arnold Dr/Petaluma Ave	Signal	12.1	B	16.8	B	20.7	C
10. SR 116 (Stage Gulch)/Arnold Dr	Signal	17.4	B	27.3	C	30.1	C
11. SR 12/New SDC Connector Rd	TWSC	-	-	-	-	1.9	A
Eastbound Approach		-	-	-	-	<b>44.7</b>	<b>E</b>
Add 2WLT on SR 12	TWSC	-	-	-	-	1.0	A

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*; NB=northbound; **Bold** text = operation below County standard; **Shaded cells** = conditions with intersection improvements

The recommended traffic signal at Arnold Drive/Harney Street would operate acceptably with single-lane approaches on all four legs and basic two-phase operation. By maintaining single-lane approaches the effective crossing width for pedestrians would be minimized; to further enhance pedestrian circulation it is recommended that leading pedestrian intervals (LPI) be incorporated into the signal timing. LPI phasing allows pedestrians to enter crosswalks and become more visible to drivers prior to vehicle phases turning green. Bicycle detection should also be incorporated into the signal operation. The new traffic signal is unlikely to be warranted until substantial redevelopment within the SDC site occurs and the roadway connection to SR 12 is established; it is estimated that approximately 75 percent of the site's development would need to be occupied before the signal is needed.

**Finding** – While most of the study intersections are projected to meet the County's LOS D standard under future conditions with buildout of the SDC Specific Plan, modifications would be necessary to achieve acceptable operation at Arnold Drive/Harney Street and SR 12/New SDC Connector Road.

**Recommendation** – As Arnold Drive is improved as part of SDC development and traffic volumes increase, a traffic signal should be installed at the Harney Street intersection. The signalized intersection should include single-lane approaches on all four legs, incorporate leading pedestrian interval phasing, and include bicycle detection to enhance pedestrian and bicycle circulation and safety.

**Recommendation** – The future intersection on SR 12 at the new SDC Connector Road should include stop-controls on the SDC Connector Road approach and a two-way left-turn lane should be added to SR 12 on each side of the intersection.

## Roadway Segment Operation

The operation of roadway segments is influenced by many factors including the type of street, number of lanes, posted speed limits, access provisions such as center turn lanes, spacing of traffic controls like signals, the operational characteristics of intersections within the corridor, and most importantly, traffic volumes. Six key roadway segments in the Sonoma Valley area were identified for assessment. Roadway segment LOS was estimated by comparing the anticipated traffic volumes on each segment to the roadway's capacity, with capacity estimates based on planning-level service tables for various facility types. The roadway segment LOS considers operation in each direction of travel on a roadway (in other words, both the northbound and southbound directions). The weekday p.m. peak hour was the focus of this analysis, consistent with Policy CT-4.1 and Figure CT-3 of the Sonoma County General Plan. This type of segment LOS analysis is useful in gauging broad roadway operation characteristics at a planning level appropriate for a programmatic document such the proposed Specific Plan, though intersection-level LOS analyses are more sophisticated and typically better indicators of the actual traffic operation that drivers will encounter.

Two roadway segments currently do not meet the applicable LOS standard established by the County. SR 12 between Arnold Drive and Trinity Road, and Arnold Drive between the Sonoma Developmental Center and Madrone Road currently operate at LOS D, which is below the County's LOS C standard for these roadways. In the future without the SDC Specific Plan, these two roadways would continue to operate at LOS D, as would Arnold Drive between Glen Ellen and Sonoma Developmental Center. It should also be noted that the segment of Arnold Drive between Boyes Boulevard and West Verano Avenue currently operates at LOS D and is projected to operate at LOS F in the future; this is considered acceptable, however, per Figure CT-3 of the County's General Plan which allows for LOS F operation in the northbound direction and LOS E operation in the southbound operation on this segment.

With the additional traffic generated by buildout of the SDC Specific Plan, the segment of SR 12 between Arnold Drive and Trinity Road would continue to operate below the County's standard at LOS D, as would the segment of Arnold Drive between SDC and Madrone Road. The segment of Arnold Drive between Glen Ellen and SDC would improve to LOS C with the project, which is attributable to the Specific Plan's establishment of a new connection between SDC and SR 12 that is projected to redistribute some traffic from the Arnold Drive segment through Glen Ellen. The segment of Arnold Drive between Boyes Boulevard and West Verano Avenue is projected to operate at LOS F in the northbound direction and LOS E in the southbound direction, which is considered acceptable per the County's LOS standards for this segment.

While future development occurring through implementation of the SDC Specific Plan can be expected to increase traffic volumes and delays on most of the study segments, the projected roadway Levels of Service would generally be the same as those encountered without the project. Exceptions include the segment of Arnold Drive between SDC and Glen Ellen which would operate slightly better with the Plan, and the southbound segment of Arnold Drive between Boyes Boulevard and West Verano Avenue, which would drop from LOS D to LOS E though remain consistent with the County's LOS standard for this segment.

**Finding** – Both with and without implementation of the proposed SDC Specific Plan, roadway segment Levels of Service in the future would not achieve the County's LOS standards on SR 12 between Arnold Drive and Trinity Road or on Arnold Drive between SDC and Madrone Avenue.

**Finding** – Arnold Drive between Boyes Boulevard and West Verano Avenue would operate at LOS F in the northbound direction both with and without the proposed Specific Plan added to future volumes; in the southbound direction operation is projected to be LOS D without the Plan and LOS E with the Plan. These results would be consistent with the County's General Plan, which allows LOS E and F operation on this segment.

A summary of the p.m. peak hour roadway segment levels of service is provided in Table 3.

**Table 3 – Future and Future plus Project PM Peak Hour Roadway Segment Levels of Service**

Study Segment	LOS Standard	Capacity <sup>1</sup>	Existing Conditions		Future without Plan		Future plus Plan	
			Volume	LOS	Volume	LOS	Volume	LOS
SR 12 - Arnold to Trinity								
Northbound	C	1,200	560	C	700	<b>D</b>	720	<b>D</b>
Southbound	C	1,200	620	<b>D</b>	690	<b>D</b>	720	<b>D</b>
SR 12 - Madrone to Agua Caliente								
Northbound	F	960	520	C	650	C	690	D
Southbound	F	960	430	C	470	C	570	C
Arnold - Glen Ellen to SR 12								
Northbound	C	770	140	C	160	C	150	C
Southbound	C	770	130	C	150	C	140	C
Arnold - Glen Ellen to SDC								
Northbound	C	770	280	C	310	C	280	C
Southbound	C	770	350	C	380	<b>D</b>	350	C
Arnold - SDC to Madrone								
Northbound	C	770	380	<b>D</b>	420	<b>D</b>	520	<b>D</b>
Southbound	C	770	350	C	380	<b>D</b>	450	<b>D</b>
Arnold - Boyes to W Verano								
Northbound	F	860	800	D	870	F	970	F
Southbound	E	860	690	D	760	D	840	E

Note: LOS = Level of Service; <sup>1</sup> based on planning-level estimates and methods outlined in the *Quality/Level of Service Handbook*, State of Florida Department of Transportation, 2002; **Bold** text = operation below County standard; SR 12 is a regional east-west highway but has a north-south alignment through the study area so is referred to as having northbound and southbound directional traffic in this analysis

We hope this information is useful to County Staff, the public, and decision makers. Please contact me if you have any questions.

Sincerely,



Zachary Matley, AICP  
Principal

JZM/SOX678.L1

Enclosure: Level of Service Calculations

HCM 6th Signalized Intersection Summary  
1: SR 12 & Arnold Dr

06/10/2022

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	59	60	68	506	481	50
Future Volume (veh/h)	59	60	68	506	481	50
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	61	31	70	522	496	47
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	221	197	117	1204	882	730
Arrive On Green	0.13	0.13	0.07	0.65	0.48	0.48
Sat Flow, veh/h	1767	1572	1767	1856	1856	1535
Grp Volume(v), veh/h	61	31	70	522	496	47
Grp Sat Flow(s),veh/h/ln	1767	1572	1767	1856	1856	1535
Q Serve(g_s), s	1.3	0.7	1.6	5.8	8.0	0.7
Cycle Q Clear(g_c), s	1.3	0.7	1.6	5.8	8.0	0.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	221	197	117	1204	882	730
V/C Ratio(X)	0.28	0.16	0.60	0.43	0.56	0.06
Avail Cap(c_a), veh/h	357	318	315	1853	1323	1095
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	16.7	16.4	19.1	3.6	7.9	6.0
Incr Delay (d2), s/veh	0.7	0.4	4.8	0.2	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.7	0.7	0.3	1.7	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.3	16.8	23.9	3.9	8.5	6.0
LnGrp LOS	B	B	C	A	A	A
Approach Vol, veh/h	92			592	543	
Approach Delay, s/veh	17.1			6.2	8.2	
Approach LOS	B			A	A	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	32.3			9.8	7.3	25.0
Change Period (Y+Rc), s	5.0			4.5	4.5	5.0
Max Green Setting (Gmax), s	42.0			8.5	7.5	30.0
Max Q Clear Time (g_c+I1), s	7.8			3.3	3.6	10.0
Green Ext Time (p_c), s	3.1			0.1	0.0	2.8
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay				7.9		
HCM 6th LOS				A		

AM Peak Hour - Existing Conditions  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th AWSC  
2: Arnold Drive & Warm Springs Road

06/10/2022

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	42	139	111	66	72	44
Future Vol, veh/h	42	139	111	66	72	44
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	47	156	125	74	81	49
Number of Lanes	1	0	0	1	1	0
<b>Approach</b>	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left SB			EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach RightNB					EB	
Conflicting Lanes Right	1		0		1	
HCM Control Delay	8.8		9.4		8.3	
HCM LOS	A		A		A	
<b>Lane</b>			NBLn1	EBLn1	SBLn1	
Vol Left, %			63%	23%	0%	
Vol Thru, %			37%	0%	62%	
Vol Right, %			0%	77%	38%	
Sign Control			Stop	Stop	Stop	
Traffic Vol by Lane			177	181	116	
LT Vol			111	42	0	
Through Vol			66	0	72	
RT Vol			0	139	44	
Lane Flow Rate			199	203	130	
Geometry Grp			1	1	1	
Degree of Util (X)			0.261	0.245	0.161	
Departure Headway (Hd)			4.716	4.339	4.452	
Convergence, Y/N			Yes	Yes	Yes	
Cap			762	828	804	
Service Time			2.746	2.364	2.484	
HCM Lane V/C Ratio			0.261	0.245	0.162	
HCM Control Delay			9.4	8.8	8.3	
HCM Lane LOS			A	A	A	
HCM 95th-ile Q			1	1	0.6	

AM Peak Hour - Existing Conditions  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th AWSC  
3: Arnold Drive & Harney Drive

06/10/2022

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔				↔		↔		
Traffic Vol, veh/h	1	7	1	2	4	3	6	242	7	7	216	2
Future Vol, veh/h	1	7	1	2	4	3	6	242	7	7	216	2
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	8	1	2	4	3	7	272	8	8	243	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.1	8	9.3	9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	11%	22%	3%
Vol Thru, %	95%	78%	44%	96%
Vol Right, %	3%	11%	33%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	255	9	9	225
LT Vol	6	1	2	7
Through Vol	242	7	4	216
RT Vol	7	1	3	2
Lane Flow Rate	287	10	10	253
Geometry Grp	1	1	1	1
Degree of Util (X)	0.33	0.014	0.014	0.294
Departure Headway (Hd)	4.147	5.061	4.949	4.184
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	857	711	727	847
Service Time	2.225	3.062	2.95	2.269
HCM Lane V/C Ratio	0.335	0.014	0.014	0.299
HCM Control Delay	9.3	8.1	8	9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.4	0	0	1.2

HCM 6th AWSC  
4: Arnold Drive & Madrone Road

06/10/2022

Intersection	
Intersection Delay, s/veh	13.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↔		↔	↔	
Traffic Vol, veh/h	0	1	1	201	3	43	3	164	136	19	207	2
Future Vol, veh/h	0	1	1	201	3	43	3	164	136	19	207	2
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	1	226	3	48	3	184	153	21	233	2
Number of Lanes	0	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	9.6	13.1	13.9	12.1
HCM LOS	A	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	55%	50%	0%	7%	0%	99%
Vol Right, %	0%	45%	50%	0%	93%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	3	300	2	201	46	19	209
LT Vol	3	0	0	201	0	19	0
Through Vol	0	164	1	0	3	0	207
RT Vol	0	136	1	0	43	0	2
Lane Flow Rate	3	337	2	226	52	21	235
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.006	0.514	0.004	0.418	0.079	0.038	0.384
Departure Headway (Hd)	6.315	5.488	6.502	6.664	5.497	6.399	5.885
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	567	657	549	542	652	560	613
Service Time	4.045	3.217	4.555	4.396	3.229	4.131	3.618
HCM Lane V/C Ratio	0.005	0.513	0.004	0.417	0.08	0.037	0.383
HCM Control Delay	9.1	13.9	9.6	14.1	8.7	9.4	12.3
HCM Lane LOS	A	B	A	B	A	A	B
HCM 95th-tile Q	0	3	0	2	0.3	0.1	1.8



HCM 6th Signalized Intersection Summary  
5: SR 12 & Madrone Rd

06/10/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔		↔	↔		↔	↔
Traffic Volume (veh/h)	109	1	48	0	0	1	48	484	1	1	395	126
Future Volume (veh/h)	109	1	48	0	0	1	48	484	1	1	395	126
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	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	117	1	25	0	0	1	52	520	1	1	425	108
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	296	3	266	0	0	4	126	847	2	3	720	610
Arrive On Green	0.17	0.17	0.17	0.00	0.00	0.00	0.07	0.46	0.46	0.00	0.39	0.39
Sat Flow, veh/h	1753	15	1572	0	0	1572	1767	1851	4	1767	1856	1572
Grp Volume(v), veh/h	118	0	25	0	0	1	52	0	521	1	425	108
Grp Sat Flow(s),veh/h/ln	1768	0	1572	0	0	1573	1767	0	1855	1767	1856	1572
Q Serve(g_s), s	3.1	0.0	0.7	0.0	0.0	0.0	1.5	0.0	10.9	0.0	9.4	2.3
Cycle Q Clear(g_c), s	3.1	0.0	0.7	0.0	0.0	0.0	1.5	0.0	10.9	0.0	9.4	2.3
Prop In Lane	0.99	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	299	0	266	0	0	4	126	0	849	3	720	610
V/C Ratio(X)	0.39	0.00	0.09	0.00	0.00	0.23	0.41	0.00	0.61	0.29	0.59	0.18
Avail Cap(c_a), veh/h	789	0	702	0	0	305	240	0	1116	240	1116	946
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	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.1	0.0	18.1	0.0	0.0	25.6	22.9	0.0	10.5	25.7	12.5	10.4
Incr Delay (d2), s/veh	0.8	0.0	0.2	0.0	0.0	25.1	2.2	0.0	0.7	41.3	0.8	0.1
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	1.1	0.0	0.2	0.0	0.0	0.0	0.6	0.0	2.9	6.0	2.8	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.9	0.0	18.2	0.0	0.0	50.7	25.0	0.0	11.3	67.0	13.3	10.5
LnGrp LOS	B	A	B	A	A	D	C	A	B	E	B	B
Approach Vol, veh/h	143			1				573			534	
Approach Delay, s/veh	19.6			50.7				12.5			12.8	
Approach LOS	B			D				B			B	
Timer - Assigned Phs	1	2	4	5	6	8						
Phs Duration (G+Y+Rc), s	29.1		13.2	8.2	25.5	4.6						
Change Period (Y+Rc), s	4.5	5.5	4.5	4.5	5.5	4.5						
Max Green Setting (Gmax), s	31.0		23.0	7.0	31.0	10.0						
Max Q Clear Time (g_c+I), s	12.9		5.1	3.5	11.4	2.0						
Green Ext Time (p_c), s	0.0	2.6	0.5	0.0	2.4	0.0						

Intersection Summary

HCM 6th Ctrl Delay	13.5
HCM 6th LOS	B

AM Peak Hour - Existing Conditions  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Roundabout  
6: Arnold Drive & Agua Cliente Road

