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WHERE EXPERIENCE AND PASSION MEET

To:	Ed Mountford, President Cornerstone Real Estate Consulting Inc.
From:	Meghan Macias, TE
Date:	7/27/2026
Site:	Palm Goldenwest Specific Plan Amendment – EPD Project No. 24-077
Subject:	PCH Driveway Access Alternative Analysis

Introduction

This memorandum evaluates an alternative traffic control configuration for the three Project driveways on Pacific Coast Highway (PCH) associated with the Palm Goldenwest Specific Plan Amendment Project. The memorandum supplements the Palm Goldenwest Specific Plan Amendment Traffic Impact Analysis (EPD, November 2025), which evaluated all three Project driveways as signalized intersections. The purpose of this supplemental analysis is to determine whether signalizing only the Central Project Driveway would provide acceptable Project access while maintaining satisfactory traffic operations on PCH.

Project Description

The proposed Project (Palm Goldenwest Specific Plan Amendment) is located east of Pacific Coast Highway (PCH) between Seapoint Street and Goldenwest Street in the City of Huntington Beach. The Project site is currently developed with oil production facilities. The Project proposes redevelopment with a mixed-use development consisting of 186 single-family detached units, 249 single-family attached units, 365 multi-family units (including affordable housing), and a 350-room hotel.

Alternative Analysis

The analysis utilizes the Opening Year With Project traffic volumes presented in Figures 5.1 and 5.2 of the TIA. The analysis assumes that the Northern and Southern Project Driveways operate as right-in/right-out driveways, rather than traffic signal control. To reflect this alternative configuration, the following modifications were made to the Opening Year With Project traffic volumes presented in Figures 5.1 and 5.2 of the TIA:

- Inbound (Southbound) left-turn movements at Intersection 8 (PCH/Northern Project Driveway) and Intersection 11 (PCH/Southern Project Driveway) were removed.
- The removed inbound (Southbound) left-turn volumes were reassigned to the southbound left-turn movement at Intersection 9 (PCH/Central Project Driveway)
- Outbound (Westbound) left-turn movements at Intersections 8 and 11 were removed.
- The removed outbound (westbound) left-turn volumes were reassigned to the westbound left-turn movement at Intersection 9.

- The Northern and Southern Project Driveways were analyzed as right-in/right-out driveways, with stop control provided on the westbound project approaches.
- Pedestrian volumes observed at PCH/Goldenwest Street were added to the main project driveway. Pedestrian crossing times were manually input assuming 3.5 ft/second walking speed.
- Cycle lengths were optimized using the Vistro analysis software, within the range of 120 to 150 seconds.

Intersection 9 (PCH/Central Project Driveway) was evaluated using both the Intersection Capacity Utilization (ICU) and Highway Capacity Manual (HCM) methodology. The results of the level of service analysis are shown in **Table 1**.

As shown in Table 1, all three Project driveway intersections are projected to operate at satisfactory LOS under both the original signalized configuration and the alternative configuration with only the Central Project Driveway signalized. Accordingly, the analysis indicates that acceptable traffic operations can be maintained with a single traffic signal on PCH.

A supplemental HCM queuing analysis was conducted for the alternative configuration to evaluate projected vehicle queues at the Central Project Driveway. The results are summarized in **Table 2**.

As shown in Table 2, the on-site queue for vehicles making a left-turn out of the site could be 275 feet, or approximately 11 vehicles. Because the project is still in the design process, a final design is not yet available for the Central Project Driveway. To date, the intersection has been evaluated with one outbound left-turn lane and one outbound right-turn lane. Based on the queuing analysis results, if only one signalized driveway is constructed on PCH, EPD recommends that an additional outbound (westbound) left-turn lane be provided. The configuration analyzed in this evaluation was one westbound left-turn lane and one westbound shared left/right-turn lane

Conclusions

The alternative analysis indicates that signalizing only the Central Project Driveway, while operating the Northern and Southern Project Driveways as right-in/right-out driveways, would provide acceptable Project access and maintain satisfactory traffic operations on PCH. Under this configuration, the Central Project Driveway is projected to operate at satisfactory LOS under both the ICU and HCM methodologies.

