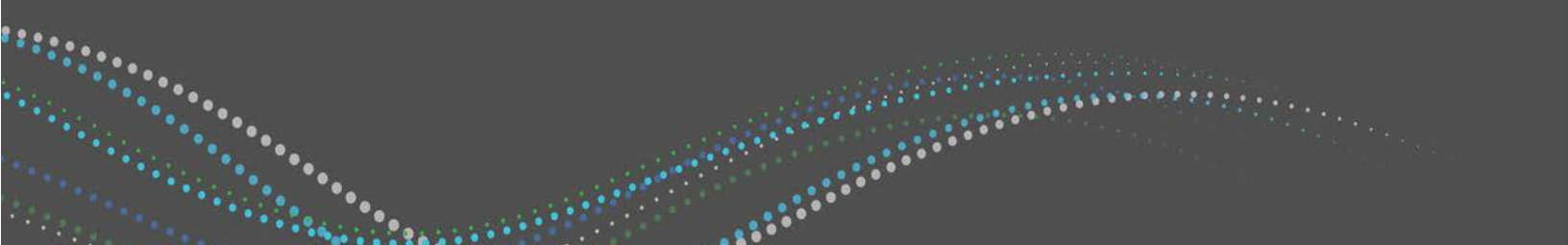


**Appendix G:
Traffic Impact Analysis**



City of Anaheim
Radisson Hotel Traffic Impact Study Amendment
1601 S. Anaheim Boulevard Development (DEV2017-0035)



March 8, 2018

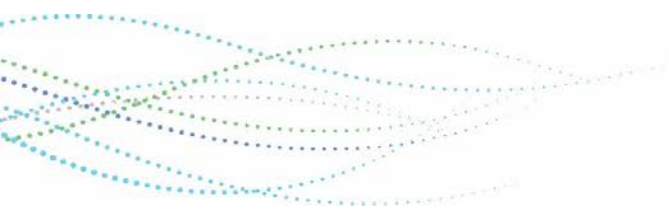
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APPENDICES

Appendix A – Radisson Hotel Traffic Impact Study (Dated December 6, 2017)
Appendix B – Caltrans Comments
Appendix C – ICU Analysis Worksheets
Appendix D – HCM Analysis Worksheets





1 INTRODUCTION

This report presents an amendment to the completed traffic impact study (TIS) for the proposed Radisson Hotel ('Project') at 1601 S. Anaheim Boulevard in the City of Anaheim. The completed TIS is included in **Appendix A**. This report and methodology follows the *Criteria for Preparation of Traffic Impact Studies* provided by the City of Anaheim.

The purpose of this amendment is to include the following project assumptions:

- Updated site circulation plan
- The rooftop restaurant will only be available to hotel guests
- A final count of 326 rooms
- Incorporation of future Class II bike lane in study area and other pedestrian improvements
- Discussion of future plans to change configuration of the northbound I-5 on-ramp, per Caltrans comments

1.1 Updated Project Description

The proposed project is located on the west side of Anaheim Boulevard and north of the northbound on-ramp to Interstate 5 (I-5). The proposed development is planned as a 4-star high-rise resort hotel with first-class amenities including restaurants, a spa, an outdoor pool, and a rooftop bar and lounge. The full project description is included in **Table 1-1**.

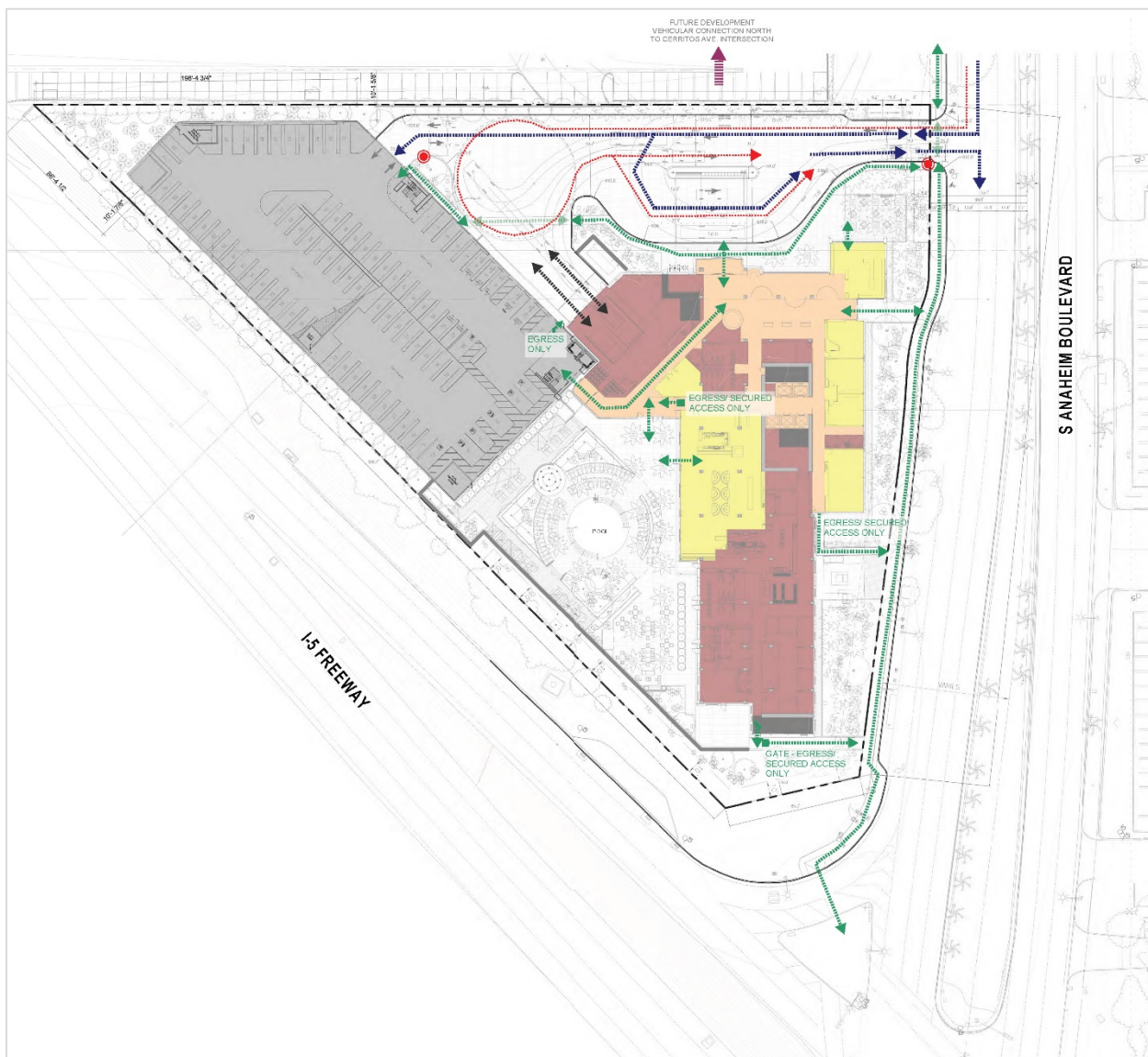
Table 1-1: Project Description

Use	Quantity	Description
Hotel Rooms		
Rooms	326	Assumed number of hotel rooms.
Hotel Accessory Uses		
Level 1/Level 14	12,000 SF	Restaurant and bar. Note: Top floor restaurant open to hotel guests only.
Level 1/Level 14	1,204 SF	Retail.
Level 1	888 SF	Meeting rooms.
Level 1	20,000 SF	Pool deck, outdoor pools and Jacuzzi, and fitness room.
Level 14	5,000 SF	Pool deck and outdoor pools.
Parking		
Parking Garage	30,800 SF	285'x127' footprint, comprised of approximately 341 stalls.
Loading Dock	1 bay	Loading dock.
Drop Off	N/A	There is anticipated to be a generous drop off and loading area to allow for visitors.
Disney Shuttles	N/A	It is anticipated that Disney Shuttles will stop on Anaheim Boulevard.
Turn-Around	N/A	A large turnaround will be developed at the west end of the newly developed roadway to accommodate delivery vehicles, fire services, buses, shuttles, and vehicular traffic.

Access to the site would be provided by a proposed right-in/right-out driveway along Anaheim Boulevard. **Figure 1-1** shows the proposed site plan and vehicular circulation. The site circulation has been slightly modified for this Update with improvements to internal circulation as well as updates to pedestrian circulation and access points to Anaheim Boulevard.



Figure 1-1: Project Site and Circulation Plan



Source: GBD Architects, Incorporated





1.2 Study Area

In conjunction with City of Anaheim staff, the following 12 intersections and 11 roadway segments were identified and analyzed. All study intersections were evaluated for the a.m. and p.m. peak hour weekday conditions. There were no modifications to study locations for the Traffic Impact Study Update. The study locations are illustrated in **Figure 1-2** and listed as follows:

Intersections

1. Harbor Boulevard and Ball Road
2. Harbor Boulevard and Katella Avenue
3. Clementine Street and Katella Avenue
4. I-5 Southbound Off-ramp and Disney Way
5. Anaheim Boulevard and Ball Road
6. Anaheim Boulevard and Cerritos Avenue
7. Anaheim Boulevard and Hotel Driveway
8. Anaheim Boulevard and I-5 Northbound On-ramp / Anaheim way
9. Anaheim Boulevard and Disney Way
10. Anaheim Boulevard / Haster Street and Katella Avenue
11. I-5 Southbound Loop Off-ramp / Manchester Avenue and Katella Avenue
12. I-5 Northbound Off-ramp / Anaheim Way and Katella Avenue

Roadway segments

1. Ball Road between Harbor Boulevard and Anaheim Boulevard
2. Disney Way between I-5 Southbound Off-ramp and Anaheim Boulevard
3. Katella Avenue between Harbor Boulevard and Clementine Street
4. Katella Avenue between Clementine Street and Haster Street/Anaheim Boulevard
5. Katella Avenue between Haster Street/Anaheim Boulevard and I-5 Southbound Loop Off-ramp
6. Anaheim Boulevard between Ball Road and Cerritos Avenue
7. Anaheim Boulevard between Cerritos Avenue and Anaheim Way
8. Anaheim Boulevard between Anaheim Way and Manchester Avenue
9. Anaheim Boulevard between Manchester Avenue and Katella Avenue
10. Anaheim Way between Anaheim Boulevard and Disney Way Westbound Ramp
11. Anaheim Way between Disney Way Westbound Ramp and Katella Avenue

1.3 Study Periods

Traffic operations are evaluated for each of the following scenarios during the weekday a.m. peak hour and p.m. peak hour:

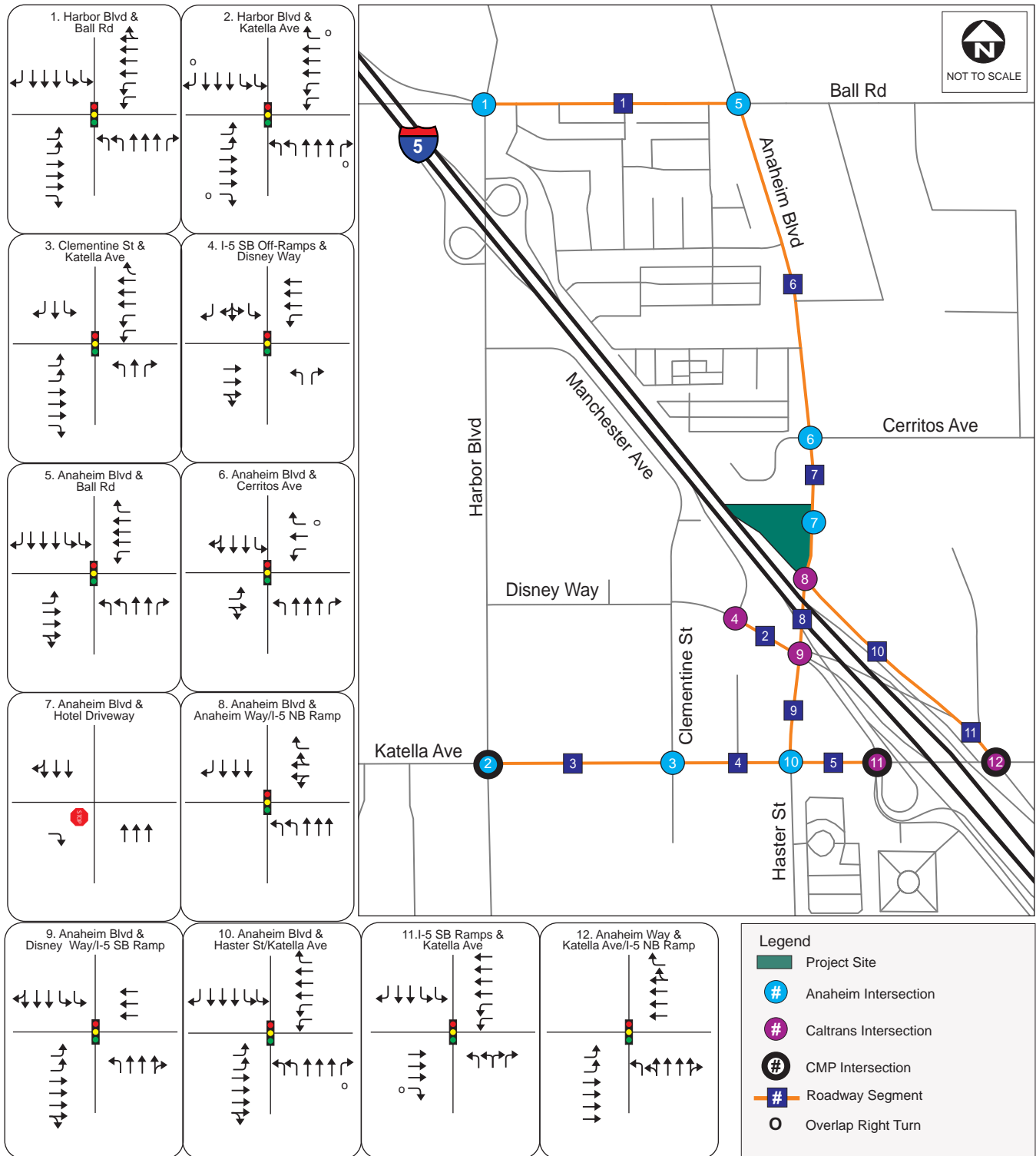
- Existing Conditions;
- Existing Plus Project Conditions;
- Opening Year 2019 Conditions;
- Opening Year 2019 Plus Project Conditions;
- General Plan Build Out Year 2035 Conditions; and
- General Plan Build Out Year 2035 Plus Project Conditions.



City of Anaheim Radisson Hotel Traffic Impact Study Amendment

FINAL

Figure 1-2: Study Area





2 CALTRANS REVIEW COMMENTS

Caltrans provided a thorough review of the Completed Traffic Impact Study, and all comments were incorporated at the time. Two additional comments related to traffic impacts are included for discussion in this Update. Full documentation of Caltrans comments on the issue of the adjacent Class II bicycle facility adjacent to the future configuration of the I-5 Northbound On-ramp are included in Appendix B.

2.1 Class II Bike Lane

Per recommendation of Caltrans Traffic Operations and Design groups, the bicycle facility running along Anaheim Boulevard, adjacent to the Radisson Hotel, should be classified as a Class II bicycle facility. This recommendation was based on design feasibility and considerations to maintain consistency with the City of Anaheim Bicycle Master Plan.

With regards to the Radisson Hotel development non-motorized travelers, the Class II bicycle lanes will be designed as on-road facilities, with recommended painted bicycle lanes. The Class II bicycle lane adjacent to the Radisson Hotel will be immediately adjacent to the sidewalk until the start of the exclusive right-turn lane from southbound Anaheim Boulevard to northbound I-5. The bicycle facility will continue southbound between the free right-turn lane and the right-most through lane. The chevrons surrounding the refuge provides sufficient room for the bicycle lane to travel through the intersection. **Figure 2-1** shows recommendations for the Class II bicycle facility adjacent to the Radisson Hotel along Anaheim Boulevard.

Figure 2-1: Bicycle Facility Recommendations



- = ADA truncated domes
- *Add LED lighting to all lights





2.2 Future Configuration of I-5 Northbound On-Ramp

The City of Anaheim posed a question to Caltrans regarding potential improvements to the southbound Anaheim Boulevard to northbound I-5 on-ramp. Caltrans response stated that “there are no foreseeable improvements or expansion of Caltrans facilities in proximity to the project at this time”.



3 TRAFFIC OPERATIONS ANALYSIS METHODOLOGY

Traffic operations analyses were conducted for the study intersections using methodologies consistent with the *Criteria for Preparation of Traffic Impact Studies* provided by the City of Anaheim Transportation Section of the Department of Public Works. There were no modifications to the methodologies used in the traffic impact study for this Update. See **Appendix A** for detailed methodologies.



4 EXISTING CONDITIONS

The existing conditions of the transportation system within the study area remain identical to conditions as reported in the completed Traffic Impact Study, included in **Appendix A**.



5 TRIP GENERATION AND DISTRIBUTION

Trip generation and trip distribution were developed for the proposed hotel and the cumulative projects to be included in the Opening Year analysis.

5.1 Trip Generation

The empirical resort hotel trip generation rates developed for the City of Anaheim Resort Area Hotels (developed by Iteris for the Anaheim Plaza Hotel TIA dated 3/29/2016) were used to establish project-generated traffic. These rates are shown in **Table 5-1**.

Table 5-1: Resort Hotel Weekday Trip Generation Rates

Land Use	Unit	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Anaheim Resort Hotel	Rooms	0.15	0.13	0.28	0.13	0.11	0.24	3.54

Table 5-2 summarizes the trip generation for the proposed Radisson Hotel. As shown, the proposed hotel is forecast to generate 91 new a.m. peak hour trips, 78 new p.m. peak hour trips, and 1,155 new weekday daily trips.

Table 5-2: Proposed Project Trip Generation

Land Use	Quantity	Unit ¹	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Proposed Hotel ²	326	Rooms	49	42	91	42	36	78	1,155
Project Trips			49	42	91	42	36	78	1,155

Note:

¹ Rooms = number of hotel rooms.

² Anaheim Resort Area Hotel Trip Rates were developed using empirical data collected in 2015.

The City of Anaheim has an allowance for 20 percent of the square footage of hotel rooms to be used for meeting and retail space. Any additional square footage of space requires the addition of ancillary trips to the site. **Table 3-3** summarizes the proposed hotel square footage of rooms and retail space. As consistent with the General Plan, it is estimated that each hotel room averages 450 square feet. Using that assumption, the proposed hotel results in a total room square footage of $450 \times 326 = 146,700$ square feet. Assuming 20 percent of that is allowable for meeting and retail space, results in 29,340 square feet of meeting and retail space being allowed under the trip generation rates for the empirical Anaheim Resort Hotel trip generation rate. As shown in the table below, the proposed hotel's square footage of retail space does not exceed the 20 percent allotment for resort hotel trip generation, additional trips do not need to be added to the resulting trip determination.



Table 5-3: Proposed Hotel Square Footage

Number of Rooms	Total Room Square Footage (450 Sq. Ft. Per Room)	Available Square Footage for Ancillary Uses (20%)	Proposed Hotel Square Footage of Ancillary Uses (Meeting and Retail)
326	146,700	29,340	2,100

ITE Trip generation rates were adopted for those cumulative project hotels with the absence of a traffic impact analysis. A summary of ITE trip generation rates for weekdays are summarized in **Table 5-4**.

Table 5-4: ITE Weekday Trip Generation Rates

Land Use	Rooms	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Resort Hotel ¹ (330)	Rooms	0.22	0.09	0.31	0.18	0.24	0.42	8.17
Hotel (310)	Rooms	0.31	0.22	0.53	0.31	0.29	0.60	8.17

¹ ITE Land Use 330 (Resort Hotel) does not contain data for weekday daily trips; therefore, ITE Land Use 310 (Hotel) rates were utilized.

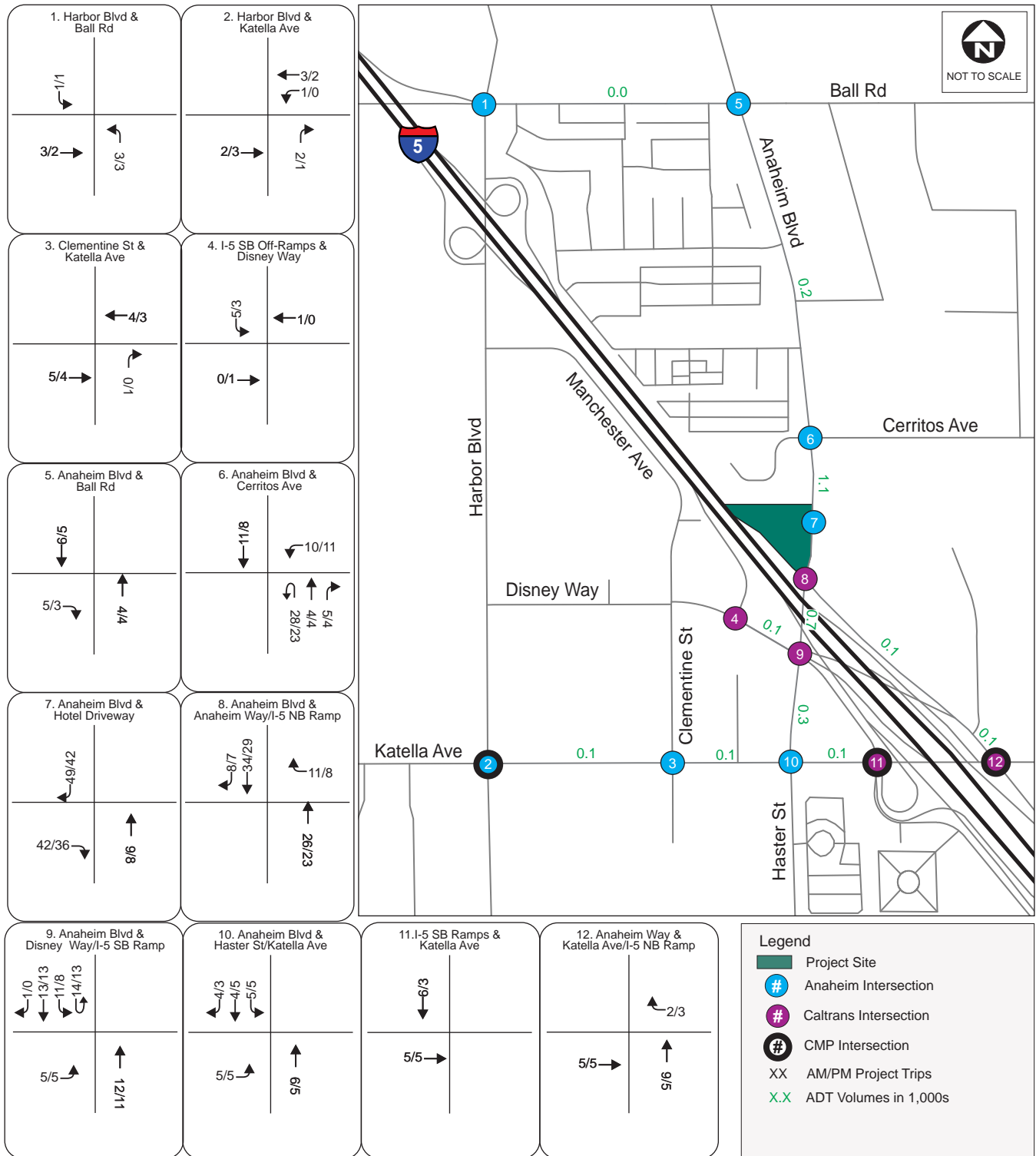
5.2 Trip Distribution

Peak hour and daily trip distribution percentages for the proposed Project were developed based on general area traffic patterns and trip distribution patterns from similar venues within the study area, and are identical to trip distribution percentages presented in the Completed Traffic Impact Study included in **Appendix A**. The net weekday peak hour project trip assignments are shown in **Figure 5-1**.





Figure 5-1: Net Project Peak Hour Trip Assignment Volumes and Segment ADTs





6 EXISTING PLUS PROJECT CONDITIONS

Trips generated by the project were assigned to the surrounding roadway system based on the distribution patterns to forecast the project related peak-hour traffic at each of the study intersections. **Figure 6-1** illustrates the weekday existing plus project peak hour volumes.

6.1 Intersection Analysis

LOS analyses were conducted to evaluate existing plus project intersection operations during the weekday a.m. and p.m. peak hours. These results were compared to existing conditions without the project in order to assess any significant traffic impacts of the project. Detailed ICU and HCM worksheets are included in **Appendices C and D**, respectively.

6.1.1 ICU LOS

Table 6-1 summarizes the traffic conditions at the study intersections and the driveway under the existing plus project conditions. As shown, the proposed project is not forecasted to result in any significant impacts to the analyzed study intersections under existing plus project conditions.

Table 6-1: Existing Plus Project Intersection ICU LOS

#	Intersection Location	Existing				Existing Plus Project				Δ In V/C		Sig. Impact (Yes/No)
		AM		PM		AM		PM		AM	PM	
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS			
1	Harbor Boulevard / Ball Road	0.60	A	0.66	B	0.60	A	0.66	B	0.00	0.00	No
2	Harbor Boulevard / Katella Avenue ¹	0.48	A	0.56	A	0.48	A	0.56	A	0.00	0.00	No
3	Clementine Street / Katella Avenue	0.47	A	0.58	A	0.47	A	0.58	A	0.00	0.00	No
4	I-5 Southbound Off-ramp / Disney Way	0.29	A	0.30	A	0.30	A	0.30	A	0.01	0.00	No
5	Anaheim Boulevard / Ball Road	0.57	A	0.72	C	0.57	A	0.72	C	0.00	0.00	No
6	Anaheim Boulevard / Cerritos Avenue	0.44	A	0.74	C	0.46	A	0.75	C	0.02	0.01	No
7	Anaheim Boulevard / Hotel Driveway ²	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim Way	0.50	A	0.83	D	0.51	A	0.83	D	0.01	0.00	No
9	Anaheim Boulevard / Disney Way	0.46	A	0.51	A	0.47	A	0.52	A	0.01	0.01	No
10	Anaheim Boulevard / Haster Street / Katella Avenue	0.40	A	0.55	A	0.41	A	0.55	A	0.01	0.00	No
11	I-5 Southbound Off-ramp / Manchester Avenue / Katella Avenue ¹	0.48	A	0.46	A	0.48	A	0.46	A	0.00	0.00	No
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue ¹	0.39	A	0.63	B	0.39	A	0.63	B	0.00	0.00	No

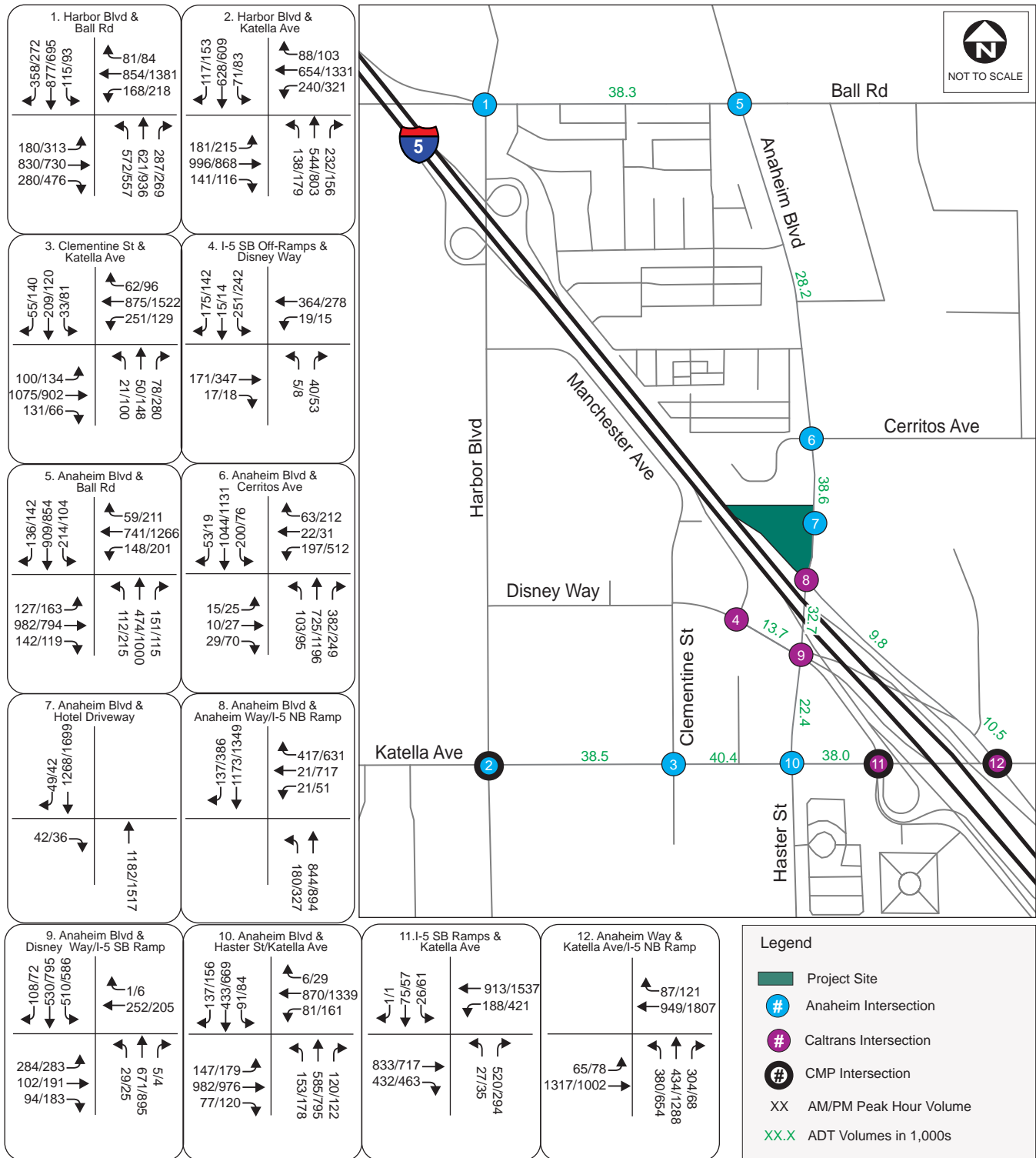
Notes:

¹ Congestion Management Program (CMP) intersection.

² The project driveway is an unsignalized intersection and only analyzed using HCM methodologies.



Figure 6-1: Existing Plus Project Peak Hour Intersection Volumes and Segment ADTs





6.1.2 HCM LOS

All Caltrans intersections and project driveway were evaluated using HCM 2010 methodologies. **Table 6-2** summarizes the existing plus project LOS conditions. As shown in **Table 6-2**, the study intersections are projected operate at LOS D or better, except for the intersection of Anaheim Boulevard/I-5 Northbound On-ramp/Anaheim Way which is projected to operate at LOS F during the AM peak hour in existing plus project traffic conditions. The LOS deficiency is due to insufficient green time assigned to southbound through traffic under existing signal timing at this location.

Table 6-2: Existing Plus Project Intersection HCM LOS

#	Intersection Location	Traffic Control ¹	Existing				Existing Plus Project				Deficient LOS (Yes/No)
			AM		PM		AM		PM		
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
4	I-5 Southbound Off-ramp / Disney Way	Signalized	16.9	B	14.6	B	17.1	B	14.6	B	No
7	Anaheim Boulevard / Hotel Driveway ¹	Unsignalized	N/A	N/A	N/A	N/A	17.4	C	22.9	C	No
8	Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim Way	Signalized	111.8	F	45.5	D	119.9	F	48.0	D	Yes
9	Anaheim Boulevard / Disney Way	Signalized	41.3	D	38.8	D	45.0	D	41.2	D	No
11	I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue	Signalized	35.0	C	15.5	B	35.0	C	15.5	B	No
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue	Signalized	14.4	B	21.8	C	14.4	B	21.8	C	No

Note:

¹ The project driveway does not exist under no project conditions. For unsignalized intersections, delay and LOS of worst movement is reported.

6.1.3 Queuing Analysis

All Caltrans off-ramp approaches were evaluated using HCM methodologies. **Table 6-3** summarizes the existing plus project queuing analysis results. Detailed HCM queuing worksheets are included in **Appendix D**. As shown, all Caltrans off-ramp approaches are projected to have adequate storage to accommodate existing plus project traffic conditions.

