MEMORANDUM

TO: Barry Kurtz, City of Culver City
Heba El-Guindy, City of Culver City

FROM: Sean Mohn

DATE: August 17, 2021

RE: Queuing Assessment for the Scenic Arts Project
Sony Pictures Studios
Culver City, California **Ref:** J1762

At the request of Culver City (City) and the direction of Sony Pictures Studios, Gibson Transportation Consulting, Inc. (GTC) prepared trip generation estimates, identified off-site traffic mitigation requirements, and prepared an assessment of the queuing conditions at the intersection of Overland Avenue & Palm Court Way and the Overland Gate driveway for the Sony Pictures Studios Scenic Arts Project (Project) as part of the Comprehensive Plan conformance review process. This memorandum details the assessment findings and conclusions.

PROJECT DESCRIPTION

As detailed in the preliminary plan review submittal to the City, the adaptive reuse of the existing Scenic Arts Building would require the construction of new office and support space and both the renovation and demolition of existing office and support space, resulting in a total of 39,079 square feet (sf) of net new development for the Project, including 25,757 sf of office space and 13,322 of support space.

PROJECT TRIP GENERATION & OFF-SITE TRAFFIC MITIGATION REQUIREMENTS

The trip generation estimates for the Project were estimated based on the empirically derived site generation peak hour rates for office and support land uses documented in *Sony Pictures Studios Comprehensive Plan* (Crain & Associates, March 19, 1992) (EIR Traffic Study), as required by the Comprehensive Plan Development Agreement (DA). As summarized in Table 1, the Project would generate approximately 28 net new AM peak hour trips and approximately 24 net new PM peak hour trips.

The identification of off-site traffic mitigation requirements for the Project is based on the off-site mitigation trip thresholds identified in the EIR Traffic Study and the net increase in trips from the baseline count data identified in *Sony Pictures Studios 1994 Annual Parking Survey and Trip Generation Monitoring Report* (Crain & Associates, 1994) (1994 Survey

Report), as calculated based on the most recent annual survey count data documented in *Sony Pictures Studios Annual Trip Generation and Parking Survey Report Year 2021*(GTC, March 2021) (2021 Survey Report) and the net new trip generation estimates for the Project, as required by the DA.

As summarized in Table 2, based on the 1994 Survey Report data, the 2021 Survey Report Data, and the trip generation estimates summarized in Table 1, the Project would result in a ***net decrease*** in trips from the baseline count. As such, no off-site traffic mitigation measures are required for the Project.

INTERSECTON QUEUING ANALYSIS & CONCLUSIONS

For the purposes of evaluating the effect of Project-related trips on the queuing conditions at the intersection of Overland Avenue & Palm Court Way, specifically related to the southbound left-turn movement and northbound right-turn movement, GTC developed AM and PM peak hour traffic volumes for both Baseline Conditions and Baseline plus Project Conditions based on the peak hour traffic volume data documented in *Sony Pictures Entertainment Resolution No 2014-P007 Comprehensive Plan Conformance Review #62 Monitoring Report* (Crain & Associates, April 23, 2018) (Monitoring Report), which was previously reviewed and approved by the City and utilizes the most recent intersection turning movement count data collected for the intersection of Overland Avenue & Palm Court Way.

The AM and PM peak hour traffic volumes at the intersection of Overland Avenue & Palm Court Way under Baseline Conditions are illustrated in Figure 1. The net new AM and PM peak hour Project trips summarized in Table 1 were then assigned to Overland Avenue & Palm Court Way based on the Baseline Conditions trip distribution patterns, as illustrated in Figure 2. The resulting AM and PM peak hour traffic volumes under Baseline plus Project Conditions are illustrated in Figure 3.

In accordance with City requirements, the queueing evaluation for Overland Avenue & Palm Court Way was conducted based on *Highway Capacity Manual, 6th Edition* (Transportation Research Board, 2016) (HCM) methodology and the utilization of Synchro software to identify the 95th percentile queue for the southbound left-turn movement and the northbound right-turn movement. As summarized in Table 3, the 95th percentile queue for the southbound left-turn movement is projected at 7.1 vehicles/lane during the AM peak hour under Baseline Conditions and 7.5 vehicles/lane during the AM peak under Baseline plus Project Conditions, resulting in a projected increase in queue of 0.4 vehicles/lane. As summarized in Table 3, the 95th percentile queue for the northbound right-turn movement[1] is projected at 9.4 vehicles/lane during the AM peak hour under Baseline Conditions and 9.8 vehicles/lane during the AM peak under Baseline plus Project Conditions, resulting in a projected increase in queue of 0.4 vehicles/lane. The corresponding Synchro worksheets are provided in the Appendix.

Based on the intersection operating conditions documented in the Monitoring Report, which was prepared to assess the effectiveness of the improvements implemented at the Overland Gate and the intersection of Overland Avenue & Palm Court Way after the construction and full

[1] As noted in Table 3, the 95th percentile queue for the northbound right-turn movement, as calculated based on HCM methodology, reflects the shared through/right-turn characteristics of the lane and the associated shared demand.

occupation of the Morita Building, and the results of the intersection queuing analysis detailed above, it is our professional opinion that the effect of the Project related trips on the southbound left-turn and northbound right-turn queuing conditions at the intersection of Overland Avenue & Palm Court Way would be negligible and would not require the implementation of any additional improvements at the intersection.