The HCM queuing analysis indicates that the outbound westbound left-turn movement is projected to experience a 95th percentile queue of approximately 275 feet (11 vehicles). Accordingly, if only one signalized Project driveway is implemented, EPD recommends that the Central Project Driveway be designed with two outbound (westbound) left-turn lanes to provide adequate storage and maintain acceptable operations.

Table 1: Level of Service Alternative Analysis

			AM Peak			PM Peak		
	Methodology	**Control Type**	**V/C or Delay**	**LOS**	**Satisfactory?**	**V/C or Delay**	**LOS**	**Satisfactory?**
Intersection 8. PCH/Northern Project Driveway								
As Analyzed in TIA [1]	ICU	Signal	0.696	B	Yes	0.691	B	Yes
Without Left-turn Access	HCM	TWSC	13.5	B	Yes	21.6	C	Yes
Intersection 9. PCH/Central Project Driveway								
			AM Peak			PM Peak		
	Methodology	**Control Type**	**V/C or Delay**	**LOS**	**Satisfactory?**	**V/C or Delay**	**LOS**	**Satisfactory?**
As Analyzed in TIA [1]	ICU	Signal	0.452	A	Yes	0.707	C	Yes
Without Left-turn Access at Intersections 8 & 11[1]	ICU	Signal	0.561	A	Yes	0.814	D	Yes
Without Left-turn Access at Intersections 8 & 11[1]	HCM	Signal	14.2	B	Yes	17.1	B	Yes
With 2nd Westbound Left-turn Lane	HCM	Signal	13.3	B	Yes	15.3	B	Yes
Intersection 11. PCH/Southern Project Driveway								
			AM Peak			PM Peak		
	Methodology	**Control Type**	**V/C or Delay**	**LOS**	**Satisfactory?**	**V/C or Delay**	**LOS**	**Satisfactory?**
As Analyzed in TIA [1]	ICU	Signal	0.449	A	Yes	0.715	C	Yes
Without Left-turn Access	HCM	TWSC	13.5	B	Yes	22.7	C	Yes

TWSC = Two-Way Stop Control

[1] As reported in Table 5.1 of the Palm Goldenwest Specific Plan Amendment Traffic Impact Analysis, November 5, 2025.

Table 2: Queuing Analysis

Intersection 9. PCH/Central Project Driveway						
	AM Peak (Queue in Feet)					
	NBT	**NBR**	**SBL**	**SBT**	**WBL**	**WBR**
Without Left-turn Access at Intersections 8 & 11[1]	217	1	30	143	100	10
With 2nd Westbound Left-turn Lane	203	0	28	126	52	49
	PM Peak (Queue in Feet)					
	NBT	**NBR**	**SBL**	**SBT**	**WBL**	**WBR**
Without Left-turn Access at Intersections 8 & 11[1]	696	3	188	450	275	30
With 2nd Westbound Left-turn Lane	637	3	182	382	158	153

Contact

If you have any questions about this analysis, please contact us at (949) 796-1180 or techservices@epdsolutions.com.

Respectfully submitted,

EPD Solutions, Inc.



ATTACHMENTS

ATTACHMENT A: DETAILED ANALYSIS WORKSHEETS
OPENING YEAR WITH PROJECT CONDITIONS
(ALTERNATIVE ANALYSIS)

Intersection Level Of Service Report
Intersection 8: PCH/North Project Dwy

Control Type:	Two-way stop	Delay (sec / veh):	13.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.073

Intersection Setup

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

Volumes

Name						
Base Volume Input [veh/h]	866	0	0	1589	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2000	1.2000	1.2000	1.2000	1.2000	1.2000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	72	32	14	38	71	31
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1111	32	14	1945	71	31
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	292	8	4	512	19	8
Total Analysis Volume [veh/h]	1169	34	15	2047	75	33
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.02	0.00	0.07
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	13.54
Movement LOS	A	A		A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.23
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	5.84
d_A, Approach Delay [s/veh]	0.00		0.00		13.54	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.14					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: PCH/Center Project Dwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.561