Table 6-3: Existing Plus Project Queuing Analysis

#	Intersection Location	Movement	Available Storage (ft.)	Existing Plus Project		Adequate Storage (Yes/No)
				95th Percentile Queue (ft.)		
				AM	PM	
4	I-5 Southbound Off-ramp / Disney Way	SBL	480	126	108	Yes
		SBT	905	121	108	Yes
		SBR	350	38	29	Yes
11	I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue	NBL	2,485	38	45	Yes
		NBLR	2,485	83	57	Yes
		NBR	705	75	51	Yes
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue	NBL	1,060	214	391	Yes
		NBT	1,800	154	291	Yes



6.2 Roadway Segment Analysis

Roadway segment LOS analysis was completed for the ADT for existing plus project conditions. **Table 6-4** summarizes the roadway segment ADT volume, segment configuration, segment capacity, volume-to-capacity (V/C) ratio, and daily LOS. As shown, all roadway segments are anticipated to operate at LOS C or better, and no significant impacts were identified.

Table 6-4: Existing Plus Project Roadway Segment ADT LOS

	Roadway Segment	Mid-Block Lanes	Total Capacity	Existing			Existing Plus Project				Δ in V/C
				ADT	V/C	LOS	ADT	V/C	LOS	Deficient (Yes/No)	
1	Ball Road between Harbor Boulevard and Anaheim Boulevard	6D	56,300	38,300	0.680	B	38,300	0.680	B	No	0.000
2	Disney Way between I-5 SB Off-ramp and Anaheim Boulevard	6D	56,300	13,600	0.242	A	13,700	0.243	A	No	0.001
3	Katella Avenue between Harbor Boulevard and Clementine Street ¹	6D	56,300	38,400	0.682	B	38,500	0.684	B	No	0.002
4	Katella Avenue between Clementine Street and Haster Street/Anaheim Boulevard ¹	6D	56,300	40,300	0.716	C	40,400	0.718	C	No	0.002
5	Katella Avenue between Haste Street/Anaheim Boulevard and I-5 SB Loop Off-ramp ¹	6D	56,300	37,900	0.673	B	38,000	0.675	B	No	0.002
6	Anaheim Boulevard between Ball Road and Cerritos Avenue	6D	56,300	28,000	0.497	A	28,200	0.501	A	No	0.004
7	Anaheim Boulevard between Cerritos Avenue and Anaheim Way	6D	56,300	37,500	0.666	B	38,600	0.686	B	No	0.020
8	Anaheim Boulevard between Anaheim Way and Manchester Avenue	6D	56,300	32,000	0.568	A	32,700	0.581	A	No	0.013
9	Anaheim boulevard between Manchester Avenue and Katella Avenue	6D	56,300	22,100	0.393	A	22,400	0.398	A	No	0.005
10	Anaheim Way between Anaheim Boulevard and Disney Way Westbound Ramp	3D	28,200	9,700	0.344	A	9,800	0.348	A	No	0.004
11	Anaheim Way between Disney Way Westbound Ramp and Katella Avenue	3D	28,200	10,500	0.372	A	10,600	0.376	A	No	0.004

Notes:

¹ Congestion Management Program (CMP) arterial.





7 OPENING YEAR 2019 CONDITIONS

The project opening year is 2019. The opening year conditions are based on assumptions documented in the Completed Traffic Impact Study included in **Appendix A**.





8 OPENING YEAR 2019 PLUS PROJECT CONDITIONS

Trips generated by the project were assigned to the surrounding roadway system based on methodologies discussed in *Section 4* of this report. Project trips were then added to the Opening Year baseline volumes to represent the Opening Year 2019 Plus Project conditions. **Figure 8-1** illustrates the opening year plus project volumes.

8.1 Intersection Level-of-Service

LOS analyses were conducted to evaluate opening year plus project intersection operations during the weekday a.m. and p.m. peak hours. All signalized intersections were analyzed using ICU methodology, and additional HCM analyses were completed at the Caltrans freeway ramp terminals and the project driveway. Opening year “plus project” traffic operations were compared to opening year conditions without the project in order to assess any significant traffic impacts as a result of the project. Detailed ICU and HCM worksheets are included in **Appendices C and D**, respectively.

8.1.1 ICU LOS

Table 8-1 summarizes the opening year plus project LOS using the ICU methodology. Detailed ICU calculation worksheets are included in **Appendix C**. As shown in the table below, the analyzed intersections are forecast to operate at LOS D or better, and the traffic generated by the proposed project is not expected to exceed the threshold of significance.

Table 8-1: Opening Year 2019 Plus Project Intersection ICU LOS

#	Intersection Location	Opening Year (2019)				Opening Year (2019) Plus Project				Δ In V/C		Sig. Impact (Yes/No)
		AM		PM		AM		PM		AM	PM	
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS			
1	Harbor Boulevard / Ball Road	0.62	B	0.67	B	0.62	B	0.67	B	0.00	0.00	No
2	Harbor Boulevard / Katella Avenue ¹	0.51	A	0.59	A	0.51	A	0.59	A	0.00	0.00	No
3	Clementine Street / Katella Avenue	0.49	A	0.64	B	0.49	A	0.64	B	0.00	0.00	No
4	I-5 Southbound Off-ramp / Disney Way	0.33	A	0.33	A	0.33	A	0.34	A	0.00	0.01	No
5	Anaheim Boulevard / Ball Road	0.58	A	0.73	C	0.58	A	0.73	C	0.00	0.00	No
6	Anaheim Boulevard / Cerritos Avenue	0.45	A	0.76	C	0.48	A	0.77	C	0.03	0.01	No
7	Anaheim Boulevard / Hotel Driveway ²	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim Way	0.51	A	0.86	D	0.52	A	0.87	D	0.01	0.01	No
9	Anaheim Boulevard / Disney Way	0.47	A	0.53	A	0.48	A	0.54	A	0.01	0.01	No
10	Anaheim Boulevard / Haster Street / Katella Avenue	0.45	A	0.60	A	0.46	A	0.60	A	0.01	0.00	No
11	I-5 Southbound Off-ramp / Manchester Avenue / Katella Avenue ¹	0.50	A	0.48	A	0.50	A	0.48	A	0.00	0.00	No
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue ¹	0.46	A	0.70	B	0.46	A	0.70	B	0.00	0.00	No

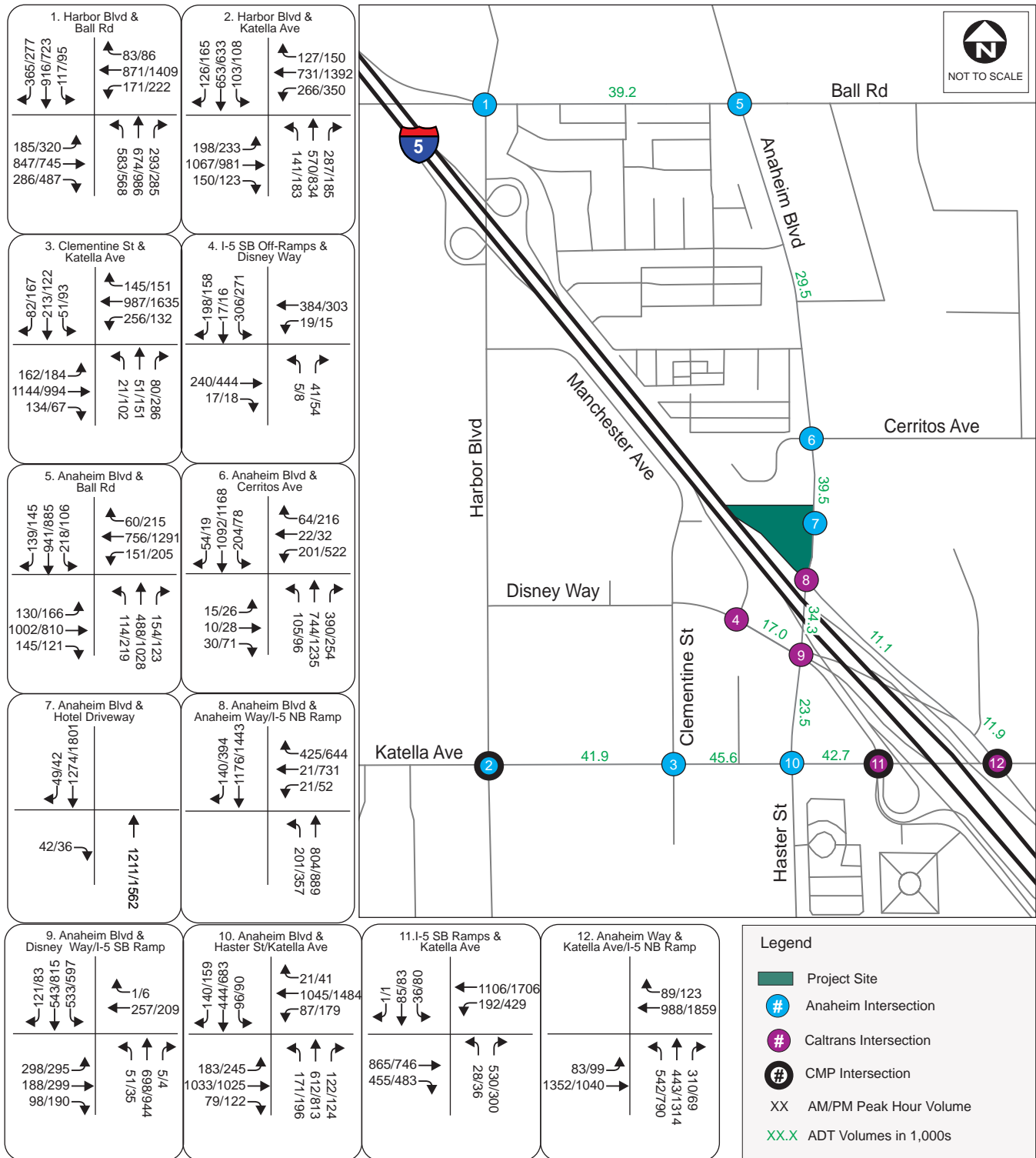
Notes:

¹ Congestion Management Program (CMP) intersection.

² The project driveway is an unsignalized intersection and only analyzed using HCM methodologies.



Figure 8-1: Opening Year 2019 Plus Project Intersection Peak Hour Volumes and Segment ADTs





8.1.2 HCM LOS

All Caltrans intersections and project driveway were evaluated using HCM methodologies. **Table 8-2** summarizes the opening year LOS conditions. As shown in the table, all study intersections are projected to operate at LOS D or better under Opening Year Plus Project conditions.

Table 8-2: Opening Year 2019 Plus Project Intersection HCM LOS

#	Intersection Location	Traffic Control ¹	Opening Year (2019)				Opening Year (2019) Plus Project				Deficient LOS (Yes/No)
			AM		PM		AM		PM		
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
4	I-5 Southbound Off-ramp / Disney Way	Signalized	20.4	C	15.4	B	20.8	C	15.4	B	No
7	Anaheim Boulevard / Hotel Driveway ¹	Unsignalized	N/A	N/A	N/A	N/A	17.5	C	24.7	C	No
8	Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim Way	Signalized	29.9	C	36.3	D	30.7	C	37.5	D	No
9	Anaheim Boulevard / Disney Way	Signalized	31.5	C	29.8	C	31.9	C	30.1	C	No
11	I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue	Signalized	34.6	C	15.6	B	34.6	C	15.7	B	No
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue	Signalized	15.3	B	23.6	C	15.4	B	23.6	C	No

Note:

¹ The project driveway does not exist under no project conditions. For unsignalized intersections, delay and LOS of worst movement is reported.

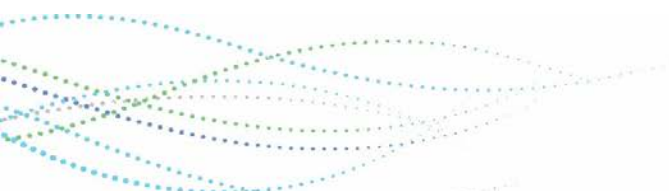
The traffic generated by the proposed project is not expected to exceed the threshold of significance and no Project related significant impact was identified.

8.1.3 Queuing Analysis

All Caltrans off-ramp approaches were evaluated using HCM methodologies. **Table 8-3** summarizes the opening year plus project queuing analysis results. Detailed HCM queuing worksheets are included in **Appendix D**. As shown, all Caltrans off-ramp approaches are projected to have adequate storage to accommodate opening year plus project traffic conditions.

Table 8-3: Opening Year 2019 Plus Project Queuing Analysis

#	Intersection Location	Movement	Available Storage (ft.)	Opening Year (2019) Plus Project		Adequate Storage (Yes/No)
				95th Percentile Queue (ft.)		
				AM	PM	
4	I-5 Southbound Off-ramp / Disney Way	SBL	480	154	123	Yes
		SBT	905	153	126	Yes
		SBR	350	43	34	Yes
11	I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue	NBL	2,485	40	46	Yes
		NBLR	2,485	84	57	Yes
		NBR	705	76	52	Yes
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue	NBL	1,060	243	483	Yes
		NBT	1,800	168	325	Yes





8.2 Roadway Segment Analysis

Roadway segment LOS analysis was completed for the ADT for opening year plus project conditions. **Table 8-4** summarizes the roadway segment ADT volume, segment configuration, segment capacity, volume-to-capacity (V/C) ratio, and daily LOS. As shown, all roadway segments are anticipated to operate at LOS D or better, and no significant impacts were identified.

Table 8-4: Opening Year 2019 Plus Project Roadway Segment ADT LOS

	Roadway Segment	Mid-Block Lanes	Total Capacity	Opening Year (2019)			Opening Year (2019) Plus Project				Δ in V/C
				ADT	V/C	LOS	ADT	V/C	LOS	Deficient (Yes/No)	
1	Ball Road between Harbor Boulevard and Anaheim Boulevard	6D	56,300	39,200	0.696	B	39,200	0.696	B	No	0.000
2	Disney Way between I-5 SB Off-ramp and Anaheim Boulevard	6D	56,300	16,900	0.300	A	17,000	0.302	A	No	0.002
3	Katella Avenue between Harbor Boulevard and Clementine Street ¹	6D	56,300	41,800	0.742	C	41,900	0.744	C	No	0.002
4	Katella Avenue between Clementine Street and Haster Street/Anaheim Boulevard ¹	6D	56,300	45,500	0.808	D	45,600	0.810	D	No	0.002
5	Katella Avenue between Haster Street/Anaheim Boulevard and I-5 SB Loop Off-ramp ¹	6D	56,300	42,600	0.757	C	42,700	0.758	C	No	0.001
6	Anaheim boulevard between Ball Road and Cerritos Avenue	6D	56,300	29,300	0.520	A	29,500	0.524	A	No	0.004
7	Anaheim boulevard between Cerritos Avenue and Anaheim Way	6D	56,300	38,700	0.687	B	39,800	0.707	C	No	0.020
8	Anaheim Boulevard between Anaheim Way and Manchester Avenue	6D	56,300	33,600	0.597	A	34,300	0.609	B	No	0.012
9	Anaheim boulevard between Manchester Avenue and Katella Avenue	6D	56,300	23,200	0.412	A	23,500	0.417	A	No	0.005
10	Anaheim Way between Anaheim Boulevard and Disney Way Westbound Ramp	3D	28,200	11,000	0.390	A	11,100	0.394	A	No	0.004
11	Anaheim Way between Disney Way Westbound Ramp and Katella Avenue	3D	28,200	11,800	0.418	A	11,900	0.422	A	No	0.004

Notes:

¹ Congestion Management Program (CMP) arterial.



9 GENERAL PLAN BUILD OUT YEAR 2035 CONDITIONS

The General Plan Build Out year is 2035. The general plan build out conditions are based on assumptions documented in the Completed Traffic Impact Study included in **Appendix A**.





10 GENERAL PLAN BUILD OUT YEAR 2035 PLUS PROJECT CONDITIONS

Trips generated by the project were assigned to the surrounding roadway system based on methodologies discussed in *Section 4* of this report. Project trips were then added to the Build Out Year baseline volumes to represent the Build Out Year 2035 Plus Project conditions. **Figure 10-1** illustrates the General Plan Build Out year plus project volumes.

10.1 Intersection Analysis

LOS analyses were conducted to evaluate the General Plan Build Out year plus project intersection operations during the weekday a.m. and p.m. peak hours. All signalized intersections were analyzed using ICU methodology, and additional HCM analyses were completed at the Caltrans freeway ramp terminals and the project driveways. Detailed ICU and HCM worksheets are included in **Appendices C and D**, respectively.

10.1.1 ICU LOS

Table 10-1 summarizes the General Plan Build Out year plus project LOS using the ICU methodology. As shown, all of the study intersections operate at LOS D or better for General Plan Build Out with project conditions and no project related significant impact was identified.

Table 10-1: General Plan Build Out Year 2035 Plus Project Intersection ICU LOS

#	Intersection Location	General Plan Build Out Year (2035)				General Plan Build Out Year (2035) Plus Project				Δ In V/C		Sig. Impact (Yes/No)
		AM		PM		AM		PM		AM	PM	
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS			
1	Harbor Boulevard / Ball Road	0.80	C	0.84	D	0.80	C	0.84	D	0.00	0.00	No
2	Harbor Boulevard / Katella Avenue ¹	0.60	A	0.70	B	0.60	A	0.70	B	0.00	0.00	No
3	Clementine Street / Katella Avenue	0.52	A	0.74	C	0.52	A	0.74	C	0.00	0.00	No
4	I-5 Southbound Off-ramp / Disney Way	0.48	A	0.48	A	0.49	A	0.48	A	0.01	0.00	No
5	Anaheim Boulevard / Ball Road	0.69	B	0.77	C	0.69	B	0.77	C	0.00	0.00	No
6	Anaheim Boulevard / Cerritos Avenue	0.62	B	0.80	C	0.62	B	0.80	C	0.00	0.00	No
7	Anaheim Boulevard / Hotel Driveway ²	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim Way	0.57	A	0.82	D	0.58	A	0.82	D	0.01	0.00	No
9	Anaheim Boulevard / Disney Way	0.59	A	0.74	C	0.60	A	0.74	C	0.01	0.00	No
10	Anaheim Boulevard / Haster Street / Katella Avenue	0.53	A	0.70	B	0.53	A	0.70	B	0.00	0.00	No
11	I-5 Southbound Off-ramp / Manchester Avenue / Katella Avenue ¹	0.65	B	0.57	A	0.65	B	0.57	A	0.00	0.00	No
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue ¹	0.76	C	0.81	D	0.76	C	0.81	D	0.00	0.00	No

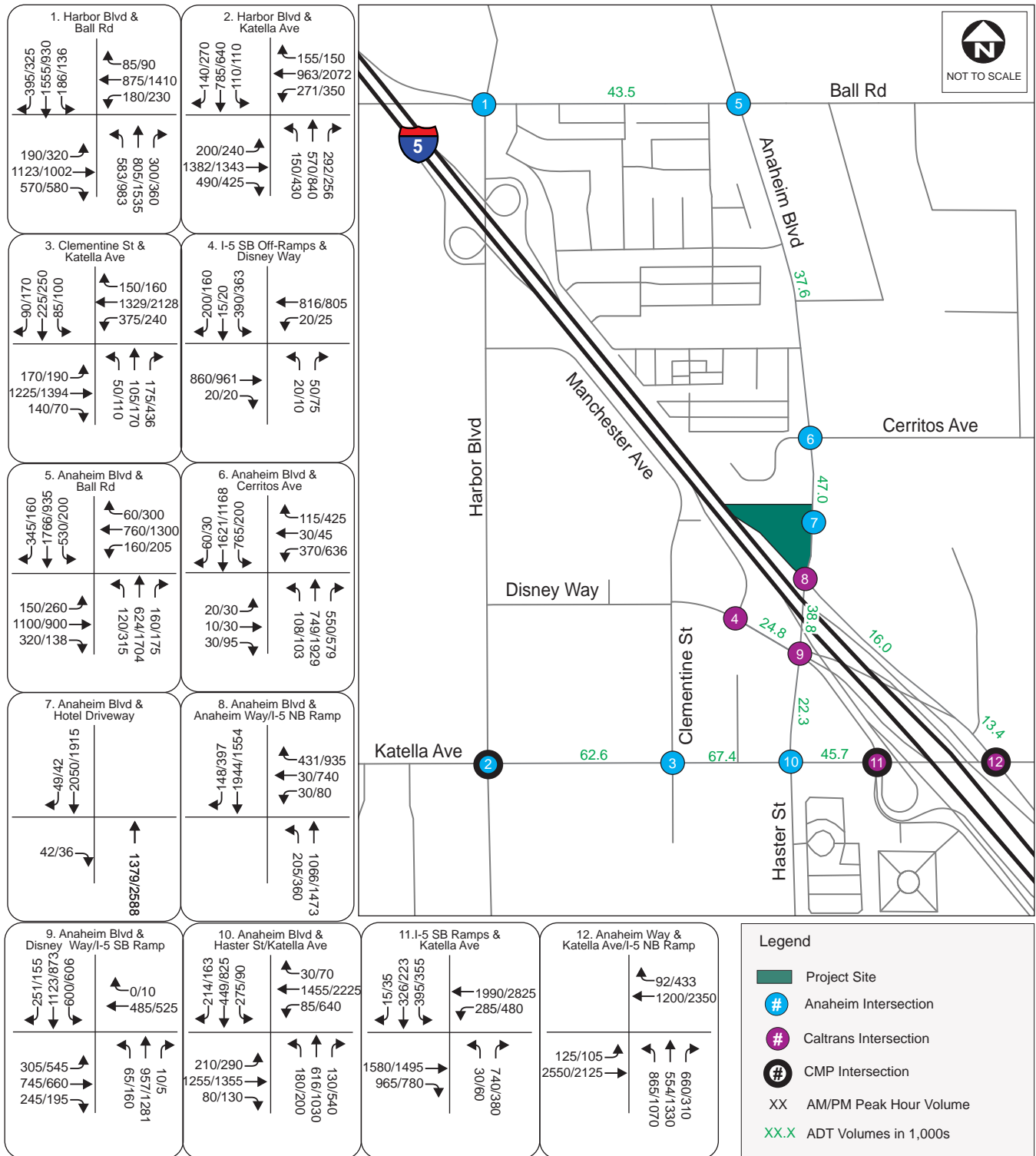
Notes:

¹ Congestion Management Program (CMP) intersection.

² The project driveway is an unsignalized intersection and only analyzed using HCM methodologies.



Figure 10-1: General Plan Build Out Year 2035 Plus Project Intersection Peak Hour Volumes and Segment ADTs





10.1.2 HCM LOS

All Caltrans intersections (freeway ramp terminals) and the project driveway were evaluated using HCM methodologies. **Table 10-2** summarizes the General Plan Build Out year plus project LOS for these intersections.

Table 10-2: General Plan Build Out Year 2035 Plus Project Intersection HCM LOS

#	Intersection Location	Traffic Control ¹	General Plan Build Out Year (2035)				General Plan Build Out Year (2035) Plus Project				Deficient LOS (Yes/No)
			AM		PM		AM		PM		
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
4	I-5 Southbound Off-ramp / Disney Way	Signalized	21.4	C	17.6	B	22.1	C	17.7	B	No
7	Anaheim Boulevard / Hotel Driveway ¹	Unsignalized	N/A	N/A	N/A	N/A	31.6	D	27.0	D	No
8	Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim way	Signalized	33.9	C	75.3	E	36.7	D	76.7	E	Yes
9	Anaheim Boulevard / Disney Way	Signalized	32.4	C	48.4	D	32.9	C	51.7	D	No
11	I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue	Signalized	64.0	E	47.6	D	64.4	E	48.0	D	Yes
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue	Signalized	40.7	D	43.4	D	41.1	D	43.6	D	No

Note:

¹ The project driveway does not exist under no project conditions. For unsignalized intersections, delay and LOS of worst movement is reported.

As shown in the table above, the following two (2) intersections were forecasted to operate deficiently (LOS E or worse) during AM and PM peak hours under General Plan Build Out with project conditions:

- #8. Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim way (PM LOS E)
- #11. I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue (AM LOS E)

The two (2) intersections are forecasted to operate at LOS E under 2035 No Project conditions and the LOS are expected to be maintained under Project conditions, therefore no Project related significant impact was identified per Caltrans criteria.

10.1.3 Queuing Analysis

All Caltrans off-ramp approaches were evaluated using HCM methodologies. **Table 10-3** summarizes the General Plan Build Out year plus project queuing analysis results. Detailed HCM queuing worksheets are included in **Appendix D**. As shown, all Caltrans off-ramp approaches are projected to have adequate storage to accommodate General Plan Build Out year plus project traffic conditions.

Table 10-3: General Plan Build Out Year 2035 Plus Project Queuing Analysis

#	Intersection Location	Movement	Available Storage (ft.)	General Plan Build Out Plus Project		Adequate Storage (Yes/No)
				95th Percentile Queue (ft.)		
				AM	PM	
4	I-5 Southbound Off-ramp / Disney Way	SBL	480	177	164	Yes
		SBT	905	185	174	Yes
		SBR	350	45	37	Yes



#	Intersection Location	Movement	Available Storage (ft.)	General Plan Build Out Plus Project		
				95th Percentile Queue (ft.)		Adequate Storage (Yes/No)
				AM	PM	
11	I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue	NBL	2,485	36	66	Yes
		NBLR	2,485	323	70	Yes
		NBR	705	295	63	Yes
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue	NBL	1,060	469	646	Yes
		NBT	1,800	297	490	Yes

10.2 Roadway Segment Analysis

Roadway segment LOS analysis was completed for the ADT for the General Plan Build Out year plus project conditions. **Table 10-4** summarizes the roadway segment ADT volume, segment configuration, segment capacity, volume-to-capacity (V/C) ratio, and daily LOS.

Table 10-4: General Plan Build Out Year 2035 Plus Project Roadway Segment ADT LOS

	Roadway Segment	Mid-Block Lanes	Total Capacity	General Plan Build Out Year (2035)			General Plan Build Out Year (2035) Plus Project				Δ in V/C
				ADT	V/C	LOS	ADT	V/C	LOS	Deficient (Yes/No)	
1	Ball Road between Harbor Boulevard and Anaheim Boulevard	6D	56,300	43,500	0.773	C	43,500	0.773	C	No	0.000
2	Disney Way between I-5 SB Off-ramp and Anaheim Boulevard	6D	56,300	24,700	0.439	A	24,800	0.440	A	No	0.001
3	Katella Avenue between Harbor Boulevard and Clementine Street ¹	8D	75,000	62,500	0.833	D	62,600	0.835	D	No	0.002
4	Katella Avenue between Clementine Street and Haster Street/Anaheim Boulevard ¹	8D	75,000	67,300	0.897	D	67,400	0.899	D	No	0.002
5	Katella Avenue between Haster Street/Anaheim Boulevard and I-5 SB Loop Off-ramp ¹	8D	75,000	45,600	0.608	B	45,700	0.609	B	No	0.001
6	Anaheim Boulevard between Ball Road and Cerritos Avenue	6D	56,300	37,400	0.664	B	37,600	0.668	B	No	0.004
7	Anaheim Boulevard between Cerritos Avenue and Anaheim Way	6D	56,300	45,900	0.815	D	47,000	0.835	D	Yes	0.020
8	Anaheim Boulevard between Anaheim Way and Manchester Avenue	6D	56,300	38,100	0.677	B	38,800	0.689	B	No	0.012
9	Anaheim Boulevard between Manchester Avenue and Katella Avenue	6D	56,300	22,000	0.391	A	22,300	0.396	A	No	0.005
10	Anaheim Way between Anaheim Boulevard and Disney Way Westbound Ramp	4U	25,000	15,900	0.636	B	16,000	0.640	B	No	0.004
11	Anaheim Way between Disney Way Westbound Ramp and Katella Avenue	4U	25,000	13,300	0.532	A	13,400	0.536	A	No	0.004

Notes:

¹ Congestion Management Program (CMP) arterial.



As shown in the table above, all roadway segments are anticipated to operate at acceptable LOS (LOS C or better for City of Anaheim and LOS E or better for CMP) with the exception of the arterial segment at Anaheim Boulevard between Cerritos Avenue and Anaheim Way which is projected to operate deficiently under both Year 2035 No Project and Plus Project conditions.

Per City of Anaheim evaluation guidelines, a peak hour link LOS analysis was performed to determine if significant impacts must be addressed. **Table 10-5** below summarizes the peak hour link LOS analysis results for the arterial segment of Anaheim Boulevard between Cerritos Avenue and Anaheim Way. As shown in the table, the roadway segment is anticipated to operate at acceptable LOS (LOS C or better) under both AM and PM peak hour conditions and no project related significant impact was identified.

Table 10-5: General Plan Build Out Year 2035 Plus Project Roadway Segment Peak Hour Link Analysis

	Roadway Segment	Mid-Block Lanes	Peak Hour	Link Capacity	Peak Hour Flow		V/C	LOS	Significant Impact?
					SB	NB			
7	Anaheim Boulevard between Cerritos Avenue and Anaheim Way	6	AM	6,879	2,092	1,096	0.463	A	No
			PM	4,670	1,951	1,553	0.750	C	No



11 IMPACTS AND MITIGATIONS

This section summarizes the without and with Project traffic operating conditions at the study intersections and roadway segments. Traffic operation deficiencies and impacts are identified based on criteria documented in **Section 2** of this report.

11.1 Intersections

No project related significant impacts were identified for the study intersections for existing, opening year (2019), or General Plan Build Out year (2035) traffic conditions. Therefore, no mitigation measures are required.

All Caltrans off-ramp approaches are expected to have adequate storage for existing, opening year (2019), and General Plan Build Out year (2035) traffic conditions. Therefore, no mitigation measures are required.

11.2 Roadway Segments

No significant impacts were identified for the study arterial roadway segments for existing, opening year (2019), or General Plan Build Out year (2035) traffic conditions; therefore, no mitigation measures would be required to address arterial segment impacts.

11.3 Transit and Bikeway

Similar to the previous completed TIS, it is still recommended that the developer include rideshare and vanpooling opportunities for employees and patrons, especially via Anaheim Resort Transit.

Due to the proposed bikeways access to the Project, it is recommended that the developer provide visible and adequate bike and bike parking facilities for both employees and patrons. Also, the developer should coordinate with the City of Anaheim for any proposed bicycle and pedestrian pathway along Manchester Avenue and Disney Way.



12 CONCLUSIONS

The proposed Radisson Hotel located at 1601 S. Anaheim Boulevard is a 4-star high-rise resort hotel with 326 rooms with first-class amenities including restaurants, a spa, an outdoor pool, and a rooftop bar and lounge. Per this update, the rooftop restaurant is only available to hotel guests. The estimated opening year of the proposed hotel is 2019. The project site is located at the northwest corner of the intersection of Anaheim Boulevard with I-5. Access to the site would be provided by a proposed right-in/right-out driveway along Anaheim Boulevard. Per this update, there are multiple updates to the pedestrian site access points along Anaheim Boulevard.

Based on rates developed for Anaheim Resort hotels, the proposed hotel is forecast to generate 91 new a.m. peak hour trips, 78 new p.m. peak hour trips, and 1,155 new weekday daily trips.

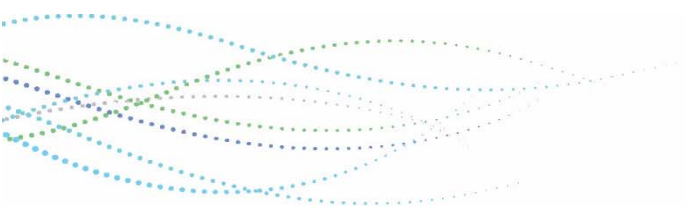
The results of the traffic analysis indicate the proposed Project would not create any project-level significant impact to the surrounding roadway system during the existing, opening year (2019), or General Plan Build Out year (2035) conditions, with the exception of the arterial segment at Anaheim Boulevard between Cerritos Avenue and Anaheim Way. The arterial segment is projected to operate deficiently under both Year 2035 no project and plus project conditions. However, no project related significant impact was identified for the arterial segment as it is projected to perform deficiently under no project conditions.

It is recommended that the developer include rideshare and vanpooling opportunities for employees and patrons.

Per recommendation of Caltrans Traffic Operations and Design groups, the bicycle facility running along Anaheim Boulevard, adjacent to the Radisson Hotel, will be classified as a Class II bicycle facility. This recommendation was based on design feasibility and considerations to maintain consistency with the City of Anaheim Bicycle Master Plan. Due to the proposed Class II bicycle facility, it is recommended that the developer provide visible and adequate bike facilities for both employees and patrons. Also, the developer should coordinate with the City of Anaheim for any proposed bicycle and pedestrian pathway improvement as part of the Project.