OVERLAND GATE QUEUING ANALYSIS

For the purposes of evaluating the effect of Project related trips on the operating conditions at the Overland Gate, specifically as it concerns the potential for vehicles to queue back onto Overland Avenue and affect vehicular circulation through the corridor, a Queuing Model was developed based on a Poisson distribution of the estimated vehicular arrivals per minute. The Queuing Model was run multiple times to simulate thousands of peak hours of arrival patterns. The simulation results then were used to determine both the 95th percentile queue and the maximum queue expected under Baseline plus Project Conditions.

Determination of Vehicle Processing Rate

The Overland Gate currently provides two inbound lanes, each of which is controlled by a key card access system capable of processing one vehicle every six seconds, resulting in the capacity to process approximately 10.0 vehicles/minute/lane (or 1200 vehicles/hour in total) through this entrance. For conservative purposes, however, the processing capacity of this entrance was reduced to 900 vehicles/hour to account for unforeseen variances that could potentially affect the operational efficiency.

Based on a review of the Baseline plus Project AM peak hour traffic volumes, the anticipated peak inbound demand at the Overland Gate during the peak hour is approximately 478 vehicles, which is far below the processing capacity ranges described above.

Determination of Required Storage Area

Table 4 summarizes the calculations used to determine the both the 95th percentile queue (vehicles) and the maximum queue (vehicles) for the Overland Gate driveway, as well as the associated storage capacity requirements. As summarized Table 4, it was assumed that 478 vehicles were distributed across the peak hour in 15-minute increments as follows:

Arrival Distribution

- 8:00 - 8:00 AM – 104 Vehicles
- 8:15 - 8:30 AM – 135 Vehicles
- 8:30 - 8:45 AM – 135 Vehicles
- 8:45 - 9:00 AM – 104 Vehicles

As summarized in Table 4, based on the previously discussed assumptions and methodology, the 95th percentile queue is projected at 4.0 vehicles for the Overland Gate driveway under Baseline plus Project Conditions, while the maximum queue is projected at 7.0 vehicles. As such,

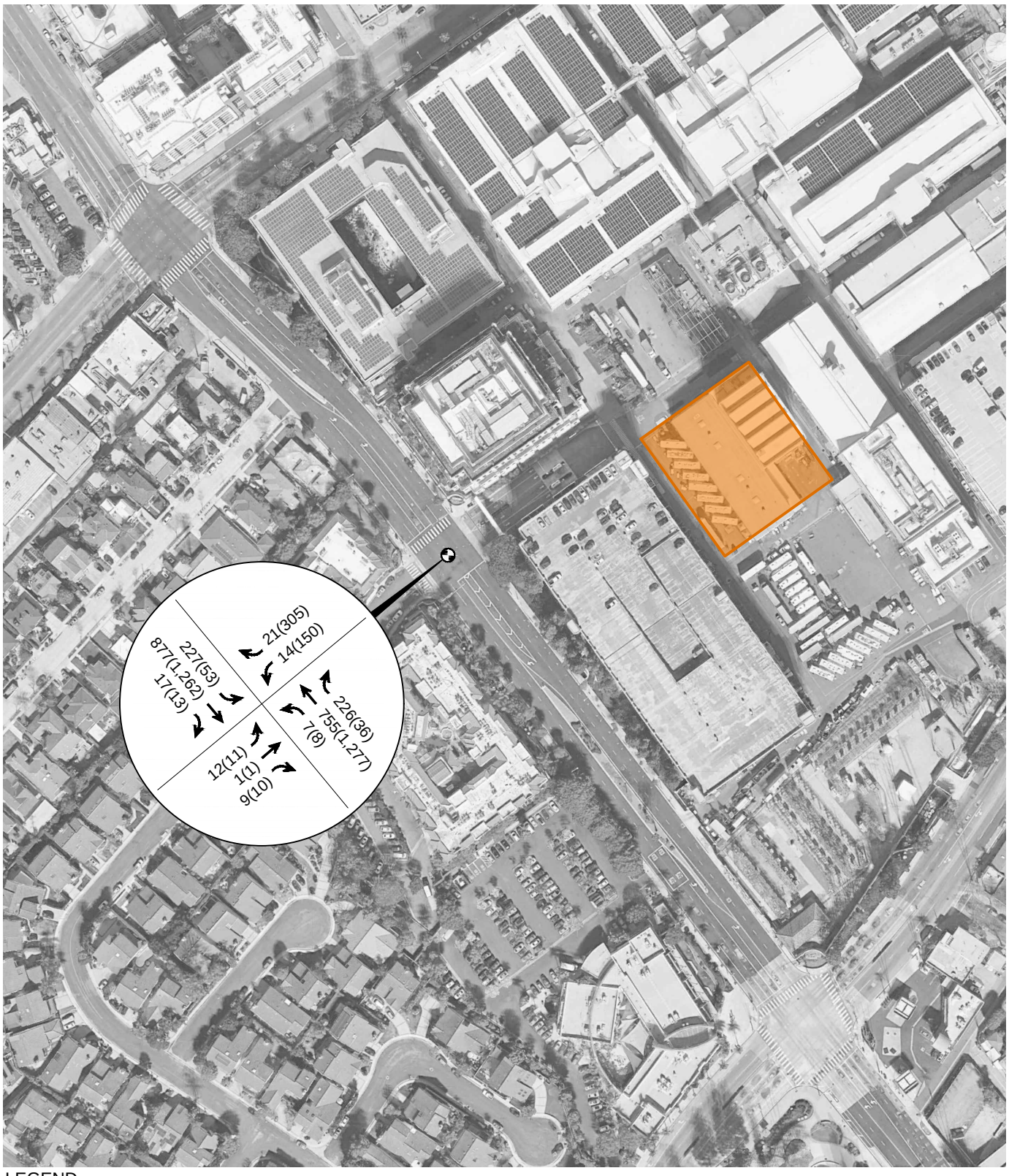
assuming an average storage requirement of approximately 20 feet/vehicle[2], under Baseline plus Project Conditions, the Overland Gate driveway would need to provide approximately 140 feet of total combined storage capacity behind the interior entry control points.