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	0	0	0
Exit Pocket Length [ft]	0.00	49.21	0.00	0.00	0.00	0.00
Speed [mph]	60.00		60.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	857	0	0	812	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2000	1.2000	1.2000	1.2000	1.2000	1.2000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	68	39	16	93	85	36
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	30	0	146	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1096	29	46	1067	231	27
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	288	8	12	281	61	7
Total Analysis Volume [veh/h]	1154	31	48	1123	243	28
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Split	Split
Signal Group	6	6	5	2	7	0
Auxiliary Signal Groups		6,7				
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.34	0.00	0.03	0.33	0.14	0.02
Intersection LOS	A					
Intersection V/C	0.561					

Intersection Level Of Service Report
Intersection 11: PCH/South Project Dwy

Control Type:	Two-way stop	Delay (sec / veh):	13.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.068

Intersection Setup

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

Volumes

Name						
Base Volume Input [veh/h]	857	0	0	812	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2000	1.2000	1.2000	1.2000	1.2000	1.2000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	78	34	13	165	75	29
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1106	34	13	1139	75	29
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	291	9	3	300	20	8
Total Analysis Volume [veh/h]	1164	36	14	1199	79	31
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.07
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	13.46
Movement LOS	A	A		A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.22
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	5.44
d_A, Approach Delay [s/veh]	0.00		0.00		13.46	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.17					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 8: PCH/North Project Dwy

Control Type:	Two-way stop	Delay (sec / veh):	21.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.103

Intersection Setup

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

Volumes

Name						
Base Volume Input [veh/h]	1529	0	0	974	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2000	1.2000	1.2000	1.2000	1.2000	1.2000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	62	76	33	82	55	24
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1897	76	33	1251	55	24
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	499	20	9	329	14	6
Total Analysis Volume [veh/h]	1997	80	35	1317	58	25
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.01	0.00	0.10
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	21.58
Movement LOS	A	A		A		C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.34
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	8.53
d_A, Approach Delay [s/veh]	0.00		0.00		21.58	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.16					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 9: PCH/Center Project Dwy

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.814

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	0	0	0
Exit Pocket Length [ft]	0.00	49.21	0.00	0.00	0.00	0.00
Speed [mph]	60.00		60.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1496	0	0	1580	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2000	1.2000	1.2000	1.2000	1.2000	1.2000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	111	91	38	98	66	27
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	64	0	113	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1906	68	102	1994	179	20
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	502	18	27	525	47	5
Total Analysis Volume [veh/h]	2006	72	107	2099	188	21
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Split	Split
Signal Group	6	6	5	2	7	0
Auxiliary Signal Groups		6,7				
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.59	0.00	0.06	0.62	0.11	0.01
Intersection LOS	D					
Intersection V/C	0.814					

Intersection Level Of Service Report
Intersection 11: PCH/South Project Dwy

Control Type:	Two-way stop	Delay (sec / veh):	22.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.106

Intersection Setup

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

Volumes

Name						
Base Volume Input [veh/h]	1496	0	0	1580	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2000	1.2000	1.2000	1.2000	1.2000	1.2000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	180	80	31	133	58	23
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1975	80	31	2029	58	23
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	520	21	8	534	15	6
Total Analysis Volume [veh/h]	2079	84	33	2136	61	24
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.02	0.00	0.11
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	22.70
Movement LOS	A	A		A		C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.35
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	8.74
d_A, Approach Delay [s/veh]	0.00		0.00		22.70	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.13					
Intersection LOS	C					

CRC Property Huntington Beach

Vistro File: C:\...\CRC HB Revised - ICU 1 - 11.3.2025.vistro
Scenario 13 OY W-Proj AM 1 Signal

Report File: C:\...\OY With Project AM 1 Signal_HCM.pdf
7/27/2026

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
9	PCH/Center Project Dwy	Signalized	HCM 7th Edition	SB Left	0.616	14.2	B

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

Intersection Level Of Service Report
Intersection 9: PCH/Center Project Dwy

Control Type:	Signalized	Delay (sec / veh):	14.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.616