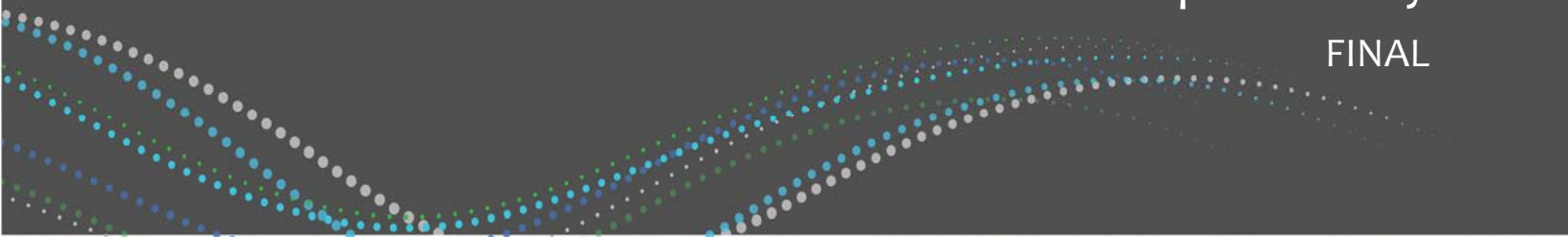


APPENDIX A – RADISSON HOTEL TRAFFIC IMPACT STUDY (DATED DECEMBER 6, 2017)





City of Anaheim Radisson Hotel Traffic Impact Study FINAL



December 6, 2017

Submitted to:





DOCUMENT VERSION CONTROL

DOCUMENT NAME	SUBMITTAL DATE	VERSION NO.
Draft	September 5, 2017	1.0
Draft Final	October 10, 2017	2.0
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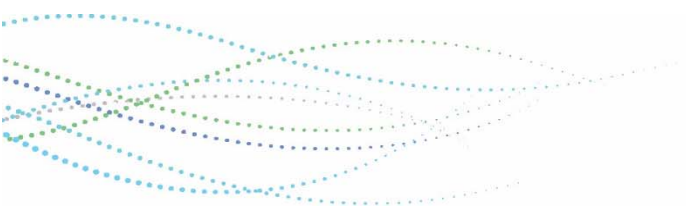




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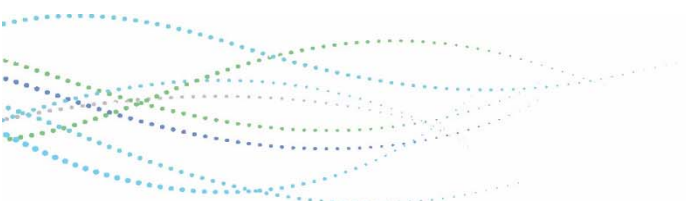
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- Appendix A – Traffic Counts
- Appendix B – ICU Analysis Worksheets
- Appendix C – HCM Analysis Worksheets
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1 INTRODUCTION

This report presents the methodology and results of a traffic impact study (TIS) for the proposed Radisson Hotel ('Project') at 1601 S. Anaheim Boulevard in the City of Anaheim. The report follows the *Criteria for Preparation of Traffic Impact Studies* provided by the City of Anaheim.

1.1 Project Description

The proposed project is located on the west side of Anaheim Boulevard and north of the northbound on-ramp to Interstate 5 (I-5). The proposed development is planned as a 4-star high-rise resort hotel with first-class amenities including restaurants, a spa, an outdoor pool, and a rooftop bar and lounge.

Access to the site would be provided by a proposed right-in/right-out driveway along Anaheim Boulevard. **Figure 1-1** shows the proposed site plan and vehicular circulation. The full project description is included in **Table 1-1**.

Table 1-1: Project Description

Use	Quantity	Description
Hotel Rooms		
Rooms	330	Assumed number of hotel rooms.
Hotel Accessory Uses		
Level 1/Level 14	12,000 SF	Restaurant and Bar
Level 1/Level 14	1,204 SF	Retail
Level 1	888 SF	Meeting Rooms
Level 1	15,516 SF	Pool Deck
Level 1	2,988 SF	Outdoor Pools and Jacuzzi
Level 1	1,040 SF	Fitness Room
Level 14	4080 SF	Pool Deck
Level 14	851 SF	Outdoor Pools
Parking		
Parking Garage	30,800 SF	222'x124.5' footprint Comprised of approximately 366 stalls
Loading Dock	1 bay	Loading dock.
Drop Off	N/A	There is anticipated to be a generous drop off and loading area to allow for visitors.
Disney Shuttles	N/A	It is anticipated that Disney Shuttles will stop on Anaheim Boulevard.
Shuttles	N/A	It is expected that larger shuttles will use a newly developed street dividing the Project site from the existing office development to the north.
Turn-Around	N/A	A large turnaround will be developed at the west end of the newly developed roadway to accommodate delivery vehicles, fire services, buses, shuttles, and vehicular traffic.

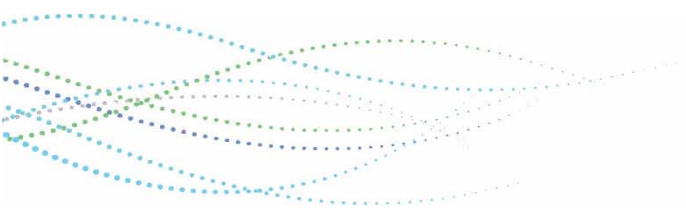
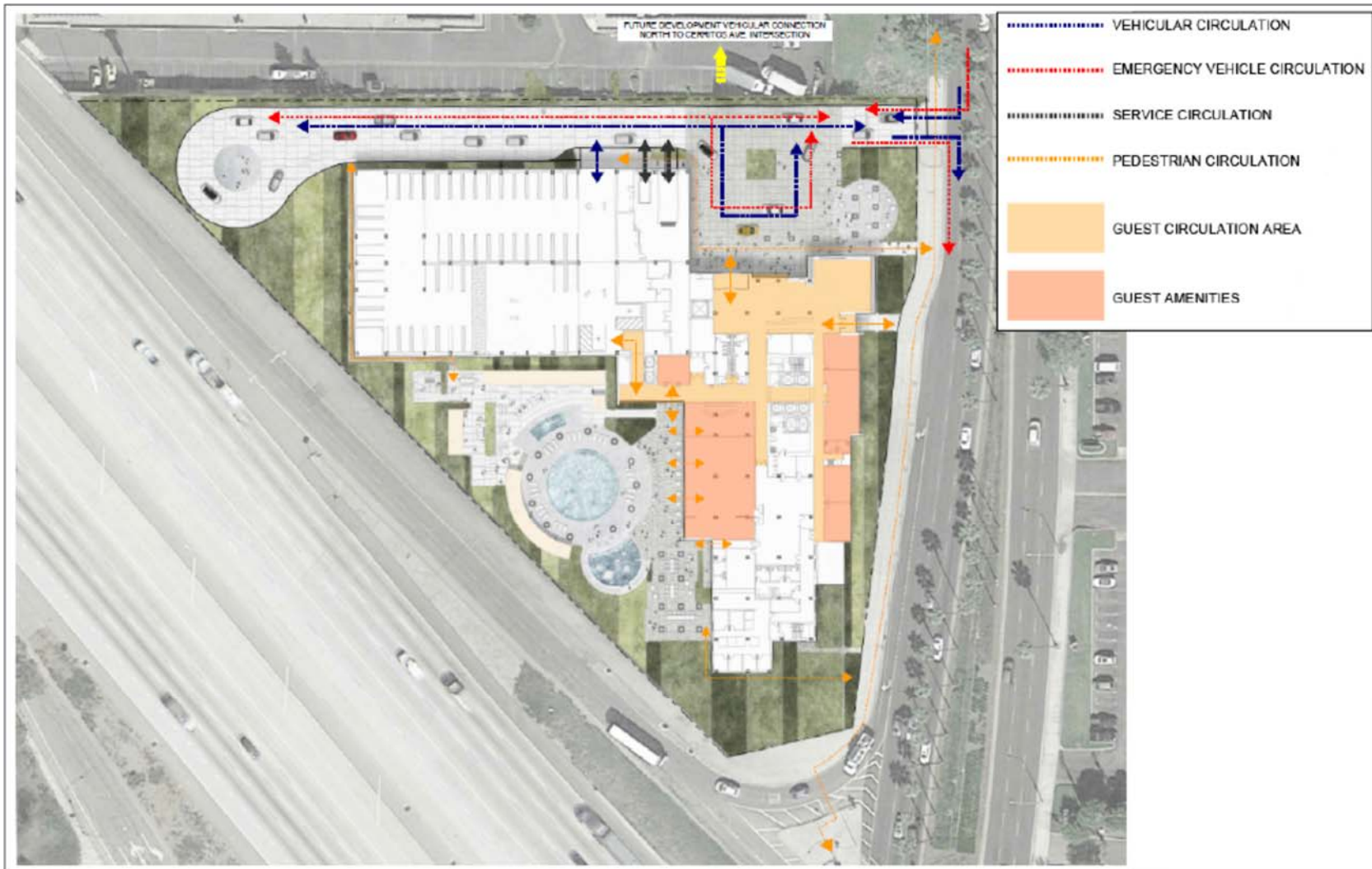




Figure 1-1: Project Site and Circulation Plan



Source: GBD Architects, Incorporated



1.2 Study Area

In conjunction with City of Anaheim staff, the following 12 intersections and 11 roadway segments were identified and analyzed. All study intersections were evaluated for the a.m. and p.m. peak hour weekday conditions. The study locations are illustrated in **Figure 1-2** and listed below:

Intersections

1. Harbor Boulevard and Ball Road
2. Harbor Boulevard and Katella Avenue
3. Clementine Street and Katella Avenue
4. I-5 Southbound Off-ramp and Disney Way
5. Anaheim Boulevard and Ball Road
6. Anaheim Boulevard and Cerritos Avenue
7. Anaheim Boulevard and Hotel Driveway
8. Anaheim Boulevard and I-5 Northbound On-ramp / Anaheim way
9. Anaheim Boulevard and Disney Way
10. Anaheim Boulevard / Haster Street and Katella Avenue
11. I-5 Southbound Loop Off-ramp / Manchester Avenue and Katella Avenue
12. I-5 Northbound Off-ramp / Anaheim Way and Katella Avenue

Roadway segments

1. Ball Road between Harbor Boulevard and Anaheim Boulevard
2. Disney Way between I-5 Southbound Off-ramp and Anaheim Boulevard
3. Katella Avenue between Harbor Boulevard and Clementine Street
4. Katella Avenue between Clementine Street and Haster Street/Anaheim Boulevard
5. Katella Avenue between Haster Street/Anaheim Boulevard and I-5 Southbound Loop Off-ramp
6. Anaheim Boulevard between Ball Road and Cerritos Avenue
7. Anaheim Boulevard between Cerritos Avenue and Anaheim Way
8. Anaheim Boulevard between Anaheim Way and Manchester Avenue
9. Anaheim Boulevard between Manchester Avenue and Katella Avenue
10. Anaheim Way between Anaheim Boulevard and Disney Way Westbound Ramp
11. Anaheim Way between Disney Way Westbound Ramp and Katella Avenue

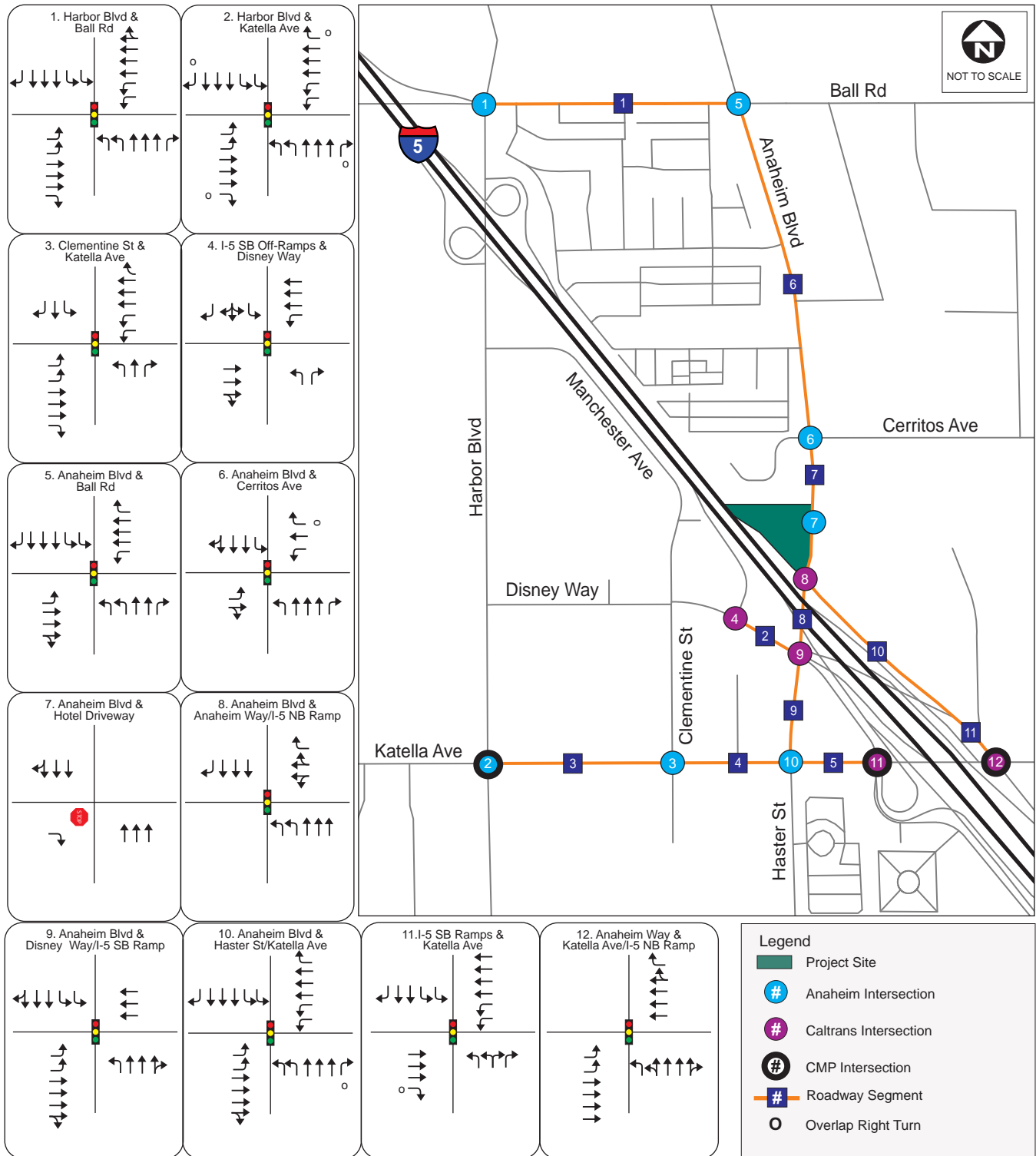
1.3 Study Periods

Traffic operations are evaluated for each of the following scenarios during the weekday a.m. peak hour and p.m. peak hour:

- Existing Conditions;
- Existing Plus Project Conditions;
- Opening Year 2019 Conditions;
- Opening Year 2019 Plus Project Conditions;
- General Plan Build Out Year 2035 Conditions; and
- General Plan Build Out Year 2035 Plus Project Conditions.



Figure 1-2: Study Area





2 TRAFFIC OPERATIONS ANALYSIS METHODOLOGY

Traffic operations analyses were conducted for the study intersections using methodologies consistent with the *Criteria for Preparation of Traffic Impact Studies* provided by the City of Anaheim Transportation Section of the Department of Public Works.

2.1 Intersection Analysis Methodology

The efficiency of traffic operations on a facility is described in this traffic impact analysis in terms of Level-of-Service (LOS). The LOS concept is a measure of average operating conditions at an intersection during an hour. Levels range from A to F, with A representing excellent (free-flow) conditions and F representing extreme congestion. Intersections were analyzed using either (or both) ICU and HCM 2010 methodologies, and impact criteria were established separately for City of Anaheim, OCTA CMP, and Caltrans intersections.

2.1.1 Intersection Capacity Utilization (ICU) Methodology

The ICU methodology defines LOS at a signalized intersection by the volume-to-capacity ratio for the turning movements and intersection characteristics. The ICU values were determined by summing the V/C ratio of the critical movements at the intersection, plus a factor for a yellow signal time, and were calculated using a spreadsheet tool. **Table 2-1** presents both the V/C ratio and average delay associated with each LOS grade as well as a qualitative description of intersection operations at that grade.

Table 2-1: Intersection Level-of-Service V/C Definitions

Level of Service	Description	Signalized Intersection Volume-to-Capacity Ratio (V/C)
A	<ul style="list-style-type: none"> Free flowing, virtually no delay. Minimal traffic. 	≤ 0.600
B	<ul style="list-style-type: none"> Free flow and choice of lanes. Delays are minimal. All cars clear intersection easily. 	> 0.600 to 0.700
C	<ul style="list-style-type: none"> Good operation. Delays starting to become a factor but still within acceptable limits. 	> 0.700 to 0.800
D	<ul style="list-style-type: none"> Approaching unstable flow. Queues at intersection are quite long but most cars clear intersection on their green signal. Occasionally, several vehicles must wait for a second green signal. Congestion is moderate. 	> 0.800 to 0.900
E	<ul style="list-style-type: none"> Severe congestion and delay. Most of the available capacity is used. Many cars must wait through a complete signal cycle to clear the intersection. 	> 0.900 to 1.000
F	<ul style="list-style-type: none"> Excessive delay and congestion. Most cars must wait through more than one on one signal cycle. Queues are very long and drivers are obviously irritated. 	> 1.000

Source: City of Anaheim General Plan Circulation Element



2.1.2 Highway Capacity Manual (HCM) Methodology

Highway Capacity Manual (HCM) 2010 methodology defines the LOS by the average vehicle delay experienced by all vehicles traveling through the intersection. Traffic operation analysis for HCM analysis was completed using Synchro 10 software. Current signal timing plans for each Caltrans intersection were obtained from Caltrans and were applied to the HCM analysis for both with and without project scenarios under existing conditions. For the purpose of evaluating project related impacts, signal timing splits are optimized under future scenarios as timing will likely be updated to accommodate changing demand over time.

Table 2-2 presents the average delay associated with each LOS grade as well as a qualitative description of intersection operations at that grade.

Table 2-2: Intersection Level-of-Service Delay Definitions

Level of Service	Description	Signalized Intersection Delay (seconds)	Unsignalized Intersection Delay (Seconds)
A	<ul style="list-style-type: none"> • Free flowing, virtually no delay. • Minimal traffic. 	≤ 10.0	≤ 10.0
B	<ul style="list-style-type: none"> • Free flow and choice of lanes. • Delays are minimal. • All cars clear intersection easily. 	> 10.0 to 20.0	> 10.0 to 15.0
C	<ul style="list-style-type: none"> • Good operation. • Delays starting to become a factor but still within acceptable limits. 	> 20.0 to 35.0	> 15.0 to 25.0
D	<ul style="list-style-type: none"> • Approaching unstable flow. • Queues at intersection are quite long but most cars clear intersection on their green signal. • Occasionally, several vehicles must wait for a second green signal. • Congestion is moderate. 	> 35.0 to 55.0	> 25.0 to 35.0
E	<ul style="list-style-type: none"> • Severe congestion and delay. • Most of the available capacity is used. • Many cars must wait through a complete signal cycle to clear the intersection. 	> 55.0 to 80.0	> 35.0 to 50.0
F	<ul style="list-style-type: none"> • Excessive delay and congestion. • Most cars must wait through more than one on one signal cycle. • Queues are very long and drivers are obviously irritated. 	> 80.0	> 50.0

Source: Highway Capacity Manual 2010

2.2 Roadway Segment Analysis Methodology

Roadway segment analysis methodology utilizes the volume-to-capacity (V/C) ratio based on average daily traffic (ADT) and arterial segment daily capacity. Table 2-3 presents the V/C ratio associated with each LOS grade as well as a qualitative description of intersection operations at that grade. Table 2-4 presents the daily capacity assumptions by roadway facility type.

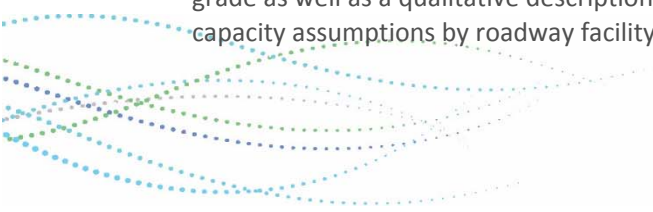




Table 2-3: Roadway Segment Level-of-Service V/C Definitions

Level of Service	Description	Roadway Segment Volume-to-Capacity Ratio (V/C)
A	<ul style="list-style-type: none"> • Free flowing, virtually no delay. • Minimal traffic. 	≤ 0.600
B	<ul style="list-style-type: none"> • Free flow and choice of lanes. • Delays are minimal. • All cars clear intersection easily. 	> 0.600 to 0.700
C	<ul style="list-style-type: none"> • Good operation. • Delays starting to become a factor but still within acceptable limits. 	> 0.700 to 0.800
D	<ul style="list-style-type: none"> • Approaching unstable flow. • Queues at intersection are quite long but most cars clear intersection on their green signal. • Occasionally, several vehicles must wait for a second green signal. • Congestion is moderate. 	> 0.800 to 0.900
E	<ul style="list-style-type: none"> • Severe congestion and delay. • Most of the available capacity is used. • Many cars must wait through a complete signal cycle to clear the intersection. 	> 0.900 to 1.000
F	<ul style="list-style-type: none"> • Excessive delay and congestion. • Most cars must wait through more than one on one signal cycle. • Queues are very long and drivers are obviously irritated. 	> 1.000

Source: City of Anaheim General Plan Circulation Element

Table 2-4: Arterial Segment Daily Capacity

Facility Type	Daily Capacity (Vehicles / Day)
8-lane Divided	75,000
6-lane Divided	56,300
4-lane Divided	37,500
4-lane Undivided	25,000
2-lane Divided	18,750
2-lane Undivided	12,500

Source: Anaheim Resort Specific Plan Traffic Study Report, 2010

2.3 Evaluation Criteria

Each study location has been analyzed and evaluated in accordance with the impact criteria established by its governing agency.

2.3.1 City of Anaheim

Intersection

Per *City of Anaheim Traffic Impact Studies Criteria*, a signalized intersection is deemed significantly impacted and requires mitigation based on an increase in V/C ratio under Project conditions as shown in **Table 2-5**. A volume-to-capacity ratio of 0.90 (LOS D) shall be the lowest acceptable LOS at intersections.



Table 2-5: City of Anaheim Intersection Significant Impact Criteria

With Project Conditions		Project-Related Increase In V/C Ratio
LOS	V/C Ratio	
C	0.701 – 0.800	Equal to or greater than 0.050
D	0.801 – 0.900	Equal to or greater than 0.030
E, F	> 0.900	Equal to or greater than 0.010

Source: City of Anaheim Criteria for Preparation of Traffic Impact Studies

The City of Anaheim does not have any criteria for HCM analysis for signalized or unsignalized intersections.

Roadway Segment

The current performance standard adopted by the City of Anaheim for the study area roadway segments is LOS C or better ($V/C \leq 0.800$) at the daily level. If the roadway segment is operating at LOS D or worse, a peak hour link LOS analysis will be conducted to determine if significant impacts must be addressed.

The City of Anaheim applies a methodology which determines the level of service under peak hour traffic volumes on deficient daily segments. The peak hour link analysis determines directional AM and PM peak hour V/C ratios for each link that exceeds the daily LOS threshold. The peak hour capacity is determined by using Equation 18-15 of HCM 2010, multiplying the mid-block number of lanes for each direction by a lane capacity of 1,900 vehicles per hour, then multiplied by the percentage of green time at the controlling signalized intersection for that arterial segment. The percentage of green time is estimated by dividing the directional V/C ratios by the total V/C ratio at signalized intersections along the arterial segment. If the V/C ratio of the arterial segment under peak hour conditions is LOS E or F, improvements should be considered to improve the segment to an acceptable LOS. This methodology is consistent with the Anaheim Resort Specific Plan (FSEIR No. 340).

2.3.2 Caltrans Criteria

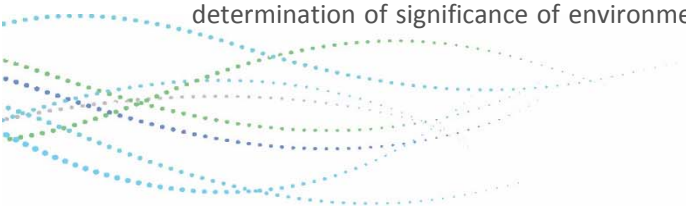
All Caltrans intersections (freeway ramp terminals) were evaluated using HCM 2010 methodology per Caltrans requirements. Caltrans intersection delay and LOS standards are shown in **Table 2-6** (signalized intersection delay). In general, Caltrans’ objective is to maintain state highway facilities at the transition between LOS C and LOS D. If an existing facility is operating at less than the desirable LOS, the existing LOS should be maintained under project conditions.

Table 2-6: Caltrans Intersection Significant Impact Criteria

LOS	Control Delay per Vehicle (Sec/Vehicle)
D	>35-55
E	>55-80
F	>80

Source: Caltrans Guide for the Preparation of Traffic Impact Studies

The *Caltrans Guide for the Preparation of Traffic Impact Studies* (written by the State of California Department of Transportation and dated December 2002) states under Section 6 (Mitigation Measures) that “a level of insignificance is the standard pursuant to CEQA and National Environmental Policy Act (NEPA)”. This means that CEQA guidelines are to be used for Caltrans Criteria. However, the *2016 California Environmental Quality Act (CEQA) Statute and Guidelines* states under Section 15064.7 (Thresholds of Significance) that “each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of significance of environmental effects.” This methodology is consistent to the methodology





used in the previously analyzed *Final Supplemental Environmental Impact Report No. 340, Amendment No. 14 to the Anaheim Resort Specific Plan* (FSEIR No. 340).

2.3.3 Orange County Congestion Management Plan Criteria

The Orange County Transportation Authority (OCTA) adopted the Congestion Management Program (CMP) for Orange County. The CMP Highway System (CMPHS) consists of the Orange County smart street network plus the state highway system.

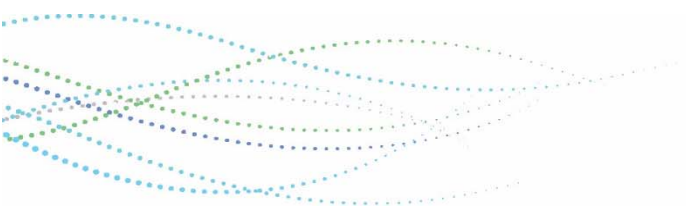
This study includes the following three (3) roadway segments that will be analyzed in accordance with CMP criteria:

- Katella Avenue between Harbor Boulevard and Clementine Street (#3)
- Katella Avenue between Clementine Street and Haster Street/Anaheim Boulevard (#4)
- Katella Avenue between Haster Street/Anaheim Boulevard and I-5 Southbound Loop Off-ramp (#5)

The study also includes the following three (3) intersections that will be analyzed in accordance with CMP criteria:

- Harbor Boulevard and Katella Avenue (#2)
- I-5 Southbound Off-ramp / Manchester Avenue and Katella Avenue (#11)
- I-5 Northbound Off-ramp / Anaheim Way and Katella Avenue (#12)

The CMP establishes a target Level of Service of LOS E or better for CMP roadways and intersections. An increase in V/C ratio greater than 0.10 over the base condition at roadways and intersections that operate or are forecast to operate at LOS F are considered not in compliance with CMP LOS objectives and require a mitigation or a deficiency plan.





3 EXISTING CONDITIONS

This section presents an overview of the existing roadway system within the study area and the methodology used to determine existing traffic volumes.

3.1 Roadway Configurations

The existing configurations of the roadways within the study area are described below:

- *Interstate 5 (I-5)* – oriented in a northwest-southeast direction, the interstate has four (4) general purpose and one (1) high-occupancy vehicle (HOV) lanes in each direction within project vicinity. The I-5 general purpose interchange at Katella Avenue and Disney Way (via Anaheim Way) and the HOV off-ramp at Disney Way provide regional access to the project area.
- *Anaheim Boulevard* – oriented in a north-south direction, is a six-lane divided roadway providing access to the project area. On-street parking is prohibited along Anaheim Boulevard in the study area. Anaheim Boulevard originates at California State Route 91 (SR-91) on the north end and becomes Haster Street to the south of the Katella Avenue intersection. This roadway is utilized to access the project site. There is Class II Bike lane going north-south along Anaheim Boulevard from Ball Road to Cerritos Avenue. In addition, the City of Anaheim Bicycle Master Plan has plans to extend the Class II bike lane along Anaheim Boulevard from Cerritos Avenue to south of Katella Avenue and add a Class I bike path from Manchester Avenue to Anaheim Way, within the study area.
- *Anaheim Way* – oriented in a northwest direction, is a one-way four-lane undivided roadway from Katella Avenue to Disney Way westbound ramp and a three-lane undivided roadway from Disney Way westbound ramp to Anaheim Boulevard, within the study area. Anaheim Way ends at Anaheim Boulevard intersection and transitions to the I-5 Northbound On-ramp.
- *Katella Avenue* – oriented in an east-west direction, is a six-lane divided roadway. Katella Avenue originates at Interstate 605 on the east end and becomes Villa Park Rd west of N Wanda Rd. On-street parking is prohibited along Katella Avenue.
- *Disney Way* – oriented in an east-west direction, is a six-lane divided roadway terminating at Harbor Boulevard on the west end as an access point to Disneyland. On-street parking is prohibited along Disney Way. In addition, City of Anaheim Bicycle Master Plan has proposed to add Class I bike path along this road from Harbor Boulevard to Anaheim Boulevard. Disney Way provide regional access with its connection to the I-5 freeway at the Anaheim Boulevard intersection.
- *Ball Road* – oriented in an east-west direction, is a six-lane divided roadway. On-street parking is prohibited along Ball Road. The City of Anaheim Bicycle Master Plan has proposed a Class II bike lane along Ball Road from Lemon Street to east of Anaheim Boulevard, within the study area.

3.2 Transit Operations

The Orange County Transportation Authority (OCTA), Los Angeles Transit Authority (Metro), and Anaheim Resort Transportation (ART) all operate bus lines within the area of the project site. Descriptions of the transit services are as follows:

Metro Lines

- *Line 460* – This line operates between downtown Los Angeles and Disneyland. The line travels north-



south along Harbor Boulevard, and along Disney Way, near the study area. Service is provided at 20 minute headways during peak periods on weekdays. Weekends and holiday service is also provided.

OCTA Lines

- *Line 46* – This line operates between Los Alamitos and Orange County. Within the study area, the line travels east-west along Ball Road. Service is provided at 30 minute headways solely during weekdays peak periods and 50 minute headways during the weekends.
- *Line 47* – This line operates between Fullerton to Balboa. Within the study area, the line travels north-south along Anaheim Boulevard. Service is provided at 20 minute headways during the weekdays. Weekends and holiday service is also provided.
- *Line 50* – This line operates between Long Beach and Orange County. Within the study area, the line travels east-west on Katella Avenue. Service is provided at 15 minute headways during the weekdays and 50 minute headways during the weekends and holidays.
- *Line 83* – This line operates between Anaheim and Laguna Hills. The line travels north-south along Harbor Boulevard, northwest-southeast along Manchester Avenue, and east-west along Disney Way, near the study area. Service is provided at 20 minute headways during the weekdays.
- *Line 430* – This line operates between the Anaheim Regional Transportation Intermodal Center (ARTIC) and the Anaheim Resort Area. Within the study area, the line travels east-west on Katella Avenue. Service is provided at 30 minute headways solely during weekday peak periods.
- *Line 543* – This line operates between the Fullerton Transportation Center and Santa Ana. The line travels north-south along Harbor Boulevard, near the study area. Service is provided at 15 minute headways during peak periods on weekdays. Weekdays and holiday service is also provided.

ART Lines

- *Lines 6, 7, 8* – These lines operate between the Disneyland Transportation Center and the hotels along the GardenWalk. Within the study area, these lines travel from Anaheim Boulevard to Katella Avenue, looping around Disney Way back to Anaheim Boulevard. Service is provided at 20 minute headways during weekdays and weekends.
- *Line 12* – This line operates between the Disneyland Transportation Center and the Holiday Inn Anaheim on Manchester Avenue. Within the study area, the line travels east-west along Katella Avenue between Harbor Boulevard and Manchester Avenue. Service is provided at 20 minute headways during weekdays and weekends.
- *Lines 14, 15* – These lines operate between the Disneyland Transportation Center and Gardenwalk at Cheesecake Factory. Within the study area, these lines travel east-west on Katella Avenue, and northwest-southeast on Manchester Avenue between I-5 SB Off-ramp and Anaheim Boulevard. Service is provided at 20 minute headways during weekdays and weekends.

The developer intends to include rideshare and vanpooling opportunities for employees and patrons. ART will provide service at 20 minute headways for the Project.