06/10/2022

Intersection				
Intersection Delay, s/veh	9.2			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	8	394	619	485
Demand Flow Rate, veh/h	8	406	638	500
Vehicles Circulating, veh/h	864	389	25	395
Vehicles Exiting, veh/h	31	274	847	400
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.6	9.3	7.6	11.4
Approach LOS	A	A	A	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	8	406	638	500
Cap Entry Lane, veh/h	572	928	1345	922
Entry HV Adj Factor	0.982	0.970	0.971	0.970
Flow Entry, veh/h	8	394	619	485
Cap Entry, veh/h	561	900	1306	895
V/C Ratio	0.014	0.438	0.474	0.542
Control Delay, s/veh	6.6	9.3	7.6	11.4
LOS	A	A	A	B
95th %tile Queue, veh	0	2	3	3

AM Peak Hour - Existing Conditions  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
7: Arnold Dr & Boyes Blvd

06/10/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Volume (veh/h)	0	0	0	204	0	161	0	551	118	73	667	0
Future Volume (veh/h)	0	0	0	204	0	161	0	551	118	73	667	0
Initial Q (Ob), 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	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	0	0	0	224	0	177	0	605	92	80	733	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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	0	377	0	506	0	320	147	753	639	167	1100	0
Arrive On Green	0.00	0.00	0.00	0.20	0.00	0.20	0.00	0.41	0.41	0.09	0.59	0.00
Sat Flow, veh/h	0	1856	0	1767	0	1572	718	1856	1572	1767	1856	0
Grp Volume(v), veh/h	0	0	0	224	0	177	0	605	92	80	733	0
Grp Sat Flow(s),veh/h/ln	0	1856	0	1767	0	1572	718	1856	1572	1767	1856	0
Q Serve(g_s), s	0.0	0.0	0.0	5.7	0.0	5.0	0.0	14.1	1.8	2.1	13.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	5.7	0.0	5.0	0.0	14.1	1.8	2.1	13.0	0.0
Prop In Lane	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Lane Grp Cap(c), veh/h	0	377	0	506	0	320	147	753	639	167	1100	0
V/C Ratio(X)	0.00	0.00	0.00	0.44	0.00	0.55	0.00	0.80	0.14	0.48	0.67	0.00
Avail Cap(c_a), veh/h	0	947	0	1049	0	802	346	1269	1075	252	1704	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	17.8	0.0	17.5	0.0	12.8	9.2	21.0	6.7	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.6	0.0	1.5	0.0	2.1	0.1	2.1	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	2.0	0.0	1.6	0.0	4.7	0.5	0.9	2.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	18.4	0.0	19.0	0.0	14.9	9.3	23.1	7.4	0.0
LnGrp LOS	A	A	A	B	A	B	A	B	A	C	A	A
Approach Vol, veh/h	0			401			697			813		
Approach Delay, s/veh	0.0			18.7			14.1			9.0		
Approach LOS	B			B			B			A		
Timer - Assigned Phs	1	2	4		6		8					
Phs Duration (G+Y+Rc), s9.1	24.9		15.0		34.0		15.0					
Change Period (Y+Rc), s 4.5	5.0		5.0		5.0		5.0					
Max Green Setting (Gmax), s 8	33.5		25.0		45.0		25.0					
Max Q Clear Time (g_c+1), s 6	16.1		0.0		15.0		7.7					
Green Ext Time (p_c), s 0.0	3.8		0.0		5.4		1.5					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				12.9								
HCM 6th LOS				B								

AM Peak Hour - Existing Conditions  
W-Tans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
8: Arnold Dr & Verano Ave

06/10/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Volume (veh/h)	8	6	2	168	9	65	1	564	81	82	748	6
Future Volume (veh/h)	8	6	2	168	9	65	1	564	81	82	748	6
Initial Q (Ob), 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	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	No	No	No	No	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	9	7	2	187	10	22	1	627	73	91	831	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	136	87	15	371	13	328	3	818	693	172	986	8
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.00	0.44	0.44	0.10	0.53	0.53
Sat Flow, veh/h	176	423	75	1166	62	1585	1781	1870	1585	1781	1852	16
Grp Volume(v), veh/h	18	0	0	197	0	22	1	627	73	91	0	838
Grp Sat Flow(s),veh/h/ln	674	0	0	1228	0	1585	1781	1870	1585	1781	0	1868
Q Serve(g_s), s	0.1	0.0	0.0	0.0	0.0	0.6	0.0	15.3	1.5	2.6	0.0	20.5
Cycle Q Clear(g_c), s	8.7	0.0	0.0	8.6	0.0	0.6	0.0	15.3	1.5	2.6	0.0	20.5
Prop In Lane	0.50	0.11	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.01	1.00
Lane Grp Cap(c), veh/h	239	0	0	384	0	328	3	818	693	172	0	994
V/C Ratio(X)	0.08	0.00	0.00	0.51	0.00	0.07	0.30	0.77	0.11	0.53	0.00	0.84
Avail Cap(c_a), veh/h	640	0	0	749	0	734	165	1508	1278	248	0	1592
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.6	0.0	0.0	20.4	0.0	17.2	26.9	12.9	9.0	23.2	0.0	10.7
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.1	0.0	0.1	44.8	1.5	0.1	2.5	0.0	2.4
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	0.2	0.0	0.0	2.1	0.0	0.2	0.1	5.2	0.4	1.1	0.0	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.7	0.0	0.0	21.5	0.0	17.3	71.7	14.4	9.0	25.7	0.0	13.1
LnGrp LOS	B	A	A	C	A	B	E	B	A	C	A	B
Approach Vol, veh/h	18		219		701		929					
Approach Delay, s/veh	17.7		21.0		13.9		14.3					
Approach LOS	B		C		B		B					
Timer - Assigned Phs	1	2	4		5		6		8			
Phs Duration (G+Y+Rc), s9.7	28.6		15.7		4.6		33.7		15.7			
Change Period (Y+Rc), s 4.5	5.0		4.5		4.5		5.0		4.5			
Max Green Setting (Gmax), s 5	43.5		25.0		5.0		46.0		25.0			
Max Q Clear Time (g_c+1), s 6	17.3		10.7		2.0		22.5		10.6			
Green Ext Time (p_c), s 0.0	4.4		0.0		0.0		6.2		0.9			
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				15.0								
HCM 6th LOS				B								

AM Peak Hour - Existing Conditions  
W-Tans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
9: Arnold Dr & Petaluma Ave

06/10/2022

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↑	↘	↙	↘
Traffic Volume (veh/h)	123	99	481	98	138	762
Future Volume (veh/h)	123	99	481	98	138	762
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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	135	76	529	108	152	837
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	221	196	728	617	196	1156
Arrive On Green	0.12	0.12	0.39	0.39	0.11	0.62
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	135	76	529	108	152	837
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	2.7	1.7	9.1	1.7	3.2	11.7
Cycle Q Clear(g_c), s	2.7	1.7	9.1	1.7	3.2	11.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	221	196	728	617	196	1156
V/C Ratio(X)	0.61	0.39	0.73	0.18	0.77	0.72
Avail Cap(c_a), veh/h	1173	1044	2094	1774	399	2734
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	15.6	15.2	9.7	7.5	16.3	4.9
Incr Delay (d2), s/veh	2.7	1.2	1.4	0.1	6.4	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.5	2.3	0.3	1.3	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.3	16.4	11.1	7.6	22.7	5.8
LnGrp LOS	B	B	B	A	C	A
Approach Vol, veh/h	211	637		989		
Approach Delay, s/veh	17.6	10.5		8.4		
Approach LOS	B	B		A		
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	8.7	19.8		28.5	9.2	
Change Period (Y+Rc), s	4.5	5.0		5.0	4.5	
Max Green Setting (Gmax), s	42.5	55.5		25.0		
Max Q Clear Time (g_c+I), s	11.1			13.7	4.7	
Green Ext Time (p_c), s	0.1	3.6		6.7	0.6	
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay		10.2				
HCM 6th LOS		B				

AM Peak Hour - Existing Conditions  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
10: Stage Gulch Road & Arnold Drive

06/10/2022

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗
Traffic Volume (veh/h)	243	472	408	2	306	195
Future Volume (veh/h)	243	472	408	2	306	195
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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	253	492	425	2	319	99
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	345	1078	550	3	396	352
Arrive On Green	0.20	0.58	0.30	0.30	0.22	0.22
Sat Flow, veh/h	1767	1856	1845	9	1767	1572
Grp Volume(v), veh/h	253	492	0	427	319	99
Grp Sat Flow(s),veh/h/ln	1767	1856	0	1854	1767	1572
Q Serve(g_s), s	6.9	7.8	0.0	10.8	8.8	2.7
Cycle Q Clear(g_c), s	6.9	7.8	0.0	10.8	8.8	2.7
Prop In Lane	1.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	345	1078	0	553	396	352
V/C Ratio(X)	0.73	0.46	0.00	0.77	0.81	0.28
Avail Cap(c_a), veh/h	948	2280	0	1121	586	521
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.4	6.1	0.0	16.4	18.8	16.5
Incr Delay (d2), s/veh	3.0	0.3	0.0	2.3	5.1	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	2.8	2.2	0.0	4.3	3.7	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.4	6.4	0.0	18.7	23.9	16.9
LnGrp LOS	C	A	A	B	C	B
Approach Vol, veh/h	745	427		418		
Approach Delay, s/veh	11.9	18.7		22.3		
Approach LOS	B	B		C		
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	14.5	20.3		34.8	16.5	
Change Period (Y+Rc), s	4.5	5.0		5.0	5.0	
Max Green Setting (Gmax), s	31.0	31.0		63.0	17.0	
Max Q Clear Time (g_c+I), s	12.8			9.8	10.8	
Green Ext Time (p_c), s	0.7	2.5		3.6	0.8	
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay		16.4				
HCM 6th LOS		B				

AM Peak Hour - Existing Conditions  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
1: SR 12 & Arnold Dr

06/10/2022

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	64	58	492	553	69
Future Volume (veh/h)	70	64	58	492	553	69
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	75	15	62	529	595	42
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	219	195	109	1203	889	735
Arrive On Green	0.12	0.12	0.06	0.65	0.48	0.48
Sat Flow, veh/h	1767	1572	1767	1856	1856	1535
Grp Volume(v), veh/h	75	15	62	529	595	42
Grp Sat Flow(s),veh/h/ln	1767	1572	1767	1856	1856	1535
Q Serve(g_s), s	1.6	0.4	1.4	5.9	10.3	0.6
Cycle Q Clear(g_c), s	1.6	0.4	1.4	5.9	10.3	0.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	219	195	109	1203	889	735
V/C Ratio(X)	0.34	0.08	0.57	0.44	0.67	0.06
Avail Cap(c_a), veh/h	339	301	275	1889	1400	1158
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	16.7	16.2	19.1	3.6	8.3	5.8
Incr Delay (d2), s/veh	0.9	0.2	4.7	0.3	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.6	0.3	2.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.6	16.3	23.7	3.9	9.2	5.9
LnGrp LOS	B	B	C	A	A	A
Approach Vol, veh/h	90			591	637	
Approach Delay, s/veh	17.4			5.9	9.0	
Approach LOS	B			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		32.1		9.7	7.1	25.0
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0
Max Green Setting (Gmax), s		42.5		8.0	6.5	31.5
Max Q Clear Time (g_c+I1), s		7.9		3.6	3.4	12.3
Green Ext Time (p_c), s		3.2		0.1	0.0	3.4
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			8.2			
HCM 6th LOS			A			

PM Peak Hour - Existing Conditions  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th AWSC  
2: Arnold Drive & Warm Springs Road

06/10/2022

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	49	154	128	91	81	53
Future Vol, veh/h	49	154	128	91	81	53
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	55	173	144	102	91	60
Number of Lanes	1	0	0	1	1	0
<b>Approach</b>						
	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left SB			EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach RightNB					EB	
Conflicting Lanes Right	1		0		1	
HCM Control Delay	9.4		10.2		8.7	
HCM LOS	A		B		A	
<b>Lane</b>						
	NBLn1	EBLn1	SBLn1			
Vol Left, %		58%	24%		0%	
Vol Thru, %		42%	0%		60%	
Vol Right, %		0%	76%		40%	
Sign Control		Stop	Stop		Stop	
Traffic Vol by Lane		219	203		134	
LT Vol		128	49		0	
Through Vol		91	0		81	
RT Vol		0	154		53	
Lane Flow Rate		246	228		151	
Geometry Grp		1	1		1	
Degree of Util (X)		0.328	0.286		0.191	
Departure Headway (Hd)		4.806	4.509		4.576	
Convergence, Y/N		Yes	Yes		Yes	
Cap		746	796		781	
Service Time		2.85	2.546		2.623	
HCM Lane V/C Ratio		0.33	0.286		0.193	
HCM Control Delay		10.2	9.4		8.7	
HCM Lane LOS		B	A		A	
HCM 95th-ile Q		1.4	1.2		0.7	

PM Peak Hour - Existing Conditions  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th AWSC  
3: Arnold Drive & Harney Drive

06/10/2022

Intersection												
Intersection Delay, s/veh	11											
Intersection LOS	B											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔				↔		↔		
Traffic Vol, veh/h	3	2	3	4	1	5	1	328	2	1	354	1
Future Vol, veh/h	3	2	3	4	1	5	1	328	2	1	354	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	2	3	4	1	6	1	364	2	1	393	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.5	8.5	10.9	11.3
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	38%	40%	0%
Vol Thru, %	99%	25%	10%	99%
Vol Right, %	1%	38%	50%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	331	8	10	356
LT Vol	1	3	4	1
Through Vol	328	2	1	354
RT Vol	2	3	5	1
Lane Flow Rate	368	9	11	396
Geometry Grp	1	1	1	1
Degree of Util (X)	0.447	0.013	0.017	0.478
Departure Headway (Hd)	4.377	5.43	5.354	4.353
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	824	658	667	831
Service Time	2.394	3.472	3.395	2.37
HCM Lane V/C Ratio	0.447	0.014	0.016	0.477
HCM Control Delay	10.9	8.5	8.5	11.3
HCM Lane LOS	B	A	A	B
HCM 95th-tile Q	2.3	0	0.1	2.6

HCM 6th AWSC  
4: Arnold Drive & Madrone Road

06/10/2022

Intersection												
Intersection Delay, s/veh	13.9											
Intersection LOS	B											


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔		↔	↔	
Traffic Vol, veh/h	0	2	5	157	1	41	2	215	134	27	266	3
Future Vol, veh/h	0	2	5	157	1	41	2	215	134	27	266	3
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	5	173	1	45	2	236	147	30	292	3
Number of Lanes	0	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	9.7	12.2	15.5	13.2
HCM LOS	A	B	C	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	62%	29%	0%	2%	0%	99%
Vol Right, %	0%	38%	71%	0%	98%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	2	349	7	157	42	27	269
LT Vol	2	0	0	157	0	27	0
Through Vol	0	215	2	0	1	0	266
RT Vol	0	134	5	0	41	0	3
Lane Flow Rate	2	384	8	173	46	30	296
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.004	0.581	0.014	0.332	0.074	0.052	0.473
Departure Headway (Hd)	6.23	5.452	6.558	6.933	5.734	6.277	5.763
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	575	663	544	519	624	571	627
Service Time	3.958	3.18	4.616	4.671	3.471	4.007	3.492
HCM Lane V/C Ratio	0.003	0.579	0.015	0.333	0.074	0.053	0.472
HCM Control Delay	9	15.5	9.7	13.1	8.9	9.4	13.6
HCM Lane LOS	A	C	A	B	A	A	B
HCM 95th-tile Q	0	3.8	0	1.4	0.2	0.2	2.5