Conclusions

As previously discussed, under Baseline plus Project Conditions, the Overland Gate driveway would need to accommodate up to 7.0 vehicles and provide approximately 140 feet of total combined storage capacity behind the interior control points. The Overland Gate currently provides approximately 240 feet of total storage capacity across both inbound lanes behind the interior entry control points.

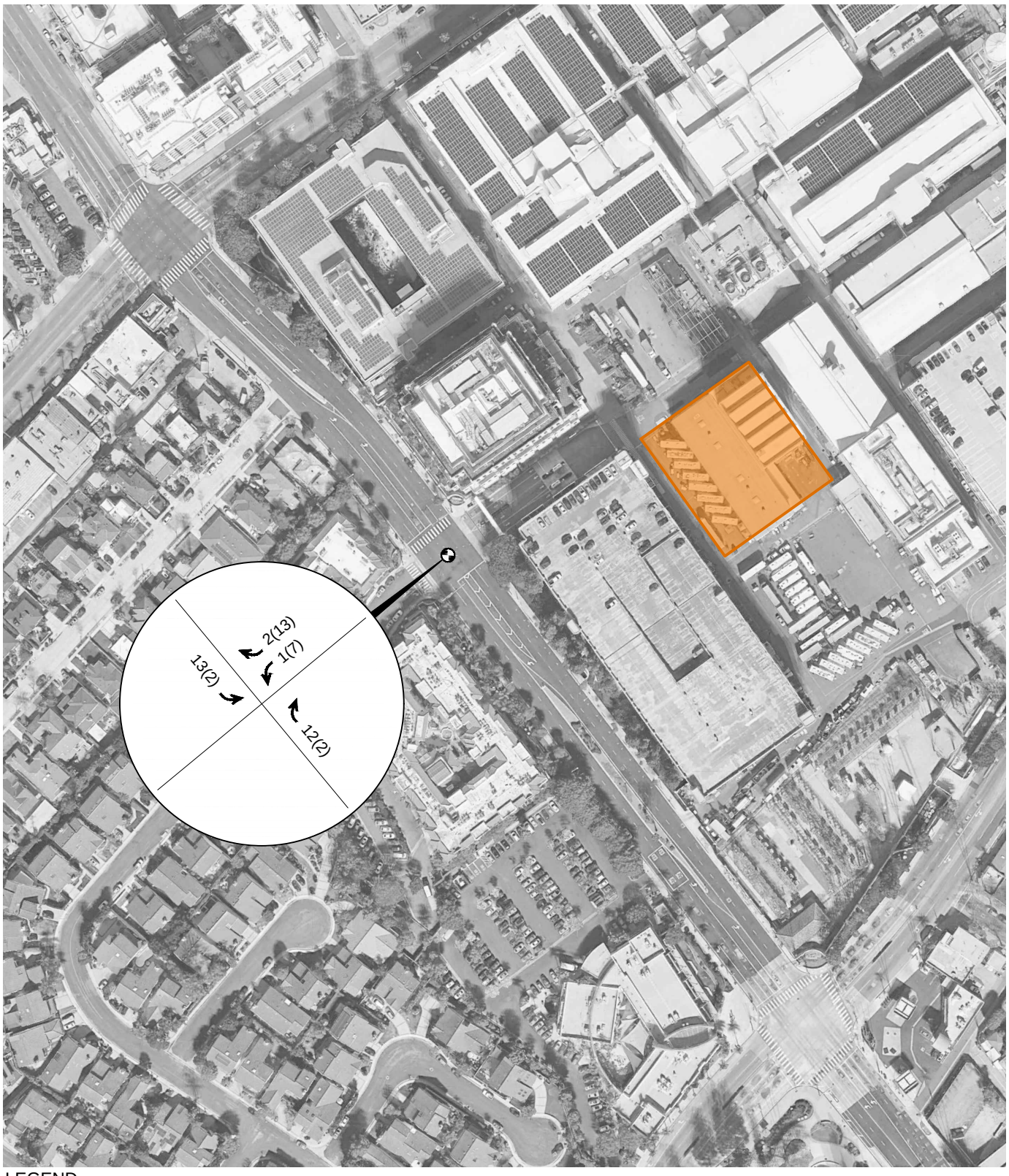
As such, based on the results of the analysis and a detailed review of the associated Overland Gate driveway observational queuing data documented in the Monitoring Report (the findings of which are consistent with the analysis results detailed above), it is our professional opinion that the storage capacity at the Overland Gate driveway could readily accommodate the addition of 25 net new Project related inbound trips during the AM peak hour and would not require the implementation of any additional improvements.