3.3 Bikeway Configurations

The City of Anaheim existing and proposed configurations per the Bicycle Master Plan of the bike route within the study area are described below:

- *Class I Bike Path* – Class I bikeway provide an exclusive route for bicycles and pedestrians. There are



14.78 miles of existing Class I bikeway within City of Anaheim. Within the study area, Class I bike path is proposed along Disney Way, going east-west from Harbor Boulevard to Anaheim Boulevard.

- *Class II Bike Path* –Class II bikeway provide a restricted right-of-way for use of bicycles alongside motor vehicles traveling through. There are 43.8 miles of existing Class II bikeway within City of Anaheim. Within the study area, Class II bike path exist along Anaheim Boulevard traveling north-south from Ball Road to Cerritos Avenue and is proposed to be extended past Ball Road to the north and south of Cerritos Avenue.

Due to the proposed bikeways connecting to the proposed development, it is recommended that the developer provide visible and adequate bike and bike parking facilities for both employees and patrons. Also, the developer should coordinate with the City of Anaheim with any proposed bicycle and pedestrian pathway improvement as part of the Project.

3.4 Existing Traffic Volumes

Existing a.m. and p.m. peak period intersection turning movement count data and daily roadway segment count data were obtained for weekday conditions during the month of August 2017 after nearby schools resumed sessions. Weekday peak hour turning movement volumes and roadway segment daily volumes are shown in **Figure 3-1**. Detailed traffic count sheets are provided in **Appendix A**.

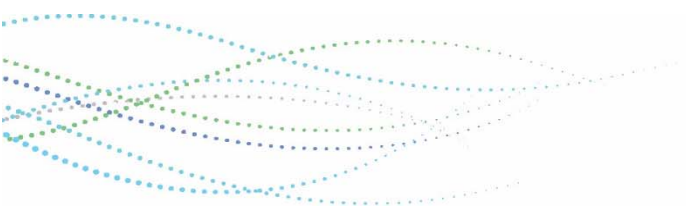
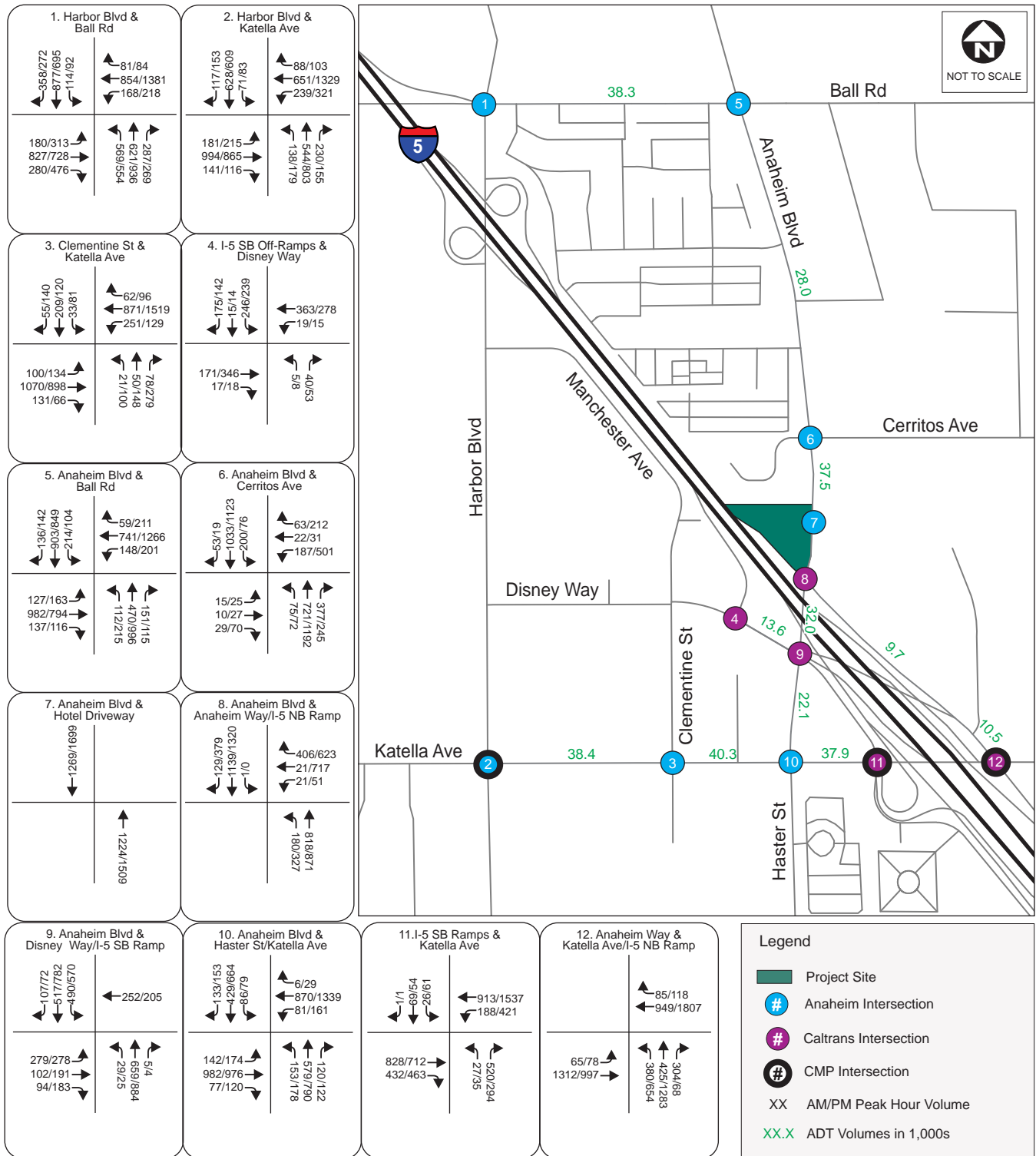




Figure 3-1: Existing Peak Hour Intersection Volumes and Segment ADTs





3.5 Intersection Level-of-Service

LOS analyses were conducted to evaluate existing intersection operations during the weekday a.m. and p.m. peak hours. All intersections were analyzed using ICU methodology, and additional HCM analyses were completed for the five (5) freeway ramp terminals and one (1) unsignalized project driveway.

3.5.1 ICU LOS

The City of Anaheim General Plan utilizes the ICU methodology for LOS. All of the study intersections were evaluated using ICU methodology, with two (2) agencies governing significant impact criteria: The City of Anaheim and the OCTA CMP. The CMP criteria guidelines take precedence over the City of Anaheim guidelines at the three (3) CMP identified intersections. **Table 3-1** summarizes the existing V/C ratio and LOS using the ICU methodology at all signalized study intersections. Detailed ICU LOS calculation worksheets are included in **Appendix B**. As shown in the table, all analyzed study intersections are currently operating at LOS D or better.

Table 3-1: Existing Intersection ICU LOS

#	Intersection Location	Existing			
		AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
1	Harbor Boulevard / Ball Road	0.60	A	0.66	B
2	Harbor Boulevard / Katella Avenue ¹	0.48	A	0.56	A
3	Clementine Street / Katella Avenue	0.47	A	0.58	A
4	I-5 Southbound Off-ramp / Disney Way	0.29	A	0.30	A
5	Anaheim Boulevard / Ball Road	0.57	A	0.72	C
6	Anaheim Boulevard / Cerritos Avenue	0.44	A	0.74	C
7	Anaheim Boulevard / Hotel Driveway ²	N/A	N/A	N/A	N/A
8	Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim Way	0.50	A	0.83	D
9	Anaheim Boulevard / Disney Way	0.46	A	0.51	A
10	Anaheim Boulevard / Haster Street / Katella Avenue	0.40	A	0.55	A
11	I-5 Southbound Off-ramp / Manchester Avenue / Katella Avenue ¹	0.48	A	0.46	A
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue ¹	0.39	A	0.63	B

Notes:

¹ Congestion Management Program (CMP) intersection.

² The project driveway does not exist under existing conditions. The intersection will be operating as an unsignalized intersection once built and analyzed using HCM methodologies.

3.5.2 HCM LOS

All Caltrans intersections and project driveway were evaluated using HCM 2010 methodologies. **Table 3-2** summarizes the existing HCM LOS analysis results. Detailed HCM LOS calculation worksheets are included in **Appendix C**. As shown, the study intersections are currently operating at LOS D or better except for intersection of Anaheim Boulevard/I-5 Northbound On-ramp/Anaheim Way which is currently operating at LOS F during the AM peak hour. The LOS deficiency is due to insufficient green time assigned to southbound through traffic under existing signal timing at this location.

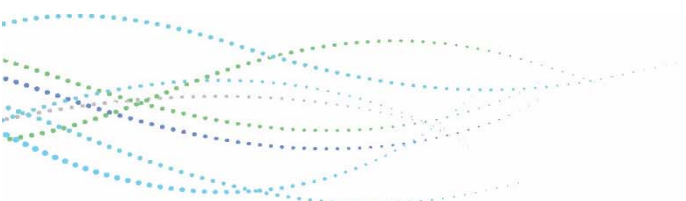




Table 3-2: Existing Intersection HCM LOS

#	Intersection Location	Traffic Control ¹	Existing			
			AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
4	I-5 Southbound Off-ramp / Disney Way	Signalized	16.9	B	14.6	B
7	Anaheim Boulevard / Hotel Driveway ¹	Unsignalized	N/A	N/A	N/A	N/A
8	Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim Way	Signalized	111.8	F	45.5	D
9	Anaheim Boulevard / Disney Way	Signalized	41.3	D	38.8	D
11	I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue	Signalized	35.0	C	15.5	B
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue	Signalized	14.4	B	21.8	C

Note:

¹ The project driveway does not exist under no project conditions.

3.5.3 Queuing Analysis

Queuing analysis was completed for all Caltrans off-ramp approaches using HCM methodologies. **Table 3-3** summarizes the existing queuing analysis results. Detailed HCM queuing worksheets are included in **Appendix C**. As shown, all Caltrans off-ramp approaches currently have adequate storage to accommodate existing traffic conditions.

Table 3-3: Existing Queuing Analysis

#	Intersection Location	Movement	Available Storage (ft.)	Existing Peak Hour		Adequate Storage (Yes/No)
				95th Percentile Queue (ft.)		
				AM	PM	
4	I-5 Southbound Off-ramp / Disney Way	SBL	480	125	106	Yes
		SBT	905	117	107	Yes
		SBR	350	37	29	Yes
11	I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue	NBL	2,485	38	45	Yes
		NBLR	2,485	83	57	Yes
		NBR	705	75	51	Yes
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue	NBL	1,060	212	391	Yes
		NBT	1,800	154	290	Yes

3.6 Roadway Segment Analysis

Roadway segment LOS analysis was completed for the ADT for existing conditions. **Table 3-4** summarizes the roadway segment ADT volume, segment configuration, segment capacity, volume-to-capacity (V/C) ratio, and daily LOS. As shown, all roadway segments are currently operating at LOS C or better.

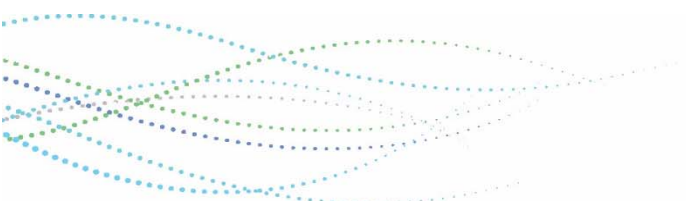




Table 3-4: Existing Roadway Segment LOS

#	Roadway Segment Location	Mid-Block Lanes	Total Capacity	Existing			
				ADT	V/C	LOS	Deficient (Yes/No)
1	Ball Road between Harbor Boulevard and Anaheim Boulevard	6D	56,300	38,300	0.680	B	No
2	Disney Way between I-5 SB Off-ramp and Anaheim Boulevard	6D	56,300	13,600	0.242	A	No
3	Katella Avenue between Harbor Boulevard and Clementine Street ¹	6D	56,300	38,400	0.682	B	No
4	Katella Avenue between Clementine Street and Haster Street / Anaheim Boulevard ¹	6D	56,300	40,300	0.716	C	No
5	Katella Avenue between Haste Street/Anaheim Boulevard and I-5 SB Loop Off-ramp ¹	6D	56,300	37,900	0.673	B	No
6	Anaheim Boulevard between Ball Road and Cerritos Avenue	6D	56,300	28,000	0.497	A	No
7	Anaheim Boulevard between Cerritos Avenue and Anaheim Way	6D	56,300	37,500	0.666	B	No
8	Anaheim Boulevard between Anaheim Way and Manchester Avenue	6D	56,300	32,000	0.568	A	No
9	Anaheim Boulevard between Manchester Avenue and Katella Avenue	6D	56,300	22,100	0.393	A	No
10	Anaheim Way between Anaheim Boulevard and Disney Way Westbound Ramp	3D	28,200	9,700	0.344	A	No
11	Anaheim Way between Disney Way Westbound Ramp and Katella Avenue	3D	28,200	10,500	0.372	A	No

Notes:

¹ Congestion Management Program (CMP) arterial.



4 TRIP GENERATION AND DISTRIBUTION

Trip generation and trip distribution were developed for the proposed hotel and the cumulative projects to be included in the Opening Year analysis.

4.1 Trip Generation

The empirical resort hotel trip generation rates developed for the City of Anaheim Resort Area Hotels (developed by Iteris for the Anaheim Plaza Hotel TIA dated 3/29/2016) were used to establish project-generated traffic. These rates are shown in **Table 4-1**.

Table 4-1: Resort Hotel Weekday Trip Generation Rates

Land Use	Unit	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Anaheim Resort Hotel	Rooms	0.15	0.13	0.28	0.13	0.11	0.24	3.54

Table 4-2 summarizes the trip generation for the proposed Radisson Hotel. As shown, the proposed hotel is forecast to generate 103 new a.m. peak hour trips, 169 new p.m. peak hour trips, and 2,248 new weekday daily trips.

Table 4-2: Proposed Project Trip Generation

Land Use	Quantity	Unit ¹	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Proposed Hotel ²	330	Rooms	50	43	93	43	36	79	1,169
Proposed Restaurants ³	12	TSF	5	5	10	60	30	90	1,079
Project Trips			55	48	103	103	66	169	2,248

Note:

¹ Rooms = number of hotel rooms.

² Anaheim Resort Area Hotel Trip Rates were developed using empirical data collected in 2015.

³ ITE (9th Edition) rates for Quality Restaurant (931) were used for trip generation estimates.

The City of Anaheim has an allowance for 20 percent of the square footage of hotel rooms to be used for meeting and retail space. Any additional square footage of space requires the addition of ancillary trips to the site. **Table 4-3** summarizes the proposed hotel square footage of rooms and retail space. As consistent with the General Plan, it is estimated that each hotel room averages 450 square feet. Using that assumption, the proposed hotel results in a total room square footage of 450*330 = 148,500 square feet. Assuming 20 percent of that is allowable for meeting and retail space, results in 29,700 square feet of meeting and retail space being allowed under the trip generation rates for the empirical Anaheim Resort Hotel trip generation rate. As shown in the table below, the proposed hotel's square footage of retail space does not exceed the 20 percent allotment for resort hotel trip generation, additional trips do not need to be added to the resulting trip determination.



Table 4-3: Proposed Hotel Square Footage

Number of Rooms	Total Room Square Footage (450 Sq. Ft. Per Room)	Available Square Footage for Ancillary Uses (20%)	Proposed Hotel Square Footage of Ancillary Uses (Meeting and Retail)
330	148,500	29,700	2,100

ITE Trip generation rates were adopted for those cumulative project hotels with the absence of a traffic impact analysis. A summary of ITE trip generation rates for weekdays are summarized in **Table 4-4**.

Table 4-4: ITE Weekday Trip Generation Rates

Land Use	Rooms	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Resort Hotel ¹ (330)	Rooms	0.22	0.09	0.31	0.18	0.24	0.42	8.17
Hotel (310)	Rooms	0.31	0.22	0.53	0.31	0.29	0.60	8.17

¹ ITE Land Use 330 (Resort Hotel) does not contain data for weekday daily trips; therefore, ITE Land Use 310 (Hotel) rates were utilized.

4.2 Trip Distribution

Peak hour and daily trip distribution percentages for the proposed Project were developed based on general area traffic patterns and trip distribution patterns from similar venues within the study area. The distribution percentages developed for the proposed project is shown in **Figure 4-1**. The net weekday peak hour project trip assignments are shown in **Figure 4-2**.

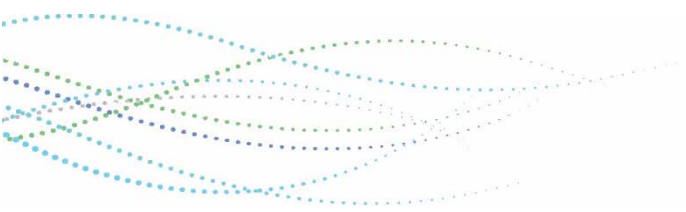




Figure 4-1: Project Trip Distribution Percentages

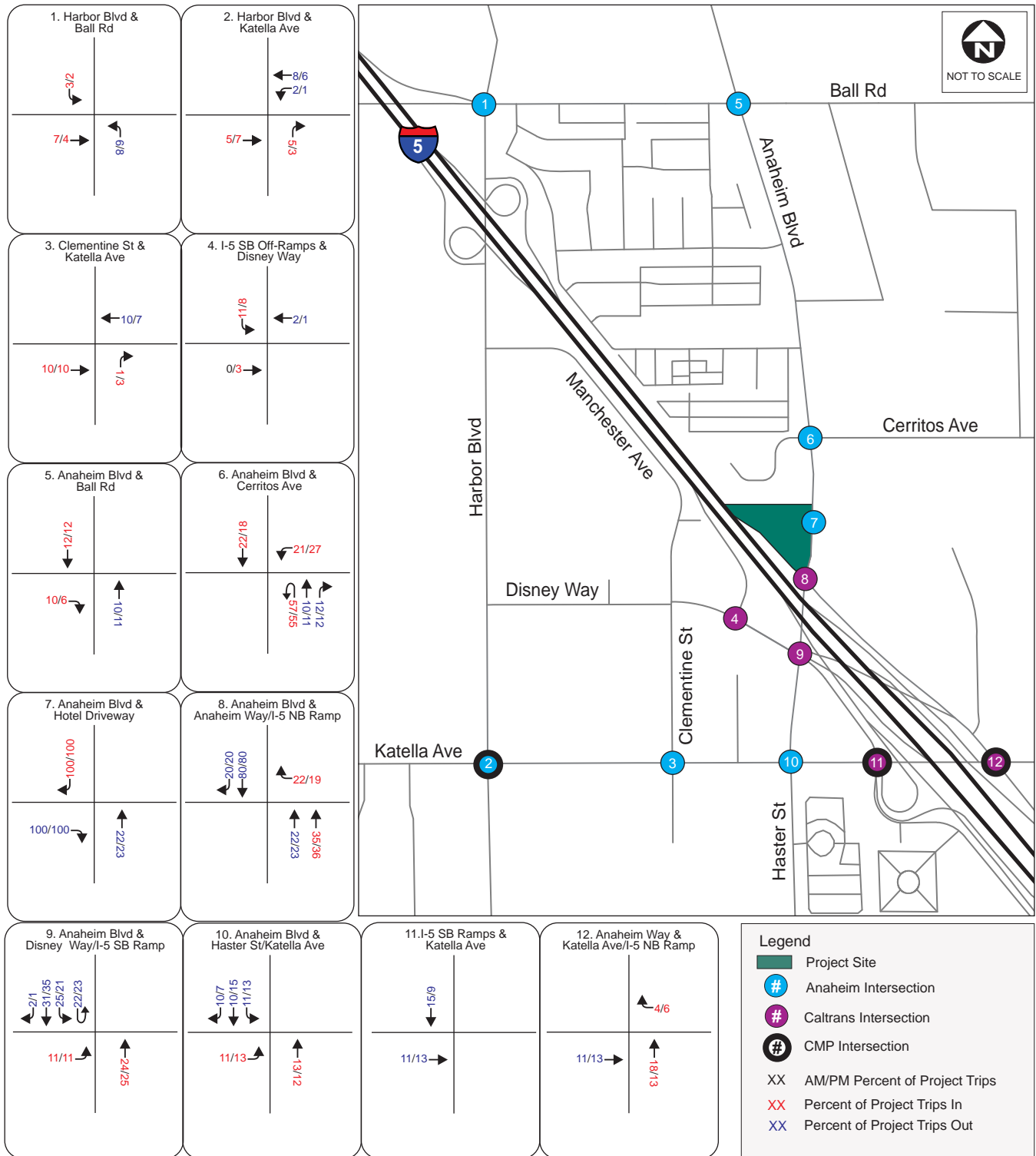
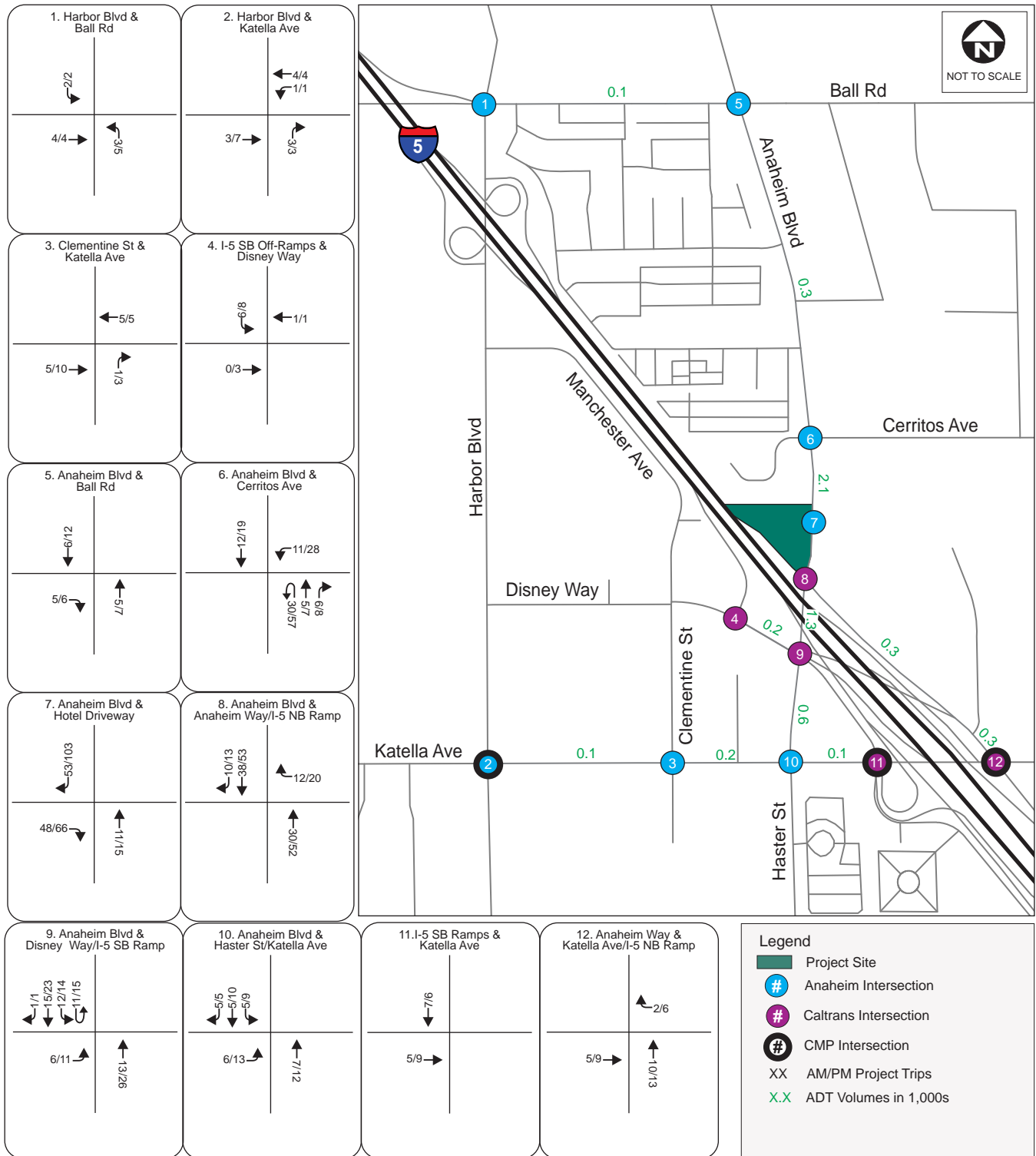




Figure 4-2: Net Project Peak Hour Trip Assignment Volumes and Segment ADTs





5 EXISTING PLUS PROJECT CONDITIONS

Trips generated by the project, as shown in **Figure 5-1**, were assigned to the surrounding roadway system based on the distribution patterns to forecast the project related peak-hour traffic at each of the study intersections. **Figure 5-1** illustrates the weekday existing plus project peak hour volumes.

5.1 Intersection Analysis

LOS analyses were conducted to evaluate existing plus project intersection operations during the weekday a.m. and p.m. peak hours. These results were compared to existing conditions without the project in order to assess any significant traffic impacts of the project. Detailed ICU and HCM worksheets are included in **Appendices B** and **C**, respectively.

5.1.1 ICU LOS

Table 5-1 summarizes the traffic conditions at the study intersections and the driveway under the existing plus project conditions. As shown, the proposed project is not forecasted to result in any significant impacts to the analyzed study intersections under existing plus project conditions.

Table 5-1: Existing Plus Project Intersection ICU LOS

#	Intersection Location	Existing				Existing Plus Project				Δ In V/C		Sig. Impact (Yes/No)
		AM		PM		AM		PM		AM	PM	
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS			
1	Harbor Boulevard / Ball Road	0.60	A	0.66	B	0.60	A	0.66	B	0.00	0.00	No
2	Harbor Boulevard / Katella Avenue ¹	0.48	A	0.56	A	0.48	A	0.56	A	0.00	0.00	No
3	Clementine Street / Katella Avenue	0.47	A	0.58	A	0.47	A	0.58	A	0.00	0.00	No
4	I-5 Southbound Off-ramp / Disney Way	0.29	A	0.30	A	0.30	A	0.30	A	0.01	0.00	No
5	Anaheim Boulevard / Ball Road	0.57	A	0.72	C	0.57	A	0.72	C	0.00	0.00	No
6	Anaheim Boulevard / Cerritos Avenue	0.44	A	0.74	C	0.47	A	0.78	C	0.03	0.04	No
7	Anaheim Boulevard / Hotel Driveway ²	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim Way	0.50	A	0.83	D	0.51	A	0.84	D	0.01	0.01	No
9	Anaheim Boulevard / Disney Way	0.46	A	0.51	A	0.47	A	0.53	A	0.01	0.02	No
10	Anaheim Boulevard / Haster Street / Katella Avenue	0.40	A	0.55	A	0.41	A	0.55	A	0.01	0.00	No
11	I-5 Southbound Off-ramp / Manchester Avenue / Katella Avenue ¹	0.48	A	0.46	A	0.48	A	0.46	A	0.00	0.00	No
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue ¹	0.39	A	0.63	B	0.39	A	0.63	B	0.00	0.00	No

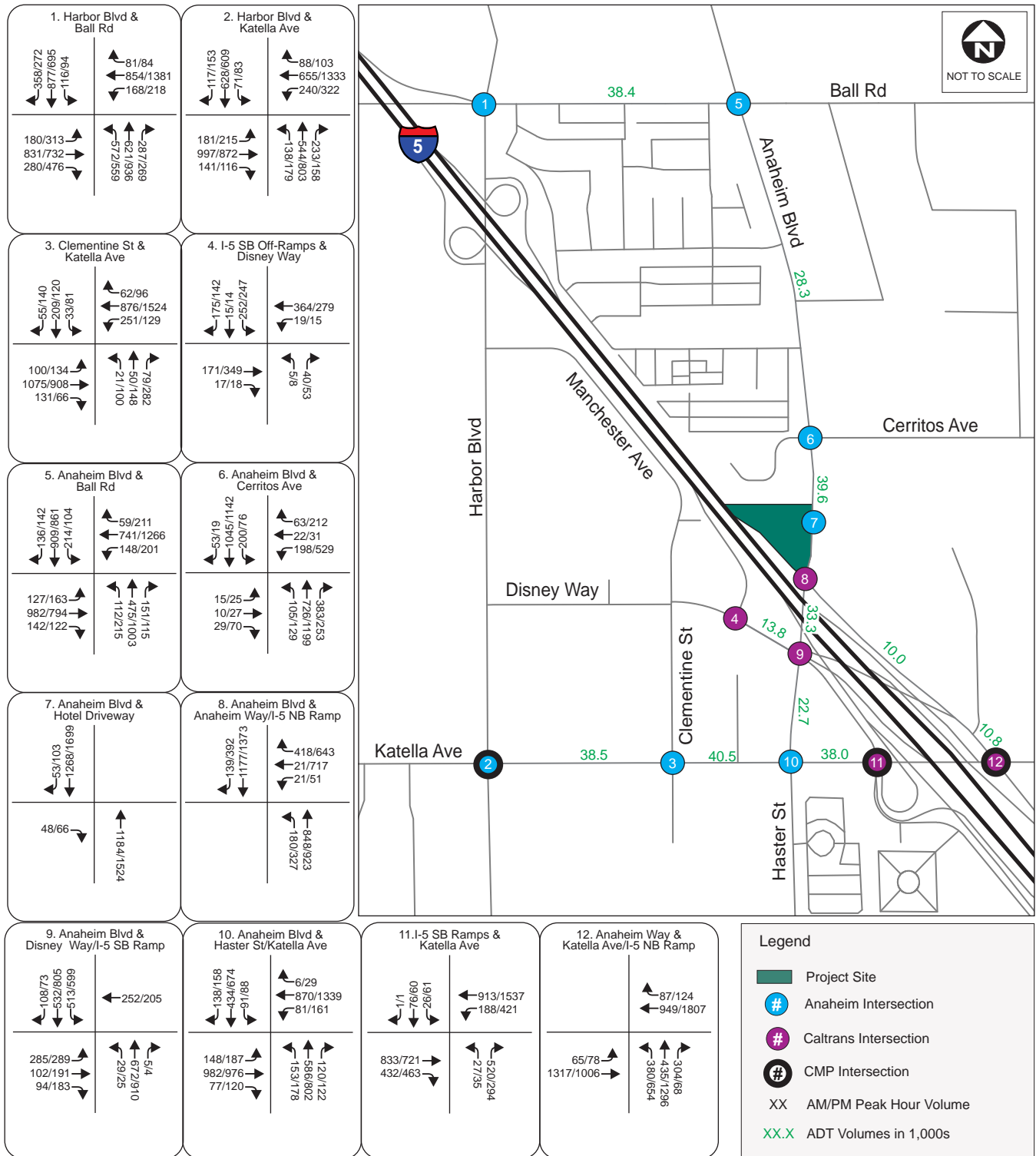
Notes:

¹ Congestion Management Program (CMP) intersection.

² The project driveway is an unsignalized intersection and only analyzed using HCM methodologies.



Figure 5-1: Existing Plus Project Peak Hour Intersection Volumes and Segment ADTs





5.1.2 HCM LOS

All Caltrans intersections and project driveway were evaluated using HCM 2010 methodologies. **Table 5-2** summarizes the existing plus project LOS conditions. As shown in **Table 5-2**, the study intersections are projected operate at LOS D or better, except for the intersection of Anaheim Boulevard/I-5 Northbound On-ramp/Anaheim Way which is projected to operate at LOS F during the AM peak hour in existing plus project traffic conditions. The LOS deficiency is due to insufficient green time assigned to southbound through traffic under existing signal timing at this location.

Table 5-2: Existing Plus Project Intersection HCM LOS

#	Intersection Location	Traffic Control ¹	Existing				Existing Plus Project				Deficient LOS (Yes/No)
			AM		PM		AM		PM		
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
4	I-5 Southbound Off-ramp / Disney Way	Signalized	16.9	B	14.6	B	17.2	B	14.7	B	No
7	Anaheim Boulevard / Hotel Driveway ¹	Unsignalized	N/A	N/A	N/A	N/A	17.7	C	27.6	D	No
8	Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim Way	Signalized	111.8	F	45.5	D	121.0	F	51.1	D	Yes
9	Anaheim Boulevard / Disney Way	Signalized	41.3	D	38.8	D	45.3	D	43.1	D	No
11	I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue	Signalized	35.0	C	15.5	B	35.0	C	15.6	B	No
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue	Signalized	14.4	B	21.8	C	14.4	B	21.8	C	No

Note:

¹ The project driveway does not exist under no project conditions. For unsignalized intersections, delay and LOS of worst movement is reported.