HCM 6th Signalized Intersection Summary  
5: SR 12 & Madrone Rd

06/10/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	97	0	45	3	1	1	54	463	0	0	513	120	
Future Volume (veh/h)	97	0	45	3	1	1	54	463	0	0	513	120	
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	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	No	No	No	No	No	No	No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	103	0	16	3	1	1	57	493	0	0	546	96	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3	
Cap, veh/h	280	0	249	14	5	5	134	1018	0	3	716	607	
Arrive On Green	0.16	0.00	0.16	0.01	0.01	0.01	0.08	0.55	0.00	0.00	0.39	0.39	
Sat Flow, veh/h	1767	0	1572	1044	348	348	1767	1856	0	1767	1856	1572	
Grp Volume(v), veh/h	103	0	16	5	0	0	57	493	0	0	546	96	
Grp Sat Flow(s), veh/h/ln	1767	0	1572	1044	0	0	1767	1856	0	1767	1856	1572	
Q Serve(g_s), s	2.7	0.0	0.4	0.1	0.0	0.0	1.6	8.5	0.0	0.0	13.3	2.1	
Cycle Q Clear(g_c), s	2.7	0.0	0.4	0.1	0.0	0.0	1.6	8.5	0.0	0.0	13.3	2.1	
Prop In Lane	1.00	1.00	0.60		0.20	1.00		0.00	1.00		1.00		
Lane Grp Cap(c), veh/h	280	0	249	23	0	0	134	1018	0	3	716	607	
V/C Ratio(X)	0.37	0.00	0.06	0.21	0.00	0.00	0.43	0.48	0.00	0.00	0.76	0.16	
Avail Cap(c_a), veh/h	785	0	698	336	0	0	239	1110	0	239	1110	941	
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	0.00	1.00	1.00	0.00	0.00	1.00	1.00	
Uniform Delay (d), s/veh	19.5	0.0	18.5	25.3	0.0	0.0	22.9	7.2	0.0	0.0	13.8	10.4	
Incr Delay (d2), s/veh	0.8	0.0	0.1	4.5	0.0	0.0	2.1	0.4	0.0	0.0	1.7	0.1	
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	0.0	0.0	0.1	0.1	0.0	0.0	0.6	1.8	0.0	0.0	4.1	0.5	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d), s/veh	20.3	0.0	18.7	29.8	0.0	0.0	25.0	7.5	0.0	0.0	15.5	10.5	
LnGrp LOS	C	A	B	C	A	A	C	A	A	A	B	B	
Approach Vol, veh/h	119			5				550				642	
Approach Delay, s/veh	20.1			29.8				9.4				14.8	
Approach LOS	C			C				A				B	
Timer - Assigned Phs	1	2	4	5	6	8							
Phs Duration (G+Y+Rc), s	0.0	33.9	12.7	8.4	25.5	5.2							
Change Period (Y+Rc), s	4.5	5.5	4.5	4.5	5.5	4.5							
Max Green Setting (Gmax), s	31.0	23.0	7.0	31.0	10.0								
Max Q Clear Time (g_c+I), s	10.5	4.7	3.6	15.3	2.1								
Green Ext Time (p_c), s	0.0	2.5	0.4	0.0	2.9	0.0							
<b>Intersection Summary</b>													
HCM 6th Ctrl Delay	13.1												
HCM 6th LOS	B												

PM Peak Hour - Existing Conditions  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Roundabout  
6: Arnold Drive & Agua Cliente Road

06/10/2022


Intersection				
Intersection Delay, s/veh	8.5			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	35	217	727	490
Demand Flow Rate, veh/h	36	223	749	505
Vehicles Circulating, veh/h	704	419	30	231
Vehicles Exiting, veh/h	32	360	710	411
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.1	6.7	9.0	8.6
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	36	223	749	505
Cap Entry Lane, veh/h	673	900	1338	1090
Entry HV Adj Factor	0.967	0.972	0.970	0.970
Flow Entry, veh/h	35	217	727	490
Cap Entry, veh/h	651	875	1298	1058
V/C Ratio	0.053	0.248	0.560	0.463
Control Delay, s/veh	6.1	6.7	9.0	8.6
LOS	A	A	A	A
95th %tile Queue, veh	0	1	4	3

PM Peak Hour - Existing Conditions  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
7: Arnold Dr & Boyes Blvd

06/10/2022




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↔	↔	↔		
Traffic Volume (veh/h)	1	0	0	109	1	70	1	601	194	63	585	1
Future Volume (veh/h)	1	0	0	109	1	70	1	601	194	63	585	1
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1	0	0	115	1	74	1	633	162	66	616	1
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	345	0	0	431	4	296	473	790	670	150	1118	2
Arrive On Green	0.19	0.00	0.00	0.19	0.19	0.19	0.43	0.43	0.43	0.08	0.60	0.60
Sat Flow, veh/h	1035	0	0	1406	21	1555	800	1856	1572	1767	1852	3
Grp Volume(v), veh/h	1	0	0	115	0	75	1	633	162	66	0	617
Grp Sat Flow(s), veh/h/ln	1035	0	0	1406	0	1576	800	1856	1572	1767	0	1855
Q Serve(g_s), s	0.0	0.0	0.0	0.9	0.0	2.0	0.0	14.4	3.2	1.7	0.0	9.6
Cycle Q Clear(g_c), s	2.0	0.0	0.0	2.9	0.0	2.0	1.0	14.4	3.2	1.7	0.0	9.6
Prop In Lane	1.00		0.00	1.00		0.99	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	345	0	0	431	0	300	473	790	670	150	0	1120
V/C Ratio(X)	0.00	0.00	0.00	0.27	0.00	0.25	0.00	0.80	0.24	0.44	0.00	0.55
Avail Cap(c_a), veh/h	772	0	0	887	0	812	684	1281	1085	255	0	1720
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.5	0.0	0.0	17.0	0.0	16.7	8.6	12.1	8.9	21.1	0.0	5.7
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	0.4	0.0	1.9	0.2	2.0	0.0	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	0.0	0.0	0.0	1.0	0.0	0.6	0.0	4.6	0.8	0.7	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	17.5	0.0	0.0	17.4	0.0	17.1	8.6	14.1	9.1	23.1	0.0	6.1
LnGrp LOS	B	A	A	B	A	B	A	B	A	C	A	A
Approach Vol, veh/h		1			190			796			683	
Approach Delay, s/veh		17.5			17.3			13.1			7.8	
Approach LOS		B			B			B			A	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.6	25.7		14.2		34.3		14.2				
Change Period (Y+Rc), s	4.5	5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s	8	33.5		25.0		45.0		25.0				
Max Q Clear Time (g_c+I), s	8	16.4		4.0		11.6		4.9				
Green Ext Time (p_c), s	0.0	4.2		0.0		4.3		0.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				11.4								
HCM 6th LOS				B								

PM Peak Hour - Existing Conditions  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
8: Arnold Dr & Verano Ave

06/10/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	4	9	3	86	7	81	3	788	120	94	615	5
Future Volume (veh/h)	4	9	3	86	7	81	3	788	120	94	615	5
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	4	10	3	91	7	22	3	838	107	100	654	5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	103	186	46	313	20	238	7	976	827	169	1135	9
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.00	0.52	0.52	0.09	0.61	0.61
Sat Flow, veh/h	195	1243	308	1314	133	1585	1781	1870	1585	1781	1854	14
Grp Volume(v), veh/h	17	0	0	98	0	22	3	838	107	100	0	659
Grp Sat Flow(s), veh/h/ln	1746	0	0	1447	0	1585	1781	1870	1585	1781	0	1868
Q Serve(g_s), s	0.0	0.0	0.0	3.1	0.0	0.7	0.1	23.3	2.1	3.2	0.0	12.7
Cycle Q Clear(g_c), s	0.5	0.0	0.0	3.6	0.0	0.7	0.1	23.3	2.1	3.2	0.0	12.7
Prop In Lane	0.24		0.18	0.93		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	336	0	0	333	0	238	7	976	827	169	0	1144
V/C Ratio(X)	0.05	0.00	0.00	0.29	0.00	0.09	0.41	0.86	0.13	0.59	0.00	0.58
Avail Cap(c_a), veh/h	785	0	0	715	0	662	149	1358	1151	223	0	1435
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.8	0.0	0.0	23.1	0.0	21.9	29.8	12.4	7.3	26.0	0.0	7.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.5	0.0	0.2	33.7	4.2	0.1	3.3	0.0	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	0.0	0.0	0.0	1.2	0.0	0.3	0.1	8.2	0.5	1.4	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	21.9	0.0	0.0	23.6	0.0	22.1	63.5	16.6	7.4	29.3	0.0	7.4
LnGrp LOS	C	A	A	C	A	C	E	B	A	C	A	A
Approach Vol, veh/h		17			120			948			759	
Approach Delay, s/veh		21.9			23.3			15.7			10.3	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4		5		6		8		
Phs Duration (G+Y+Rc), s	8.2	36.2		13.5		4.7		41.7		13.5		
Change Period (Y+Rc), s	4.5	5.0		4.5		4.5		5.0		4.5		
Max Green Setting (Gmax), s	5	43.5		25.0		5.0		46.0		25.0		
Max Q Clear Time (g_c+I), s	5	25.3		2.5		2.1		14.7		5.6		
Green Ext Time (p_c), s	0.0	6.0		0.0		0.0		4.6		0.4		
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				14.0								
HCM 6th LOS				B								

PM Peak Hour - Existing Conditions  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
9: Arnold Dr & Petaluma Ave

06/10/2022

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↕	↖	↗	↕
Traffic Volume (veh/h)	104	129	790	137	139	546
Future Volume (veh/h)	104	129	790	137	139	546
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	108	72	823	143	145	569
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	173	154	982	832	186	1337
Arrive On Green	0.10	0.10	0.53	0.53	0.11	0.72
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	108	72	823	143	145	569
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	3.1	2.3	19.6	2.5	4.2	6.5
Cycle Q Clear(g_c), s	3.1	2.3	19.6	2.5	4.2	6.5
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	173	154	982	832	186	1337
V/C Ratio(X)	0.62	0.47	0.84	0.17	0.78	0.43
Avail Cap(c_a), veh/h	844	751	1507	1277	287	1968
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	22.7	22.3	10.4	6.4	22.8	3.0
Incr Delay (d2), s/veh	3.6	2.2	2.6	0.1	7.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3	0.8	5.6	0.5	1.9	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.3	24.5	13.1	6.5	30.0	3.2
LnGrp LOS	C	C	B	A	C	A
Approach Vol, veh/h	180	966	714			
Approach Delay, s/veh	25.6	12.1	8.6			
Approach LOS	C	B	A			
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	30.0	32.7		42.7	9.6	
Change Period (Y+Rc), s	4.5	5.0		5.0	4.5	
Max Green Setting (Gmax), s	42.5			55.5	25.0	
Max Q Clear Time (g_c+I), s	21.6			8.5	5.1	
Green Ext Time (p_c), s	0.1	6.1		3.7	0.5	
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay		12.1				
HCM 6th LOS		B				

PM Peak Hour - Existing Conditions  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
10: Stage Gulch Road & Arnold Drive

06/10/2022

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗
Traffic Volume (veh/h)	374	584	416	2	217	259
Future Volume (veh/h)	374	584	416	2	217	259
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	407	635	452	2	236	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	479	1212	562	2	307	273
Arrive On Green	0.27	0.65	0.30	0.30	0.17	0.17
Sat Flow, veh/h	1767	1856	1846	8	1767	1572
Grp Volume(v), veh/h	407	635	0	454	236	130
Grp Sat Flow(s),veh/h/ln	1767	1856	0	1854	1767	1572
Q Serve(g_s), s	12.6	10.4	0.0	13.1	7.4	4.3
Cycle Q Clear(g_c), s	12.6	10.4	0.0	13.1	7.4	4.3
Prop In Lane	1.00		0.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	479	1212	0	565	307	273
V/C Ratio(X)	0.85	0.52	0.00	0.80	0.77	0.48
Avail Cap(c_a), veh/h	839	2018	0	992	519	462
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.0	5.3	0.0	18.6	22.8	21.5
Incr Delay (d2), s/veh	4.3	0.4	0.0	2.7	4.0	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	3	2.7	0.0	5.4	3.2	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.3	5.6	0.0	21.3	26.8	22.8
LnGrp LOS	C	A	A	C	C	C
Approach Vol, veh/h	1042	454		366		
Approach Delay, s/veh	12.9	21.3		25.4		
Approach LOS	B	C		C		
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	20.2	22.6		42.8	15.1	
Change Period (Y+Rc), s	4.5	5.0		5.0	5.0	
Max Green Setting (Gmax), s	31.0			63.0	17.0	
Max Q Clear Time (g_c+I), s	15.1			12.4	9.4	
Green Ext Time (p_c), s	1.1	2.6		5.1	0.7	
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay		17.4				
HCM 6th LOS		B				

PM Peak Hour - Existing Conditions  
W-Trans

SDC Specific Plan  
Synchro 11 Report



HCM 6th Signalized Intersection Summary  
1: SR 12 & Arnold Dr

06/10/2022

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	77	66	74	554	640	64
Future Volume (veh/h)	77	66	74	554	640	64
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	79	37	76	571	660	61
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	247	219	123	1186	863	714
Arrive On Green	0.14	0.14	0.07	0.64	0.47	0.47
Sat Flow, veh/h	1767	1572	1767	1856	1856	1535
Grp Volume(v), veh/h	79	37	76	571	660	61
Grp Sat Flow(s),veh/h/ln	1767	1572	1767	1856	1856	1535
Q Serve(g_s), s	1.7	0.9	1.8	6.9	12.7	1.0
Cycle Q Clear(g_c), s	1.7	0.9	1.8	6.9	12.7	1.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	247	219	123	1186	863	714
V/C Ratio(X)	0.32	0.17	0.62	0.48	0.76	0.09
Avail Cap(c_a), veh/h	349	311	308	1813	1295	1071
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	16.7	16.3	19.4	4.0	9.5	6.4
Incr Delay (d2), s/veh	0.7	0.4	5.0	0.3	1.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.8	0.8	0.5	3.0	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.4	16.7	24.5	4.3	11.1	6.4
LnGrp LOS	B	B	C	A	B	A
Approach Vol, veh/h	116			647	721	
Approach Delay, s/veh	17.2			6.7	10.7	
Approach LOS	B			A	B	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	32.5			10.5	7.5	25.0
Change Period (Y+Rc), s	5.0			4.5	4.5	5.0
Max Green Setting (Gmax), s	42.0			8.5	7.5	30.0
Max Q Clear Time (g_c+I1), s	8.9			3.7	3.8	14.7
Green Ext Time (p_c), s	3.5			0.1	0.0	3.7
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay				9.5		
HCM 6th LOS				A		

AM Peak Hour - Future without Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th AWSC  
2: Arnold Drive & Warm Springs Road

06/10/2022

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	46	154	121	84	86	48
Future Vol, veh/h	46	154	121	84	86	48
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	52	173	136	94	97	54
Number of Lanes	1	0	0	1	1	0
<b>Approach</b>	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right			NB		EB	
Conflicting Lanes Right	1		0		1	
HCM Control Delay	9.2		10		8.7	
HCM LOS	A		A		A	
<b>Lane</b>			NBLn1	EBLn1	SBLn1	
Vol Left, %			59%	23%	0%	
Vol Thru, %			41%	0%	64%	
Vol Right, %			0%	77%	36%	
Sign Control			Stop	Stop	Stop	
Traffic Vol by Lane			205	200	134	
LT Vol			121	46	0	
Through Vol			84	0	86	
RT Vol			0	154	48	
Lane Flow Rate			230	225	151	
Geometry Grp			1	1	1	
Degree of Util (X)			0.307	0.279	0.191	
Departure Headway (Hd)			4.795	4.463	4.567	
Convergence, Y/N			Yes	Yes	Yes	
Cap			749	804	783	
Service Time			2.837	2.499	2.611	
HCM Lane V/C Ratio			0.307	0.28	0.193	
HCM Control Delay			10	9.2	8.7	
HCM Lane LOS			A	A	A	
HCM 95th-ile Q			1.3	1.1	0.7	

AM Peak Hour - Future without Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th AWSC  
3: Arnold Drive & Harney Drive