[2] For consistency purposes, the average storage requirement was taken directly from the Monitoring Report, which was previously reviewed and approved by the City.



BASELINE CONDITIONS - AM(PM) PEAK HOUR TRAFFIC VOLUMES

FIGURE 1



LEGEND

Project Site

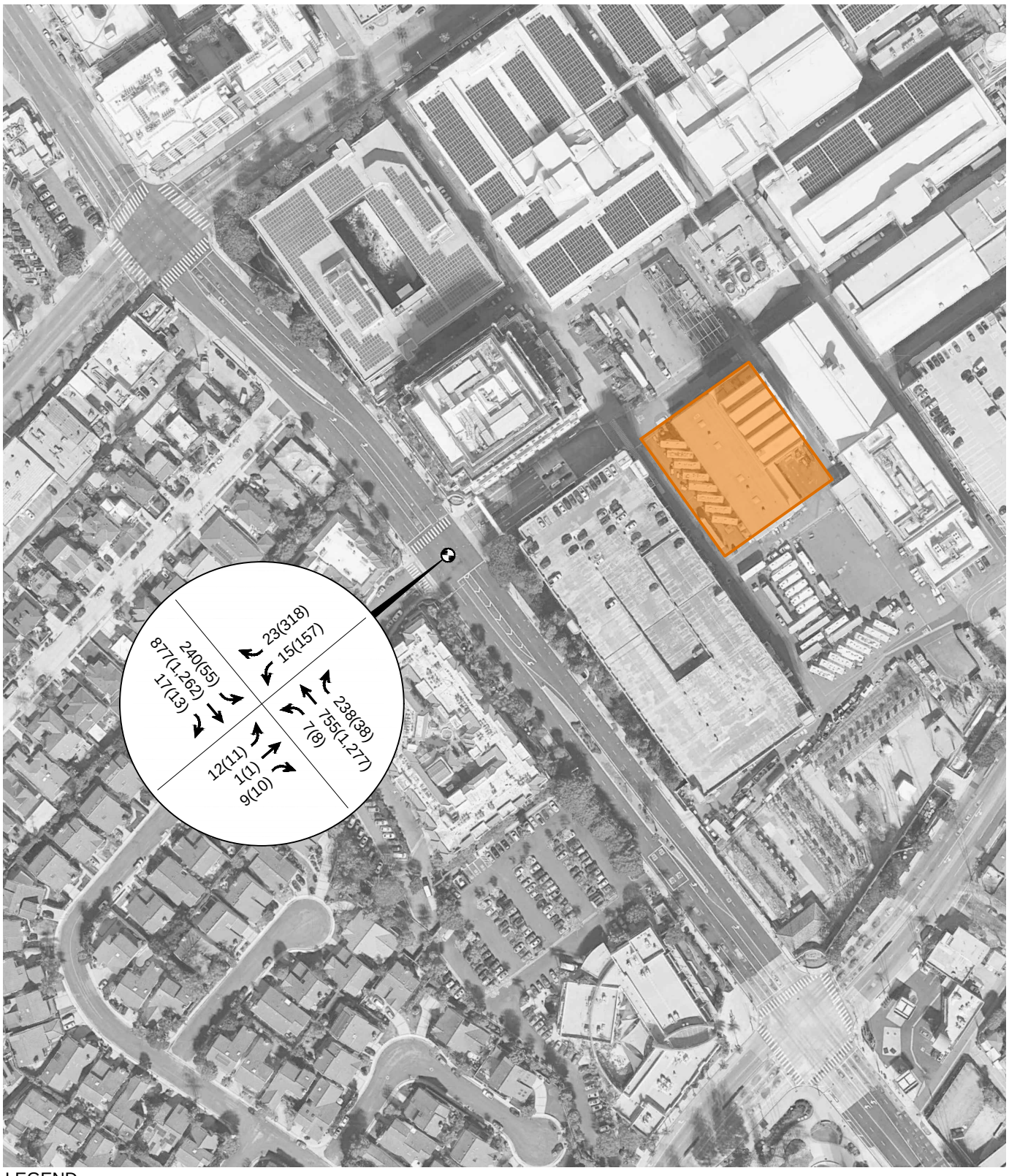
Overland Avenue & Palm Court Way / Overland Gate