5.1.3 Queuing Analysis

All Caltrans off-ramp approaches were evaluated using HCM methodologies. **Table 5-3** summarizes the existing plus project queuing analysis results. Detailed HCM queuing worksheets are included in **Appendix C**. As shown, all Caltrans off-ramp approaches are projected to have adequate storage to accommodate existing plus project traffic conditions.

Table 5-3: Existing Plus Project Queuing Analysis

#	Intersection Location	Movement	Available Storage (ft.)	Existing Plus Project		Adequate Storage (Yes/No)
				95th Percentile Queue (ft.)		
				AM	PM	
4	I-5 Southbound Off-ramp / Disney Way	SBL	480	126	111	Yes
		SBT	905	123	109	Yes
		SBR	350	38	29	Yes
11	I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue	NBL	2,485	38	45	Yes
		NBLR	2,485	83	57	Yes
		NBR	705	75	51	Yes
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue	NBL	1,060	214	391	Yes
		NBT	1,800	154	293	Yes



5.2 Roadway Segment Analysis

Roadway segment LOS analysis was completed for the ADT for existing plus project conditions. **Table 5-4** summarizes the roadway segment ADT volume, segment configuration, segment capacity, volume-to-capacity (V/C) ratio, and daily LOS. As shown, all roadway segments are anticipated to operate at LOS C or better, and no significant impacts were identified.

Table 5-4: Existing Plus Project Roadway Segment ADT LOS

Roadway Segment	Mid-Block Lanes	Total Capacity	Existing			Existing Plus Project				Δ in V/C
			ADT	V/C	LOS	ADT	V/C	LOS	Deficient (Yes/No)	
1 Ball Road between Harbor Boulevard and Anaheim Boulevard	6D	56,300	38,300	0.680	B	38,400	0.682	B	No	0.002
2 Disney Way between I-5 SB Off-ramp and Anaheim Boulevard	6D	56,300	13,600	0.242	A	13,800	0.245	A	No	0.003
3 Katella Avenue between Harbor Boulevard and Clementine Street ¹	6D	56,300	38,400	0.682	B	38,500	0.684	B	No	0.002
4 Katella Avenue between Clementine Street and Haster Street/Anaheim Boulevard ¹	6D	56,300	40,300	0.716	C	40,500	0.719	C	No	0.003
5 Katella Avenue between Haste Street/Anaheim Boulevard and I-5 SB Loop Off-ramp ¹	6D	56,300	37,900	0.673	B	38,000	0.675	B	No	0.002
6 Anaheim Boulevard between Ball Road and Cerritos Avenue	6D	56,300	28,000	0.497	A	28,300	0.503	A	No	0.006
7 Anaheim Boulevard between Cerritos Avenue and Anaheim Way	6D	56,300	37,500	0.666	B	39,600	0.703	C	No	0.037
8 Anaheim Boulevard between Anaheim Way and Manchester Avenue	6D	56,300	32,000	0.568	A	33,300	0.591	A	No	0.023
9 Anaheim boulevard between Manchester Avenue and Katella Avenue	6D	56,300	22,100	0.393	A	22,700	0.403	A	No	0.010
10 Anaheim Way between Anaheim Boulevard and Disney Way Westbound Ramp	3D	28,200	9,700	0.344	A	10,000	0.355	A	No	0.011
11 Anaheim Way between Disney Way Westbound Ramp and Katella Avenue	3D	28,200	10,500	0.372	A	10,800	0.383	A	No	0.011

Notes:

¹ Congestion Management Program (CMP) arterial.



6 OPENING YEAR 2019 CONDITIONS

The project opening year is 2019. This section analyzes opening year 2019 traffic conditions without the proposed project.

6.1 Opening Year Traffic Volumes

Future baseline intersection turning movement volumes were developed for Opening Year 2019 based on the existing traffic volumes, an ambient growth rate, and the added trips from the cumulative projects within the study area.

6.1.1 Ambient Growth

Ambient traffic growth is the traffic growth that will occur in the study area due to general employment growth, housing growth, and growth in regional through trips in Southern California. An ambient growth rate of one percent (1%) per year in the study area was assigned to vehicular traffic, consistent with City direction.

6.1.2 Cumulative Projects

In addition to ambient growth assumed for the study area, the opening year (2019) traffic forecast is based on known cumulative projects. The cumulative projects included were obtained from the Anaheim Resort Development Status document, provided by the City of Anaheim on 8/21/2017. The Anaheim Resort Development Status is documented in **Appendix D**, including a figure showing the location of all Anaheim Resort projects currently under development. The cumulative projects are summarized as follows:

- **Park Vue Inn:** Replace an existing 86-room hotel with a 180-room hotel with 10,654 square feet of restaurant and retail, located at 1570 South Harbor meeting and retail area Boulevard, anticipated occupancy in 2018.
 - The square footage of restaurant and retail fall within the 20 percent allotment for resort hotel trip generation, and will not be added as additional trips to the resulting trip determination.
 - Trip generation and distribution obtained from Anaheim Plaza Hotel TIA (dated March 2016).
- **Element Hotel:** 174-room hotel, located at 200 W. Alro Way, anticipated occupancy August 2018.
 - Traffic Study was not available for this project. The trip generation was calculated using the ITE trip generation rates. Since this project is in close proximity to the Country Inn and Suites project site, the same trip distribution was utilized and obtained from the Anaheim Plaza Hotel TIA (dated March 2016).
- **Anaheim Plaza Hotel:** 580-room high-quality, four diamond full-service resort hotel located at 1700 South Harbor Boulevard, anticipated occupancy early 2021.
 - The trip generation and distribution will be obtained from the recently completed Anaheim Plaza Hotel TIA (dated March 2016).
- **GardenWalk – WestGate Timeshare:** 392-room timeshare hotel, located at 500 West Disney Way, with no anticipated occupancy date established at this time.
 - Traffic Study was not available for this project. The trip generation was calculated using the ITE trip generation rates. Since this project is in close proximity to the Garden Walk – JW Marriott project site, the same trip distribution was utilized and obtained from the Anaheim Plaza Hotel TIA (dated March 2016)
- **GardenWalk – JW Marriott:** 466-room hotel with meeting rooms, restaurant, and spa, located at 1775 South Clementine Street, anticipated occupancy early 2020.



- Trip generation and distribution obtained from Anaheim Plaza Hotel TIA (dated March 2016)
- **Cambria Suites:** 352-room luxury hotel with meeting rooms, restaurants and retail, located at 1030 West Katella Avenue, anticipated occupancy early 2019.
 - Trip generation and distribution obtained from Cambria Hotel Traffic Impact Study
- **The Anabella Hotel Redevelopment:** 634-room luxury hotel with meeting rooms, restaurants and retail, located at 1030 West Katella Avenue, anticipated occupancy early 2020.
 - The trip generation and distribution will be obtained from the recently completed Anabella Hotel TIA (dated May 2016).
- **Anaheim Convention Center Expansion:** 200,000 square feet of expansion, located at 800 West Katella Avenue, Phase 1 completed, and Phase 2 anticipated September 2017.
 - While included as a cumulative project, the expansion to the Anaheim Convention Center is anticipated to support existing facilities. The Anaheim Traffic Analysis model assumes a small convention at the Anaheim Convention Center as representative traffic conditions. The expansion planned for 2016/2017 is assumed to not change typical day traffic, therefore, there will be no cumulative trips assumed with the Anaheim Convention Center Expansion.
- **Hampton Inn & Suites:** 178-room hotel, located at 100 West Katella Avenue, anticipated occupancy Fall 2018.
 - The trip generation and distribution will be obtained from the recently completed Hampton Inn TIA (dated November 2016).

Table 6-1 summarizes the trip generation for the cumulative projects.

Table 6-1: Cumulative Project Trip Generation

Cumulative Project ¹	Quantity	UNIT	AM Peak Hour			PM Peak Hour			Daily
			Inbound	Outbound	Total	Inbound	Outbound	Total	
Park Vue Inn (Net Hotel) ³	94	Rooms	21	9	30	17	22	39	768
Element Hotel ²	174	Rooms	39	15	54	31	42	73	1,422
Anaheim Plaza Hotel (Net Hotel) ³	86	Rooms	67	51	118	72	68	140	1,856
Garden Walk - WestGate Timeshare ²	392	Rooms	87	34	121	66	15	81	3,203
Garden Walk - JW Marriott ³	466	Rooms	104	40	144	66	15	81	3,807
Cambria Suites ⁴	352	Rooms	128	90	218	153	123	276	3,229
Anabella Hotel (Net Hotel) ⁵	276	Rooms	40	36	76	36	30	66	978
Hampton Inn & Suites (Net Hotel) ⁶	68	Rooms	10	4	14	8	4	12	210
Net Cumulative Project Trips			496	279	775	449	319	768	15,473

¹Source: City of Anaheim, The Anaheim Resort Development Status (as of 8/21/17).

²ITE rates (9th Edition) for Hotel (310), Resort Hotel (330), Retail (820) and Meeting rooms (495) were used.

³Trips were obtained from Anaheim Plaza Hotel Study.

⁴Trips were obtained from Cambria Suites Study.

⁵Trips were obtained from Anabella Hotel Study.

⁶Trips were obtained from Hampton Inn & Suites Study.

Figure 6-1 illustrates the weekday peak hour opening year intersection turning movement and roadway segment ADT volumes.

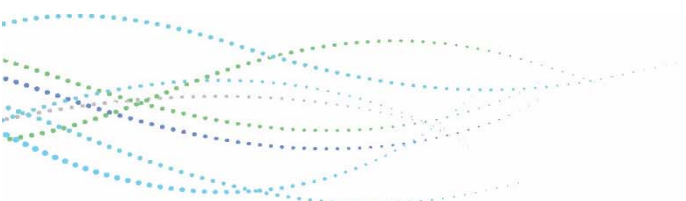
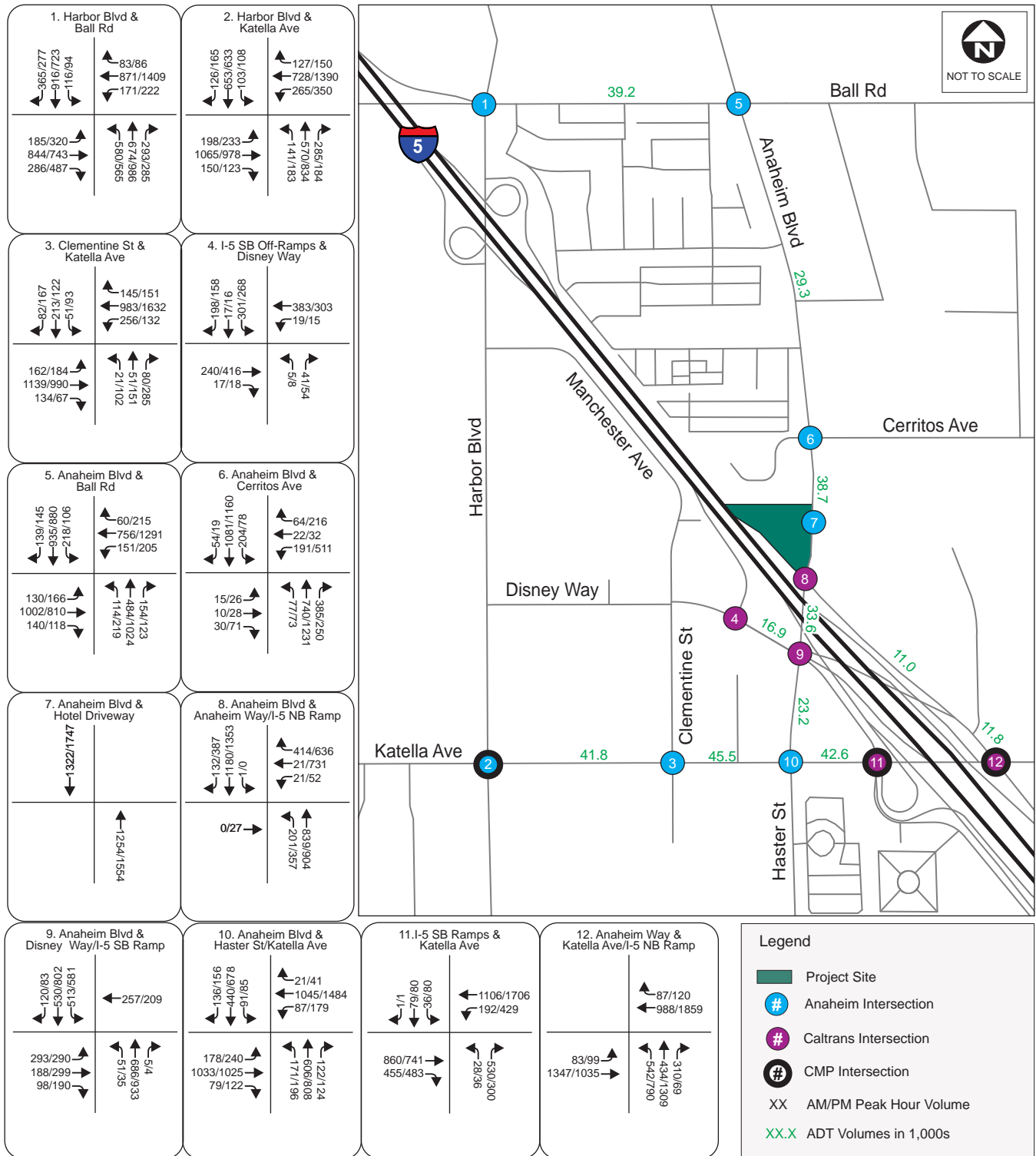




Figure 6-1: Opening Year 2019 Intersection Peak Hour Volumes and Segment ADTs





6.2 Intersection Analysis

LOS analyses were conducted to evaluate opening year intersection operations during the weekday a.m. and p.m. peak hours. The signalized intersections were analyzed using ICU methodology, and additional HCM analyses were completed at the Caltrans freeway ramp terminals and the project driveway.

6.2.1 ICU LOS

Table 6-2 summarizes the traffic conditions at all the signalized intersections under the Opening Year 2019 No Project conditions. Detailed ICU calculation worksheets are included in **Appendix B**. As shown, all of the study intersections operate at LOS D or better for opening year (2019) conditions.

Table 6-2: Opening Year 2019 Intersection ICU LOS

#	Intersection Location	Opening Year (2019)			
		AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
1	Harbor Boulevard / Ball Road	0.62	B	0.67	B
2	Harbor Boulevard / Katella Avenue ¹	0.51	A	0.59	A
3	Clementine Street / Katella Avenue	0.49	A	0.64	B
4	I-5 Southbound Off-ramp / Disney Way	0.33	A	0.33	A
5	Anaheim Boulevard / Ball Road	0.58	A	0.73	C
6	Anaheim Boulevard / Cerritos Avenue	0.45	A	0.76	C
7	Anaheim Boulevard / Hotel Driveway ²	N/A	N/A	N/A	N/A
8	Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim Way	0.51	A	0.86	D
9	Anaheim Boulevard / Disney Way	0.47	A	0.53	A
10	Anaheim Boulevard / Haster Street / Katella Avenue	0.45	A	0.60	A
11	I-5 Southbound Off-ramp / Manchester Avenue / Katella Avenue ¹	0.50	A	0.48	A
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue ¹	0.46	A	0.70	B

Notes:

¹ Congestion Management Program (CMP) intersection.

² The project driveway is an unsignalized intersection and only analyzed using HCM methodologies.

6.2.2 HCM LOS

All Caltrans intersections and project driveway were evaluated using HCM methodologies. **Table 6-3** summarizes the opening year LOS conditions. As shown in the table, all study intersections are projected to operate at LOS D or better.

For the purpose of evaluating project related impacts, signal timing splits are optimized under future scenarios as timing will likely be updated to accommodate changing demand over time.

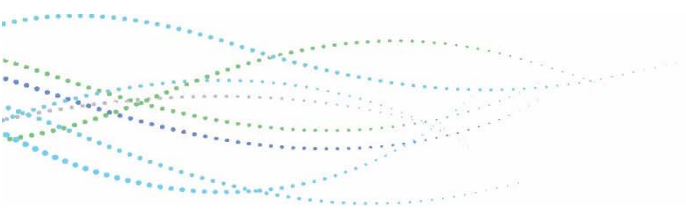




Table 6-3: Opening Year 2019 Intersection HCM LOS

#	Intersection Location	Traffic Control ¹	Opening Year (2019)			
			AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
4	I-5 Southbound Off-ramp / Disney Way	Signalized	20.4	C	15.4	B
7	Anaheim Boulevard / Hotel Driveway ¹	Unsignalized	N/A	N/A	N/A	N/A
8	Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim Way	Signalized	29.9	C	36.3	D
9	Anaheim Boulevard / Disney Way	Signalized	31.5	C	29.8	C
11	I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue	Signalized	34.6	C	15.6	B
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue	Signalized	15.3	B	23.6	C

Note:

¹ The project driveway does not exist under no project conditions.

6.2.3 Queuing Analysis

All Caltrans off-ramp approaches were evaluated using HCM methodologies. **Table 6-3** summarizes the opening year queuing analysis results. Detailed HCM queuing worksheets are included in **Appendix C**. As shown, all Caltrans off-ramp approaches are projected to have adequate storage to accommodate opening year traffic conditions.

Table 6-3: Opening Year 2019 Queuing Analysis

#	Intersection Location	Movement	Available Storage (ft.)	Opening Year (2019)		Adequate Storage (Yes/No)
				95th Percentile Queue (ft.)		
				AM	PM	
4	I-5 Southbound Off-ramp / Disney Way	SBL	480	151	122	Yes
		SBT	905	151	124	Yes
		SBR	350	43	34	Yes
11	I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue	NBL	2,485	40	46	Yes
		NBLR	2,485	84	57	Yes
		NBR	705	76	52	Yes
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue	NBL	1,060	243	483	Yes
		NBT	1,800	166	324	Yes

6.3 Roadway Segment Analysis

Roadway segment LOS analysis was completed for the ADT for opening year conditions. **Table 6-4** summarizes the roadway segment ADT volume, segment configuration, segment capacity, volume-to-capacity (V/C) ratio, and daily LOS. As shown, all roadway segments are anticipated to operate at LOS D or better.

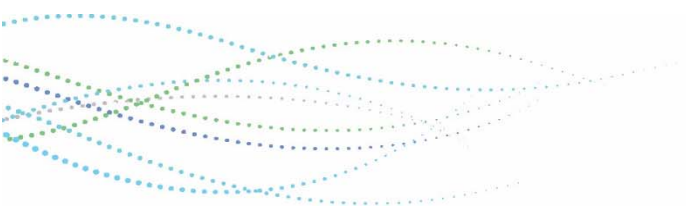


Table 6-4: Opening Year 2019 Roadway Segment ADT LOS

#	Roadway Segment Location	Mid-Block Lanes	Total Capacity	Opening Year (2019)			
				ADT	V/C	LOS	Deficient (Yes/No)
1	Ball Road between Harbor Boulevard and Anaheim Boulevard	6D	56,300	39,200	0.696	B	No
2	Disney Way between I-5 SB Off-ramp and Anaheim Boulevard	6D	56,300	16,900	0.300	A	No
3	Katella Avenue between Harbor Boulevard and Clementine Street ¹	6D	56,300	41,800	0.742	C	No
4	Katella Avenue between Clementine Street and Haster Street / Anaheim Boulevard ¹	6D	56,300	45,500	0.808	D	No
5	Katella Avenue between Haster Street/Anaheim Boulevard and I-5 SB Loop Off-ramp ¹	6D	56,300	42,600	0.757	C	No
6	Anaheim Boulevard between Ball Road and Cerritos Avenue	6D	56,300	29,300	0.520	A	No
7	Anaheim Boulevard between Cerritos Avenue and Anaheim Way	6D	56,300	38,700	0.687	B	No
8	Anaheim Boulevard between Anaheim Way and Manchester Avenue	6D	56,300	33,600	0.597	A	No
9	Anaheim Boulevard between Manchester Avenue and Katella Avenue	6D	56,300	23,200	0.412	A	No
10	Anaheim Way between Anaheim Boulevard and Disney Way Westbound Ramp	3D	28,200	11,000	0.390	A	No
11	Anaheim Way between Disney Way Westbound Ramp and Katella Avenue	3D	28,200	11,800	0.418	A	No

Notes:

¹ Congestion Management Program (CMP) arterial.





7 OPENING YEAR 2019 PLUS PROJECT CONDITIONS

Trips generated by the project were assigned to the surrounding roadway system based on methodologies discussed in *Section 4* of this report. Project trips were then added to the Opening Year baseline volumes to represent the Opening Year 2019 Plus Project conditions. **Figure 7-1** illustrates the opening year plus project volumes.

7.1 Intersection Level-of-Service

LOS analyses were conducted to evaluate opening year plus project intersection operations during the weekday a.m. and p.m. peak hours. All signalized intersections were analyzed using ICU methodology, and additional HCM analyses were completed at the Caltrans freeway ramp terminals and the project driveway. Opening year “plus project” traffic operations were compared to opening year conditions without the project in order to assess any significant traffic impacts as a result of the project.

7.1.1 ICU LOS

Table 7-1 summarizes the opening year plus project LOS using the ICU methodology. Detailed ICU calculation worksheets are included in **Appendix B**. As shown in the table below, the analyzed intersections are forecast to operate at LOS D or better, and the traffic generated by the proposed project is not expected to exceed the threshold of significance.

Table 7-1: Opening Year 2019 Plus Project Intersection ICU LOS

#	Intersection Location	Opening Year (2019)				Opening Year (2019) Plus Project				Δ In V/C		Sig. Impact (Yes/No)
		AM		PM		AM		PM		AM	PM	
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS			
1	Harbor Boulevard / Ball Road	0.62	B	0.67	B	0.62	B	0.67	B	0.00	0.00	No
2	Harbor Boulevard / Katella Avenue ¹	0.51	A	0.59	A	0.51	A	0.59	A	0.00	0.00	No
3	Clementine Street / Katella Avenue	0.49	A	0.64	B	0.49	A	0.64	B	0.00	0.00	No
4	I-5 Southbound Off-ramp / Disney Way	0.33	A	0.33	A	0.33	A	0.34	A	0.00	0.01	No
5	Anaheim Boulevard / Ball Road	0.58	A	0.73	C	0.58	A	0.74	C	0.00	0.01	No
6	Anaheim Boulevard / Cerritos Avenue	0.45	A	0.76	C	0.48	A	0.80	C	0.03	0.04	No
7	Anaheim Boulevard / Hotel Driveway ²	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim Way	0.51	A	0.86	D	0.52	A	0.87	D	0.01	0.01	No
9	Anaheim Boulevard / Disney Way	0.47	A	0.53	A	0.48	A	0.55	A	0.01	0.02	No
10	Anaheim Boulevard / Haster Street / Katella Avenue	0.45	A	0.60	A	0.46	A	0.61	B	0.01	0.01	No
11	I-5 Southbound Off-ramp / Manchester Avenue / Katella Avenue ¹	0.50	A	0.48	A	0.50	A	0.49	A	0.00	0.01	No
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue ¹	0.46	A	0.70	B	0.46	A	0.70	B	0.00	0.00	No

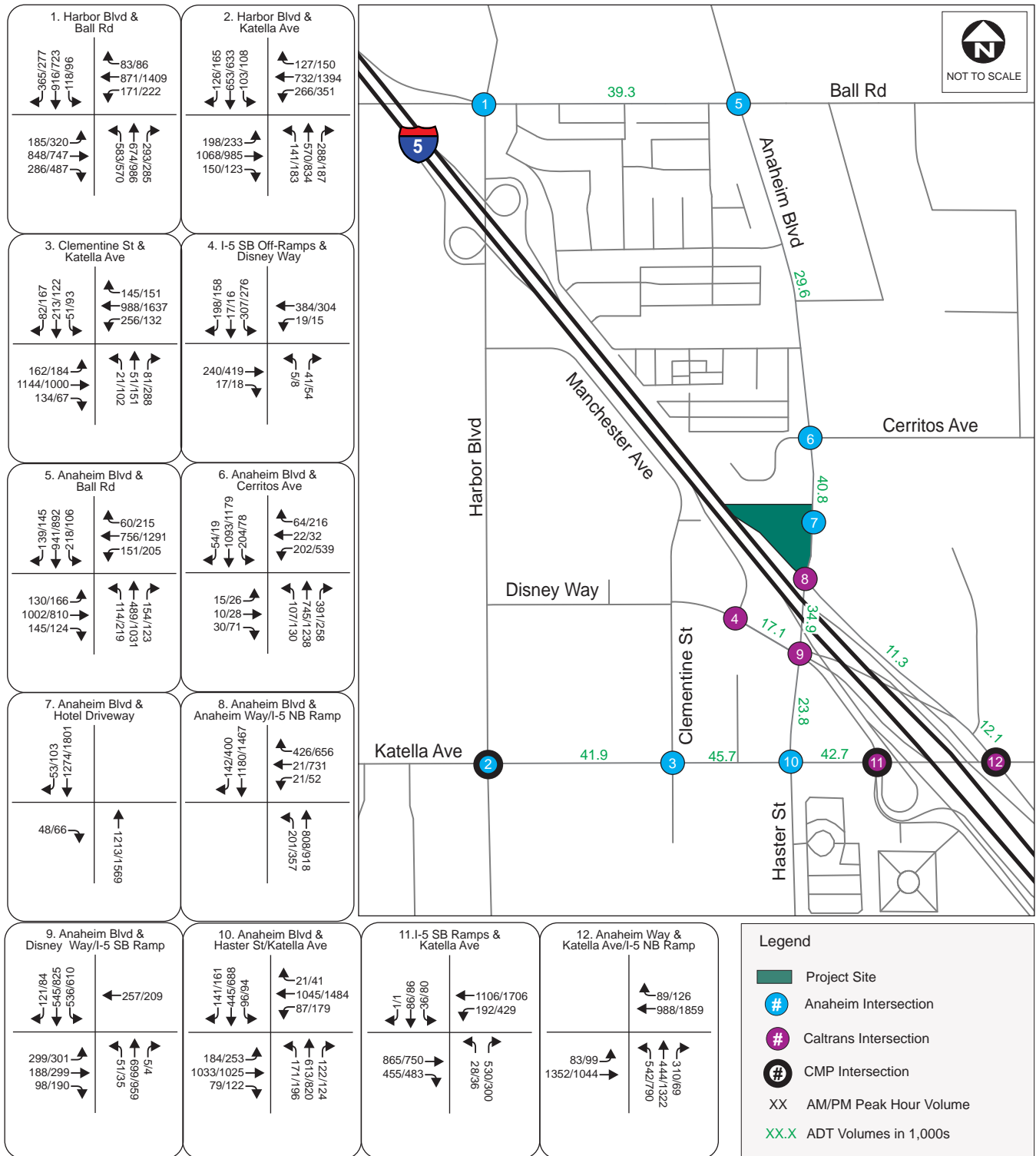
Notes:

¹ Congestion Management Program (CMP) intersection.

² The project driveway is an unsignalized intersection and only analyzed using HCM methodologies.



Figure 7-1: Opening Year 2019 Plus Project Intersection Peak Hour Volumes and Segment ADTs





7.1.2 HCM LOS

All Caltrans intersections and project driveway were evaluated using HCM methodologies. **Table 6-3** summarizes the opening year LOS conditions. As shown in the table, all study intersections are projected to operate at LOS D or better under Opening Year Plus Project conditions.

Table 7-2: Opening Year 2019 Plus Project Intersection HCM LOS

#	Intersection Location	Traffic Control ¹	Opening Year (2019)				Opening Year (2019) Plus Project				Deficient LOS (Yes/No)
			AM		PM		AM		PM		
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
4	I-5 Southbound Off-ramp / Disney Way	Signalized	20.4	C	15.4	B	20.8	C	15.7	B	No
7	Anaheim Boulevard / Hotel Driveway ¹	Unsignalized	N/A	N/A	N/A	N/A	17.8	C	30.4	D	No
8	Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim Way	Signalized	29.9	C	36.3	D	30.7	C	39.6	D	No
9	Anaheim Boulevard / Disney Way	Signalized	31.5	C	29.8	C	31.7	C	30.3	C	No
11	I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue	Signalized	34.6	C	15.6	B	34.7	C	15.7	B	No
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue	Signalized	15.3	B	23.6	C	15.4	B	23.7	C	No

Note:

¹ The project driveway does not exist under no project conditions. For unsignalized intersections, delay and LOS of worst movement is reported.

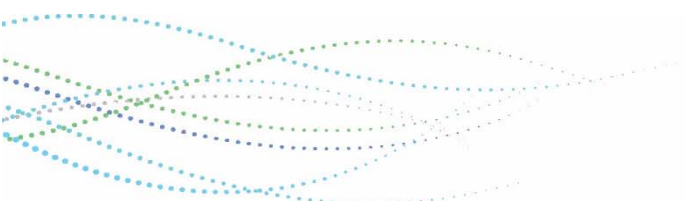
The traffic generated by the proposed project is not expected to exceed the threshold of significance and no Project related significant impact was identified.

7.1.3 Queuing Analysis

All Caltrans off-ramp approaches were evaluated using HCM methodologies. **Table 7-3** summarizes the opening year plus project queuing analysis results. Detailed HCM queuing worksheets are included in **Appendix C**. As shown, all Caltrans off-ramp approaches are projected to have adequate storage to accommodate opening year plus project traffic conditions.

Table 7-3: Opening Year 2019 Plus Project Queuing Analysis

#	Intersection Location	Movement	Available Storage (ft.)	Opening Year (2019) Plus Project		Adequate Storage (Yes/No)
				95th Percentile Queue (ft.)		
				AM	PM	
4	I-5 Southbound Off-ramp / Disney Way	SBL	480	155	123	Yes
		SBT	905	153	128	Yes
		SBR	350	43	37	Yes
11	I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue	NBL	2,485	40	46	Yes
		NBLR	2,485	84	57	Yes
		NBR	705	76	52	Yes
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue	NBL	1,060	243	483	Yes
		NBT	1,800	169	328	Yes





7.2 Roadway Segment Analysis

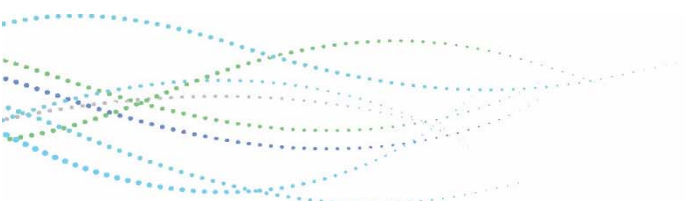
Roadway segment LOS analysis was completed for the ADT for opening year plus project conditions. **Table 7-4** summarizes the roadway segment ADT volume, segment configuration, segment capacity, volume-to-capacity (V/C) ratio, and daily LOS. As shown, all roadway segments are anticipated to operate at LOS D or better, and no significant impacts were identified.

Table 7-4: Opening Year 2019 Plus Project Roadway Segment ADT LOS

	Roadway Segment	Mid-Block Lanes	Total Capacity	Opening Year (2019)			Opening Year (2019) Plus Project				Δ in V/C
				ADT	V/C	LOS	ADT	V/C	LOS	Deficient (Yes/No)	
1	Ball Road between Harbor Boulevard and Anaheim Boulevard	6D	56,300	39,200	0.696	B	39,300	0.698	B	No	0.002
2	Disney Way between I-5 SB Off-ramp and Anaheim Boulevard	6D	56,300	16,900	0.300	A	17,100	0.304	A	No	0.004
3	Katella Avenue between Harbor Boulevard and Clementine Street ¹	6D	56,300	41,800	0.742	C	41,900	0.744	C	No	0.002
4	Katella Avenue between Clementine Street and Haster Street/Anaheim Boulevard ¹	6D	56,300	45,500	0.808	D	45,700	0.812	D	No	0.004
5	Katella Avenue between Haster Street/Anaheim Boulevard and I-5 SB Loop Off-ramp ¹	6D	56,300	42,600	0.757	C	42,700	0.758	C	No	0.001
6	Anaheim boulevard between Ball Road and Cerritos Avenue	6D	56,300	29,300	0.520	A	29,600	0.526	A	No	0.006
7	Anaheim boulevard between Cerritos Avenue and Anaheim Way	6D	56,300	38,700	0.687	B	40,800	0.725	C	No	0.038
8	Anaheim Boulevard between Anaheim Way and Manchester Avenue	6D	56,300	33,600	0.597	A	34,900	0.620	B	No	0.023
9	Anaheim boulevard between Manchester Avenue and Katella Avenue	6D	56,300	23,200	0.412	A	23,800	0.423	A	No	0.011
10	Anaheim Way between Anaheim Boulevard and Disney Way Westbound Ramp	3D	28,200	11,000	0.390	A	11,300	0.401	A	No	0.011
11	Anaheim Way between Disney Way Westbound Ramp and Katella Avenue	3D	28,200	11,800	0.418	A	12,100	0.429	A	No	0.011

Notes:

¹ Congestion Management Program (CMP) arterial.