06/10/2022

<b>Intersection</b>												
Intersection Delay, s/veh 9.4												
Intersection LOS A												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	7	1	2	4	3	6	265	7	7	236	2
Future Vol, veh/h	1	7	1	2	4	3	6	265	7	7	236	2
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	8	1	2	4	3	7	298	8	8	265	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.2	8.1	9.6	9.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	11%	22%	3%
Vol Thru, %	95%	78%	44%	96%
Vol Right, %	3%	11%	33%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	278	9	9	245
LT Vol	6	1	2	7
Through Vol	265	7	4	236
RT Vol	7	1	3	2
Lane Flow Rate	312	10	10	275
Geometry Grp	1	1	1	1
Degree of Util (X)	0.361	0.015	0.014	0.321
Departure Headway (Hd)	4.164	5.162	5.051	4.204
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	853	697	713	842
Service Time	2.251	3.164	3.052	2.297
HCM Lane V/C Ratio	0.366	0.014	0.014	0.327
HCM Control Delay	9.6	8.2	8.1	9.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.7	0	0	1.4

HCM 6th AWSC  
4: Arnold Drive & Madrone Road

06/10/2022

<b>Intersection</b>												
Intersection Delay, s/veh 15												
Intersection LOS B												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	11	8	220	3	68	3	179	149	32	236	2
Future Vol, veh/h	0	11	8	220	3	68	3	179	149	32	236	2
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	12	9	247	3	76	3	201	167	36	265	2
Number of Lanes	0	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	10.4	14.4	16.8	13.8
HCM LOS	B	B	C	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	55%	58%	0%	4%	0%	99%
Vol Right, %	0%	45%	42%	0%	96%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	3	328	19	220	71	32	238
LT Vol	3	0	0	220	0	32	0
Through Vol	0	179	11	0	3	0	236
RT Vol	0	149	8	0	68	0	2
Lane Flow Rate	3	369	21	247	80	36	267
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.006	0.597	0.042	0.479	0.128	0.067	0.462
Departure Headway (Hd)	6.663	5.832	7.001	6.983	5.797	6.738	6.223
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	536	615	508	514	617	530	578
Service Time	4.417	3.585	5.09	4.737	3.55	4.494	3.979
HCM Lane V/C Ratio	0.006	0.6	0.041	0.481	0.13	0.068	0.462
HCM Control Delay	9.5	16.9	10.4	16	9.4	10	14.3
HCM Lane LOS	A	C	B	C	A	A	B
HCM 95th-tile Q	0	3.9	0.1	2.6	0.4	0.2	2.4

HCM 6th Signalized Intersection Summary  
5: SR 12 & Madrone Rd

06/10/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	119	1	70	0	0	1	54	529	1	1	558	138
Future Volume (veh/h)	119	1	70	0	0	1	54	529	1	1	558	138
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	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	128	1	48	0	0	1	58	569	1	1	600	121
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	306	2	274	0	0	4	134	857	2	3	722	612
Arrive On Green	0.17	0.17	0.17	0.00	0.00	0.00	0.08	0.46	0.46	0.00	0.39	0.39
Sat Flow, veh/h	1754	14	1572	0	0	1572	1767	1852	3	1767	1856	1572
Grp Volume(v), veh/h	129	0	48	0	0	1	58	0	570	1	600	121
Grp Sat Flow(s),veh/h/ln	1768	0	1572	0	0	1573	1767	0	1855	1767	1856	1572
Q Serve(g_s), s	3.4	0.0	1.4	0.0	0.0	0.0	1.7	0.0	12.6	0.0	15.5	2.7
Cycle Q Clear(g_c), s	3.4	0.0	1.4	0.0	0.0	0.0	1.7	0.0	12.6	0.0	15.5	2.7
Prop In Lane	0.99	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	308	0	274	0	0	4	134	0	859	3	722	612
V/C Ratio(X)	0.42	0.00	0.17	0.00	0.00	0.23	0.43	0.00	0.66	0.29	0.83	0.20
Avail Cap(c_a), veh/h	766	0	681	0	0	296	233	0	1083	233	1083	918
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	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.5	0.0	18.7	0.0	0.0	26.4	23.4	0.0	11.1	26.5	14.6	10.7
Incr Delay (d2), s/veh	0.9	0.0	0.3	0.0	0.0	25.1	2.2	0.0	1.1	41.8	3.5	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	3	0.0	0.4	0.0	0.0	0.0	0.7	0.0	3.5	0.1	5.2	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.4	0.0	19.0	0.0	0.0	51.5	25.6	0.0	12.1	68.3	18.2	10.9
LnGrp LOS	C	A	B	A	A	D	C	A	B	E	B	B
Approach Vol, veh/h	177			1			628				722	
Approach Delay, s/veh	20.0			51.5			13.4				17.0	
Approach LOS	C			D			B				B	
Timer - Assigned Phs	1	2	4	5	6	8						
Phs Duration (G+Y+Rc), s	30.1		13.8	8.5	26.2	4.6						
Change Period (Y+Rc), s	4.5		4.5	4.5	5.5	4.5						
Max Green Setting (Gmax), s	31.0		23.0	7.0	31.0	10.0						
Max Q Clear Time (g_c+I), s	14.6		5.4	3.7	17.5	2.0						
Green Ext Time (p_c), s	0.0		2.8	0.7	0.0	3.2	0.0					

Intersection Summary

HCM 6th Ctrl Delay	15.9
HCM 6th LOS	B

AM Peak Hour - Future without Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Roundabout  
6: Arnold Drive & Agua Cliente Road

06/10/2022

Intersection				
Intersection Delay, s/veh	10.7			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	8	431	678	532
Demand Flow Rate, veh/h	8	444	699	548
Vehicles Circulating, veh/h	947	426	28	433
Vehicles Exiting, veh/h	34	301	927	437
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.2	10.7	8.3	13.8
Approach LOS	A	B	A	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	8	444	699	548
Cap Entry Lane, veh/h	525	894	1341	887
Entry HV Adj Factor	0.982	0.970	0.970	0.971
Flow Entry, veh/h	8	431	678	532
Cap Entry, veh/h	516	867	1301	861
V/C Ratio	0.015	0.497	0.521	0.618
Control Delay, s/veh	7.2	10.7	8.3	13.8
LOS	A	B	A	B
95th %tile Queue, veh	0	3	3	4

AM Peak Hour - Future without Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
7: Arnold Dr & Boyes Blvd

06/10/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	223	0	176	0	603	129	80	730	0
Future Volume (veh/h)	0	0	0	223	0	176	0	603	129	80	730	0
Initial Q (Ob), 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	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	0	0	0	245	0	193	0	663	104	88	802	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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	0	367	0	486	0	311	137	800	678	170	1137	0
Arrive On Green	0.00	0.00	0.00	0.20	0.00	0.20	0.00	0.43	0.43	0.10	0.61	0.00
Sat Flow, veh/h	0	1856	0	1767	0	1572	673	1856	1572	1767	1856	0
Grp Volume(v), veh/h	0	0	0	245	0	193	0	663	104	88	802	0
Grp Sat Flow(s), veh/h/ln	0	1856	0	1767	0	1572	673	1856	1572	1767	1856	0
Q Serve(g_s), s	0.0	0.0	0.0	6.8	0.0	5.9	0.0	16.7	2.1	2.5	15.5	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	6.8	0.0	5.9	0.0	16.7	2.1	2.5	15.5	0.0
Prop In Lane	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Lane Grp Cap(c), veh/h	0	367	0	486	0	311	137	800	678	170	1137	0
V/C Ratio(X)	0.00	0.00	0.00	0.50	0.00	0.62	0.00	0.83	0.15	0.52	0.71	0.00
Avail Cap(c_a), veh/h	0	881	0	976	0	746	275	1180	1000	235	1585	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	19.7	0.0	19.3	0.0	13.3	9.1	22.6	7.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.8	0.0	2.0	0.0	3.3	0.1	2.4	0.8	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.0	0.0	0.0	2.5	0.0	2.0	0.0	5.9	0.6	1.0	3.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	0.0	20.5	0.0	21.4	0.0	16.5	9.2	25.1	7.8	0.0
LnGrp LOS	A	A	A	C	A	C	A	B	A	C	A	A
Approach Vol, veh/h	0			438			767			890		
Approach Delay, s/veh	0.0			20.9			15.6			9.5		
Approach LOS	C			C			B			A		
Timer - Assigned Phs	1	2	4		6		8					
Phs Duration (G+Y+Rc), s	27.7	15.4	37.3		15.4							
Change Period (Y+Rc), s	5.0	5.0	5.0		5.0							
Max Green Setting (Gmax), s	33.5	25.0	45.0		25.0							
Max Q Clear Time (g_c+1), s	18.7	0.0	17.5		8.8							
Green Ext Time (p_c), s	0.0	4.0	0.0		6.1		1.6					
Intersection Summary												
HCM 6th Ctrl Delay				14.1								
HCM 6th LOS				B								

AM Peak Hour - Future without Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
8: Arnold Dr & Verano Ave

06/10/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	7	2	184	10	71	1	617	89	90	851	7
Future Volume (veh/h)	9	7	2	184	10	71	1	617	89	90	851	7
Initial Q (Ob), 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	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	No	No	No	No	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	10	8	2	204	11	29	1	686	82	100	946	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	105	70	11	345	13	381	3	893	757	151	1039	9
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.00	0.48	0.48	0.08	0.56	0.56
Sat Flow, veh/h	120	290	46	1024	55	1585	1781	1870	1585	1781	1852	16
Grp Volume(v), veh/h	20	0	0	215	0	29	1	686	82	100	0	954
Grp Sat Flow(s), veh/h/ln	456	0	0	1079	0	1585	1781	1870	1585	1781	0	1868
Q Serve(g_s), s	0.2	0.0	0.0	0.0	0.0	1.0	0.0	21.4	2.0	3.9	0.0	32.5
Cycle Q Clear(g_c), s	14.5	0.0	0.0	14.4	0.0	1.0	0.0	21.4	2.0	3.9	0.0	32.5
Prop In Lane	0.50	0.10	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Lane Grp Cap(c), veh/h	186	0	0	358	0	381	3	893	757	151	0	1048
V/C Ratio(X)	0.11	0.00	0.00	0.60	0.00	0.08	0.40	0.77	0.11	0.66	0.00	0.91
Avail Cap(c_a), veh/h	361	0	0	518	0	559	126	1148	973	189	0	1212
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.8	0.0	0.0	25.9	0.0	20.8	35.3	15.3	10.2	31.4	0.0	14.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	1.6	0.0	0.1	79.1	2.4	0.1	5.9	0.0	9.4
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	0.3	0.0	0.0	3.3	0.0	0.4	0.1	8.1	0.6	1.8	0.0	13.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	22.0	0.0	0.0	27.5	0.0	20.9	114.4	17.7	10.3	37.3	0.0	23.4
LnGrp LOS	C	A	A	C	A	C	F	B	B	D	A	C
Approach Vol, veh/h	20		244		769		1054					
Approach Delay, s/veh	22.0		26.8		17.0		24.7					
Approach LOS	C		C		B		C					
Timer - Assigned Phs	1	2	4		5		6		8			
Phs Duration (G+Y+Rc), s	38.8	21.5	44.8		21.5							
Change Period (Y+Rc), s	5.0	4.5	5.0		4.5							
Max Green Setting (Gmax), s	43.5	25.0	46.0		25.0							
Max Q Clear Time (g_c+1), s	23.4	16.5	34.5		16.4							
Green Ext Time (p_c), s	0.0	4.7	0.0		5.3		0.7					
Intersection Summary												
HCM 6th Ctrl Delay				22.1								
HCM 6th LOS				C								

AM Peak Hour - Future without Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
9: Arnold Dr & Petaluma Ave

06/10/2022

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↑	↘	↙	↘
Traffic Volume (veh/h)	135	108	526	119	175	848
Future Volume (veh/h)	135	108	526	119	175	848
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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	148	86	578	131	192	932
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	232	207	757	642	244	1206
Arrive On Green	0.13	0.13	0.41	0.41	0.14	0.65
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	148	86	578	131	192	932
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	3.4	2.2	11.6	2.3	4.6	15.4
Cycle Q Clear(g_c), s	3.4	2.2	11.6	2.3	4.6	15.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	232	207	757	642	244	1206
V/C Ratio(X)	0.64	0.42	0.76	0.20	0.79	0.77
Avail Cap(c_a), veh/h	1017	905	1815	1538	346	2370
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	17.9	17.3	11.1	8.3	18.1	5.4
Incr Delay (d2), s/veh	2.9	1.3	1.6	0.2	7.6	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4	0.7	3.3	0.5	2.0	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.8	18.7	12.7	8.5	25.7	6.4
LnGrp LOS	C	B	B	A	C	A
Approach Vol, veh/h	234		709		1124	
Approach Delay, s/veh	20.0		11.9		9.7	
Approach LOS	B		B		A	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	30.5	22.7			33.2	10.2
Change Period (Y+Rc), s	4.5	5.0			5.0	4.5
Max Green Setting (Gmax), s	42.5				55.5	25.0
Max Q Clear Time (g_c+I), s	13.6				17.4	5.4
Green Ext Time (p_c), s	0.1	4.1			8.0	0.6
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			11.6			
HCM 6th LOS			B			

AM Peak Hour - Future without Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
10: Stage Gulch Road & Arnold Drive

06/10/2022

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗
Traffic Volume (veh/h)	321	613	446	8	374	213
Future Volume (veh/h)	321	613	446	8	374	213
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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	334	639	465	8	390	118
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	397	1114	558	10	437	389
Arrive On Green	0.22	0.60	0.31	0.31	0.25	0.25
Sat Flow, veh/h	1767	1856	1819	31	1767	1572
Grp Volume(v), veh/h	334	639	0	473	390	118
Grp Sat Flow(s),veh/h/ln	1767	1856	0	1850	1767	1572
Q Serve(g_s), s	11.8	13.8	0.0	15.6	14.0	4.0
Cycle Q Clear(g_c), s	11.8	13.8	0.0	15.6	14.0	4.0
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	397	1114	0	568	437	389
V/C Ratio(X)	0.84	0.57	0.00	0.83	0.89	0.30
Avail Cap(c_a), veh/h	742	1786	0	876	459	408
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.3	8.0	0.0	21.1	23.8	20.1
Incr Delay (d2), s/veh	4.9	0.5	0.0	4.2	18.9	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	2	4.4	0.0	6.8	7.7	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.2	8.5	0.0	25.3	42.7	20.5
LnGrp LOS	C	A	A	C	D	C
Approach Vol, veh/h	973	473		508		
Approach Delay, s/veh	15.6	25.3		37.5		
Approach LOS	B	C		D		
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	19.2	25.1			44.3	21.2
Change Period (Y+Rc), s	4.5	5.0			5.0	5.0
Max Green Setting (Gmax), s	31.0				63.0	17.0
Max Q Clear Time (g_c+I), s	17.6				15.8	16.0
Green Ext Time (p_c), s	0.9	2.5			5.2	0.2
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			23.6			
HCM 6th LOS			C			

AM Peak Hour - Future without Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
1: SR 12 & Arnold Dr

06/10/2022

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↖	↖
Traffic Volume (veh/h)	84	70	63	615	605	84
Future Volume (veh/h)	84	70	63	615	605	84
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	90	21	68	661	651	58
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	243	216	115	1187	871	720
Arrive On Green	0.14	0.14	0.06	0.64	0.47	0.47
Sat Flow, veh/h	1767	1572	1767	1856	1856	1535
Grp Volume(v), veh/h	90	21	68	661	651	58
Grp Sat Flow(s),veh/h/ln	1767	1572	1767	1856	1856	1535
Q Serve(g_s), s	2.0	0.5	1.6	8.5	12.2	0.9
Cycle Q Clear(g_c), s	2.0	0.5	1.6	8.5	12.2	0.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	243	216	115	1187	871	720
V/C Ratio(X)	0.37	0.10	0.59	0.56	0.75	0.08
Avail Cap(c_a), veh/h	332	295	270	1851	1372	1135
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	16.7	16.1	19.4	4.3	9.2	6.2
Incr Delay (d2), s/veh	0.9	0.2	4.8	0.4	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.7	0.6	2.8	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.7	16.3	24.2	4.7	10.6	6.3
LnGrp LOS	B	B	C	A	B	A
Approach Vol, veh/h	111			729	709	
Approach Delay, s/veh	17.4			6.5	10.2	
Approach LOS	B			A	B	
Timer - Assigned Phs	2			4	5	6
Phs Duration (G+Y+Rc), s	32.3			10.3	7.3	25.0
Change Period (Y+Rc), s	5.0			4.5	4.5	5.0
Max Green Setting (Gmax), s	42.5			8.0	6.5	31.5
Max Q Clear Time (g_c+I1), s	10.5			4.0	3.6	14.2
Green Ext Time (p_c), s	4.3			0.1	0.0	3.8
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay				9.0		
HCM 6th LOS				A		