N

Not to Scale

SCENIC ARTS PROJECT - AM(PM) PEAK HOUR TRAFFIC VOLUMES

FIGURE 2



BASELINE PLUS PROJECT CONDITIONS - AM(PM) PEAK HOUR TRAFFIC VOLUMES

FIGURE 3

TABLE 1

SCENIC ARTS PROJECT - NET NEW TRIP GENERATION ESTIMATES

SONY STUDIOS 1992 TRAFFIC STUDY - SITE GENERATION								
Land Use	**Rate**	**Daily**	**Morning Peak Hour**			**Afternoon Peak Hour**		
			In	**Out**	**Total**	**In**	**Out**	**Total**
Trip Generation Rates [a]								
Office	per ksf	7.64	94%	6%	0.96	14%	86%	0.73
Support	per ksf	4.14	65%	35%	0.20	22%	78%	0.36
Proposed Project								
Net New Area								
Office	25.757 ksf	197	23	2	25	3	16	19
Support	13.322 ksf	55	2	1	3	1	4	5
TOTAL	**39.079 ksf**	**252**	**25**	**3**	**28**	**4**	**20**	**24**

Notes:

ksf: 1,000 square feet

[a] Scenic Arts trip generation estimates were based on the empirically derived Site Generation Peak Hour Rates for Office and Support uses from *Sony Pictures Studios Comprehensive Plan* (Crain & Associates, March 19, 1992)..

TABLE 2

SCENIC ARTS PROJECT - TRAFFIC MITIGATION REQUIREMENTS (OFF-SITE)

Mitigation/Improvement		Condition XII.B.2 Reference	AM Peak Hour Trip Threshold	PM Peak Hour Trip Threshold	Status	Jurisdiction/Agency
					Completed / Required [a]	
February 2021 Count [b]			334	235		
Less Baseline Count [c]			-502	-692		
Net Generation from Annual Count			**-168**	**-457**		
Scenic Arts Trip Generation [d]			**28**	**24**		
Total			**-140**	**-433**		
Int. 28 - Venice Boulevard and Clarington Avenue	*Physical*	**2a**			[e]	Los Angeles
Madison Crosswalk	*Physical*	**2c**			Completed	Culver City
Tri-Star Camera	*Physical*	**2d**			Completed	Culver City
Braddock M/B On-Ramp Study	*Physical*	**2e**			Completed	Culver City
Int. 19 - Washington Boulevard and Overland Avenue	*Physical*	**2f**	185		Completed	Culver City/Los Angeles
Int. 8 - Culver Boulevard and Overland Avenue	*Physical*	**2g**		211		Culver City
Int. 10 - Culver Boulevard (South) and Sepulveda Boulevard	*Physical*	**2b**		290		Culver City
Int. 11 - Culver Boulevard (South) and Sawtelle Boulevard	*Physical*	**2b**		290		Culver City
Int. 26 - Venice Boulevard and Robertson Boulevard	*Physical*	**2h**	405		[f]	Los Angeles/Caltrans
Int. 28 - Sepulveda Boulevard and Washington Place	*Physical*	**2i**	466		[g]	Culver City
Int. 33 - Sawtelle Boulevard and I-405 Southbound On/Off-Ramps/Matteson Avenue	*Physical*	**2j**	484		[h]	Culver City/Caltrans
Int. 24 - Venice Boulevard and La Cienega Boulevard	*Physical*	**2k**	519			Los Angeles/Caltrans
Int. 42 - Sepulveda Boulevard and Jefferson Boulevard/Playa Street	*Physical*	**2l**	563			Culver City
Int. 25 - Venice Boulevard and National Boulevard	*Physical*	**2m**	590			Los Angeles/Caltrans
Braddock/Overland-Sawtelle Study	*Study*	**2n**	607			Culver City
Int. 48 - Overland Avenue and Braddock Drive	*Physical*	**2o**	607			Culver City
Int. 61 - Robertson Boulevard and I-10 Westbound On-Ramp	*Signal*	**2q**	616			Los Angeles/Caltrans
Int. 18 - Washington Boulevard and Motor Avenue/Sony Motion Pictures Studios Driveway	*Physical*	**2r**	625			Culver City/Los Angeles
Int. 49 - Overland Avenue and Jefferson Boulevard	*Physical*	**2s**	634			Culver City
Int. 15 - Washington Boulevard and Robertson Boulevard/Higuera Street	*Physical*	**2t**		642		Culver City
Int. 36 - Sawtelle Boulevard and Braddock Drive	*Signal*	**2p**	660			Culver City/Los Angeles
Int. 29 - Venice Boulevard and Motor Avenue	*Physical*	**2u**	660			Los Angeles/Caltrans
Int. 17 - Washington Boulevard and Madison Avenue/Clarington Avenue	*Physical*	**2v**		704		Culver City/Los Angeles
Int. 27 - Venice Boulevard and Hughes Avenue	*Physical*	**2w**		713		Los Angeles/Caltrans
Int. 55 - Motor Avenue and National Boulevard	*Physical*	**2x**	722			Los Angeles
Int. 60 - Robertson Boulevard and National Boulevard	*Physical*	**2y**	774			Los Angeles
Int. 31 - Venice Boulevard and Sepulveda Boulevard	*Physical*	**2z**	836			Culver City/Los Angeles/Caltrans
Int. 53 - La Cienega Boulevard and Rodeo Road	*Signal*	**2aa**	836			Los Angeles

Notes:

[a] No mitigation/improvement measures are required for the Scenic Arts Project.