8 GENERAL PLAN BUILD OUT YEAR 2035 CONDITIONS

The General Plan Build Out year is 2035. This section analyzes the traffic conditions without the proposed project.

8.1 Build Out Year Traffic Volumes

Traffic analysis for General Plan Build Out Year 2035 conditions were performed based on post-processed volumes developed from the Anaheim Traffic Analysis Model (ATAM). ATAM is the traffic forecasting modeling tool for the City of Anaheim. Future model raw volumes for arterial intersection and roadway segments were post-processed based on the standard post-processing methodology as defined in NCHRP Report 255. Observed existing traffic volumes were used as the basis to develop future post-processed volumes.

Figure 8-1 illustrates the General Plan Build Out Year intersection peak hour volumes and roadway segment daily volumes.

8.2 Intersection Analysis

LOS analyses were conducted to evaluate build out year intersection operations during the weekday a.m. and p.m. peak hours. The signalized intersections were analyzed using ICU methodology, and additional HCM analyses were completed at the Caltrans freeway ramp terminals and the two project driveways. Detailed ICU and HCM worksheets are included in **Appendix B** and **C**, respectively.

8.2.1 ICU LOS

Table 8-1 summarizes the traffic conditions at the study intersections under the General Plan Build Out year traffic conditions. As shown, all of the study intersections operate at LOS D or better for General Plan Build Out without project conditions.

Table 8-1: General Plan Build Out Year 2035 Intersection ICU LOS

#	Intersection Location	General Plan Build Out (2035)			
		AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
1	Harbor Boulevard / Ball Road	0.80	C	0.84	D
2	Harbor Boulevard / Katella Avenue ¹	0.60	A	0.70	B
3	Clementine Street / Katella Avenue	0.52	A	0.74	C
4	I-5 Southbound Off-ramp / Disney Way	0.48	A	0.48	A
5	Anaheim Boulevard / Ball Road	0.69	B	0.77	C
6	Anaheim Boulevard / Cerritos Avenue	0.62	B	0.80	C
7	Anaheim Boulevard / Hotel Driveway ²	N/A	N/A	N/A	N/A
8	Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim Way	0.57	A	0.82	D
9	Anaheim Boulevard / Disney Way	0.59	A	0.74	C
10	Anaheim Boulevard / Haster Street / Katella Avenue	0.53	A	0.70	B
11	I-5 Southbound Off-ramp / Manchester Avenue / Katella Avenue ¹	0.65	B	0.57	A
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue ¹	0.76	C	0.81	D

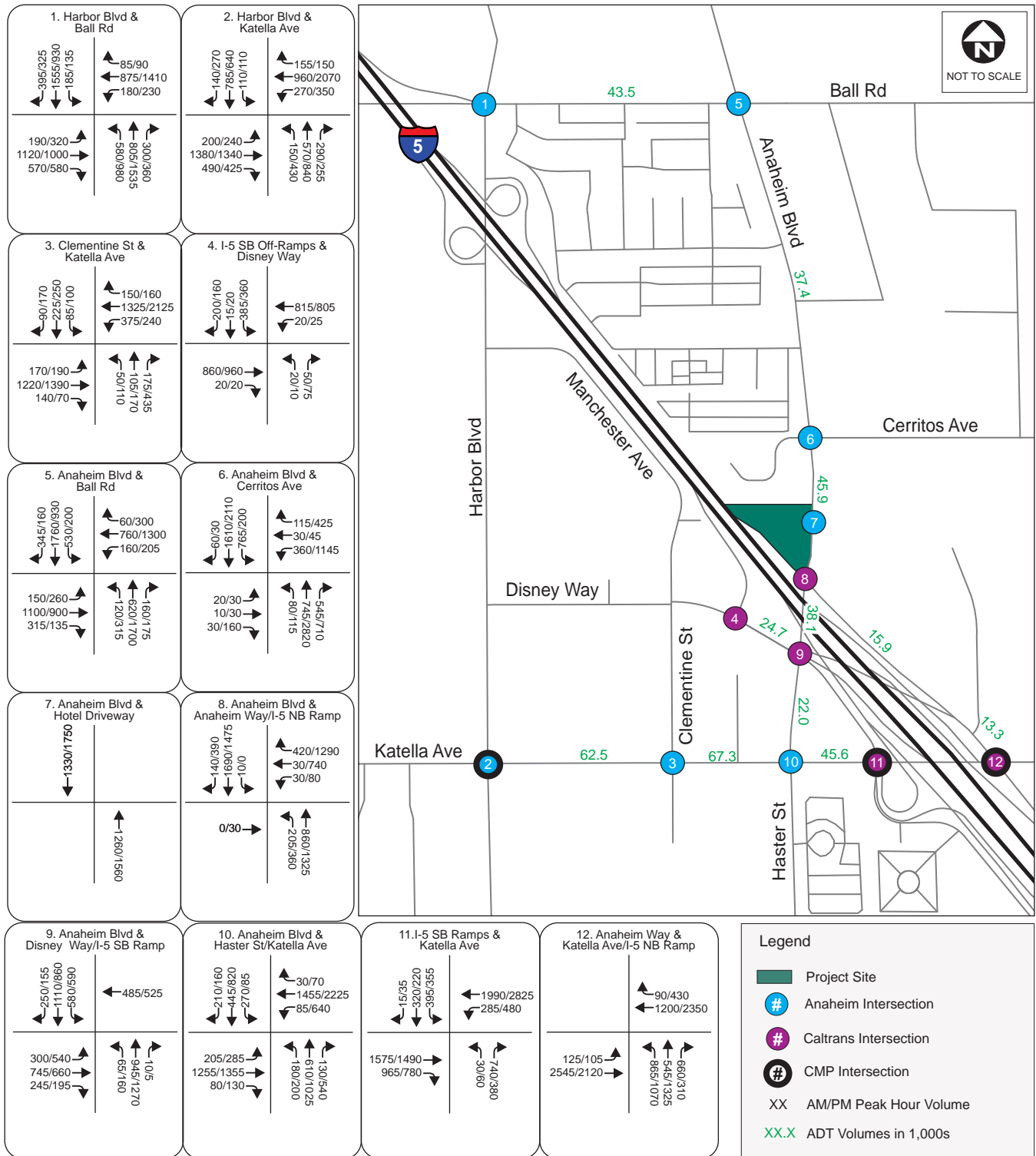
Notes:

¹ Congestion Management Program (CMP) intersection.

² The project driveway is an unsignalized intersection and only analyzed using HCM methodologies.



Figure 8-1: General Plan Build Out Year 2035 Intersection Peak Hour Volumes and Segment ADTs





8.2.2 HCM LOS

All Caltrans intersections (freeway ramp terminals) and project driveway were evaluated using HCM methodologies. **Table 8-2** summarizes the General Plan Build Out year LOS conditions.

Table 8-2: General Plan Build Out Year 2035 Intersection HCM LOS

#	Intersection Location	Traffic Control ¹	General Plan Build Out (2035)			
			AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
4	I-5 Southbound Off-ramp / Disney Way	Signalized	21.4	C	17.6	B
7	Anaheim Boulevard / Hotel Driveway ¹	Unsignalized	N/A	N/A	N/A	N/A
8	Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim Way	Signalized	33.9	C	75.3	E
9	Anaheim Boulevard / Disney Way	Signalized	32.4	C	48.4	D
11	I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue	Signalized	64.0	E	47.6	D
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue	Signalized	40.7	D	43.4	D

Note:

¹The project driveway does not exist under no project conditions.

As shown in the table above, the following two (2) intersections are forecasted to operate at a deficient LOS (LOS E or worse) during AM or PM peak hours under General Plan Build Out without project conditions:

- #8. Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim Way (PM LOS E)
- #11. I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue (AM LOS E)

8.2.3 Queuing Analysis

All Caltrans off-ramp approaches were evaluated using HCM methodologies. **Table 8-3** summarizes the General Plan Build Out year queuing analysis results. Detailed HCM queuing worksheets are included in Appendix C. As shown, all Caltrans off-ramp approaches are projected to have adequate storage to accommodate General Plan Build Out year traffic conditions.

Table 8-3: General Plan Build Out Year 2035 Queuing Analysis

#	Intersection Location	Movement	Available Storage (ft.)	General Plan Build Out (2035)		
				95th Percentile Queue (ft.)		Adequate Storage (Yes/No)
				AM	PM	
4	I-5 Southbound Off-ramp / Disney Way	SBL	480	174	162	Yes
		SBT	905	182	173	Yes
		SBR	350	45	37	Yes
11	I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue	NBL	2,485	36	66	Yes
		NBLR	2,485	323	70	Yes
		NBR	705	295	63	Yes
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue	NBL	1,060	469	646	Yes
		NBT	1,800	295	488	Yes



8.3 Roadway Segment Analysis

Roadway segment LOS analysis was completed for the ADT for the General Plan Build Out year conditions. **Table 8-4** summarizes the roadway segment ADT volume, segment configuration, segment capacity, volume-to-capacity (V/C) ratio, and daily LOS.

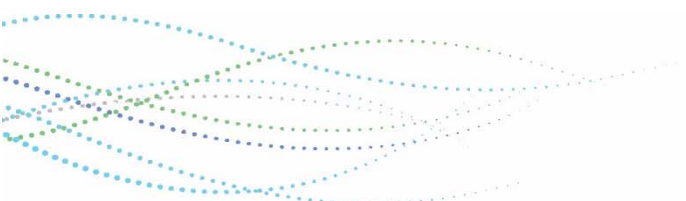
Table 8-4: General Plan Build Out Year 2035 Roadway Segment ADT LOS

#	Roadway Segment Location	Mid-Block Lanes	Total Capacity	General Plan Build Out Year (2035)			
				ADT	V/C	LOS	Deficient (Yes/No)
1	Ball Road between Harbor Boulevard and Anaheim Boulevard	6D	56,300	43,500	0.773	C	No
2	Disney Way between I-5 SB Off-ramp and Anaheim Boulevard	6D	56,300	24,700	0.439	A	No
3	Katella Avenue between Harbor Boulevard and Clementine Street ¹	8D	75,000	62,500	0.833	D	No
4	Katella Avenue between Clementine Street and Haster Street / Anaheim Boulevard ¹	8D	75,000	67,300	0.897	D	No
5	Katella Avenue between Haster Street/Anaheim Boulevard and I-5 SB Loop Off-ramp ¹	8D	75,000	45,600	0.608	B	No
6	Anaheim Boulevard between Ball Road and Cerritos Avenue	6D	56,300	37,400	0.664	B	No
7	Anaheim Boulevard between Cerritos Avenue and Anaheim Way	6D	56,300	45,900	0.815	D	Yes
8	Anaheim Boulevard between Anaheim Way and Manchester Avenue	6D	56,300	38,100	0.677	B	No
9	Anaheim Boulevard between Manchester Avenue and Katella Avenue	6D	56,300	22,000	0.391	A	No
10	Anaheim Way between Anaheim Boulevard and Disney Way Westbound Ramp	4U	25,000	15,900	0.636	B	No
11	Anaheim Way between Disney Way Westbound Ramp and Katella Avenue	4U	25,000	13,300	0.532	A	No

Notes:

¹ Congestion Management Program (CMP) arterial.

As shown in the table above, all roadway segments are anticipated to operate at acceptable LOS (LOS C or better for City of Anaheim and LOS D or better for CMP) with the exception of the arterial segment at Anaheim Boulevard between Cerritos Avenue and Anaheim Way which is projected to operate deficiently under Year 2035 No Project conditions.





9 GENERAL PLAN BUILD OUT YEAR 2035 PLUS PROJECT CONDITIONS

Trips generated by the project were assigned to the surrounding roadway system based on methodologies discussed in *Section 4* of this report. Project trips were then added to the Build Out Year baseline volumes to represent the Build Out Year 2035 Plus Project conditions. **Figure 9-1** illustrates the General Plan Build Out year plus project volumes.

9.1 Intersection Analysis

LOS analyses were conducted to evaluate the General Plan Build Out year plus project intersection operations during the weekday a.m. and p.m. peak hours. All signalized intersections were analyzed using ICU methodology, and additional HCM analyses were completed at the Caltrans freeway ramp terminals and the project driveways. Detailed ICU and HCM worksheets are included in **Appendices B** and **C**, respectively.

6.1.1 ICU LOS

Table 9-1 summarizes the General Plan Build Out year plus project LOS using the ICU methodology. As shown, all of the study intersections operate at LOS D or better for General Plan Build Out with project conditions and no project related significant impact was identified.

Table 9-1: General Plan Build Out Year 2035 Plus Project Intersection ICU LOS

#	Intersection Location	General Plan Build Out Year (2035)				General Plan Build Out Year (2035) Plus Project				Δ In V/C		Sig. Impact (Yes/No)
		AM		PM		AM		PM		AM	PM	
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS			
1	Harbor Boulevard / Ball Road	0.80	C	0.84	D	0.80	C	0.84	D	0.00	0.00	No
2	Harbor Boulevard / Katella Avenue ¹	0.60	A	0.70	B	0.60	A	0.70	B	0.00	0.00	No
3	Clementine Street / Katella Avenue	0.52	A	0.74	C	0.52	A	0.74	C	0.00	0.00	No
4	I-5 Southbound Off-ramp / Disney Way	0.48	A	0.48	A	0.49	A	0.49	A	0.01	0.01	No
5	Anaheim Boulevard / Ball Road	0.69	B	0.77	C	0.69	B	0.77	C	0.00	0.00	No
6	Anaheim Boulevard / Cerritos Avenue	0.62	B	0.80	C	0.62	B	0.81	D	0.00	0.01	No
7	Anaheim Boulevard / Hotel Driveway ²	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim Way	0.57	A	0.82	D	0.58	A	0.83	D	0.01	0.01	No
9	Anaheim Boulevard / Disney Way	0.59	A	0.74	C	0.60	A	0.75	C	0.01	0.01	No
10	Anaheim Boulevard / Haster Street / Katella Avenue	0.53	A	0.70	B	0.53	A	0.71	C	0.00	0.01	No
11	I-5 Southbound Off-ramp / Manchester Avenue / Katella Avenue ¹	0.65	B	0.57	A	0.65	B	0.57	A	0.00	0.00	No
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue ¹	0.76	C	0.81	D	0.76	C	0.81	D	0.00	0.00	No

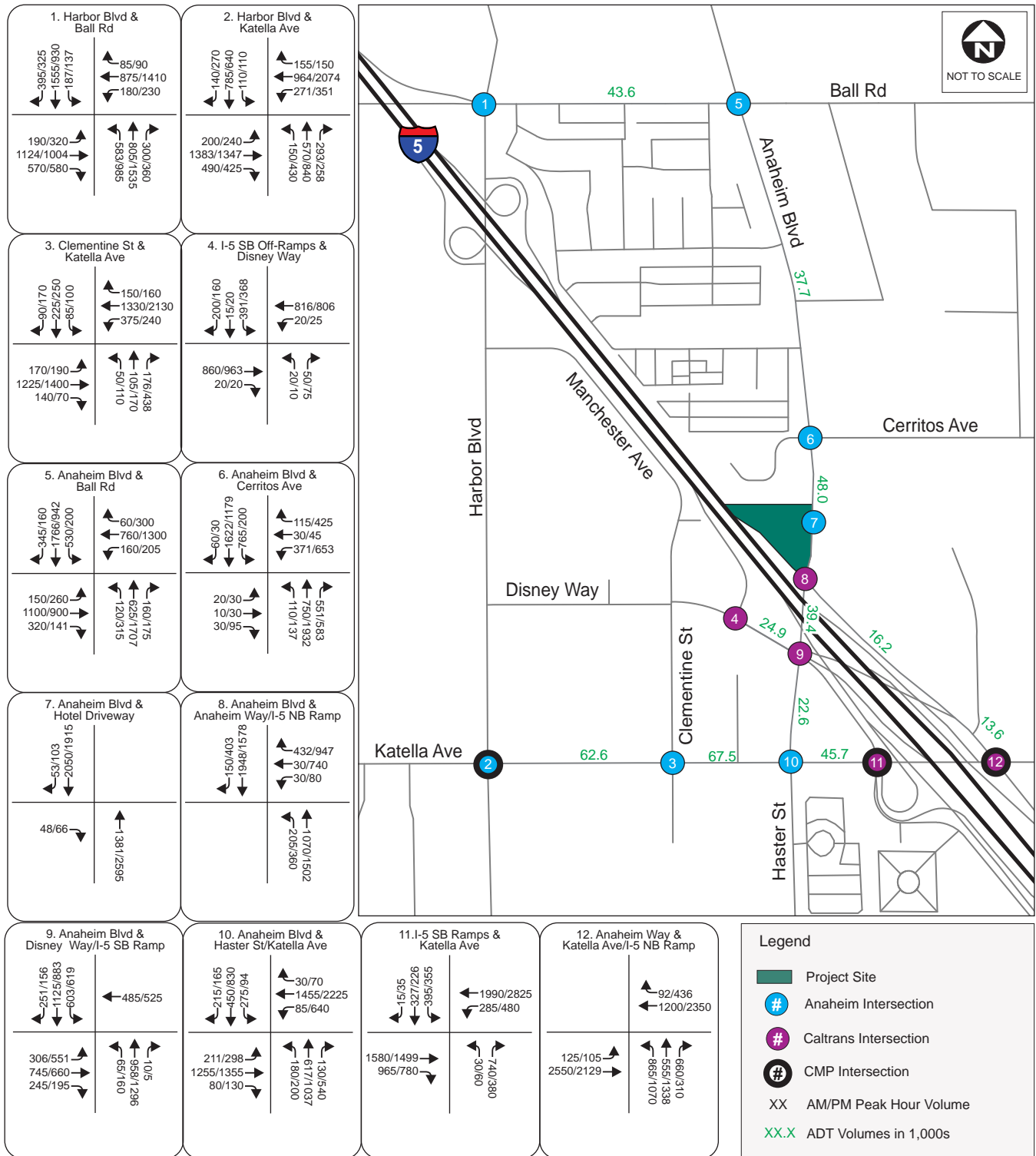
Notes:

¹ Congestion Management Program (CMP) intersection.

² The project driveway is an unsignalized intersection and only analyzed using HCM methodologies.



Figure 9-1: General Plan Build Out Year 2035 Plus Project Intersection Peak Hour Volumes and Segment ADTs





9.1.1 HCM LOS

All Caltrans intersections (freeway ramp terminals) and the project driveway were evaluated using HCM methodologies. **Table 9-2** summarizes the General Plan Build Out year plus project LOS for these intersections.

Table 9-2: General Plan Build Out Year 2035 Plus Project Intersection HCM LOS

#	Intersection Location	Traffic Control ¹	General Plan Build Out Year (2035)				General Plan Build Out Year (2035) Plus Project				Deficient LOS (Yes/No)
			AM		PM		AM		PM		
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
4	I-5 Southbound Off-ramp / Disney Way	Signalized	21.4	C	17.6	B	22.2	C	18.1	B	No
7	Anaheim Boulevard / Hotel Driveway ¹	Unsignalized	N/A	N/A	N/A	N/A	32.8	D	34.2	D	No
8	Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim way	Signalized	33.9	C	75.3	E	37.0	D	78.9	E	Yes
9	Anaheim Boulevard / Disney Way	Signalized	32.4	C	48.4	D	32.8	C	51.6	D	No
11	I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue	Signalized	64.0	E	47.6	D	64.5	E	48.3	D	Yes
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue	Signalized	40.7	D	43.4	D	41.1	D	43.9	D	No

Note:

¹ The project driveway does not exist under no project conditions. For unsignalized intersections, delay and LOS of worst movement is reported.

As shown in the table above, the following two (2) intersections were forecasted to operate deficiently (LOS E or worse) during AM and PM peak hours under General Plan Build Out with project conditions:

- #8. Anaheim Boulevard / I-5 Northbound On-ramp / Anaheim way (PM LOS E)
- #11. I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue (AM LOS E)

The two (2) intersections are forecasted to operate at LOS E under 2035 No Project conditions and the LOS are expected to be maintained under Project conditions, therefore no Project related significant impact was identified per Caltrans criteria.

9.1.2 Queuing Analysis

All Caltrans off-ramp approaches were evaluated using HCM methodologies. **Table 9-3** summarizes the General Plan Build Out year plus project queuing analysis results. Detailed HCM queuing worksheets are included in **Appendix C**. As shown, all Caltrans off-ramp approaches are projected to have adequate storage to accommodate General Plan Build Out year plus project traffic conditions.

Table 9-3: General Plan Build Out Year 2035 Plus Project Queuing Analysis

#	Intersection Location	Movement	Available Storage (ft.)	General Plan Build Out Plus Project		Adequate Storage (Yes/No)
				95th Percentile Queue (ft.)		
				AM	PM	
4	I-5 Southbound Off-ramp / Disney Way	SBL	480	178	167	Yes
		SBT	905	185	176	Yes
		SBR	350	45	37	Yes



#	Intersection Location	Movement	Available Storage (ft.)	General Plan Build Out Plus Project		
				95th Percentile Queue (ft.)		Adequate Storage (Yes/No)
				AM	PM	
11	I-5 Southbound Loop Off-ramp / Manchester Avenue / Katella Avenue	NBL	2,485	36	66	Yes
		NBLR	2,485	323	70	Yes
		NBR	705	295	63	Yes
12	I-5 Northbound Off-ramp / Anaheim Way / Katella Avenue	NBL	1,060	469	646	Yes
		NBT	1,800	297	493	Yes

9.2 Roadway Segment Analysis

Roadway segment LOS analysis was completed for the ADT for the General Plan Build Out year plus project conditions. **Table 9-4** summarizes the roadway segment ADT volume, segment configuration, segment capacity, volume-to-capacity (V/C) ratio, and daily LOS.

Table 9-4: General Plan Build Out Year 2035 Plus Project Roadway Segment ADT LOS

	Roadway Segment	Mid-Block Lanes	Total Capacity	General Plan Build Out Year (2035)			General Plan Build Out Year (2035) Plus Project				Δ in V/C
				ADT	V/C	LOS	ADT	V/C	LOS	Deficient (Yes/No)	
1	Ball Road between Harbor Boulevard and Anaheim Boulevard	6D	56,300	43,500	0.773	C	43,600	0.774	C	No	0.001
2	Disney Way between I-5 SB Off-ramp and Anaheim Boulevard	6D	56,300	24,700	0.439	A	24,900	0.442	A	No	0.003
3	Katella Avenue between Harbor Boulevard and Clementine Street ¹	8D	75,000	62,500	0.833	D	62,600	0.835	D	No	0.002
4	Katella Avenue between Clementine Street and Haster Street/Anaheim Boulevard ¹	8D	75,000	67,300	0.897	D	67,500	0.900	E	No	0.003
5	Katella Avenue between Haster Street/Anaheim Boulevard and I-5 SB Loop Off-ramp ¹	8D	75,000	45,600	0.608	B	45,700	0.609	B	No	0.001
6	Anaheim Boulevard between Ball Road and Cerritos Avenue	6D	56,300	37,400	0.664	B	37,700	0.670	B	No	0.006
7	Anaheim Boulevard between Cerritos Avenue and Anaheim Way	6D	56,300	45,900	0.815	D	48,000	0.853	D	Yes	0.038
8	Anaheim Boulevard between Anaheim Way and Manchester Avenue	6D	56,300	38,100	0.677	B	39,400	0.700	B	No	0.023
9	Anaheim Boulevard between Manchester Avenue and Katella Avenue	6D	56,300	22,000	0.391	A	22,600	0.401	A	No	0.010
10	Anaheim Way between Anaheim Boulevard and Disney Way Westbound Ramp	4U	25,000	15,900	0.636	B	16,200	0.648	B	No	0.012
11	Anaheim Way between Disney Way Westbound Ramp and Katella Avenue	4U	25,000	13,300	0.532	A	13,600	0.544	A	No	0.012

Notes:

¹ Congestion Management Program (CMP) arterial.

As shown in the table above, all roadway segments are anticipated to operate at acceptable LOS (LOS C or better for City of Anaheim and LOS E or better for CMP) with the exception of the arterial segment at Anaheim

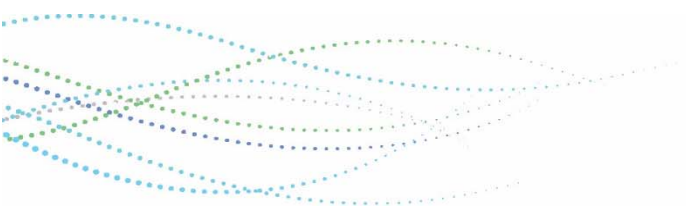


Boulevard between Cerritos Avenue and Anaheim Way which is projected to operate deficiently under both Year 2035 No Project and Plus Project conditions.

Per City of Anaheim evaluation guidelines summarized in Section 2.3.1, a peak hour link LOS analysis was performed to determine if significant impacts must be addressed. **Table 9-5** below summarizes the peak hour link LOS analysis results for the arterial segment of Anaheim Boulevard between Cerritos Avenue and Anaheim Way. As shown in the table, the roadway segment is anticipated to operate at acceptable LOS (LOS C or better) under both AM and PM peak hour conditions and no project related significant impact was identified.

Table 9-5: General Plan Build Out Year 2035 Plus Project Roadway Segment Peak Hour Link Analysis

	Roadway Segment	Mid-Block Lanes	Peak Hour	Link Capacity	Peak Hour Flow		V/C	LOS	Significant Impact?
					SB	NB			
7	Anaheim Boulevard between Cerritos Avenue and Anaheim Way	6	AM	6,879	2,098	1,100	0.465	A	No
			PM	4,670	1,981	1,582	0.763	C	No





10 IMPACTS AND MITIGATIONS

This section summarizes the without and with Project traffic operating conditions at the study intersections and roadway segments. Traffic operation deficiencies and impacts are identified based on criteria documented in **Section 2** of this document.

10.1 Intersections

No project related significant impacts were identified for the study intersections for existing, opening year (2019), or General Plan Build Out year (2035) traffic conditions. Therefore, no mitigation measures are required.

All Caltrans off-ramp approaches are expected to have adequate storage for existing, opening year (2019), and General Plan Build Out year (2035) traffic conditions. Therefore, no mitigation measures are required.

10.2 Roadway Segments

No significant impacts were identified for the study arterial roadway segments for existing, opening year (2019), or General Plan Build Out year (2035) traffic conditions; therefore, no mitigation measures would be required to address arterial segment impacts.

10.3 Transit and Bikeway

It is recommended that the developer include rideshare and vanpooling opportunities for employees and patrons, especially via Anaheim Resort Transit.

Due to the proposed bikeways access to the Project, it is recommended that the developer provide visible and adequate bike and bike parking facilities for both employees and patrons. Also, the developer should coordinate with the City of Anaheim for any proposed bicycle and pedestrian pathway along Manchester Avenue and Disney Way.



11 CONCLUSIONS

The proposed Radisson Hotel located at 1601 S. Anaheim Boulevard is a 4-star high-rise resort hotel with 330 rooms with first-class amenities including restaurants, a spa, an outdoor pool, and a rooftop bar and lounge. The estimated opening year of the proposed hotel is 2019. The project site is located at the northwest corner of the intersection of Anaheim Boulevard with I-5. Access to the site would be provided by a proposed right-in/right-out driveway along Anaheim Boulevard.

Based on rates developed for Anaheim Resort hotels, the proposed hotel is forecast to generate 103 new a.m. peak hour trips, 169 new p.m. peak hour trips, and 2,248 new weekday daily trips.

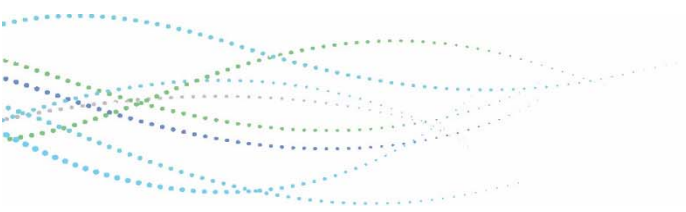
The results of the traffic analysis indicate the proposed Project would not create any project-level significant impact to the surrounding roadway system during the existing, opening year (2019), or General Plan Build Out year (2035) conditions, with the exception of the arterial segment at Anaheim Boulevard between Cerritos Avenue and Anaheim Way. The arterial segment is projected to operate deficiently under both Year 2035 no project and plus project conditions. However, no project related significant impact was identified for the arterial segment as it is projected to perform deficiently under no project conditions.

It is recommended that the developer include rideshare and vanpooling opportunities for employees and patrons.

Due to the proposed bikeways connecting to the proposed development, it is recommended that the developer provide visible and adequate bike facilities for both employees and patrons. Also, the developer should coordinate with the City of Anaheim for any proposed bicycle and pedestrian pathway improvement as part of the Project.