PM Peak Hour - Future without Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th AWSC  
2: Arnold Drive & Warm Springs Road

06/10/2022

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗		↖	↖	
Traffic Vol, veh/h	54	168	141	103	96	58
Future Vol, veh/h	54	168	141	103	96	58
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	61	189	158	116	108	65
Number of Lanes	1	0	0	1	1	0
<b>Approach</b>						
	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left SB			EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach RightNB					EB	
Conflicting Lanes Right	1		0		1	
HCM Control Delay	9.9		10.9		9.1	
HCM LOS	A		B		A	
<b>Lane</b>						
		NBLn1	EBLn1	SBLn1		
Vol Left, %		58%	24%	0%		
Vol Thru, %		42%	0%	62%		
Vol Right, %		0%	76%	38%		
Sign Control		Stop	Stop	Stop		
Traffic Vol by Lane		244	222	154		
LT Vol		141	54	0		
Through Vol		103	0	96		
RT Vol		0	168	58		
Lane Flow Rate		274	249	173		
Geometry Grp		1	1	1		
Degree of Util (X)		0.373	0.321	0.226		
Departure Headway (Hd)		4.898	4.638	4.692		
Convergence, Y/N		Yes	Yes	Yes		
Cap		732	771	760		
Service Time		2.954	2.689	2.752		
HCM Lane V/C Ratio		0.374	0.323	0.228		
HCM Control Delay		10.9	9.9	9.1		
HCM Lane LOS		B	A	A		
HCM 95th-ile Q		1.7	1.4	0.9		

PM Peak Hour - Future without Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th AWSC  
3: Arnold Drive & Harney Drive

06/10/2022

Intersection	
Intersection Delay, s/veh	14.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕			↕			↕		
Traffic Vol, veh/h	3	48	3	31	47	5	1	359	41	1	387	1
Future Vol, veh/h	3	48	3	31	47	5	1	359	41	1	387	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	53	3	34	52	6	1	399	46	1	430	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10	10.5	15.5	15.3
HCM LOS	A	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	6%	37%	0%
Vol Thru, %	90%	89%	57%	99%
Vol Right, %	10%	6%	6%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	401	54	83	389
LT Vol	1	3	31	1
Through Vol	359	48	47	387
RT Vol	41	3	5	1
Lane Flow Rate	446	60	92	432
Geometry Grp	1	1	1	1
Degree of Util (X)	0.612	0.104	0.159	0.602
Departure Headway (Hd)	4.943	6.255	6.226	5.013
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	731	571	575	722
Service Time	2.957	4.31	4.278	3.027
HCM Lane V/C Ratio	0.61	0.105	0.16	0.598
HCM Control Delay	15.5	10	10.5	15.3
HCM Lane LOS	C	A	B	C
HCM 95th-tile Q	4.2	0.3	0.6	4.1

HCM 6th AWSC  
4: Arnold Drive & Madrone Road

06/10/2022

Intersection	
Intersection Delay, s/veh	16
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↕		↕	↕	
Traffic Vol, veh/h	0	2	5	172	0	73	2	235	147	46	291	3
Future Vol, veh/h	0	2	5	172	0	73	2	235	147	46	291	3
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	5	189	0	80	2	258	162	51	320	3
Number of Lanes	0	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	10.2	12.9	19.1	14.9
HCM LOS	B	B	C	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	62%	29%	0%	0%	0%	99%
Vol Right, %	0%	38%	71%	0%	100%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	2	382	7	172	73	46	294
LT Vol	2	0	0	172	0	46	0
Through Vol	0	235	2	0	0	0	291
RT Vol	0	147	5	0	73	0	3
Lane Flow Rate	2	420	8	189	80	51	323
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.004	0.667	0.015	0.378	0.133	0.092	0.541
Departure Headway (Hd)	6.501	5.72	6.994	7.193	5.974	6.537	6.023
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	550	630	508	499	598	547	598
Service Time	4.249	3.468	5.084	4.948	3.729	4.286	3.771
HCM Lane V/C Ratio	0.004	0.667	0.016	0.379	0.134	0.093	0.54
HCM Control Delay	9.3	19.2	10.2	14.3	9.7	10	15.7
HCM Lane LOS	A	C	B	B	A	A	C
HCM 95th-tile Q	0	5	0	1.7	0.5	0.3	3.2

HCM 6th Signalized Intersection Summary  
5: SR 12 & Madrone Rd

06/10/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔		↔	↔		↔	↔
Traffic Volume (veh/h)	106	0	69	3	1	1	87	567	0	0	561	131
Future Volume (veh/h)	106	0	69	3	1	1	87	567	0	0	561	131
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	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	113	0	41	3	1	1	93	603	0	0	597	107
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	289	0	258	14	5	5	170	1041	0	3	711	603
Arrive On Green	0.16	0.00	0.16	0.01	0.01	0.01	0.10	0.56	0.00	0.00	0.38	0.38
Sat Flow, veh/h	1767	0	1572	1044	348	348	1767	1856	0	1767	1856	1572
Grp Volume(v), veh/h	113	0	41	5	0	0	93	603	0	0	597	107
Grp Sat Flow(s), veh/h/ln	1767	0	1572	1741	0	0	1767	1856	0	1767	1856	1572
Q Serve(g_s), s	3.2	0.0	1.2	0.2	0.0	0.0	2.8	11.7	0.0	0.0	16.2	2.5
Cycle Q Clear(g_c), s	3.2	0.0	1.2	0.2	0.0	0.0	2.8	11.7	0.0	0.0	16.2	2.5
Prop In Lane	1.00	1.00	0.60		0.20	1.00		0.00	1.00		1.00	
Lane Grp Cap(c), veh/h	289	0	258	23	0	0	170	1041	0	3	711	603
V/C Ratio(X)	0.39	0.00	0.16	0.21	0.00	0.00	0.55	0.58	0.00	0.00	0.84	0.18
Avail Cap(c_a), veh/h	734	0	654	315	0	0	224	1041	0	224	1039	881
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	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	20.7	0.0	19.9	27.0	0.0	0.0	23.9	7.9	0.0	0.0	15.5	11.3
Incr Delay (d2), s/veh	0.9	0.0	0.3	4.5	0.0	0.0	2.7	0.8	0.0	0.0	4.2	0.1
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	0.2	0.0	0.4	0.1	0.0	0.0	1.1	2.7	0.0	0.0	5.6	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	21.5	0.0	20.2	31.5	0.0	0.0	26.6	8.7	0.0	0.0	19.7	11.4
LnGrp LOS	C	A	C	C	A	A	C	A	A	A	B	B
Approach Vol, veh/h	154			5			696				704	
Approach Delay, s/veh	21.2			31.5			11.1				18.4	
Approach LOS	C			C			B				B	
Timer - Assigned Phs	1	2	4	5	6		8					
Phs Duration (G+Y+Rc), s	0.0	36.5		13.6	9.8	26.7	5.2					
Change Period (Y+Rc), s	4.5	5.5		4.5	4.5	5.5	4.5					
Max Green Setting (Gmax), s	31.0		23.0	7.0	31.0	10.0						
Max Q Clear Time (g_c+I), s	13.7		5.2	4.8	18.2	2.2						
Green Ext Time (p_c), s	0.0	3.1		0.6	0.0	3.0	0.0					

Intersection Summary

HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B

PM Peak Hour - Future without Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Roundabout  
6: Arnold Drive & Agua Cliente Road

06/10/2022

Intersection				
Intersection Delay, s/veh	9.5			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	38	236	796	536
Demand Flow Rate, veh/h	39	243	821	552
Vehicles Circulating, veh/h	769	460	33	252
Vehicles Exiting, veh/h	35	394	775	451
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.6	7.4	10.2	9.7
Approach LOS	A	A	B	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	39	243	821	552
Cap Entry Lane, veh/h	630	863	1334	1067
Entry HV Adj Factor	0.969	0.971	0.970	0.970
Flow Entry, veh/h	38	236	796	536
Cap Entry, veh/h	610	838	1294	1036
V/C Ratio	0.062	0.282	0.615	0.517
Control Delay, s/veh	6.6	7.4	10.2	9.7
LOS	A	A	B	A
95th %tile Queue, veh	0	1	4	3

PM Peak Hour - Future without Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report



HCM 6th Signalized Intersection Summary  
7: Arnold Dr & Boyes Blvd

06/10/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	0	121	1	77	1	657	212	69	640	1
Future Volume (veh/h)	1	0	0	121	1	77	1	657	212	69	640	1
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		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1	0	0	127	1	81	1	692	181	73	674	1
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	319	0	0	412	4	285	449	836	709	155	1158	2
Arrive On Green	0.18	0.00	0.00	0.18	0.18	0.18	0.45	0.45	0.45	0.09	0.62	0.62
Sat Flow, veh/h	985	0	0	1406	19	1556	758	1856	1572	1767	1852	3
Grp Volume(v), veh/h	1	0	0	127	0	82	1	692	181	73	0	675
Grp Sat Flow(s), veh/h/ln	986	0	0	1406	0	1575	758	1856	1572	1767	0	1855
Q Serve(g_s), s	0.0	0.0	0.0	1.2	0.0	2.3	0.0	17.0	3.7	2.0	0.0	11.2
Cycle Q Clear(g_c), s	2.4	0.0	0.0	3.6	0.0	2.3	2.1	17.0	3.7	2.0	0.0	11.2
Prop In Lane	1.00		0.00	1.00		0.99	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	319	0	0	412	0	288	449	836	709	155	0	1159
V/C Ratio(X)	0.00	0.00	0.00	0.31	0.00	0.28	0.00	0.83	0.26	0.47	0.00	0.58
Avail Cap(c_a), veh/h	707	0	0	830	0	757	595	1195	1012	238	0	1604
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.3	0.0	0.0	18.7	0.0	18.3	9.1	12.5	8.9	22.6	0.0	5.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.4	0.0	0.5	0.0	3.4	0.2	2.2	0.0	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	0.0	0.0	0.0	1.2	0.0	0.8	0.0	5.8	1.0	0.8	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.3	0.0	0.0	19.2	0.0	18.9	9.1	15.9	9.1	24.8	0.0	6.2
LnGrp LOS	B	A	A	B	A	B	A	B	A	C	A	A
Approach Vol, veh/h	1			209			874			748		
Approach Delay, s/veh	19.3			19.0			14.5			8.0		
Approach LOS	B			B			B			A		
Timer - Assigned Phs	1	2	4		6		8					
Phs Duration (G+Y+Rc), s	28.5	14.5		37.5		14.5						
Change Period (Y+Rc), s	4.5	5.0		5.0		5.0						
Max Green Setting (Gmax), s	33.5	25.0		45.0		25.0						
Max Q Clear Time (g_c+1), s	19.0	4.4		13.2		5.6						
Green Ext Time (p_c), s	0.0	4.5		4.8		0.7						
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay	12.4											
HCM 6th LOS	B											

PM Peak Hour - Future without Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
8: Arnold Dr & Verano Ave

06/10/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	10	3	94	8	89	3	872	131	103	673	5
Future Volume (veh/h)	4	10	3	94	8	89	3	872	131	103	673	5
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		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	4	11	3	100	9	31	3	928	118	110	716	5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	182	42	290	22	226	7	1036	878	163	1191	8
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.00	0.55	0.55	0.09	0.64	0.64
Sat Flow, veh/h	181	1278	292	1300	153	1585	1781	1870	1585	1781	1855	13
Grp Volume(v), veh/h	18	0	0	109	0	31	3	928	118	110	0	721
Grp Sat Flow(s), veh/h/ln	751	0	0	1453	0	1585	1781	1870	1585	1781	0	1868
Q Serve(g_s), s	0.0	0.0	0.0	4.0	0.0	1.1	0.1	29.1	2.4	4.0	0.0	14.9
Cycle Q Clear(g_c), s	0.6	0.0	0.0	4.5	0.0	1.1	0.1	29.1	2.4	4.0	0.0	14.9
Prop In Lane	0.22		0.17	0.92		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	316	0	0	312	0	226	7	1036	878	163	0	1199
V/C Ratio(X)	0.06	0.00	0.00	0.35	0.00	0.14	0.42	0.90	0.13	0.67	0.00	0.60
Avail Cap(c_a), veh/h	711	0	0	647	0	598	134	1228	1041	202	0	1297
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.6	0.0	0.0	26.2	0.0	24.8	32.9	13.1	7.1	29.1	0.0	6.9
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.7	0.0	0.3	33.9	7.9	0.1	6.3	0.0	0.7
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	0.2	0.0	0.0	1.5	0.0	0.4	0.1	11.2	0.6	1.8	0.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	24.7	0.0	0.0	26.9	0.0	25.1	66.8	20.9	7.2	35.4	0.0	7.6
LnGrp LOS	C	A	A	C	A	C	E	C	A	D	A	A
Approach Vol, veh/h	18			140			1049			831		
Approach Delay, s/veh	24.7			26.5			19.5			11.3		
Approach LOS	C			C			B			B		
Timer - Assigned Phs	1	2	4		5		6		8			
Phs Duration (G+Y+Rc), s	41.7	14.0		4.8		47.5		14.0				
Change Period (Y+Rc), s	4.5	5.0		4.5		5.0		4.5				
Max Green Setting (Gmax), s	43.5	25.0		5.0		46.0		25.0				
Max Q Clear Time (g_c+1), s	31.1	2.6		2.1		16.9		6.5				
Green Ext Time (p_c), s	0.0	5.6		0.0		5.2		0.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay	16.7											
HCM 6th LOS	B											

PM Peak Hour - Future without Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
9: Arnold Dr & Petaluma Ave

06/10/2022

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	137	150	871	153	152	597
Future Volume (veh/h)	137	150	871	153	152	597
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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	143	94	907	159	158	622
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	207	184	1021	865	198	1360
Arrive On Green	0.12	0.12	0.55	0.55	0.11	0.73
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	143	94	907	159	158	622
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	4.9	3.6	27.3	3.2	5.5	8.5
Cycle Q Clear(g_c), s	4.9	3.6	27.3	3.2	5.5	8.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	207	184	1021	865	198	1360
V/C Ratio(X)	0.69	0.51	0.89	0.18	0.80	0.46
Avail Cap(c_a), veh/h	696	620	1243	1053	237	1623
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	26.9	26.3	12.6	7.1	27.5	3.4
Incr Delay (d2), s/veh	4.1	2.2	7.1	0.1	14.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2	1.4	9.8	0.8	2.9	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.0	28.5	19.7	7.2	42.3	3.6
LnGrp LOS	C	C	B	A	D	A
Approach Vol, veh/h	237		1066		780	
Approach Delay, s/veh	30.0		17.8		11.5	
Approach LOS	C		B		B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	31.6	39.9			51.5	11.9
Change Period (Y+Rc), s	4.5	5.0			5.0	4.5
Max Green Setting (Gmax), s	42.5				55.5	25.0
Max Q Clear Time (g_c+I), s	29.3				10.5	6.9
Green Ext Time (p_c), s	0.0	5.6			4.2	0.6
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			16.8			
HCM 6th LOS			B			

PM Peak Hour - Future without Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
10: Stage Gulch Road & Arnold Drive