[b] February 2021 counts were taken from *Sony Pictures Studios Annual Trip Generation and Parking Survey Report Year 2021* (Gibson Transportation Consulting, Inc., March 2021).

[c] Baseline counts were taken from *Sony Pictures Studios 1994 Annual Parking Survey and Trip Generation Monitoring Report* (Crain & Associates, 1994).

[d] Scenic Arts trip generation estimates were based on Site Generation Peak Hour Rates for Office and Support uses from *Sony Pictures Studios Comprehensive Plan* (Crain & Associates, March 19, 1992).

[e] Improvement rejected by LADOT; in-lieu payment accepted by LADOT.

[f] Improvement no longer necessary due to alternative impromements completed by Metro.

[g] Improvement rejected by Culver City.

[h] Improvement rejected by Caltrans; in-lieu payment accepted by Culver City.

TABLE 3

SCENICE ARTS PROJECT - INTERSECTION QUEUING ANALYSIS

Intersection	Lane Description	Baseline Conditions		Baseline plus Project Conditions		Change in Queue Length	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
		Queue Length [a]	Queue Length [a]	Queue Length [a]	Queue Length [a]	Queue Length [a]	Queue Length [a]
Overland Avenue & Palm Court Way	SBL	7.1	1.6	7.5	1.7	0.4	0.1
	NBR [b]	9.4	17.4	9.8	17.5	0.4	0.1

Notes

[a] The 95th percentile queue, as calculated based on HCM methodology, are expressed as vehicles/lane within the Synchro worksheets.

[b] The 95th percentile queue for the northbound right-turn movement, as calculated based on HCM methodology, refelcts the shared through/right-turn characteristics of the lane and the associated shared demand.

TABLE 4

SCENIC ARTS PROJECT - OVERLAND GATE DRIVEWAY QUEUING SUMMARY

Baseline plus Project Conditions

Transactions per Minute:	**15**
Start Time:	8:00 AM
Minutes per Period:	15

Begin	End	Volume
8:00 AM	8:15 AM	104
8:15 AM	8:30 AM	135
8:30 AM	8:45 AM	135
8:45 AM	9:00 AM	104
		478

Number of Hours:	1		
Number of Tests:	1,000		

Total Queue (Vehicles)	Occurences	Percentile	**Storage Requirements (ft.)***
0.0	482	48.2%	0
1.0	206	68.8%	20
2.0	139	82.7%	40
3.0	93	92.0%	60
4.0	**42**	**96.2%**	**80**
5.0	18	98.0%	100
6.0	14	99.4%	120
7.0	**6**	**100.0%**	**140**

95th Percentile Queue:	**80**
Maximum Queue:	**140**

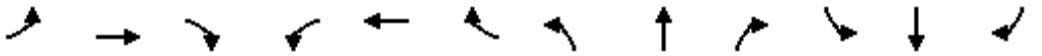
* Assumes an average storage requirement of approximately 20ft/vehicle.

Attachment

Synchro HCM Worksheets

HCM 6th Signalized Intersection Summary
1: Overland Ave & Palm Court Way/Overland Gate