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	0	0	0
Exit Pocket Length [ft]	0.00	49.21	0.00	0.00	0.00	0.00
Speed [mph]	60.00		60.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	857	0	0	812	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.2000	1.2000	1.2000	1.2000	1.2000	1.2000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	68	39	16	93	85	36
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	27	0	146	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	10	0	0	0	9
Total Hourly Volume [veh/h]	1096	29	43	1067	231	27
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	288	8	11	281	61	7
Total Analysis Volume [veh/h]	1154	31	45	1123	243	28
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	40		50		50	
v_di, Inbound Pedestrian Volume crossing m	0		50		50	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		40		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	125
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing (Basic)

Control Type	Permissive	Overlap	Protected	Permissive	Split	Split
Flashing Yellow Arrow						
Signal Group	6	6	5	2	7	0
Auxiliary Signal Groups		6,7				
Maximum Green [s]	74.0	74.0	6.0	84.0	33.0	0.0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Walk [s]	5.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	15.0	15.0	0.0	0.0	25.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	78.0	78.0	10.0	88.0	37.0	0.0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10.0	10.0	5.0	10.0	5.0	0.0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Calculated Cycle Length [s]	59	59	59	59	59	59
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	23.3	48.1	2.6	29.9	20.9	20.9
g / C, Green / Cycle	0.40	0.82	0.04	0.51	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.32	0.02	0.03	0.32	0.14	0.02
s, saturation flow rate [veh/h]	3560	1589	1781	3560	1721	1455
c, Capacity [veh/h]	1411	1302	79	1812	611	516
d1, Uniform Delay [s]	15.84	0.98	27.52	10.35	14.24	12.45
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.22	0.01	6.23	0.35	0.42	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.02	0.57	0.62	0.40	0.05
d, Delay for Lane Group [s/veh]	17.05	0.99	33.75	10.69	14.66	12.49
Lane Group LOS	B	A	C	B	B	B
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.02	0.00	0.66	3.18	2.24	0.22
50th-Percentile Queue Length [ft/ln]	125.56	0.07	16.53	79.40	55.88	5.60
95th-Percentile Queue Length [veh/ln]	8.70	0.00	1.19	5.72	4.02	0.40
95th-Percentile Queue Length [ft/ln]	217.44	0.12	29.75	142.93	100.58	10.09

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.05	0.99	33.75	10.69	14.66	12.49
Movement LOS	B	A	C	B	B	B
d_A, Approach Delay [s/veh]	16.63		11.58		14.44	
Approach LOS	B		B		B	
d_I, Intersection Delay [s/veh]	14.16					
Intersection LOS	B					
Intersection V/C	0.616					

Emissions

Vehicle Miles Traveled [mph]	252.71	6.79	21.55	537.73	20.87	2.41
Stops [stops/h]	615.35	0.16	40.50	389.15	136.93	13.73
Fuel consumption [US gal/h]	26.24	0.24	1.94	29.42	2.34	0.25
CO [g/h]	1834.37	16.90	135.65	2056.47	163.63	17.20
NOx [g/h]	356.90	3.29	26.39	400.11	31.84	3.35
VOC [g/h]	425.13	3.92	31.44	476.61	37.92	3.99

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	321.06	0.00	0.00
d_p, Pedestrian Delay [s]	21.07	21.07	21.07
l_p,int, Pedestrian LOS Score for Intersectio	3.292	3.199	2.051
Crosswalk LOS	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	2519	2859	1123
d_b, Bicycle Delay [s]	1.98	5.42	5.65
l_b,int, Bicycle LOS Score for Intersection	2.545	2.523	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4																



CRC Property Huntington Beach

Vistro File: C:\...\CRC HB Revised - ICU 1 - 11.3.2025.vistro
Scenario 14 OY W-Proj PM 1 Signal

Report File: C:\...\OY With Project PM 1 Signal_HCM.pdf
7/27/2026

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
9	PCH/Center Project Dwy	Signalized	HCM 7th Edition	SB Left	0.799	17.1	B

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

Intersection Level Of Service Report
Intersection 9: PCH/Center Project Dwy

Control Type:	Signalized	Delay (sec / veh):	17.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.799