06/10/2022

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	409	639	508	8	249	340
Future Volume (veh/h)	409	639	508	8	249	340
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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	445	695	552	9	271	218
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	496	1268	623	10	324	288
Arrive On Green	0.28	0.68	0.34	0.34	0.18	0.18
Sat Flow, veh/h	1767	1856	1821	30	1767	1572
Grp Volume(v), veh/h	445	695	0	561	271	218
Grp Sat Flow(s),veh/h/ln	1767	1856	0	1850	1767	1572
Q Serve(g_s), s	18.1	14.2	0.0	21.5	11.1	9.9
Cycle Q Clear(g_c), s	18.1	14.2	0.0	21.5	11.1	9.9
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	496	1268	0	633	324	288
V/C Ratio(X)	0.90	0.55	0.00	0.89	0.84	0.76
Avail Cap(c_a), veh/h	648	1559	0	765	401	357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	6.0	0.0	23.3	29.5	29.0
Incr Delay (d2), s/veh	12.6	0.4	0.0	10.7	12.0	7.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9	4.3	0.0	10.6	5.6	4.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.5	6.4	0.0	33.9	41.5	36.1
LnGrp LOS	D	A	A	C	D	D
Approach Vol, veh/h	1140	561		489		
Approach Delay, s/veh	18.9	33.9		39.1		
Approach LOS	B	C		D		
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	25.6	30.7			56.2	18.8
Change Period (Y+Rc), s	4.5	5.0			5.0	5.0
Max Green Setting (Gmax), s	31.0				63.0	17.0
Max Q Clear Time (g_c+I), s	23.5				16.2	13.1
Green Ext Time (p_c), s	0.9	2.2			5.9	0.7
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			27.3			
HCM 6th LOS			C			

PM Peak Hour - Future without Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
1: SR 12 & Arnold Dr

06/10/2022

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	59	66	74	603	673	50
Future Volume (veh/h)	59	66	74	603	673	50
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	61	37	76	622	694	47
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	228	203	123	1201	874	723
Arrive On Green	0.13	0.13	0.07	0.65	0.47	0.47
Sat Flow, veh/h	1767	1572	1767	1856	1856	1535
Grp Volume(v), veh/h	61	37	76	622	694	47
Grp Sat Flow(s),veh/h/ln	1767	1572	1767	1856	1856	1535
Q Serve(g_s), s	1.3	0.9	1.8	7.6	13.4	0.7
Cycle Q Clear(g_c), s	1.3	0.9	1.8	7.6	13.4	0.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	228	203	123	1201	874	723
V/C Ratio(X)	0.27	0.18	0.62	0.52	0.79	0.06
Avail Cap(c_a), veh/h	354	315	312	1836	1312	1085
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	16.7	16.5	19.2	4.0	9.5	6.1
Incr Delay (d2), s/veh	0.6	0.4	4.9	0.3	2.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.7	0.5	3.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.3	16.9	24.1	4.3	11.5	6.2
LnGrp LOS	B	B	C	A	B	A
Approach Vol, veh/h	98			698	741	
Approach Delay, s/veh	17.1			6.5	11.2	
Approach LOS	B			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		32.5		10.0	7.5	25.0
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0
Max Green Setting (Gmax), s		42.0		8.5	7.5	30.0
Max Q Clear Time (g_c+I1), s		9.6		3.3	3.8	15.4
Green Ext Time (p_c), s		3.9		0.1	0.0	3.8
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay				9.4		
HCM 6th LOS				A		

HCM 6th AWSC  
2: Arnold Drive & Warm Springs Road

06/10/2022

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	46	158	127	66	72	48
Future Vol, veh/h	46	158	127	66	72	48
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	52	178	143	74	81	54
Number of Lanes	1	0	0	1	1	0
<b>Approach</b>	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left SB			EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach RightNB					EB	
Conflicting Lanes Right	1		0		1	
HCM Control Delay	9.1		9.8		8.5	
HCM LOS	A		A		A	
<b>Lane</b>		NBLn1	EBLn1	SBLn1		
Vol Left, %		66%	23%	0%		
Vol Thru, %		34%	0%	60%		
Vol Right, %		0%	77%	40%		
Sign Control		Stop	Stop	Stop		
Traffic Vol by Lane		193	204	120		
LT Vol		127	46	0		
Through Vol		66	0	72		
RT Vol		0	158	48		
Lane Flow Rate		217	229	135		
Geometry Grp		1	1	1		
Degree of Util (X)		0.289	0.28	0.17		
Departure Headway (Hd)		4.794	4.394	4.53		
Convergence, Y/N		Yes	Yes	Yes		
Cap		748	816	790		
Service Time		2.832	2.426	2.571		
HCM Lane V/C Ratio		0.29	0.281	0.171		
HCM Control Delay		9.8	9.1	8.5		
HCM Lane LOS		A	A	A		
HCM 95th-ile Q		1.2	1.1	0.6		

HCM 6th AWSC  
3: Arnold Drive & Harney Drive

06/10/2022

<b>Intersection</b>											
Intersection Delay, s/veh	14.8										
Intersection LOS	B										

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔				↔		↔		
Traffic Vol, veh/h	19	31	104	64	18	21	68	275	59	22	246	13
Future Vol, veh/h	19	31	104	64	18	21	68	275	59	22	246	13
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	35	117	72	20	24	76	309	66	25	276	15
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.2	11	18	13.6
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	12%	62%	8%
Vol Thru, %	68%	20%	17%	88%
Vol Right, %	15%	68%	20%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	402	154	103	281
LT Vol	68	19	64	22
Through Vol	275	31	18	246
RT Vol	59	104	21	13
Lane Flow Rate	452	173	116	316
Geometry Grp	1	1	1	1
Degree of Util (X)	0.66	0.28	0.203	0.482
Departure Headway (Hd)	5.261	5.822	6.329	5.492
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	682	613	562	654
Service Time	3.316	3.897	4.414	3.554
HCM Lane V/C Ratio	0.663	0.282	0.206	0.483
HCM Control Delay	18	11.2	11	13.6
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	5	1.1	0.8	2.6

AM Peak Hour - Future plus Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
3: Arnold Drive/Arnold Dr & Harney St

07/01/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔				↔		↔		
Traffic Volume (veh/h)	12	25	68	42	14	14	44	292	38	14	266	8
Future Volume (veh/h)	12	25	68	42	14	14	44	292	38	14	266	8
Initial Q (Qt), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		0.89	0.95		0.89	0.98		0.93	0.98		0.93
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		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	13	28	76	47	16	16	49	328	43	16	299	9
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	172	115	250	387	126	75	197	587	72	158	704	21
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	79	454	988	664	499	295	107	1452	178	34	1742	51
Grp Volume(v), veh/h	117	0	0	79	0	0	420	0	0	324	0	0
Grp Sat Flow(s), veh/h/ln	1521	0	0	1458	0	0	1738	0	0	1826	0	0
Q Serve(g_s), 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
Cycle Q Clear(g_c), s	1.6	0.0	0.0	0.9	0.0	0.0	4.7	0.0	0.0	3.3	0.0	0.0
Prop In Lane	0.11		0.65	0.59		0.20	0.12		0.10	0.05		0.03
Lane Grp Cap(c), veh/h	537	0	0	588	0	0	855	0	0	882	0	0
V/C Ratio(X)	0.22	0.00	0.00	0.13	0.00	0.00	0.49	0.00	0.00	0.37	0.00	0.00
Avail Cap(c_a), veh/h	1181	0	0	1177	0	0	1326	0	0	1383	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.9	0.0	0.0	7.7	0.0	0.0	6.1	0.0	0.0	5.6	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	0.4	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.4	0.0	0.0	0.2	0.0	0.0	0.9	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.1	0.0	0.0	7.8	0.0	0.0	6.5	0.0	0.0	5.9	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		117			79			420				324
Approach Delay, s/veh		8.1			7.8			6.5				5.9
Approach LOS		A			A			A				A
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.1		11.1		15.1		11.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I), s		6.7		3.6		5.3		2.9				
Green Ext Time (p_c), s		2.1		0.5		1.5		0.3				

<b>Intersection Summary</b>		
HCM 6th Ctrl Delay		6.6
HCM 6th LOS		A

AM Peak Hour - Future plus Plan (modified)  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th AWSC  
4: Arnold Drive & Madrone Road

06/10/2022

<b>Intersection</b>												
Intersection Delay, s/veh	23.9											
Intersection LOS	C											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	0	11	8	220	3	69	3	254	149	41	360	2
Future Vol, veh/h	0	11	8	220	3	69	3	254	149	41	360	2
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	12	9	247	3	78	3	285	167	46	404	2
Number of Lanes	0	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	11.6	16.9	28.6	24.7
HCM LOS	B	C	D	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	63%	58%	0%	4%	0%	99%
Vol Right, %	0%	37%	42%	0%	96%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	3	403	19	220	72	41	362
LT Vol	3	0	0	220	0	41	0
Through Vol	0	254	11	0	3	0	360
RT Vol	0	149	8	0	69	0	2
Lane Flow Rate	3	453	21	247	81	46	407
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.007	0.787	0.048	0.533	0.147	0.091	0.746
Departure Headway (Hd)	7.158	6.383	8.14	7.759	6.562	7.119	6.604
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	503	571	441	467	548	505	549
Service Time	4.858	4.083	6.176	5.475	4.277	4.837	4.322
HCM Lane V/C Ratio	0.006	0.793	0.048	0.529	0.148	0.091	0.741
HCM Control Delay	9.9	28.7	11.6	19	10.4	10.6	26.3
HCM Lane LOS	A	D	B	C	B	B	D
HCM 95th-tile Q	0	7.4	0.2	3.1	0.5	0.3	6.4

HCM 6th Signalized Intersection Summary  
5: SR 12 & Madrone Rd

06/10/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	119	1	79	0	0	1	55	545	1	1	578	138
Future Volume (veh/h)	119	1	79	0	0	1	55	545	1	1	578	138
Initial Q (Qt), 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		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	128	1	58	0	0	1	59	586	1	1	622	121
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	304	2	272	0	0	4	134	875	1	3	740	627
Arrive On Green	0.17	0.17	0.17	0.00	0.00	0.00	0.08	0.47	0.47	0.00	0.40	0.40
Sat Flow, veh/h	1754	14	1572	0	0	1572	1767	1852	3	1767	1856	1572
Grp Volume(v), veh/h	129	0	58	0	0	1	59	0	587	1	622	121
Grp Sat Flow(s), veh/h/ln	1768	0	1572	0	0	1573	1767	0	1855	1767	1856	1572
Q Serve(g_s), s	3.5	0.0	1.7	0.0	0.0	0.0	1.7	0.0	13.3	0.0	16.5	2.7
Cycle Q Clear(g_c), s	3.5	0.0	1.7	0.0	0.0	0.0	1.7	0.0	13.3	0.0	16.5	2.7
Prop In Lane	0.99		1.00	0.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	306	0	272	0	0	4	134	0	877	3	740	627
V/C Ratio(X)	0.42	0.00	0.21	0.00	0.00	0.23	0.44	0.00	0.67	0.29	0.84	0.19
Avail Cap(c_a), veh/h	748	0	666	0	0	289	228	0	1058	228	1059	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	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.0	0.0	19.3	0.0	0.0	27.0	24.0	0.0	11.1	27.1	14.8	10.6
Incr Delay (d2), s/veh	0.9	0.0	0.4	0.0	0.0	25.1	2.3	0.0	1.2	41.8	4.3	0.1
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	3.0	0.0	0.6	0.0	0.0	0.0	0.7	0.0	3.7	0.1	5.6	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	21.0	0.0	19.7	0.0	0.0	52.1	26.3	0.0	12.3	68.9	19.1	10.8
LnGrp LOS	C	A	B	A	A	D	C	A	B	E	B	B
Approach Vol, veh/h	187			1			646			744		
Approach Delay, s/veh	20.6			52.1			13.6			17.8		
Approach LOS	C			D			B			B		

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	4.6	31.2	13.9	8.6	27.2	4.6
Change Period (Y+Rc), s	4.5	5.5	4.5	4.5	5.5	4.5
Max Green Setting (Gmax), s	31.0	23.0	7.0	31.0	10.0	
Max Q Clear Time (g_c+I), s	15.3	5.5	3.7	18.5	2.0	
Green Ext Time (p_c), s	0.0	2.9	0.7	0.0	3.2	0.0

<b>Intersection Summary</b>	
HCM 6th Ctrl Delay	16.4
HCM 6th LOS	B

HCM 6th Roundabout  
6: Arnold Drive & Agua Cliente Road

06/10/2022

Intersection				
Intersection Delay, s/veh	13.8			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	8	433	750	655
Demand Flow Rate, veh/h	8	446	773	675
Vehicles Circulating, veh/h	1074	500	31	433
Vehicles Exiting, veh/h	34	304	1051	513
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.2	12.3	9.4	19.9
Approach LOS	A	B	A	C
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	8	446	773	675
Cap Entry Lane, veh/h	461	829	1337	887
Entry HV Adj Factor	0.982	0.971	0.970	0.971
Flow Entry, veh/h	8	433	750	655
Cap Entry, veh/h	453	804	1297	861
V/C Ratio	0.017	0.538	0.578	0.761
Control Delay, s/veh	8.2	12.3	9.4	19.9
LOS	A	B	A	C
95th %tile Queue, veh	0	3	4	7

HCM 6th Signalized Intersection Summary  
7: Arnold Dr & Boyes Blvd

06/10/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	223	0	178	0	660	129	84	824	0
Future Volume (veh/h)	0	0	0	223	0	178	0	660	129	84	824	0
Initial Q (Qt), 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		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	0	0	0	245	0	196	0	725	104	92	905	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
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	0	359	0	469	0	304	127	845	716	167	1168	0
Arrive On Green	0.00	0.00	0.00	0.19	0.00	0.19	0.00	0.46	0.46	0.09	0.63	0.00
Sat Flow, veh/h	0	1856	0	1767	0	1572	611	1856	1572	1767	1856	0
Grp Volume(v), veh/h	0	0	0	245	0	196	0	725	104	92	905	0
Grp Sat Flow(s), veh/h/ln	0	1856	0	1767	0	1572	611	1856	1572	1767	1856	0
Q Serve(g_s), s	0.0	0.0	0.0	7.3	0.0	6.5	0.0	19.7	2.2	2.8	19.9	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	7.3	0.0	6.5	0.0	19.7	2.2	2.8	19.9	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	359	0	469	0	304	127	845	716	167	1168	0
V/C Ratio(X)	0.00	0.00	0.00	0.52	0.00	0.64	0.00	0.86	0.15	0.55	0.77	0.00
Avail Cap(c_a), veh/h	0	821	0	909	0	695	211	1100	932	219	1477	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	21.3	0.0	21.0	0.0	13.8	9.0	24.4	7.6	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.9	0.0	2.3	0.0	5.5	0.1	2.8	2.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.0	0.0	0.0	2.8	0.0	2.3	0.0	7.5	0.6	1.2	5.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	0.0	22.2	0.0	23.3	0.0	19.3	9.1	27.2	9.6	0.0
LnGrp LOS	A	A	A	C	A	C	A	B	A	C	A	A
Approach Vol, veh/h	0			441			829			997		
Approach Delay, s/veh	0.0			22.7			18.0			11.2		
Approach LOS	A			C			B			B		
Timer - Assigned Phs	1	2	4		6		8					
Phs Duration (G+Y+Rc), s/8	30.7	15.9		40.6		15.9						
Change Period (Y+Rc), s 4.5	5.0	5.0		5.0		5.0						
Max Green Setting (Gmax), s	33.5	25.0		45.0		25.0						
Max Q Clear Time (g_c+1), s	21.7	0.0		21.9		9.3						
Green Ext Time (p_c), s	0.0	4.0		0.0		7.0		1.6				

Intersection Summary	
HCM 6th Ctrl Delay	15.9
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary  
8: Arnold Dr & Verano Ave