07/23/2021



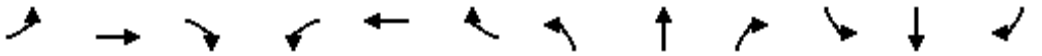
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	1	9	14	0	21	7	755	226	227	877	17
Future Volume (veh/h)	12	1	9	14	0	21	7	755	226	227	877	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	13	1	10	15	0	23	8	821	246	247	953	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	38	3	36	53	0	189	758	1907	571	309	1805	34
Arrive On Green	0.02	0.02	0.02	0.03	0.00	0.03	0.29	0.71	0.71	0.09	0.51	0.51
Sat Flow, veh/h	1660	128	1585	1781	0	1585	1781	2695	807	3456	3568	67
Grp Volume(v), veh/h	14	0	10	15	0	23	8	541	526	247	475	496
Grp Sat Flow(s),veh/h/ln	1787	0	1585	1781	0	1585	1781	1777	1725	1728	1777	1858
Q Serve(g_s), s	0.9	0.0	0.7	1.0	0.0	1.6	0.0	15.4	15.4	8.4	21.6	21.6
Cycle Q Clear(g_c), s	0.9	0.0	0.7	1.0	0.0	1.6	0.0	15.4	15.4	8.4	21.6	21.6
Prop In Lane	0.93		1.00	1.00		1.00	1.00		0.47	1.00		0.04
Lane Grp Cap(c), veh/h	41	0	36	53	0	189	758	1257	1221	309	899	940
V/C Ratio(X)	0.34	0.00	0.27	0.28	0.00	0.12	0.01	0.43	0.43	0.80	0.53	0.53
Avail Cap(c_a), veh/h	270	0	239	269	0	381	758	1257	1221	429	899	940
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.7	0.0	57.6	56.9	0.0	47.2	9.7	7.4	7.4	53.6	20.0	20.0
Incr Delay (d2), s/veh	4.8	0.0	4.0	2.8	0.0	0.3	0.0	1.1	1.1	7.1	2.2	2.1
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(95%),veh/ln	0.9	0.0	0.6	0.9	0.0	1.1	0.2	9.6	9.4	7.1	14.4	14.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.6	0.0	61.6	59.8	0.0	47.5	9.7	8.5	8.5	60.7	22.2	22.1
LnGrp LOS	E	A	E	E	A	D	A	A	A	E	C	C
Approach Vol, veh/h		24			38			1075			1218	
Approach Delay, s/veh		62.2			52.3			8.5			30.0	
Approach LOS		E			D			A			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.2	89.4		7.3	39.5	65.2		8.1				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	14.9	50.9		18.1	5.1	60.7		18.1				
Max Q Clear Time (g_c+I1), s	10.4	17.4		2.9	2.0	23.6		3.6				
Green Ext Time (p_c), s	0.3	8.8		0.0	0.0	7.6		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			20.9									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
1: Overland Ave & Palm Court Way/Overland Gate

07/23/2021



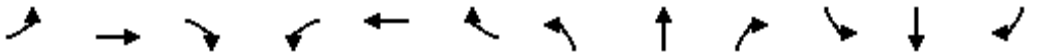
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	1	9	15	0	23	7	755	238	240	877	17
Future Volume (veh/h)	12	1	9	15	0	23	7	755	238	240	877	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	13	1	10	16	0	25	8	821	259	261	953	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	38	3	36	55	0	198	756	1866	588	324	1805	34
Arrive On Green	0.02	0.02	0.02	0.03	0.00	0.03	0.29	0.70	0.70	0.09	0.51	0.51
Sat Flow, veh/h	1660	128	1585	1781	0	1585	1781	2658	838	3456	3568	67
Grp Volume(v), veh/h	14	0	10	16	0	25	8	549	531	261	475	496
Grp Sat Flow(s),veh/h/ln	1787	0	1585	1781	0	1585	1781	1777	1720	1728	1777	1858
Q Serve(g_s), s	0.9	0.0	0.7	1.1	0.0	1.7	0.0	16.0	16.0	8.9	21.6	21.6
Cycle Q Clear(g_c), s	0.9	0.0	0.7	1.1	0.0	1.7	0.0	16.0	16.0	8.9	21.6	21.6
Prop In Lane	0.93		1.00	1.00		1.00	1.00		0.49	1.00		0.04
Lane Grp Cap(c), veh/h	41	0	36	55	0	198	756	1248	1207	324	899	940
V/C Ratio(X)	0.34	0.00	0.27	0.29	0.00	0.13	0.01	0.44	0.44	0.80	0.53	0.53
Avail Cap(c_a), veh/h	270	0	239	269	0	388	756	1248	1207	452	899	940
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.7	0.0	57.6	56.8	0.0	46.7	9.8	7.7	7.7	53.3	20.0	20.0
Incr Delay (d2), s/veh	4.8	0.0	4.0	2.8	0.0	0.3	0.0	1.1	1.2	7.1	2.2	2.1
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(95%),veh/ln	0.9	0.0	0.6	0.9	0.0	1.2	0.2	10.0	9.8	7.5	14.4	14.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.6	0.0	61.6	59.7	0.0	47.0	9.8	8.8	8.9	60.4	22.2	22.1
LnGrp LOS	E	A	E	E	A	D	A	A	A	E	C	C
Approach Vol, veh/h		24			41			1088			1232	
Approach Delay, s/veh		62.2			51.9			8.9			30.3	
Approach LOS		E			D			A			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.8	88.8		7.3	39.3	65.2		8.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	15.7	50.1		18.1	5.1	60.7		18.1				
Max Q Clear Time (g_c+I1), s	10.9	18.0		2.9	2.0	23.6		3.7				
Green Ext Time (p_c), s	0.4	8.9		0.0	0.0	7.6		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			21.2									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
1: Overland Ave & Palm Court Way/Overland Gate