APPENDIX A – TRAFFIC COUNTS



National Data & Surveying Services

Intersection Turning Movement Count

Location: Harbor Blvd & Ball Rd
City: Anaheim
Control: Signalized

Project ID: 17-01160-001
Date: 8/15/2017

Total

NS/EW Streets:	Harbor Blvd				Harbor Blvd				Ball Rd				Ball Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	3 NT	1 NR	0 NU	2 SL	3 ST	1 SR	0 SU	2 EL	3 ET	1 ER	0 EU	2 WL	4 WT	0 WR	0 WU	
7:00 AM	111	124	57	5	18	247	70	1	35	194	79	3	30	158	15	7	1154
7:15 AM	138	155	59	4	22	242	79	0	44	179	83	4	36	183	9	8	1245
7:30 AM	111	147	74	5	32	220	87	0	52	240	81	4	39	217	25	6	1340
7:45 AM	138	175	78	4	30	240	80	0	51	191	59	2	33	210	31	3	1325
8:00 AM	151	160	75	4	27	220	80	0	30	179	70	2	30	200	16	4	1248
8:15 AM	153	139	60	3	25	197	111	0	36	217	70	3	48	227	9	5	1303
8:30 AM	193	143	66	5	22	174	103	0	45	191	61	0	47	244	6	4	1304
8:45 AM	170	151	62	2	21	190	83	2	45	147	78	2	57	269	13	7	1299
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	1165	1194	531	32	197	1730	693	3	338	1538	581	20	320	1708	124	44	10218
	39.87%	40.86%	18.17%	1.10%	7.51%	65.96%	26.42%	0.11%	13.65%	62.09%	23.46%	0.81%	14.57%	77.78%	5.65%	2.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	553	621	287	16	114	877	358	0	169	827	280	11	150	854	81	18	5216
PEAK HR FACTOR :	0.904	0.887	0.920	0.800	0.891	0.914	0.806	0.000	0.813	0.861	0.864	0.688	0.781	0.941	0.653	0.750	0.973
	0.935				0.964				0.853				0.954				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	3 NT	1 NR	0 NU	2 SL	3 ST	1 SR	0 SU	2 EL	3 ET	1 ER	0 EU	2 WL	4 WT	0 WR	0 WU	
4:00 PM	151	177	55	1	21	152	88	0	57	196	98	9	45	389	15	5	1459
4:15 PM	138	224	72	6	25	172	88	1	59	190	134	11	40	315	17	13	1505
4:30 PM	130	217	84	5	19	188	71	1	46	185	104	4	37	323	19	11	1444
4:45 PM	123	229	51	5	22	156	70	1	71	197	124	4	43	401	11	14	1522
5:00 PM	134	222	82	9	26	155	75	0	75	163	111	11	42	349	24	8	1486
5:15 PM	126	275	61	5	22	211	71	0	59	173	130	6	36	330	28	11	1544
5:30 PM	148	210	75	4	19	173	56	2	79	195	111	8	53	301	21	11	1466
5:45 PM	142	227	48	7	20	125	59	0	38	214	120	2	46	355	21	13	1437
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	1092	1781	528	42	174	1332	578	5	484	1513	932	55	342	2763	156	86	11863
	31.72%	51.73%	15.34%	1.22%	8.33%	63.76%	27.67%	0.24%	16.22%	50.70%	31.23%	1.84%	10.22%	82.55%	4.66%	2.57%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	531	936	269	23	89	695	272	3	284	728	476	29	174	1381	84	44	6018
PEAK HR FACTOR :	0.897	0.851	0.820	0.639	0.856	0.823	0.907	0.375	0.899	0.924	0.915	0.659	0.821	0.861	0.750	0.786	0.974
	0.942				0.871				0.958				0.897				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Harbor Blvd & Ball Rd
City: Anaheim
Control: Signalized

Project ID: 17-01160-001
Date: 8/15/2017

Bikes

NS/EW Streets:	Harbor Blvd				Harbor Blvd				Ball Rd				Ball Rd					
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
7:00 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0	0	7
7:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2
7:30 AM	0	0	0	0	0	4	0	0	0	1	0	0	0	4	1	0	0	10
7:45 AM	0	2	0	0	0	1	0	0	0	1	0	0	0	2	1	0	0	7
8:00 AM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES :	0	3	0	0	0	9	0	0	2	4	0	0	0	10	2	0	0	30
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	33.33%	66.67%	0.00%	0.00%	0.00%	83.33%	16.67%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL	
PEAK HR VOL :	0	2	0	0	0	5	0	0	2	2	0	0	0	6	2	0	0	19
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.313	0.000	0.000	0.250	0.500	0.000	0.000	0.000	0.375	0.500	0.000	0.000	0.475
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
4:00 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	3
4:45 PM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
5:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	3
5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
TOTAL VOLUMES :	0	1	1	0	1	1	0	0	1	6	0	0	1	4	0	0	0	16
APPROACH %'s :	0.00%	50.00%	50.00%	0.00%	50.00%	50.00%	0.00%	0.00%	14.29%	85.71%	0.00%	0.00%	20.00%	80.00%	0.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL	
PEAK HR VOL :	0	0	0	0	1	1	0	0	0	2	0	0	1	2	0	0	0	7
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.250	0.500	0.000	0.000	0.000	0.583

National Data & Surveying Services

Intersection Turning Movement Count

Location: Harbor Blvd & Ball Rd
City: Anaheim

Project ID: 17-01160-001
Date: 8/15/2017

Pedestrians (Crosswalks)

NS/EW Streets:	Harbor Blvd		Harbor Blvd		Ball Rd		Ball Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
7:00 AM	3	5	1	0	11	8	0	7	35
7:15 AM	5	2	0	4	0	6	2	4	23
7:30 AM	0	4	3	8	3	0	0	20	38
7:45 AM	0	1	6	1	0	9	0	4	21
8:00 AM	4	1	4	2	1	1	1	5	19
8:15 AM	1	6	7	10	13	0	2	38	77
8:30 AM	4	0	1	7	4	2	0	5	23
8:45 AM	0	4	1	4	2	3	1	5	20
TOTAL VOLUMES :	EB 17	WB 23	EB 23	WB 36	NB 34	SB 29	NB 6	SB 88	TOTAL 256
APPROACH %'s :	42.50%	57.50%	38.98%	61.02%	53.97%	46.03%	6.38%	93.62%	
PEAK HR :	07:30 AM - 08:30 AM								TOTAL
PEAK HR VOL :	5	12	20	21	17	10	3	67	155
PEAK HR FACTOR :	0.313	0.500	0.714	0.525	0.327	0.278	0.375	0.441	0.503
	0.607		0.603		0.519		0.438		

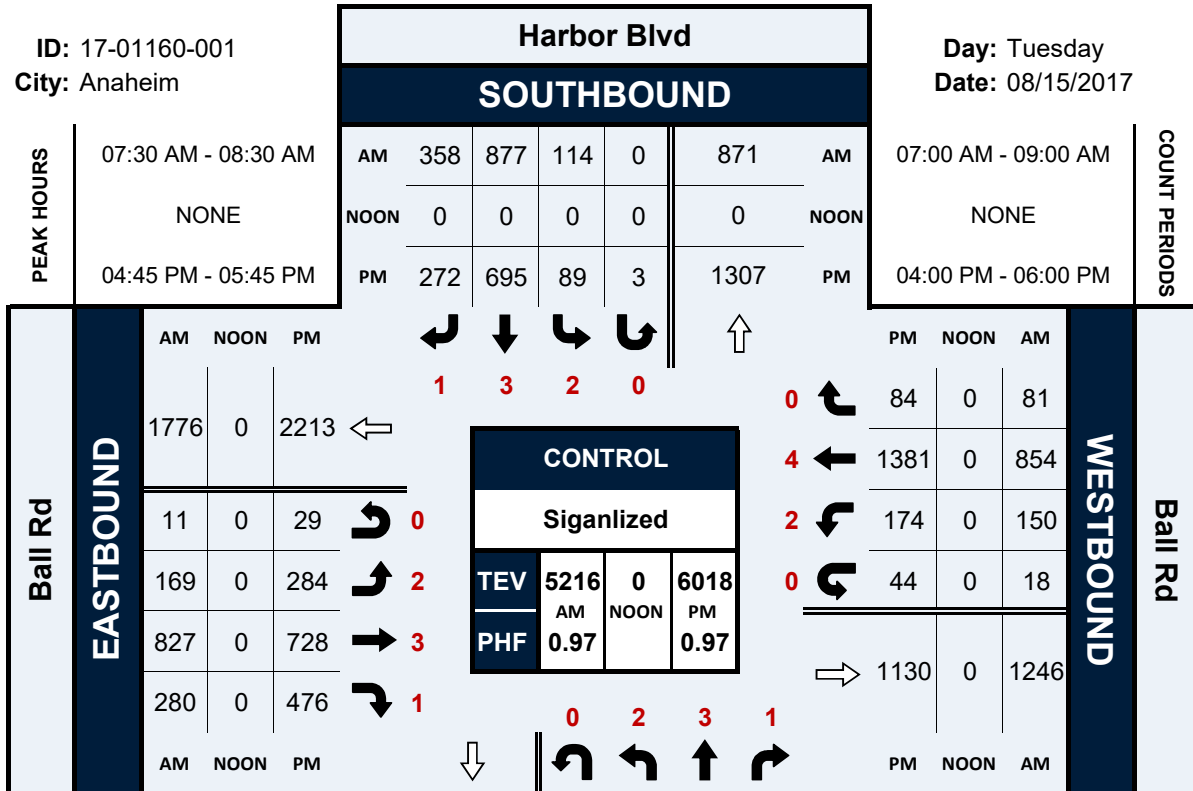
PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
4:00 PM	1	2	1	1	1	0	8	1	15
4:15 PM	0	0	9	0	0	0	1	1	11
4:30 PM	0	0	4	6	0	0	4	1	15
4:45 PM	3	2	4	0	1	0	2	8	20
5:00 PM	5	4	0	6	0	0	4	2	21
5:15 PM	0	2	2	0	6	0	2	2	14
5:30 PM	3	0	7	7	0	1	3	3	24
5:45 PM	2	7	0	5	6	1	5	3	29
TOTAL VOLUMES :	EB 14	WB 17	EB 27	WB 25	NB 14	SB 2	NB 29	SB 21	TOTAL 149
APPROACH %'s :	45.16%	54.84%	51.92%	48.08%	87.50%	12.50%	58.00%	42.00%	
PEAK HR :	04:45 PM - 05:45 PM								TOTAL
PEAK HR VOL :	11	8	13	13	7	1	11	15	79
PEAK HR FACTOR :	0.550	0.500	0.464	0.464	0.292	0.250	0.688	0.469	0.823
	0.528		0.464		0.333		0.650		

Harbor Blvd & Ball Rd

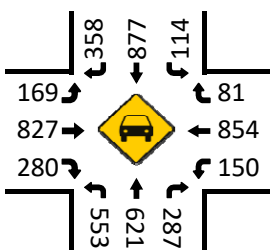
Peak Hour Turning Movement Count

ID: 17-01160-001
City: Anaheim

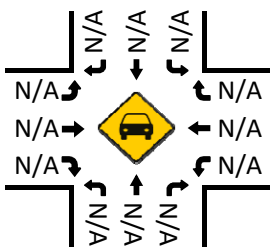
Day: Tuesday
Date: 08/15/2017



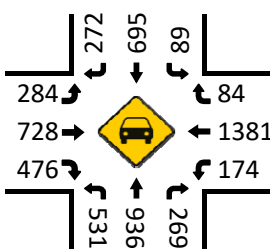
Total Vehicles (AM)



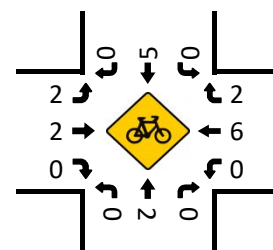
Total Vehicles (Noon)



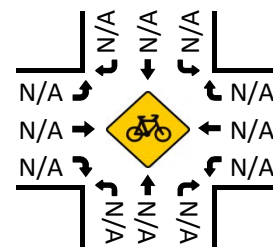
Total Vehicles (PM)



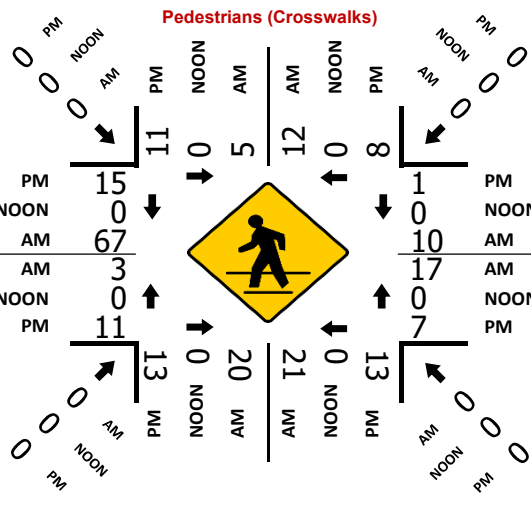
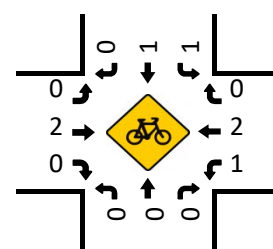
Total Bikes (AM)



Total Bikes (NOON)



Total Bikes (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Harbor Blvd & Katella Ave
City: Anaheim
Control: Signalized

Project ID: 17-01160-002
Date: 8/15/2017

Total

NS/EW Streets:	Harbor Blvd				Harbor Blvd				Katella Ave				Katella Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	3 NT	1 NR	0 NU	2 SL	3 ST	1 SR	0 SU	2 EL	3 ET	1 ER	0 EU	2 WL	3 WT	1 WR	0 WU	
7:00 AM	21	89	49	5	11	105	24	5	24	228	23	6	35	114	12	5	756
7:15 AM	24	150	46	5	9	146	22	2	21	261	32	10	42	117	14	5	906
7:30 AM	30	129	55	10	7	152	26	3	32	259	37	8	53	206	23	5	1035
7:45 AM	21	124	51	13	13	138	28	3	35	301	47	6	42	152	23	1	998
8:00 AM	23	140	71	4	21	163	23	4	34	197	35	6	61	145	23	5	955
8:15 AM	26	151	53	11	17	175	40	3	51	237	22	9	64	148	19	8	1034
8:30 AM	35	139	48	8	18	186	43	10	30	229	15	8	62	134	16	9	990
8:45 AM	28	137	50	7	25	174	44	10	37	179	25	11	55	155	30	4	971
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	208	1059	423	63	121	1239	250	40	264	1891	236	64	414	1171	160	42	7645
	11.87%	60.41%	24.13%	3.59%	7.33%	75.09%	15.15%	2.42%	10.75%	77.03%	9.61%	2.61%	23.17%	65.53%	8.95%	2.35%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	100	544	230	38	58	628	117	13	152	994	141	29	220	651	88	19	4022
PEAK HR FACTOR :	0.833	0.901	0.810	0.731	0.690	0.897	0.731	0.813	0.745	0.826	0.750	0.806	0.859	0.790	0.957	0.594	0.971
	0.946				0.868				0.846				0.852				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	3 NT	1 NR	0 NU	2 SL	3 ST	1 SR	0 SU	2 EL	3 ET	1 ER	0 EU	2 WL	3 WT	1 WR	0 WU	
4:00 PM	23	151	41	10	21	157	44	7	35	175	34	13	70	270	26	10	1087
4:15 PM	24	175	39	3	16	142	51	2	32	206	35	11	54	309	25	7	1131
4:30 PM	45	190	49	4	18	172	37	5	44	228	35	25	47	323	16	7	1245
4:45 PM	35	164	41	9	13	163	34	10	46	177	26	20	56	275	24	6	1099
5:00 PM	30	218	43	6	21	157	40	7	45	232	26	10	56	377	33	12	1313
5:15 PM	46	184	29	5	16	164	30	3	30	205	26	17	88	343	29	11	1226
5:30 PM	40	170	29	5	14	154	41	5	37	221	33	16	74	323	15	6	1183
5:45 PM	35	231	54	12	12	134	42	5	49	207	31	11	68	286	26	6	1209
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	278	1483	325	54	131	1243	319	44	318	1651	246	123	513	2506	194	65	9493
	12.99%	69.30%	15.19%	2.52%	7.54%	71.56%	18.36%	2.53%	13.60%	70.62%	10.52%	5.26%	15.65%	76.45%	5.92%	1.98%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	151	803	155	28	63	609	153	20	161	865	116	54	286	1329	103	35	4931
PEAK HR FACTOR :	0.821	0.869	0.718	0.583	0.750	0.928	0.911	0.714	0.821	0.932	0.879	0.794	0.813	0.881	0.780	0.729	0.939
	0.856				0.939				0.955				0.917				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Harbor Blvd & Katella Ave
City: Anaheim
Control: Signalized

Project ID: 17-01160-002
Date: 8/15/2017

Bikes

NS/EW Streets:	Harbor Blvd				Harbor Blvd				Katella Ave				Katella Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
7:15 AM	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4
7:30 AM	1	1	1	0	0	0	0	0	0	1	0	0	0	5	0	0	9
7:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
8:00 AM	0	2	0	0	0	0	2	0	0	0	0	0	0	2	0	0	6
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
8:30 AM	0	0	0	0	2	1	0	0	0	0	0	0	0	2	0	0	5
8:45 AM	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	3
TOTAL VOLUMES :	3	5	1	0	2	1	2	0	2	4	0	0	0	11	1	0	32
APPROACH %'s :	33.33%	55.56%	11.11%	0.00%	40.00%	20.00%	40.00%	0.00%	33.33%	66.67%	0.00%	0.00%	0.00%	91.67%	8.33%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	3	1	0	0	0	2	0	1	2	0	0	0	8	0	0	18
PEAK HR FACTOR :	0.250	0.375	0.250	0.000	0.000	0.000	0.250	0.000	0.250	0.500	0.000	0.000	0.000	0.400	0.000	0.000	0.500
	0.417				0.250				0.750				0.400				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	0	0	0	0	0	1	0	0	0	2	0	0	0	1	0	0	4
4:15 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0	5
4:30 PM	0	0	0	0	1	0	1	0	0	1	0	0	0	2	1	0	6
4:45 PM	0	0	0	0	0	1	1	0	1	2	0	0	1	0	0	0	6
5:00 PM	1	1	0	0	0	0	1	0	0	2	0	0	0	2	0	0	7
5:15 PM	0	2	0	0	0	0	1	0	1	1	0	0	0	0	0	0	5
5:30 PM	0	1	0	0	0	1	0	0	0	3	0	0	0	1	0	0	6
5:45 PM	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	3
TOTAL VOLUMES :	1	5	0	0	1	8	4	0	3	11	0	0	1	7	1	0	42
APPROACH %'s :	16.67%	83.33%	0.00%	0.00%	7.69%	61.54%	30.77%	0.00%	21.43%	78.57%	0.00%	0.00%	11.11%	77.78%	11.11%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	1	5	0	0	0	2	2	0	2	6	0	0	0	3	0	0	21
PEAK HR FACTOR :	0.25	0.625	0.000	0.000	0.000	0.500	0.500	0.000	0.500	0.500	0.000	0.000	0.000	0.375	0.000	0.000	0.750
	0.750				1.000				0.667				0.375				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Harbor Blvd & Katella Ave
City: Anaheim

Project ID: 17-01160-002
Date: 8/15/2017

Pedestrians (Crosswalks)

NS/EW Streets:	Harbor Blvd		Harbor Blvd		Katella Ave		Katella Ave		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	14	12	5	10	10	5	17	14	87
7:15 AM	10	17	11	10	15	6	41	8	118
7:30 AM	8	36	15	16	44	7	38	6	170
7:45 AM	11	33	17	19	46	17	63	11	217
8:00 AM	10	21	16	26	53	6	76	8	216
8:15 AM	11	57	13	26	54	9	116	10	296
8:30 AM	15	19	22	23	58	6	133	15	291
8:45 AM	7	40	22	50	57	10	141	6	333
TOTAL VOLUMES :	EB 86	WB 235	EB 121	WB 180	NB 337	SB 66	NB 625	SB 78	TOTAL 1728
APPROACH %'s :	26.79%	73.21%	40.20%	59.80%	83.62%	16.38%	88.90%	11.10%	
PEAK HR :	07:30 AM - 08:30 AM								TOTAL
PEAK HR VOL :	40	147	61	87	197	39	293	35	899
PEAK HR FACTOR :	0.909	0.645	0.897	0.837	0.912	0.574	0.631	0.795	0.759
	0.688		0.881		0.937		0.651		

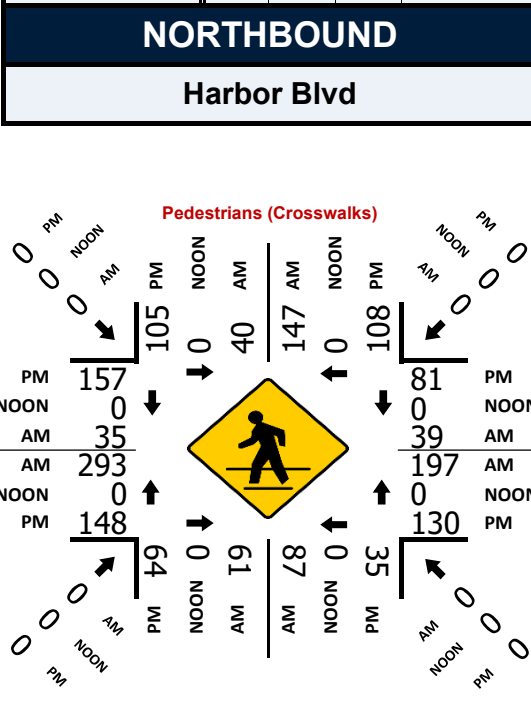
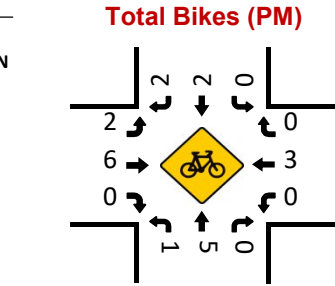
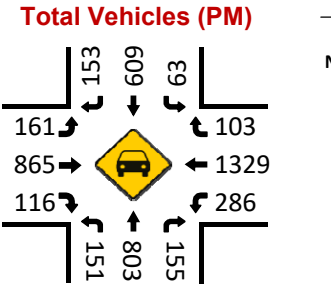
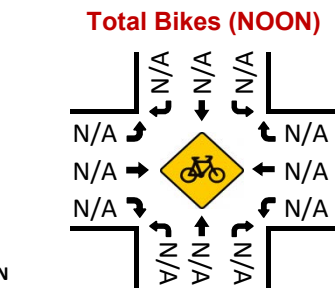
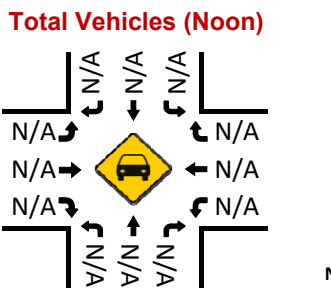
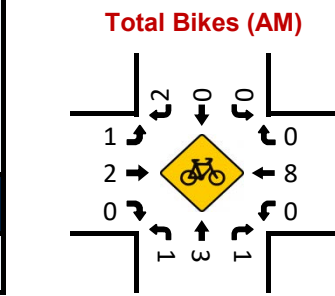
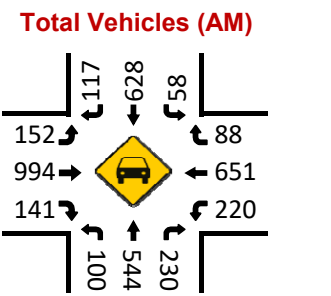
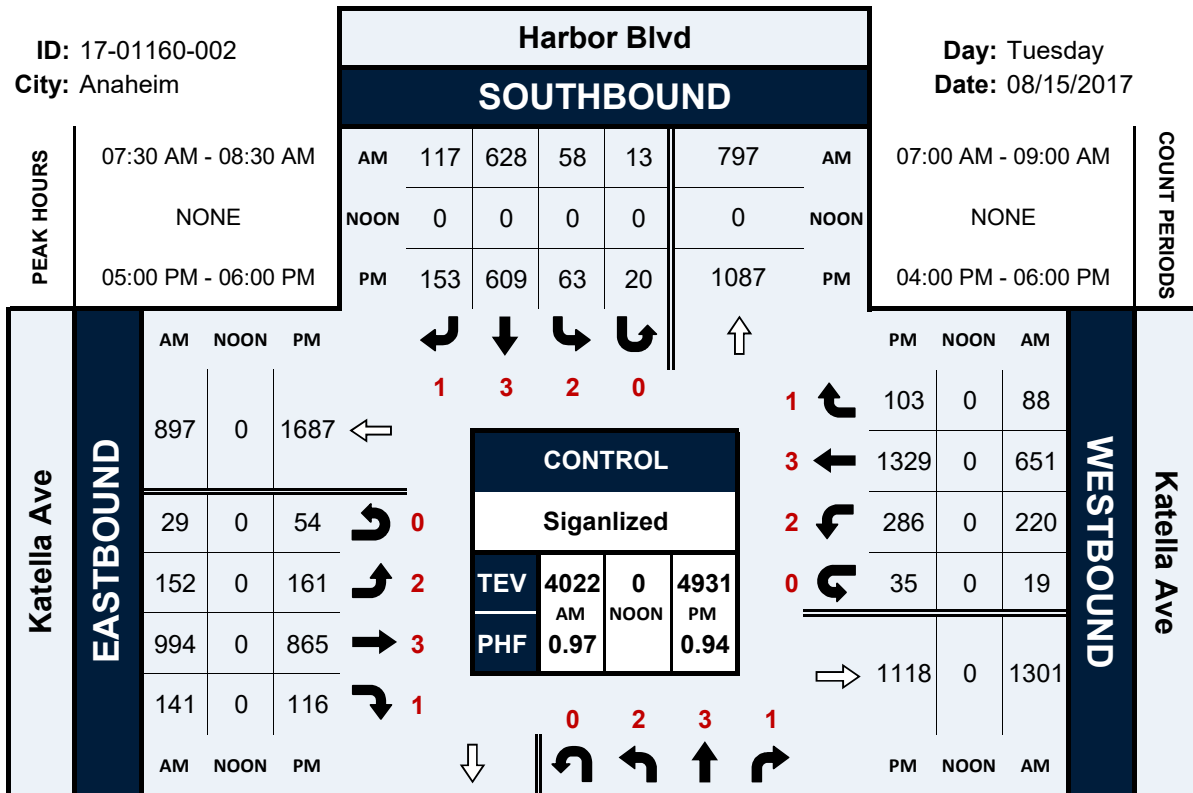
PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	32	21	15	7	21	19	27	40	182
4:15 PM	30	31	12	12	19	23	26	32	185
4:30 PM	19	17	7	11	26	22	31	18	151
4:45 PM	30	27	13	11	30	33	22	20	186
5:00 PM	13	14	5	2	28	28	33	39	162
5:15 PM	25	27	14	7	33	17	40	42	205
5:30 PM	29	48	9	5	27	16	28	37	199
5:45 PM	38	19	36	21	42	20	47	39	262
TOTAL VOLUMES :	EB 216	WB 204	EB 111	WB 76	NB 226	SB 178	NB 254	SB 267	TOTAL 1532
APPROACH %'s :	51.43%	48.57%	59.36%	40.64%	55.94%	44.06%	48.75%	51.25%	
PEAK HR :	05:00 PM - 06:00 PM								TOTAL
PEAK HR VOL :	105	108	64	35	130	81	148	157	828
PEAK HR FACTOR :	0.691	0.563	0.444	0.417	0.774	0.723	0.787	0.935	0.790
	0.692		0.434		0.851		0.887		

Harbor Blvd & Katella Ave

Peak Hour Turning Movement Count

ID: 17-01160-002
City: Anaheim

Day: Tuesday
Date: 08/15/2017



National Data & Surveying Services

Intersection Turning Movement Count

Location: Clementine St & Katella Ave
City: Anaheim
Control: Signalized

Project ID: 17-01160-003
Date: 8/15/2017

Total

NS/EW Streets:	Clementine St				Clementine St				Katella Ave				Katella Ave				TOTAL
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1 NL	1 NT	1 NR	0 NU	1 SL	1 ST	1 SR	0 SU	2 EL	3 ET	1 ER	0 EU	2 WL	3 WT	1 WR	0 WU	
7:00 AM	1	6	4	0	3	34	7	0	22	195	14	1	42	161	12	1	503
7:15 AM	4	11	15	0	6	31	9	0	13	319	23	5	38	181	17	7	679
7:30 AM	4	8	17	0	8	52	13	0	17	267	45	2	58	242	12	5	750
7:45 AM	1	5	7	0	8	43	14	1	19	279	15	6	46	211	27	9	691
8:00 AM	11	25	23	0	8	64	11	1	17	256	39	7	64	206	11	5	748
8:15 AM	5	12	31	0	5	50	17	2	23	268	32	9	53	212	12	11	742
8:30 AM	16	15	31	0	7	46	22	1	19	253	25	8	40	214	24	5	726
8:45 AM	16	17	40	0	6	48	20	0	14	199	16	19	52	186	21	8	662
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	58	99	168	0	51	368	113	5	144	2036	209	57	393	1613	136	51	5501
	17.85%	30.46%	51.69%	0.00%	9.50%	68.53%	21.04%	0.93%	5.89%	83.24%	8.54%	2.33%	17.92%	73.55%	6.20%	2.33%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	21	50	78	0	29	209	55	4	76	1070	131	24	221	871	62	30	2931
PEAK HR FACTOR :	0.477	0.500	0.629	0.000	0.906	0.816	0.809	0.500	0.826	0.959	0.728	0.667	0.863	0.900	0.574	0.682	0.977
	0.631				0.884				0.980				0.934				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	1 NR	0 NU	1 SL	1 ST	1 SR	0 SU	2 EL	3 ET	1 ER	0 EU	2 WL	3 WT	1 WR	0 WU	
4:00 PM	27	30	70	0	17	39	24	3	7	222	12	13	41	343	23	4	875
4:15 PM	18	29	51	0	10	31	14	2	13	214	15	13	43	336	27	4	820
4:30 PM	25	42	70	0	13	45	40	4	15	253	15	12	39	318	22	2	915
4:45 PM	20	26	52	0	13	37	23	3	12	230	13	23	29	301	29	8	819
5:00 PM	20	33	77	0	23	33	36	6	22	227	21	16	33	425	27	3	1002
5:15 PM	41	39	67	0	15	32	35	1	18	225	15	16	22	387	20	7	940
5:30 PM	26	43	78	0	22	25	30	4	11	216	13	14	29	362	29	7	909
5:45 PM	13	33	57	0	8	30	39	2	16	230	17	21	18	345	20	10	859
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	190	275	522	0	121	272	241	25	114	1817	121	128	254	2817	197	45	7139
	19.25%	27.86%	52.89%	0.00%	18.36%	41.27%	36.57%	3.79%	5.23%	83.35%	5.55%	5.87%	7.67%	85.03%	5.95%	1.36%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	100	148	279	0	68	120	140	13	67	898	66	67	102	1519	96	27	3710
PEAK HR FACTOR :	0.610	0.860	0.894	0.000	0.739	0.909	0.897	0.542	0.761	0.976	0.786	0.798	0.773	0.894	0.828	0.675	0.926
	0.896				0.870				0.960				0.893				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Clementine St & Katella Ave
City: Anaheim
Control: Signalized

Project ID: 17-01160-003
Date: 8/15/2017

Bikes

NS/EW Streets:	Clementine St				Clementine St				Katella Ave				Katella Ave				TOTAL
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1 NL	1 NT	1 NR	0 NU	1 SL	1 ST	1 SR	0 SU	2 EL	3 ET	1 ER	0 EU	2 WL	3 WT	1 WR	0 WU	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	
8:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	0	0	0	0	1	3	0	0	1	13	0	0	18
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	1	1	0	0	1	9	0	0	12
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.250	0.450	0.000	0.000	0.600
									0.500				0.500				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	1 NR	0 NU	1 SL	1 ST	1 SR	0 SU	2 EL	3 ET	1 ER	0 EU	2 WL	3 WT	1 WR	0 WU	
4:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	
5:00 PM	1	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	90.91%	9.09%	0.00%	21
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	1	0	0	0	1	0	0	0	0	3	0	0	0	5	1	0	11
PEAK HR FACTOR :	0.25	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.625	0.250	0.000	0.688
									0.375				0.750				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Clementine St & Katella Ave
City: Anaheim

Project ID: 17-01160-003
Date: 8/15/2017

Pedestrians (Crosswalks)

NS/EW Streets:	Clementine St		Clementine St		Katella Ave		Katella Ave		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
7:00 AM	1	6	2	1	1	1	0	0	12
7:15 AM	0	2	1	3	1	0	1	1	9
7:30 AM	2	10	5	3	3	0	0	0	23
7:45 AM	2	12	3	1	1	0	0	0	19
8:00 AM	8	16	2	5	2	4	3	0	40
8:15 AM	0	32	0	4	3	0	0	0	39
8:30 AM	4	9	1	6	0	2	2	0	24
8:45 AM	1	19	0	2	6	1	1	0	30
TOTAL VOLUMES :	EB 18	WB 106	EB 14	WB 25	NB 17	SB 8	NB 7	SB 1	TOTAL 196
APPROACH %'s :	14.52%	85.48%	35.90%	64.10%	68.00%	32.00%	87.50%	12.50%	
PEAK HR :	07:30 AM - 08:30 AM								TOTAL
PEAK HR VOL :	12	70	10	13	9	4	3	0	121
PEAK HR FACTOR :	0.375	0.547	0.500	0.650	0.750	0.250	0.250	0.250	0.756
	0.641		0.719		0.542		0.250		

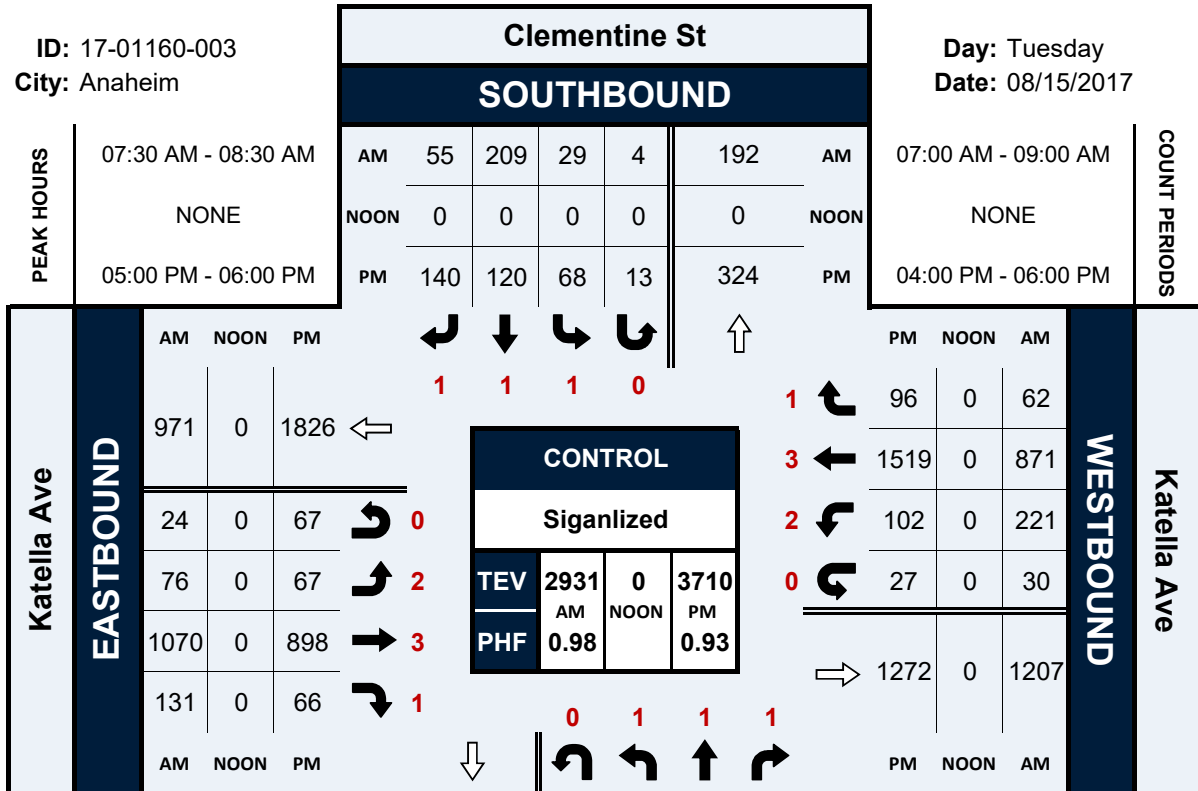
PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
4:00 PM	3	8	0	1	0	1	0	1	14
4:15 PM	10	12	0	1	1	2	4	0	30
4:30 PM	8	17	1	1	0	1	2	1	31
4:45 PM	12	7	3	2	1	5	2	1	33
5:00 PM	8	9	1	2	0	5	2	0	27
5:15 PM	4	16	0	1	2	0	2	0	25
5:30 PM	20	12	3	4	4	4	6	2	55
5:45 PM	18	15	1	0	2	2	1	2	41
TOTAL VOLUMES :	EB 83	WB 96	EB 9	WB 12	NB 10	SB 20	NB 19	SB 7	TOTAL 256
APPROACH %'s :	46.37%	53.63%	42.86%	57.14%	33.33%	66.67%	73.08%	26.92%	
PEAK HR :	05:00 PM - 06:00 PM								TOTAL
PEAK HR VOL :	50	52	5	7	8	11	11	4	148
PEAK HR FACTOR :	0.625	0.813	0.417	0.438	0.500	0.550	0.458	0.500	0.673
	0.773		0.429		0.594		0.469		