06/10/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	7	2	184	10	78	1	660	89	102	923	7
Future Volume (veh/h)	9	7	2	184	10	78	1	660	89	102	923	7
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		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	10	8	2	204	11	37	1	733	82	113	1026	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	95	63	10	332	13	382	2	929	787	147	1070	8
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.00	0.50	0.50	0.08	0.58	0.58
Sat Flow, veh/h	107	263	41	1002	54	1585	1781	1870	1585	1781	1853	14
Grp Volume(v), veh/h	20	0	0	215	0	37	1	733	82	113	0	1034
Grp Sat Flow(s),veh/h/ln	411	0	0	1056	0	1585	1781	1870	1585	1781	0	1868
Q Serve(g_s), s	0.2	0.0	0.0	0.0	0.0	1.4	0.0	25.2	2.1	4.8	0.0	40.7
Cycle Q Clear(g_c), s	16.3	0.0	0.0	16.1	0.0	1.4	0.0	25.2	2.1	4.8	0.0	40.7
Prop In Lane	0.50		0.10	0.95		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	169	0	0	345	0	382	2	929	787	147	0	1079
V/C Ratio(X)	0.12	0.00	0.00	0.62	0.00	0.10	0.41	0.79	0.10	0.77	0.00	0.96
Avail Cap(c_a), veh/h	295	0	0	460	0	511	115	1048	888	172	0	1107
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.9	0.0	0.0	28.5	0.0	22.9	38.7	16.2	10.4	34.9	0.0	15.5
Incr Delay (d2), s/veh	0.3	0.0	0.0	1.8	0.0	0.1	83.6	3.7	0.1	16.4	0.0	17.7
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	0.3	0.0	0.0	3.7	0.0	0.5	0.1	10.0	0.7	2.7	0.0	18.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.2	0.0	0.0	30.3	0.0	23.0	122.3	19.9	10.4	51.3	0.0	33.3
LnGrp LOS	C	A	A	C	A	C	F	B	B	D	A	C
Approach Vol, veh/h	20			252			816			1147		
Approach Delay, s/veh	24.2			29.3			19.0			35.0		
Approach LOS	C			C			B			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	43.5			23.2	4.6	49.8		23.2				
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s	43.5			25.0	5.0	46.0		25.0				
Max Q Clear Time (g_c+1), s	27.2			18.3	2.0	42.7		18.1				
Green Ext Time (p_c), s	0.0	4.7		0.0	0.0	2.2		0.6				
Intersection Summary												
HCM 6th Ctrl Delay	28.5											
HCM 6th LOS	C											

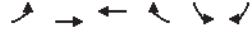
HCM 6th Signalized Intersection Summary  
9: Arnold Dr & Petaluma Ave

06/10/2022

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	135	118	559	119	191	903
Future Volume (veh/h)	135	118	559	119	191	903
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	148	97	614	131	210	992
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	231	205	783	663	263	1237
Arrive On Green	0.13	0.13	0.42	0.42	0.15	0.67
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	148	97	614	131	210	992
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	3.7	2.7	13.4	2.5	5.4	17.9
Cycle Q Clear(g_c), s	3.7	2.7	13.4	2.5	5.4	17.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	231	205	783	663	263	1237
V/C Ratio(X)	0.64	0.47	0.78	0.20	0.80	0.80
Avail Cap(c_a), veh/h	943	839	1683	1427	321	2198
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	19.3	18.9	11.7	8.5	19.3	5.6
Incr Delay (d2), s/veh	3.0	1.7	1.8	0.1	11.2	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	5	0.9	4.0	0.6	2.6	2.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.3	20.5	13.5	8.7	30.5	6.9
LnGrp LOS	C	C	B	A	C	A
Approach Vol, veh/h	245		745		1202	
Approach Delay, s/veh	21.6		12.6		11.0	
Approach LOS	C		B		B	
Timer - Assigned Phs	1	2		6		8
Phs Duration (G+Y+Rc), s	15	24.8		36.2		10.6
Change Period (Y+Rc), s	4.5	5.0		5.0		4.5
Max Green Setting (Gmax), s	42.5			55.5		25.0
Max Q Clear Time (g_c+1), s	15.4			19.9		5.7
Green Ext Time (p_c), s	0.1	4.4		8.9		0.7
Intersection Summary						
HCM 6th Ctrl Delay	12.7					
HCM 6th LOS	B					

HCM 6th Signalized Intersection Summary  
10: Stage Gulch Road & Arnold Drive

06/10/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↕	↕	↔	↔	↔
Traffic Volume (veh/h)	328	613	446	8	397	225
Future Volume (veh/h)	328	613	446	8	397	225
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	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	342	639	465	8	414	130
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	403	1112	554	10	446	397
Arrive On Green	0.23	0.60	0.30	0.30	0.25	0.25
Sat Flow, veh/h	1767	1856	1819	31	1767	1572
Grp Volume(v), veh/h	342	639	0	473	414	130
Grp Sat Flow(s),veh/h/ln	1767	1856	0	1850	1767	1572
Q Serve(g_s), s	12.5	14.2	0.0	16.1	15.4	4.5
Cycle Q Clear(g_c), s	12.5	14.2	0.0	16.1	15.4	4.5
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	403	1112	0	564	446	397
V/C Ratio(X)	0.85	0.57	0.00	0.84	0.93	0.33
Avail Cap(c_a), veh/h	721	1734	0	851	446	397
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.9	8.2	0.0	21.9	24.6	20.6
Incr Delay (d2), s/veh	5.1	0.5	0.0	4.7	25.9	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	5.5	4.6	0.0	7.2	9.2	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.0	8.7	0.0	26.6	50.6	21.0
LnGrp LOS	C	A	A	C	D	C
Approach Vol, veh/h	981	473		544		
Approach Delay, s/veh	16.1	26.6		43.5		
Approach LOS	B	C		D		
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	19.9	25.6		45.4	22.0	
Change Period (Y+Rc), s	4.5	5.0		5.0	5.0	
Max Green Setting (Gmax), s	31.0			63.0	17.0	
Max Q Clear Time (g_c+M), s	18.1			16.2	17.4	
Green Ext Time (p_c), s	0.9	2.5		5.2	0.0	
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay		26.1				
HCM 6th LOS		C				

AM Peak Hour - Future plus Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th TWSC  
11: SR 12 & New SDC Connector

06/10/2022

<b>Intersection</b>						
Int Delay, s/veh	2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔	↔	↕	↕	↕
Traffic Vol, veh/h	49	20	16	688	636	33
Future Vol, veh/h	49	20	16	688	636	33
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, %	3	3	3	3	3	3
Mvmt Flow	52	21	17	724	669	35
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1445	687	704	0	-	0
Stage 1	687	-	-	-	-	-
Stage 2	758	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	144	445	889	-	-	-
Stage 1	498	-	-	-	-	-
Stage 2	461	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	139	445	889	-	-	-
Mov Cap-2 Maneuver	139	-	-	-	-	-
Stage 1	482	-	-	-	-	-
Stage 2	461	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	39.8	0.2	0			
HCM LOS	E					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	889	-	174	-	-	
HCM Lane V/C Ratio	0.019	-	0.417	-	-	
HCM Control Delay (s)	9.1	0	39.8	-	-	
HCM Lane LOS	A	A	E	-	-	
HCM 95th %tile Q(veh)	0.1	-	1.9	-	-	

AM Peak Hour - Future plus Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report



HCM 6th TWSC  
11: SR 12 & New SDC Connector

06/10/2022

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	↔
Traffic Vol, veh/h	49	20	16	688	636	33
Future Vol, veh/h	49	20	16	688	636	33
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	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	52	21	17	724	669	35
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1445	687	704	0	-	0
Stage 1	687	-	-	-	-	-
Stage 2	758	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	144	445	889	-	-	-
Stage 1	498	-	-	-	-	-
Stage 2	461	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	141	445	889	-	-	-
Mov Cap-2 Maneuver	281	-	-	-	-	-
Stage 1	489	-	-	-	-	-
Stage 2	461	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	19.8	0.2	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	889	-	315	-	-	
HCM Lane V/C Ratio	0.019	-	0.231	-	-	
HCM Control Delay (s)	9.1	-	19.8	-	-	
HCM Lane LOS	A	-	C	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.9	-	-	

HCM 6th Signalized Intersection Summary  
1: SR 12 & Arnold Dr

06/10/2022

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	72	70	63	652	653	69
Future Volume (veh/h)	72	70	63	652	653	69
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	77	21	68	701	702	42
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	229	204	115	1198	879	727
Arrive On Green	0.13	0.13	0.07	0.65	0.47	0.47
Sat Flow, veh/h	1767	1572	1767	1856	1856	1535
Grp Volume(v), veh/h	77	21	68	701	702	42
Grp Sat Flow(s),veh/h/ln	1767	1572	1767	1856	1856	1535
Q Serve(g_s), s	1.7	0.5	1.6	9.1	13.5	0.6
Cycle Q Clear(g_c), s	1.7	0.5	1.6	9.1	13.5	0.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	229	204	115	1198	879	727
V/C Ratio(X)	0.34	0.10	0.59	0.59	0.80	0.06
Avail Cap(c_a), veh/h	335	298	272	1868	1385	1145
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	16.7	16.2	19.2	4.3	9.4	6.0
Incr Delay (d2), s/veh	0.9	0.2	4.8	0.5	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.7	0.6	3.1	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.6	16.4	24.0	4.7	11.2	6.0
LnGrp LOS	B	B	C	A	B	A
Approach Vol, veh/h	98			769	744	
Approach Delay, s/veh	17.3			6.4	10.9	
Approach LOS	B			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		32.2		10.0	7.2	25.0
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0
Max Green Setting (Gmax), s		42.5		8.0	6.5	31.5
Max Q Clear Time (g_c+I1), s		11.1		3.7	3.6	15.5
Green Ext Time (p_c), s		4.6		0.1	0.0	4.0
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay				9.2		
HCM 6th LOS				A		

HCM 6th AWSC  
2: Arnold Drive & Warm Springs Road

06/10/2022

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	54	175	146	91	81	58
Future Vol, veh/h	54	175	146	91	81	58
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	61	197	164	102	91	65
Number of Lanes	1	0	0	1	1	0
<b>Approach</b>						
	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left SB			EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach RightNB					EB	
Conflicting Lanes Right	1		0		1	
HCM Control Delay	9.9		10.7		8.9	
HCM LOS	A		B		A	
<b>Lane</b>						
		NBLn1	EBLn1	SBLn1		
Vol Left, %		62%	24%	0%		
Vol Thru, %		38%	0%	58%		
Vol Right, %		0%	76%	42%		
Sign Control		Stop	Stop	Stop		
Traffic Vol by Lane		237	229	139		
LT Vol		146	54	0		
Through Vol		91	0	81		
RT Vol		0	175	58		
Lane Flow Rate		266	257	156		
Geometry Grp		1	1	1		
Degree of Util (X)		0.362	0.327	0.203		
Departure Headway (Hd)		4.897	4.576	4.671		
Convergence, Y/N		Yes	Yes	Yes		
Cap		732	782	764		
Service Time		2.952	2.624	2.73		
HCM Lane V/C Ratio		0.363	0.329	0.204		
HCM Control Delay		10.7	9.9	8.9		
HCM Lane LOS		B	A	A		
HCM 95th-ile Q		1.7	1.4	0.8		

HCM 6th AWSC  
3: Arnold Drive & Harney Drive

06/10/2022

<b>Intersection</b>											
Intersection Delay, s/veh 57.6											
Intersection LOS F											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Vol, veh/h	18	67	86	89	72	26	111	374	105	24	402	21
Future Vol, veh/h	18	67	86	89	72	26	111	374	105	24	402	21
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	2	2	2	2	2
Mvmt Flow	19	71	91	94	76	27	117	394	111	25	423	22
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left SB	NB		EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right NB	SB		WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	15.6	16.9	97.5	38
HCM LOS	C	C	F	E

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	19%	11%	48%	5%
Vol Thru, %	63%	39%	39%	90%
Vol Right, %	18%	50%	14%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	590	171	187	447
LT Vol	111	18	89	24
Through Vol	374	67	72	402
RT Vol	105	86	26	21
Lane Flow Rate	621	180	197	471
Geometry Grp	1	1	1	1
Degree of Util (X)	1.114	0.376	0.422	0.854
Departure Headway (Hd)	6.457	7.942	8.126	6.857
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	565	455	447	532
Service Time	4.457	5.942	6.126	4.857
HCM Lane V/C Ratio	1.099	0.396	0.441	0.885
HCM Control Delay	97.5	15.6	16.9	38
HCM Lane LOS	F	C	C	E
HCM 95th-tile Q	19.7	1.7	2.1	9

HCM 6th Signalized Intersection Summary  
3: Arnold Drive/Arnold Dr & Harney St

07/01/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Volume (veh/h)	12	54	56	58	58	17	72	400	68	16	424	14
Future Volume (veh/h)	12	54	56	58	58	17	72	400	68	16	424	14
Initial Q (Ob), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.93	0.87		0.94	0.87		0.98	0.90		0.98	0.90	
Parking Bus, Adj	1.00	1.00	0.88	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No											
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	57	59	61	61	19	76	421	72	17	446	15
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.90	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	207	188	239	206	53	140	517	84	83	682	22
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	53	700	634	462	695	180	153	1330	215	26	1755	58
Grp Volume(v), veh/h	129	0	0	141	0	0	569	0	0	478	0	0
Grp Sat Flow(s), veh/h/ln	1387	0	0	1338	0	0	1699	0	0	1838	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.6	0.0	0.0	3.5	0.0	0.0	15.2	0.0	0.0	10.8	0.0	0.0
Prop In Lane	0.10	0.46		0.43	0.13		0.13	0.13		0.04	0.03	
Lane Grp Cap(c), veh/h	489	0	0	498	0	0	740	0	0	788	0	0
V/C Ratio(X)	0.26	0.00	0.00	0.28	0.00	0.00	0.77	0.00	0.00	0.61	0.00	0.00
Avail Cap(c_a), veh/h	621	0	0	622	0	0	875	0	0	939	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.8	0.0	0.0	13.8	0.0	0.0	13.9	0.0	0.0	12.8	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.3	0.0	0.0	3.5	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.0	0.0	0.0	1.1	0.0	0.0	5.5	0.0	0.0	3.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.1	0.0	0.0	14.1	0.0	0.0	17.5	0.0	0.0	13.6	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h	129			141			569			478		
Approach Delay, s/veh	14.1			14.1			17.5			13.6		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	27.7		23.0		27.7		23.0					
Change Period (Y+Rc), s	8.0		8.0		8.0		8.0					
Max Green Setting (Gmax), s	24.0		20.0		24.0		20.0					
Max Q Clear Time (g_c+I1), s	17.2		5.6		12.8		5.5					
Green Ext Time (p_c), s	2.2		0.6		2.4		0.6					

<b>Intersection Summary</b>		
HCM 6th Ctrl Delay	15.4	
HCM 6th LOS	B	

HCM 6th AWSC  
4: Arnold Drive & Madrone Road

06/10/2022

Intersection												
Intersection Delay, s/veh	28.2											
Intersection LOS	D											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	0	2	5	172	0	78	2	367	147	46	391	3
Future Vol, veh/h	0	2	5	172	0	78	2	367	147	46	391	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	2	2	2	2	2
Mvmt Flow	0	2	5	181	0	82	2	386	155	48	412	3
Number of Lanes	0	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	11	13.9	40.3	22.3
HCM LOS	B	B	E	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	71%	29%	0%	0%	0%	99%
Vol Right, %	0%	29%	71%	0%	100%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	2	514	7	172	78	46	394
LT Vol	2	0	0	172	0	46	0
Through Vol	0	367	2	0	0	0	391
RT Vol	0	147	5	0	78	0	3
Lane Flow Rate	2	541	7	181	82	48	415
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.004	0.899	0.016	0.39	0.149	0.091	0.721
Departure Headway (Hd)	6.691	5.979	7.915	7.759	6.532	6.772	6.258
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	533	606	455	462	545	527	576
Service Time	4.458	3.746	5.915	5.543	4.315	4.545	4.03
HCM Lane V/C Ratio	0.004	0.893	0.015	0.392	0.15	0.091	0.72
HCM Control Delay	9.5	40.4	11	15.5	10.5	10.2	23.7
HCM Lane LOS	A	E	B	C	B	B	C
HCM 95th-tile Q	0	10.9	0	1.8	0.5	0.3	6