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	0	0	0
Exit Pocket Length [ft]	0.00	49.21	0.00	0.00	0.00	0.00
Speed [mph]	60.00		60.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1496	0	0	1580	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.2000	1.2000	1.2000	1.2000	1.2000	1.2000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	111	91	38	98	66	27
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	64	0	113	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	23	0	0	0	7
Total Hourly Volume [veh/h]	1906	68	102	1994	179	20
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	502	18	27	525	47	5
Total Analysis Volume [veh/h]	2006	72	107	2099	188	21
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	20		20		20	
v_di, Inbound Pedestrian Volume crossing m	0		20		20	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		20		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing (Basic)

Control Type	Permissive	Overlap	Protected	Permissive	Split	Split
Flashing Yellow Arrow						
Signal Group	6	6	5	2	7	0
Auxiliary Signal Groups		6,7				
Maximum Green [s]	95.0	95.0	18.0	117.0	25.0	0.0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Walk [s]	5.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	15.0	15.0	0.0	0.0	25.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	99.0	99.0	22.0	121.0	29.0	0.0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10.0	10.0	5.0	10.0	5.0	0.0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Calculated Cycle Length [s]	145	145	145	145	145	145
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	97.6	126.0	10.6	112.2	24.3	24.3
g / C, Green / Cycle	0.68	0.87	0.07	0.78	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.56	0.05	0.06	0.59	0.11	0.01
s, saturation flow rate [veh/h]	3560	1589	1781	3560	1717	1476
c, Capacity [veh/h]	2405	1385	130	2764	289	248
d1, Uniform Delay [s]	17.43	1.25	66.05	8.81	56.14	50.66
k, delay calibration	0.11	0.11	0.11	0.11	0.18	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.80	0.02	11.94	0.44	3.97	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.05	0.82	0.76	0.65	0.08
d, Delay for Lane Group [s/veh]	18.23	1.27	77.99	9.25	60.10	50.81
Lane Group LOS	B	A	E	A	E	D
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	20.44	0.07	4.18	12.27	6.76	0.66
50th-Percentile Queue Length [ft/ln]	510.98	1.87	104.62	306.65	168.99	16.48
95th-Percentile Queue Length [veh/ln]	27.85	0.13	7.53	18.01	11.02	1.19
95th-Percentile Queue Length [ft/ln]	696.34	3.36	188.31	450.25	275.58	29.67

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.23	1.27	77.99	9.25	60.10	50.81
Movement LOS	B	A	E	A	E	D
d_A, Approach Delay [s/veh]	17.65		12.58		59.17	
Approach LOS	B		B		E	
d_I, Intersection Delay [s/veh]	17.09					
Intersection LOS	B					
Intersection V/C	0.799					

Emissions

Vehicle Miles Traveled [mph]	439.29	15.77	51.23	1005.06	16.15	1.80
Stops [stops/h]	1018.08	1.86	104.22	610.98	168.35	16.42
Fuel consumption [US gal/h]	44.96	0.60	5.75	51.80	3.89	0.38
CO [g/h]	3142.63	41.83	402.10	3620.74	272.20	26.71
NOx [g/h]	611.44	8.14	78.23	704.47	52.96	5.20
VOC [g/h]	728.34	9.69	93.19	839.14	63.08	6.19

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	260.34	0.00	0.00
d_p, Pedestrian Delay [s]	63.55	63.55	63.55
l_p,int, Pedestrian LOS Score for Intersectio	4.068	3.977	2.110
Crosswalk LOS	D	D	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1314	1619	346
d_b, Bicycle Delay [s]	8.49	2.63	49.44
l_b,int, Bicycle LOS Score for Intersection	3.293	3.380	1.560
Bicycle LOS	C	C	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4																



CRC Property Huntington Beach

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Report File: C:\...\OY With Project AM 1 Signal_2nd WBL_HCM.pdf

Scenario 15 OY W-Proj AM 1 Signal (2WBL)
7/27/2026

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
9	PCH/Center Project Dwy	Signalized	HCM 7th Edition	SB Left	0.549	13.3	B