07/23/2021



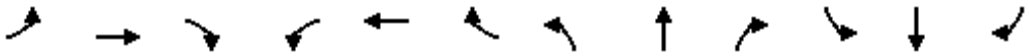
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	1	10	150	0	305	8	1277	36	53	1262	13
Future Volume (veh/h)	11	1	10	150	0	305	8	1277	36	53	1262	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	12	1	11	163	0	332	9	1388	39	58	1372	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	38	3	36	272	0	298	434	2256	63	123	1820	19
Arrive On Green	0.02	0.02	0.02	0.15	0.00	0.15	0.17	0.64	0.64	0.04	0.50	0.50
Sat Flow, veh/h	1650	138	1585	1781	0	1585	1781	3530	99	3456	3604	37
Grp Volume(v), veh/h	13	0	11	163	0	332	9	698	729	58	676	710
Grp Sat Flow(s),veh/h/ln	1788	0	1585	1781	0	1585	1781	1777	1853	1728	1777	1864
Q Serve(g_s), s	0.9	0.0	0.8	10.2	0.0	18.3	0.0	28.0	28.1	2.0	36.5	36.5
Cycle Q Clear(g_c), s	0.9	0.0	0.8	10.2	0.0	18.3	0.0	28.0	28.1	2.0	36.5	36.5
Prop In Lane	0.92		1.00	1.00		1.00	1.00		0.05	1.00		0.02
Lane Grp Cap(c), veh/h	41	0	36	272	0	298	434	1135	1184	123	897	941
V/C Ratio(X)	0.32	0.00	0.30	0.60	0.00	1.11	0.02	0.61	0.62	0.47	0.75	0.75
Avail Cap(c_a), veh/h	268	0	238	272	0	298	434	1135	1184	331	897	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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.7	0.0	57.7	47.4	0.0	48.7	25.7	12.9	12.9	56.8	23.7	23.7
Incr Delay (d2), s/veh	4.3	0.0	4.6	3.6	0.0	86.1	0.0	2.5	2.4	2.8	5.8	5.6
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(95%),veh/ln	0.8	0.0	0.7	8.4	0.0	23.7	0.3	16.8	17.4	1.6	22.9	23.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.0	0.0	62.2	51.1	0.0	134.8	25.7	15.4	15.3	59.5	29.6	29.3
LnGrp LOS	E	A	E	D	A	F	C	B	B	E	C	C
Approach Vol, veh/h		24			495			1436			1444	
Approach Delay, s/veh		62.1			107.2			15.4			30.7	
Approach LOS		E			F			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	81.2		7.3	24.8	65.1		22.8				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	11.5	54.2		18.0	5.1	60.6		18.3				
Max Q Clear Time (g_c+I1), s	4.0	30.1		2.9	2.0	38.5		20.3				
Green Ext Time (p_c), s	0.1	11.5		0.0	0.0	10.6		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			35.6									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary
1: Overland Ave & Palm Court Way/Overland Gate

07/23/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	1	10	157	0	318	8	1277	38	55	1262	13
Future Volume (veh/h)	11	1	10	157	0	318	8	1277	38	55	1262	13
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	12	1	11	171	0	346	9	1388	41	60	1372	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	38	3	36	272	0	299	434	2250	66	125	1820	19
Arrive On Green	0.02	0.02	0.02	0.15	0.00	0.15	0.17	0.64	0.64	0.04	0.50	0.50
Sat Flow, veh/h	1650	138	1585	1781	0	1585	1781	3524	104	3456	3604	37
Grp Volume(v), veh/h	13	0	11	171	0	346	9	699	730	60	676	710
Grp Sat Flow(s),veh/h/ln	1788	0	1585	1781	0	1585	1781	1777	1852	1728	1777	1864
Q Serve(g_s), s	0.9	0.0	0.8	10.8	0.0	18.3	0.0	28.1	28.2	2.0	36.5	36.5
Cycle Q Clear(g_c), s	0.9	0.0	0.8	10.8	0.0	18.3	0.0	28.1	28.2	2.0	36.5	36.5
Prop In Lane	0.92		1.00	1.00		1.00	1.00		0.06	1.00		0.02
Lane Grp Cap(c), veh/h	41	0	36	272	0	299	434	1135	1182	125	897	941
V/C Ratio(X)	0.32	0.00	0.30	0.63	0.00	1.16	0.02	0.62	0.62	0.48	0.75	0.75
Avail Cap(c_a), veh/h	268	0	238	272	0	299	434	1135	1182	334	897	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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.7	0.0	57.7	47.7	0.0	48.7	25.7	12.9	12.9	56.7	23.7	23.7
Incr Delay (d2), s/veh	4.3	0.0	4.6	4.6	0.0	101.9	0.0	2.5	2.4	2.9	5.8	5.6
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(95%),veh/ln	0.8	0.0	0.7	8.9	0.0	25.9	0.3	16.9	17.5	1.7	22.9	23.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.0	0.0	62.2	52.3	0.0	150.5	25.7	15.4	15.4	59.6	29.6	29.3
LnGrp LOS	E	A	E	D	A	F	C	B	B	E	C	C
Approach Vol, veh/h		24			517			1438			1446	
Approach Delay, s/veh		62.1			118.0			15.5			30.7	
Approach LOS		E			F			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	81.1		7.3	24.8	65.1		22.8				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	11.6	54.1		18.0	5.1	60.6		18.3				
Max Q Clear Time (g_c+I1), s	4.0	30.2		2.9	2.0	38.5		20.3				
Green Ext Time (p_c), s	0.1	11.5		0.0	0.0	10.6		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			37.7									
HCM 6th LOS			D									