HCM 6th Signalized Intersection Summary  
5: SR 12 & Madrone Rd

06/10/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	106	0	69	3	1	1	92	593	0	0	584	131
Future Volume (veh/h)	106	0	69	3	1	1	92	593	0	0	584	131
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	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	113	0	41	3	1	1	98	631	0	0	621	107
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	284	0	253	14	5	5	172	1058	0	3	731	619
Arrive On Green	0.16	0.00	0.16	0.01	0.01	0.01	0.10	0.57	0.00	0.00	0.39	0.39
Sat Flow, veh/h	1767	0	1572	1044	348	348	1767	1856	0	1767	1856	1572
Grp Volume(v), veh/h	113	0	41	5	0	0	98	631	0	0	621	107
Grp Sat Flow(s), veh/h/ln	1767	0	1572	1741	0	0	1767	1856	0	1767	1856	1572
Q Serve(g_s), s	3.3	0.0	1.3	0.2	0.0	0.0	3.0	12.6	0.0	0.0	17.3	2.5
Cycle Q Clear(g_c), s	3.3	0.0	1.3	0.2	0.0	0.0	3.0	12.6	0.0	0.0	17.3	2.5
Prop In Lane	1.00	1.00	0.60	0.20	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	284	0	253	23	0	0	172	1058	0	3	731	619
V/C Ratio(X)	0.40	0.00	0.16	0.22	0.00	0.00	0.57	0.60	0.00	0.00	0.85	0.17
Avail Cap(c_a), veh/h	717	0	638	307	0	0	218	1058	0	218	1014	860
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	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	0.0	20.5	27.7	0.0	0.0	24.5	7.9	0.0	0.0	15.7	11.2
Incr Delay (d2), s/veh	0.9	0.0	0.3	4.5	0.0	0.0	3.0	0.9	0.0	0.0	5.1	0.1
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	0.2	0.0	0.4	0.1	0.0	0.0	1.2	2.9	0.0	0.0	6.2	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	22.2	0.0	20.8	32.2	0.0	0.0	27.4	8.9	0.0	0.0	20.8	11.3
LnGrp LOS	C	A	C	C	A	A	C	A	A	A	C	B
Approach Vol, veh/h	154			5			729			728		
Approach Delay, s/veh	21.9			32.2			11.4			19.4		
Approach LOS	C			C			B			B		

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	0.0	37.8	13.6	10.0	27.8	5.3
Change Period (Y+Rc), s	4.5	5.5	4.5	4.5	5.5	4.5
Max Green Setting (Gmax), s	31.0	23.0	7.0	31.0	10.0	
Max Q Clear Time (g_c+I), s	14.6	5.3	5.0	19.3	2.2	
Green Ext Time (p_c), s	0.0	3.3	0.6	0.0	3.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	16.0
HCM 6th LOS	B


HCM 6th Roundabout  
6: Arnold Drive & Agua Cliente Road


06/10/2022

Intersection				
Intersection Delay, s/veh	11.8			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	38	239	916	630
Demand Flow Rate, veh/h	39	246	944	649
Vehicles Circulating, veh/h	866	583	37	252
Vehicles Exiting, veh/h	35	398	868	577
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.3	8.8	12.9	11.8
Approach LOS	A	A	B	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	39	246	944	649
Cap Entry Lane, veh/h	571	761	1329	1067
Entry HV Adj Factor	0.969	0.971	0.970	0.971
Flow Entry, veh/h	38	239	916	630
Cap Entry, veh/h	553	739	1289	1036
V/C Ratio	0.068	0.323	0.710	0.608
Control Delay, s/veh	7.3	8.8	12.9	11.8
LOS	A	A	B	B
95th %tile Queue, veh	0	1	6	4

HCM 6th Signalized Intersection Summary  
7: Arnold Dr & Boyes Blvd

06/10/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	0	121	1	81	1	757	212	72	716	1
Future Volume (veh/h)	1	0	0	121	1	81	1	757	212	72	716	1
Initial Q (Qt), 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	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1	0	0	127	1	85	1	797	181	76	754	1
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	284	0	0	382	3	264	421	911	772	152	1215	2
Arrive On Green	0.17	0.00	0.00	0.17	0.17	0.17	0.49	0.49	0.49	0.09	0.66	0.66
Sat Flow, veh/h	932	0	0	1406	18	1557	703	1856	1572	1767	1853	2
Grp Volume(v), veh/h	1	0	0	127	0	86	1	797	181	76	0	755
Grp Sat Flow(s),veh/h/ln	932	0	0	1406	0	1575	703	1856	1572	1767	0	1855
Q Serve(g_s), s	0.0	0.0	0.0	1.1	0.0	2.7	0.0	21.9	3.8	2.3	0.0	13.5
Cycle Q Clear(g_c), s	2.8	0.0	0.0	3.9	0.0	2.7	4.1	21.9	3.8	2.3	0.0	13.5
Prop In Lane	1.00	0.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Lane Grp Cap(c), veh/h	284	0	0	382	0	267	421	911	772	152	0	1216
V/C Ratio(X)	0.00	0.00	0.00	0.33	0.00	0.32	0.00	0.87	0.23	0.50	0.00	0.62
Avail Cap(c_a), veh/h	633	0	0	759	0	690	488	1089	923	217	0	1462
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.0	0.0	0.0	21.3	0.0	20.8	9.6	13.0	8.4	24.9	0.0	5.7
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.5	0.0	0.7	0.0	7.1	0.2	2.5	0.0	0.6
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	0.0	0.0	0.0	1.4	0.0	0.9	0.0	8.4	1.0	1.0	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.1	0.0	0.0	21.8	0.0	21.5	9.6	20.1	8.5	27.5	0.0	6.3
LnGrp LOS	C	A	A	C	A	C	A	C	A	C	A	A
Approach Vol, veh/h	1			213			979			831		
Approach Delay, s/veh	22.1			21.7			17.9			8.2		
Approach LOS	C			C			B			A		
Timer - Assigned Phs	1	2	4			6			8			
Phs Duration (G+Y+Rc), s9.4	33.0	14.7			42.4			14.7				
Change Period (Y+Rc), s 4.5	5.0	5.0			5.0			5.0				
Max Green Setting (Gmax),s	33.5	25.0			45.0			25.0				
Max Q Clear Time (g_c+1),s	23.9	4.8			15.5			5.9				
Green Ext Time (p_c), s	0.0	4.1	0.0			5.6			0.7			
Intersection Summary												
HCM 6th Ctrl Delay	14.3											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary  
8: Arnold Dr & Verano Ave

06/10/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔			↔			↔		
Traffic Volume (veh/h)	4	10	3	94	8	102	3	948	131	113	731	5
Future Volume (veh/h)	4	10	3	94	8	102	3	948	131	113	731	5
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		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	4	11	3	100	9	45	3	1009	118	120	778	5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	87	173	40	274	21	216	7	1080	915	159	1230	8
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.00	0.58	0.58	0.09	0.66	0.66
Sat Flow, veh/h	183	1273	291	1302	152	1585	1781	1870	1585	1781	1856	12
Grp Volume(v), veh/h	18	0	0	109	0	45	3	1009	118	120	0	783
Grp Sat Flow(s),veh/h/ln	747	0	0	1454	0	1585	1781	1870	1585	1781	0	1868
Q Serve(g_s), s	0.0	0.0	0.0	4.3	0.0	1.8	0.1	35.1	2.4	4.7	0.0	17.3
Cycle Q Clear(g_c), s	0.6	0.0	0.0	4.9	0.0	1.8	0.1	35.1	2.4	4.7	0.0	17.3
Prop In Lane	0.22		0.17	0.92		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	300	0	0	295	0	216	7	1080	915	159	0	1238
V/C Ratio(X)	0.06	0.00	0.00	0.37	0.00	0.21	0.42	0.93	0.13	0.75	0.00	0.63
Avail Cap(c_a), veh/h	662	0	0	604	0	558	125	1146	971	188	0	1238
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.7	0.0	0.0	28.5	0.0	27.3	35.3	13.8	6.9	31.6	0.0	7.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.8	0.0	0.5	34.1	13.3	0.1	13.3	0.0	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	0.3	0.0	0.0	1.7	0.0	0.7	0.1	15.0	0.7	2.5	0.0	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.8	0.0	0.0	29.3	0.0	27.7	69.3	27.1	6.9	44.9	0.0	8.0
LnGrp LOS	C	A	A	C	A	C	E	C	A	D	A	A
Approach Vol, veh/h	18			154			1130			903		
Approach Delay, s/veh	26.8			28.8			25.1			12.9		
Approach LOS	C			C			C			B		
Timer - Assigned Phs	1	2	4	5	6	8						
Phs Duration (G+Y+Rc), s	46.0		14.2	4.8	52.0	14.2						
Change Period (Y+Rc), s	4.5	5.0	4.5	4.5	5.0	4.5						
Max Green Setting (Gmax), s	43.5		25.0	5.0	46.0	25.0						
Max Q Clear Time (g_c+1), s	37.1		2.6	2.1	19.3	6.9						
Green Ext Time (p_c), s	0.0	3.8	0.0	0.0	5.8	0.6						
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay	20.4											
HCM 6th LOS	C											

PM Peak Hour - Future plus Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
9: Arnold Dr & Petaluma Ave

06/10/2022

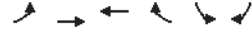
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Volume (veh/h)	137	167	930	153	165	642
Future Volume (veh/h)	137	167	930	153	165	642
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	143	112	969	159	172	669
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	204	182	1046	887	211	1388
Arrive On Green	0.12	0.12	0.56	0.56	0.12	0.75
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	143	112	969	159	172	669
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	5.4	4.7	33.2	3.4	6.6	9.9
Cycle Q Clear(g_c), s	5.4	4.7	33.2	3.4	6.6	9.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	204	182	1046	887	211	1388
V/C Ratio(X)	0.70	0.62	0.93	0.18	0.82	0.48
Avail Cap(c_a), veh/h	635	565	1134	961	216	1480
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	29.6	29.3	13.8	7.4	29.9	3.5
Incr Delay (d2), s/veh	4.3	3.4	12.2	0.1	20.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	1.9	13.4	0.9	3.8	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	33.9	32.7	26.0	7.5	50.5	3.7
LnGrp LOS	C	C	C	A	D	A
Approach Vol, veh/h	255		1128		841	
Approach Delay, s/veh	33.4		23.4		13.3	
Approach LOS	C		C		B	
Timer - Assigned Phs	1	2	6	8		
Phs Duration (G+Y+Rc), s	44.2		57.0	12.5		
Change Period (Y+Rc), s	5.0	5.0	5.0	4.5		
Max Green Setting (Gmax), s	42.5		55.5	25.0		
Max Q Clear Time (g_c+1), s	35.2		11.9	7.4		
Green Ext Time (p_c), s	0.0	4.1	4.7	0.7		
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay	20.7					
HCM 6th LOS	C					

PM Peak Hour - Future plus Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th Signalized Intersection Summary  
10: Stage Gulch Road & Arnold Drive

06/10/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↕	↕	↔	↔	↕
Traffic Volume (veh/h)	422	639	508	8	267	350
Future Volume (veh/h)	422	639	508	8	267	350
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	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	459	695	552	9	290	228
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	506	1265	616	10	337	300
Arrive On Green	0.29	0.68	0.34	0.34	0.19	0.19
Sat Flow, veh/h	1767	1856	1821	30	1767	1572
Grp Volume(v), veh/h	459	695	0	561	290	228
Grp Sat Flow(s),veh/h/ln	1767	1856	0	1850	1767	1572
Q Serve(g_s), s	19.7	15.0	0.0	22.6	12.5	10.8
Cycle Q Clear(g_c), s	19.7	15.0	0.0	22.6	12.5	10.8
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	506	1265	0	626	337	300
V/C Ratio(X)	0.91	0.55	0.00	0.90	0.86	0.76
Avail Cap(c_a), veh/h	619	1488	0	730	383	340
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	6.4	0.0	24.7	30.8	30.1
Incr Delay (d2), s/veh	15.2	0.4	0.0	12.5	16.2	8.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.0	4.6	0.0	11.5	6.6	4.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.2	6.7	0.0	37.2	47.0	38.6
LnGrp LOS	D	A	A	D	D	D
Approach Vol, veh/h	1154	561		518		
Approach Delay, s/veh	20.8	37.2		43.3		
Approach LOS	C	D		D		
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	27.0	31.6		58.6	20.0	
Change Period (Y+Rc), s	4.5	5.0		5.0	5.0	
Max Green Setting (Gmax), s	27.5	31.0		63.0	17.0	
Max Q Clear Time (g_c+Ø), s	24.6			17.0	14.5	
Green Ext Time (p_c), s	0.8	1.9		5.9	0.5	

Intersection Summary

HCM 6th Ctrl Delay	30.1
HCM 6th LOS	C

PM Peak Hour - Future plus Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th TWSC  
11: SR 12 & New SDC Connector

06/10/2022

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔	↔	↕	↕	↕
Traffic Vol, veh/h	37	23	26	708	692	48
Future Vol, veh/h	37	23	26	708	692	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	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	40	25	28	761	744	52

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1587	770	796
Stage 1	770	-	-
Stage 2	817	-	-
Critical Hdwy	6.43	6.23	4.13
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.327	2.227
Pot Cap-1 Maneuver	118	399	821
Stage 1	455	-	-
Stage 2	433	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	111	399	821
Mov Cap-2 Maneuver	111	-	-
Stage 1	428	-	-
Stage 2	433	-	-

Approach	EB	NB	SB
HCM Control Delay, s	44.7	0.3	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	821	-	153	-	-
HCM Lane V/C Ratio	0.034	-	0.422	-	-
HCM Control Delay (s)	9.5	0	44.7	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.1	-	1.9	-	-

PM Peak Hour - Future plus Plan  
W-Trans

SDC Specific Plan  
Synchro 11 Report

HCM 6th TWSC  
11: SR 12 & New SDC Connector

06/10/2022

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	↔
Traffic Vol, veh/h	37	23	26	708	692	48
Future Vol, veh/h	37	23	26	708	692	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	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	40	25	28	761	744	52
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1587	770	796	0	-	0
Stage 1	770	-	-	-	-	-
Stage 2	817	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	118	399	821	-	-	-
Stage 1	455	-	-	-	-	-
Stage 2	433	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	114	399	821	-	-	-
Mov Cap-2 Maneuver	251	-	-	-	-	-
Stage 1	440	-	-	-	-	-
Stage 2	433	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	20.7	0.3	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	821	-	293	-	-	
HCM Lane V/C Ratio	0.034	-	0.22	-	-	
HCM Control Delay (s)	9.5	-	20.7	-	-	
HCM Lane LOS	A	-	C	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.8	-	-	



**Segment LOS Calculation Summary**

Segment	Capacity	Existing Conditions				Future Conditions without Project				Future plus Project Conditions			
		PM Volumes		PM LOS		PM Volumes		PM LOS		PM Volumes		PM LOS	
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
1 SR 12 - Arnold Drive to Trinity Road	1200	560	620	C	D	700	690	D	D	720	720	D	D
2 SR 12 - Madrone Road to Agua Caliente Rd	960	520	430	C	C	650	470	C	C	690	570	D	C
3 Arnold Drive - Glen Ellen to SR 12	770	140	130	C	C	160	150	C	C	150	140	C	C
4 Arnold Drive - Glen Ellen to SDC	770	280	350	C	C	310	380	C	D	280	350	C	C
5 Arnold Drive - SDC to Madrone Road	770	380	350	D	C	420	380	D	D	520	450	D	D
6 Arnold Drive - Boyes Blvd to W Verano Ave	860	800	690	D	D	870	760	F	D	970	840	F	E

**Estimated Capacities from *Quality/Level of Service Handbook*, State of Florida Department of Transportation, 2002**

Segment	TYPE	LOS Breakpoints by Hourly Directional Volume				
		A	B	C	D	E
1 SR 12 - Arnold Drive to Trinity Road	Class I Hwy	100	330	620	870	1200
2 SR 12 - Madrone Road to Agua Calienta Rd	Class II Arterial w/ turn lanes*	1	2	670	900	960
3 Arnold Drive - Glen Ellen to SR 12	Major County Arterial	1	2	370	720	770
4 Arnold Drive - Glen Ellen to SDC	Major County Arterial	1	2	370	720	770
5 Arnold Drive - SDC to Madrone Road	Major County Arterial	1	2	370	720	770
6 Arnold Drive - Boyes to Verano	Class I Arterial	1	210	690	820	860

\* Class II Arterial with TWLTL has approximately 19 percent higher capacity per HCM Urban Streets Planning Methodology