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

Intersection Level Of Service Report
Intersection 9: PCH/Center Project Dwy

Control Type:	Signalized	Delay (sec / veh):	13.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.549

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	0	0	0
Exit Pocket Length [ft]	0.00	49.21	0.00	0.00	0.00	0.00
Speed [mph]	60.00		60.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	857	0	0	812	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.2000	1.2000	1.2000	1.2000	1.2000	1.2000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	68	39	16	93	85	36
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	27	0	146	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	10	0	0	0	9
Total Hourly Volume [veh/h]	1096	29	43	1067	231	27
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	288	8	11	281	61	7
Total Analysis Volume [veh/h]	1154	31	45	1123	243	28
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	40		50		50	
v_di, Inbound Pedestrian Volume crossing m	0		50		50	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		40		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	125
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing (Basic)

Control Type	Permissive	Overlap	Protected	Permissive	Split	Split
Flashing Yellow Arrow						
Signal Group	6	6	5	2	7	0
Auxiliary Signal Groups		6,7				
Maximum Green [s]	74.0	74.0	6.0	84.0	33.0	0.0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Walk [s]	5.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	15.0	15.0	0.0	0.0	25.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	78.0	78.0	10.0	88.0	37.0	0.0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10.0	10.0	5.0	10.0	5.0	0.0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	L	C	L	C
C, Calculated Cycle Length [s]	56	56	56	56	56	56
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	22.4	45.6	2.5	29.0	19.2	19.2
g / C, Green / Cycle	0.40	0.81	0.05	0.52	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.32	0.02	0.03	0.32	0.08	0.08
s, saturation flow rate [veh/h]	3560	1589	1781	3560	1677	1737
c, Capacity [veh/h]	1422	1291	80	1837	573	593
d1, Uniform Delay [s]	14.97	1.01	26.25	9.61	13.26	13.18
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.16	0.01	5.97	0.33	0.22	0.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.02	0.56	0.61	0.24	0.22
d, Delay for Lane Group [s/veh]	16.13	1.02	32.22	9.94	13.48	13.36
Lane Group LOS	B	A	C	A	B	B
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.59	0.00	0.62	2.79	1.15	1.09
50th-Percentile Queue Length [ft/ln]	114.87	0.07	15.61	69.76	28.63	27.34
95th-Percentile Queue Length [veh/ln]	8.11	0.00	1.12	5.02	2.06	1.97
95th-Percentile Queue Length [ft/ln]	202.75	0.12	28.10	125.57	51.53	49.21

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.13	1.02	32.22	9.94	13.43	13.36
Movement LOS	B	A	C	A	B	B
d_A, Approach Delay [s/veh]	15.74		10.80		13.42	
Approach LOS	B		B		B	
d_I, Intersection Delay [s/veh]	13.30					
Intersection LOS	B					
Intersection V/C	0.549					

Emissions

Vehicle Miles Traveled [mph]	252.71	6.79	21.55	537.73	11.86	11.42
Stops [stops/h]	589.37	0.17	40.05	357.94	73.45	70.14
Fuel consumption [US gal/h]	25.45	0.24	1.92	28.56	1.27	1.22
CO [g/h]	1779.09	16.92	133.98	1996.16	88.97	85.21
NOx [g/h]	346.15	3.29	26.07	388.38	17.31	16.58
VOC [g/h]	412.32	3.92	31.05	462.63	20.62	19.75

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	336.26	0.00	0.00
d_p, Pedestrian Delay [s]	19.79	19.79	19.79
l_p,int, Pedestrian LOS Score for Intersectio	3.290	3.197	2.049
Crosswalk LOS	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	2637	2993	1176
d_b, Bicycle Delay [s]	2.84	6.92	4.77
l_b,int, Bicycle LOS Score for Intersection	2.545	2.523	2.022
Bicycle LOS	B	B	B

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4																



CRC Property Huntington Beach

Vistro File: C:\...\CRC HB Revised - ICU 1 - 11.3.2025.vistro
Report File: C:\...\OY With Project PM 1 Signal_2nd WBL_HCM.pdf

Scenario 16 OY W-Proj PM 1 Signal (2WBL)
7/27/2026

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
9	PCH/Center Project Dwy	Signalized	HCM 7th Edition	SB Left	0.751	15.3	B

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

Intersection Level Of Service Report
Intersection 9: PCH/Center Project Dwy

Control Type:	Signalized	Delay (sec / veh):	15.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.751

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	0	0	0
Exit Pocket Length [ft]	0.00	49.21	0.00	0.00	0.00	0.00
Speed [mph]	60.00		60.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1496	0	0	1580	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.2000	1.2000	1.2000	1.2000	1.2000	1.2000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	111	91	38	98	66	27
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	64	0	113	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	23	0	0	0	7
Total Hourly Volume [veh/h]	1906	68	102	1994	179	20
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	502	18	27	525	47	5
Total Analysis Volume [veh/h]	2006	72	107	2099	188	21
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	20		20		20	
v_di, Inbound Pedestrian Volume crossing m	0		20		20	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		20		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing (Basic)

Control Type	Permissive	Overlap	Protected	Permissive	Split	Split
Flashing Yellow Arrow						
Signal Group	6	6	5	2	7	0
Auxiliary Signal Groups		6,7				
Maximum Green [s]	75.0	75.0	38.0	117.0	25.0	0.0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Walk [s]	5.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	15.0	15.0	0.0	0.0	25.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	79.0	79.0	42.0	121.0	29.0	0.0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10.0	10.0	5.0	10.0	5.0	0.0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	L	C	L	C
C, Calculated Cycle Length [s]	141	141	141	141	141	141
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	97.2	122.4	10.5	111.6	21.3	21.3
g / C, Green / Cycle	0.69	0.87	0.07	0.79	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.56	0.05	0.06	0.59	0.06	0.06
s, saturation flow rate [veh/h]	3560	1589	1781	3560	1663	1738
c, Capacity [veh/h]	2455	1381	132	2821	251	263
d1, Uniform Delay [s]	15.56	1.27	64.23	7.41	54.24	53.97
k, delay calibration	0.12	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.78	0.02	11.01	0.40	1.13	0.95
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.05	0.81	0.74	0.42	0.39
d, Delay for Lane Group [s/veh]	16.34	1.28	75.25	7.81	55.36	54.93
Lane Group LOS	B	A	E	A	E	D
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	18.42	0.07	4.05	10.09	3.52	3.39
50th-Percentile Queue Length [ft/ln]	460.58	1.81	101.14	252.21	87.91	84.74
95th-Percentile Queue Length [veh/ln]	25.46	0.13	7.28	15.30	6.33	6.10
95th-Percentile Queue Length [ft/ln]	636.56	3.26	182.06	382.44	158.23	152.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.34	1.28	75.25	7.81	55.17	54.93
Movement LOS	B	A	E	A	E	D
d_A, Approach Delay [s/veh]	15.82		11.08		55.15	
Approach LOS	B		B		E	
d_I, Intersection Delay [s/veh]	15.32					
Intersection LOS	B					
Intersection V/C	0.751					

Emissions

Vehicle Miles Traveled [mph]	439.29	15.77	51.23	1005.06	9.11	8.84
Stops [stops/h]	941.41	1.85	103.37	515.52	89.84	86.60
Fuel consumption [US gal/h]	42.49	0.60	5.67	49.07	2.07	1.99
CO [g/h]	2970.02	41.83	396.60	3430.31	144.43	139.30
NOx [g/h]	577.86	8.14	77.16	667.41	28.10	27.10
VOC [g/h]	688.33	9.69	91.92	795.01	33.47	32.29

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	267.15	0.00	0.00
d_p, Pedestrian Delay [s]	61.74	61.74	61.74
l_p,int, Pedestrian LOS Score for Intersectio	4.067	3.976	2.109
Crosswalk LOS	D	D	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1065	1661	355
d_b, Bicycle Delay [s]	15.41	2.03	47.67
l_b,int, Bicycle LOS Score for Intersection	3.293	3.380	1.916
Bicycle LOS	C	C	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4																