Clementine St & Katella Ave

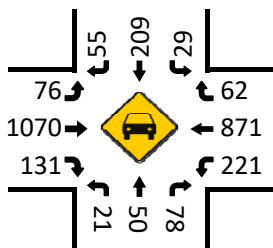
Peak Hour Turning Movement Count

ID: 17-01160-003
City: Anaheim

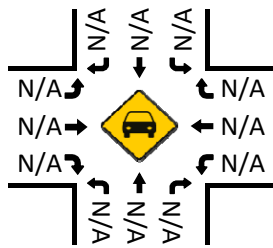
Day: Tuesday
Date: 08/15/2017



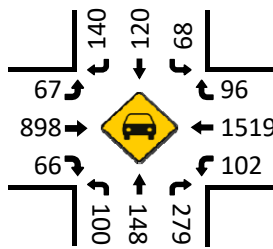
Total Vehicles (AM)



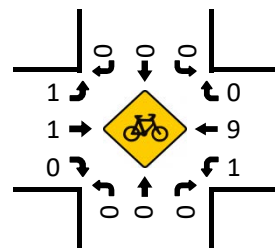
Total Vehicles (Noon)



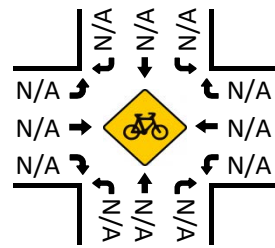
Total Vehicles (PM)



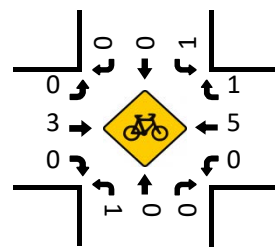
Total Bikes (AM)



Total Bikes (NOON)

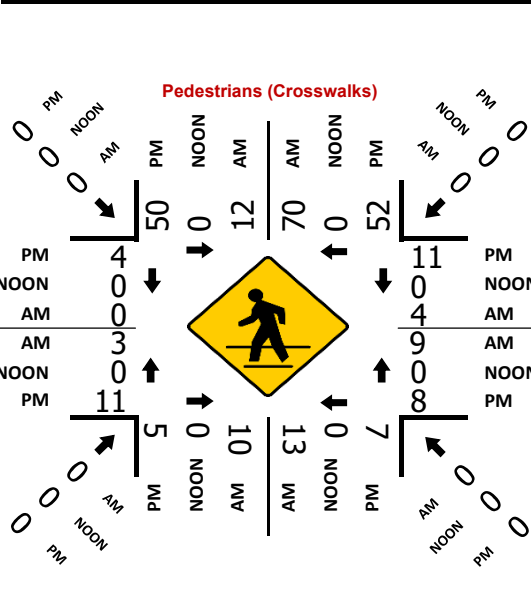


Total Bikes (PM)



NORTHBOUND

Clementine St



National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 SB Ramp & Disney Way
City: Anaheim
Control: Signalized

Project ID: 17-01160-009
Date: 8/15/2017

Total

NS/EW Streets:	I-5 SB Ramp				I-5 SB Ramp				Disney Way				Disney Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	0 NT	1 NR	0 NU	1.3 SL	0.3 ST	1.3 SR	0 SU	0 EL	3 ET	0 ER	0 EU	1 WL	3 WT	0 WR	0 WU	
7:00 AM	2	0	5	0	68	3	32	0	0	31	1	0	5	50	0	0	197
7:15 AM	2	0	7	0	63	2	24	0	0	27	7	0	2	57	0	2	193
7:30 AM	3	0	12	0	57	6	51	0	0	28	6	0	3	69	0	0	235
7:45 AM	0	0	6	0	74	4	46	0	0	33	1	0	2	59	0	0	225
8:00 AM	2	0	11	0	62	6	52	0	0	29	6	0	2	71	0	2	243
8:15 AM	1	0	10	0	69	1	41	0	0	49	5	0	4	99	0	2	281
8:30 AM	2	0	6	0	52	4	40	0	0	47	2	0	3	100	0	2	258
8:45 AM	0	0	13	0	63	4	42	0	0	46	4	0	3	93	0	1	269
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	12	0	70	0	508	30	328	0	0	290	32	0	24	598	0	9	1901
PEAK HR :	08:00 AM - 09:00 AM				58.66%	3.46%	37.88%	0.00%	0.00%	90.06%	9.94%	0.00%	3.80%	94.77%	0.00%	1.43%	TOTAL
PEAK HR VOL :	5	0	40	0	246	15	175	0	0	171	17	0	12	363	0	7	1051
PEAK HR FACTOR :	0.625	0.000	0.769	0.000	0.891	0.625	0.841	0.000	0.000	0.872	0.708	0.000	0.750	0.908	0.000	0.875	0.935
	0.865				0.908				0.870				0.910				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
1 NL	0 NT	1 NR	0 NU	1.3 SL	0.3 ST	1.3 SR	0 SU	0 EL	3 ET	0 ER	0 EU	1 WL	3 WT	0 WR	0 WU		
4:00 PM	3	0	13	0	69	4	40	0	0	80	2	0	3	51	0	1	266
4:15 PM	2	0	16	0	62	3	31	0	0	67	5	0	3	58	0	10	257
4:30 PM	1	0	16	0	63	2	37	0	0	95	6	0	2	72	0	1	295
4:45 PM	3	0	14	0	61	4	39	0	0	77	5	0	1	80	0	4	288
5:00 PM	2	0	13	0	50	4	32	0	0	85	3	0	0	61	0	2	252
5:15 PM	2	0	10	0	65	4	34	0	0	89	4	0	5	65	0	0	278
5:30 PM	2	0	7	0	63	2	35	0	0	73	7	0	2	68	0	5	264
5:45 PM	2	0	5	0	52	1	30	0	0	74	3	0	1	79	0	4	251
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	17	0	94	0	485	24	278	0	0	640	35	0	17	534	0	27	2151
PEAK HR :	04:30 PM - 05:30 PM				61.63%	3.05%	35.32%	0.00%	0.00%	94.81%	5.19%	0.00%	2.94%	92.39%	0.00%	4.67%	TOTAL
PEAK HR VOL :	8	0	53	0	239	14	142	0	0	346	18	0	8	278	0	7	1113
PEAK HR FACTOR :	0.667	0.000	0.828	0.000	0.919	0.875	0.910	0.000	0.000	0.911	0.750	0.000	0.400	0.869	0.000	0.438	0.943
	0.897				0.950				0.901				0.862				

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 SB Ramp & Disney Way
City: Anaheim
Control: Signalized

Project ID: 17-01160-009
Date: 8/15/2017

Bikes

NS/EW Streets:	I-5 SB Ramp				I-5 SB Ramp				Disney Way				Disney Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	0 NT	1 NR	0 NU	1.3 SL	0.3 ST	1.3 SR	0 SU	0 EL	3 ET	0 ER	0 EU	1 WL	3 WT	0 WR	0 WU	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3
	100.00%	0.00%	0.00%	0.00%					0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	0 NT	1 NR	0 NU	1.3 SL	0.3 ST	1.3 SR	0 SU	0 EL	3 ET	0 ER	0 EU	1 WL	3 WT	0 WR	0 WU	
4:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	0	0	0	0	0	5	0	0	0	4	0	0	9
	0.00%	0.00%	0.00%	0.00%					0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.375

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 SB Ramp & Disney Way
City: Anaheim

Project ID: 17-01160-009
Date: 8/15/2017

Pedestrians (Crosswalks)

NS/EW Streets:	I-5 SB Ramp		I-5 SB Ramp		Disney Way		Disney Way		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
7:00 AM	0	0	2	2	0	0	0	0	4
7:15 AM	0	1	0	0	0	0	0	0	1
7:30 AM	0	0	1	5	0	0	0	0	6
7:45 AM	0	0	0	7	0	0	0	0	7
8:00 AM	0	0	1	10	0	0	0	0	11
8:15 AM	0	1	0	9	0	0	0	0	10
8:30 AM	1	0	2	4	0	0	0	0	7
8:45 AM	0	0	2	12	0	0	0	0	14
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	1	2	8	49	0	0	0	0	60
	33.33%	66.67%	14.04%	85.96%					
PEAK HR :	08:00 AM - 09:00 AM								TOTAL
PEAK HR VOL :	1	1	5	35	0	0	0	0	42
PEAK HR FACTOR :	0.250	0.250	0.625	0.729					0.750
	0.500		0.714						

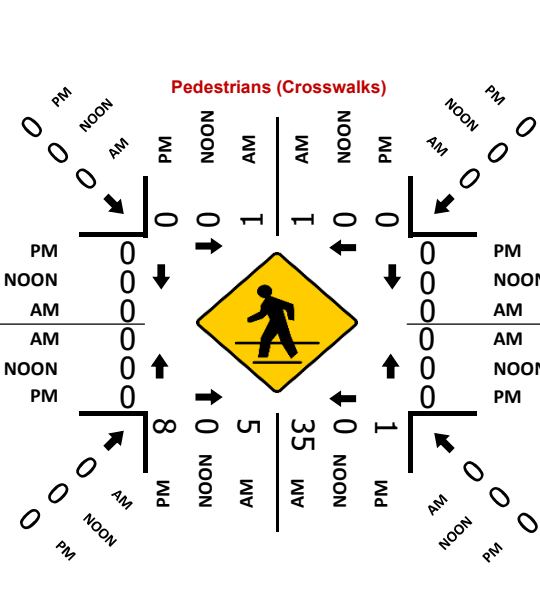
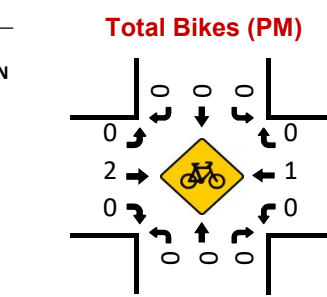
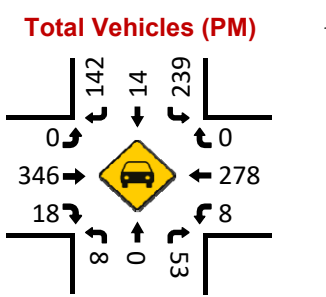
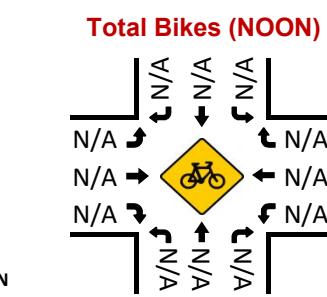
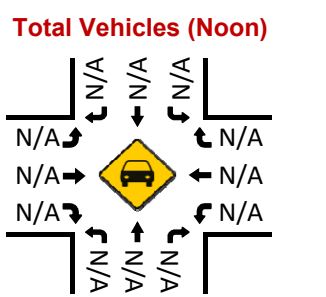
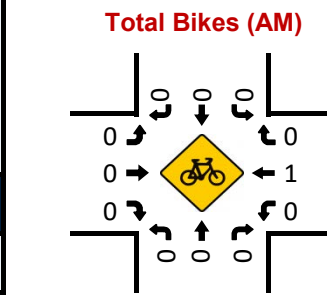
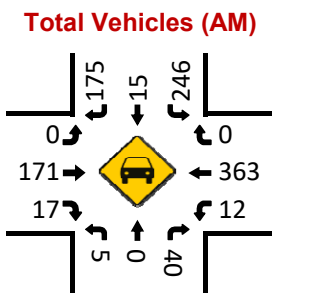
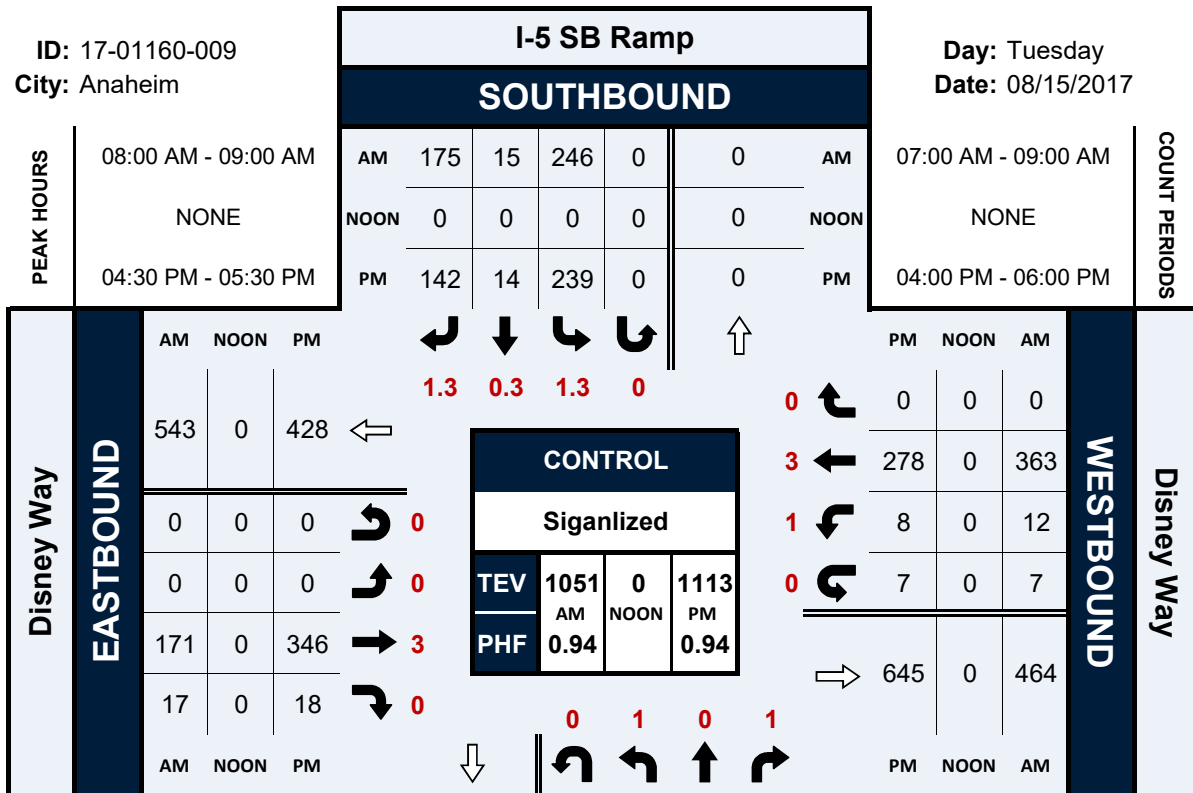
PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	3	0	0	0	0	0	3
4:30 PM	0	0	1	0	0	0	0	0	1
4:45 PM	0	0	0	1	0	0	0	0	1
5:00 PM	0	0	5	0	0	0	0	0	5
5:15 PM	0	0	2	0	0	0	0	0	2
5:30 PM	0	0	2	0	0	0	0	0	2
5:45 PM	0	0	2	0	0	0	0	0	2
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	0	0	15	1	0	0	0	0	16
			93.75%	6.25%					
PEAK HR :	04:30 PM - 05:30 PM								TOTAL
PEAK HR VOL :	0	0	8	1	0	0	0	0	9
PEAK HR FACTOR :			0.400	0.250					0.450
			0.450						

I-5 SB Ramp & Disney Way

Peak Hour Turning Movement Count

ID: 17-01160-009
City: Anaheim

Day: Tuesday
Date: 08/15/2017



National Data & Surveying Services

Intersection Turning Movement Count

Location: Anaheim Blvd & Ball Rd
City: Anaheim
Control: Signalized

Project ID: 17-01160-008
Date: 8/15/2017

Total

NS/EW Streets:	Anaheim Blvd				Anaheim Blvd				Ball Rd				Ball Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	2 NT	1 NR	0 NU	2 SL	3 ST	1 SR	0 SU	1 EL	3 ET	0 ER	0 EU	1 WL	3 WT	1 WR	0 WU	
7:00 AM	27	91	33	0	41	213	19	0	17	222	32	13	30	164	7	0	909
7:15 AM	22	91	36	0	55	230	28	0	16	234	29	6	43	180	20	0	990
7:30 AM	29	123	35	0	73	269	46	0	25	267	37	11	38	167	13	0	1133
7:45 AM	20	121	31	0	54	227	36	0	23	238	32	7	42	198	19	0	1048
8:00 AM	31	96	28	0	53	216	29	0	26	225	30	15	24	199	12	1	985
8:15 AM	32	130	57	0	34	191	25	0	15	252	38	5	42	177	15	1	1014
8:30 AM	29	110	32	0	43	180	34	0	31	198	27	9	40	213	23	0	969
8:45 AM	28	115	28	0	28	163	32	0	22	189	29	10	44	278	18	0	984
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	218	877	280	0	381	1689	249	0	175	1825	254	76	303	1576	127	2	8032
	15.85%	63.78%	20.36%	0.00%	16.43%	72.83%	10.74%	0.00%	7.51%	78.33%	10.90%	3.26%	15.09%	78.49%	6.32%	0.10%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	112	470	151	0	214	903	136	0	89	982	137	38	146	741	59	2	4180
PEAK HR FACTOR :	0.875	0.904	0.662	0.000	0.733	0.839	0.739	0.000	0.856	0.919	0.901	0.633	0.869	0.931	0.776	0.500	0.922
	0.837				0.807				0.916				0.915				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	2 NT	1 NR	0 NU	2 SL	3 ST	1 SR	0 SU	1 EL	3 ET	0 ER	0 EU	1 WL	3 WT	1 WR	0 WU	
4:00 PM	51	230	23	0	23	188	25	0	40	191	35	10	40	304	51	1	1212
4:15 PM	50	200	38	0	22	191	37	0	25	216	22	4	47	316	40	1	1209
4:30 PM	69	256	32	0	24	216	31	0	35	214	37	13	48	323	62	1	1361
4:45 PM	38	267	34	0	23	181	38	0	27	201	26	6	58	322	49	0	1270
5:00 PM	56	238	26	0	31	239	44	0	33	182	21	9	41	277	53	0	1250
5:15 PM	52	235	23	0	26	213	29	0	33	197	32	7	53	344	47	0	1291
5:30 PM	70	245	47	0	36	178	31	0	34	226	28	8	51	264	36	0	1254
5:45 PM	42	251	39	0	29	158	39	0	30	205	28	5	45	269	39	0	1179
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	428	1922	262	0	214	1564	274	0	257	1632	229	62	383	2419	377	3	10026
	16.39%	73.58%	10.03%	0.00%	10.43%	76.22%	13.35%	0.00%	11.79%	74.86%	10.50%	2.84%	12.04%	76.02%	11.85%	0.09%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	215	996	115	0	104	849	142	0	128	794	116	35	200	1266	211	1	5172
PEAK HR FACTOR :	0.779	0.933	0.846	0.000	0.839	0.888	0.807	0.000	0.914	0.928	0.784	0.673	0.862	0.920	0.851	0.250	0.950
	0.929				0.872				0.897				0.945				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Anaheim Blvd & Ball Rd
City: Anaheim
Control: Signalized

Project ID: 17-01160-008
Date: 8/15/2017

Bikes

NS/EW Streets:	Anaheim Blvd				Anaheim Blvd				Ball Rd				Ball Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	4
7:15 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	3
7:30 AM	0	2	0	0	0	1	2	0	0	4	0	0	0	0	0	0	9
7:45 AM	0	0	0	0	1	0	1	0	0	1	0	0	0	1	0	0	4
8:00 AM	0	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	4
8:15 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
TOTAL VOLUMES :	0	6	0	0	2	4	3	0	3	9	0	0	0	2	2	0	29
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	22.22%	44.44%	33.33%	0.00%	25.00%	75.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	5	0	0	2	2	3	0	0	6	0	0	0	1	0	0	19
PEAK HR FACTOR :	0.000	0.625	0.000	0.000	0.500	0.500	0.375	0.000	0.000	0.375	0.000	0.000	0.000	0.250	0.000	0.000	0.528
	0.625				0.583				0.375				0.250				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	0	2	0	0	1	3	0	0	3	1	0	0	0	0	0	0	10
4:15 PM	0	3	0	0	0	0	0	0	0	1	0	0	0	2	2	0	8
4:30 PM	0	0	0	0	0	1	0	0	5	2	0	0	0	1	1	0	10
4:45 PM	0	0	0	0	0	3	0	0	0	2	0	0	0	2	0	0	7
5:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	3
5:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
TOTAL VOLUMES :	1	8	1	0	1	10	0	0	9	6	0	0	0	7	3	0	46
APPROACH %'s :	10.00%	80.00%	10.00%	0.00%	9.09%	90.91%	0.00%	0.00%	60.00%	40.00%	0.00%	0.00%	0.00%	70.00%	30.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	2	1	0	0	4	0	0	5	4	0	0	0	5	1	0	22
PEAK HR FACTOR :	0.00	0.250	0.250	0.000	0.000	0.333	0.000	0.000	0.250	0.500	0.000	0.000	0.000	0.625	0.250	0.000	0.550
	0.375				0.333				0.321				0.750				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Anaheim Blvd & Ball Rd
City: Anaheim

Project ID: 17-01160-008
Date: 8/15/2017

Pedestrians (Crosswalks)

NS/EW Streets:	Anaheim Blvd		Anaheim Blvd		Ball Rd		Ball Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
7:00 AM	2	3	0	3	2	0	3	3	16
7:15 AM	8	5	0	0	6	0	5	2	26
7:30 AM	1	0	2	3	16	1	1	1	25
7:45 AM	3	0	2	1	2	0	3	3	14
8:00 AM	2	3	1	1	4	0	3	4	18
8:15 AM	4	2	5	7	6	3	6	3	36
8:30 AM	2	3	2	4	3	0	6	3	23
8:45 AM	0	2	8	2	3	1	2	7	25
TOTAL VOLUMES :	EB 22	WB 18	EB 20	WB 21	NB 42	SB 5	NB 29	SB 26	TOTAL 183
APPROACH %'s :	55.00%	45.00%	48.78%	51.22%	89.36%	10.64%	52.73%	47.27%	
PEAK HR :	07:30 AM - 08:30 AM								TOTAL
PEAK HR VOL :	10	5	10	12	28	4	13	11	TOTAL 93
PEAK HR FACTOR :	0.625	0.417	0.500	0.429	0.438	0.333	0.542	0.688	0.646
	0.625		0.458		0.471		0.667		

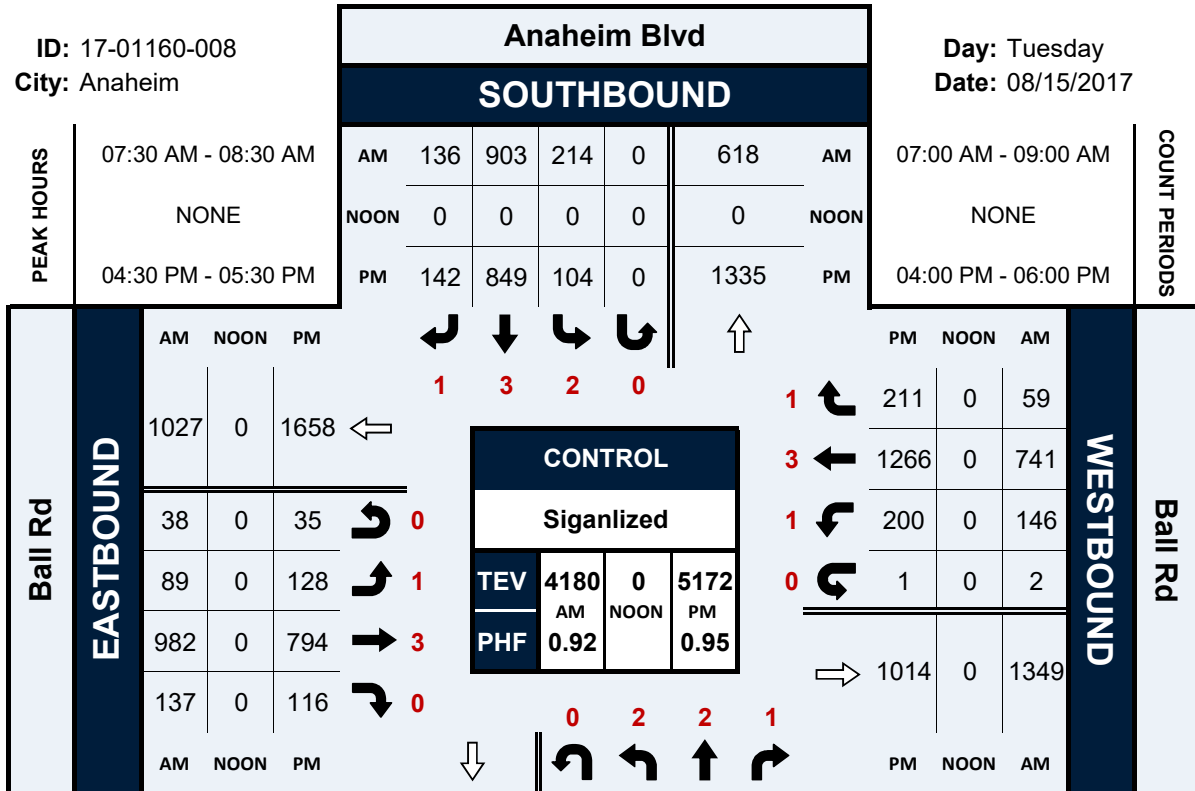
PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
4:00 PM	3	1	2	2	6	2	2	6	24
4:15 PM	2	5	6	0	1	1	5	9	29
4:30 PM	1	6	3	6	7	3	6	6	38
4:45 PM	4	8	0	7	4	5	5	5	38
5:00 PM	1	2	4	5	5	3	5	3	28
5:15 PM	0	7	2	0	4	1	0	6	20
5:30 PM	1	1	1	3	1	2	6	4	19
5:45 PM	2	3	7	8	5	4	5	4	38
TOTAL VOLUMES :	EB 14	WB 33	EB 25	WB 31	NB 33	SB 21	NB 34	SB 43	TOTAL 234
APPROACH %'s :	29.79%	70.21%	44.64%	55.36%	61.11%	38.89%	44.16%	55.84%	
PEAK HR :	04:30 PM - 05:30 PM								TOTAL
PEAK HR VOL :	6	23	9	18	20	12	16	20	TOTAL 124
PEAK HR FACTOR :	0.375	0.719	0.563	0.643	0.714	0.600	0.667	0.833	0.816
	0.604		0.750		0.800		0.750		

Anaheim Blvd & Ball Rd

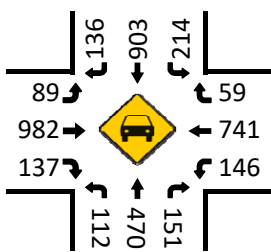
Peak Hour Turning Movement Count

ID: 17-01160-008
City: Anaheim

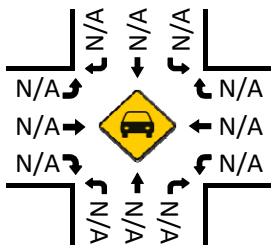
Day: Tuesday
Date: 08/15/2017



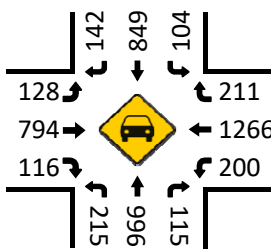
Total Vehicles (AM)



Total Vehicles (Noon)

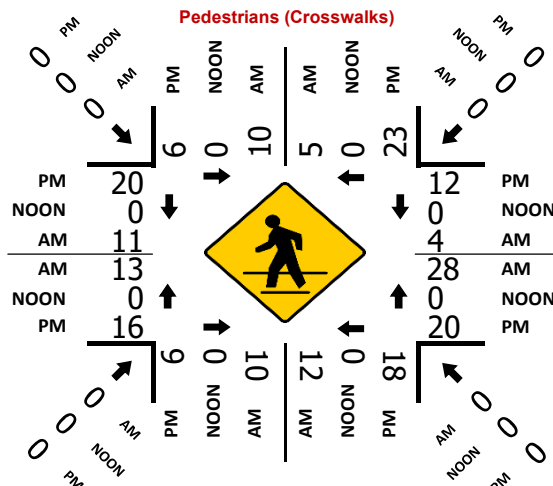


Total Vehicles (PM)

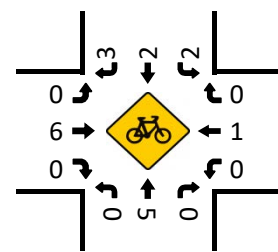


NORTHBOUND

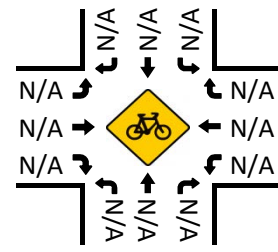
PM	1165	0	215	996	115	PM
NOON	0	0	0	0	0	NOON
AM	1186	0	112	470	151	AM



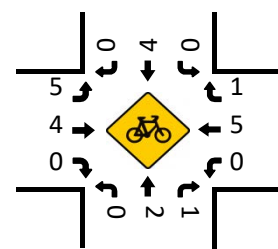
Total Bikes (AM)



Total Bikes (Noon)



Total Bikes (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Anaheim Blvd & Cerritos Ave
City: Anaheim
Control: Signalized

Project ID: 17-01160-007
Date: 8/15/2017

Total

NS/EW Streets:	Anaheim Blvd				Anaheim Blvd				Cerritos Ave				Cerritos Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	3 NT	1 NR	0 NU	1 SL	3 ST	0 SR	0 SU	1 EL	1 ET	0 ER	0 EU	1 WL	1 WT	1 WR	0 WU	
7:00 AM	11	131	82	0	41	246	1	0	1	0	2	0	44	1	13	0	573
7:15 AM	10	122	91	3	45	258	11	0	0	2	2	0	33	4	20	0	601
7:30 AM	22	172	84	3	57	291	12	0	3	1	3	0	51	5	14	0	718
7:45 AM	13	198	107	2	57	256	14	0	5	4	7	0	46	5	14	0	728
8:00 AM	14	166	96	4	38	241	17	0	2	3	8	0	51	6	21	0	667
8:15 AM	15	185	90	2	48	245	10	0	5	2	11	0	39	6	14	0	672
8:30 AM	19	189	87	7	28	249	9	0	2	1	13	0	46	2	21	0	673
8:45 AM	19	158	73	4	28	233	4	0	1	5	9	0	55	10	25	0	624
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	123	1321	710	25	342	2019	78	0	19	18	55	0	365	39	142	0	5256
	5.64%	60.62%	32.58%	1.15%	14.02%	82.78%	3.20%	0.00%	20.65%	19.57%	59.78%	0.00%	66.85%	7.14%	26.01%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	64	721	377	11	200	1033	53	0	15	10	29	0	187	22	63	0	2785
PEAK HR FACTOR :	0.727	0.910	0.881	0.688	0.877	0.887	0.779	0.000	0.750	0.625	0.659	0.000	0.917	0.917	0.750	0.000	0.956
	0.916				0.893				0.750				0.872				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	3 NT	1 NR	0 NU	1 SL	3 ST	0 SR	0 SU	1 EL	1 ET	0 ER	0 EU	1 WL	1 WT	1 WR	0 WU	
4:00 PM	11	253	58	10	12	243	12	0	2	9	14	0	126	8	53	0	811
4:15 PM	19	273	61	9	12	279	8	0	10	6	18	0	94	10	39	0	838
4:30 PM	14	283	63	10	31	251	3	0	7	5	17	0	151	8	71	0	914
4:45 PM	9	332	63	7	14	287	7	0	3	4	14	0	101	8	50	0	899
5:00 PM	6	284	56	12	14	310	3	0	10	13	22	0	129	10	51	0	920
5:15 PM	6	293	63	8	17	275	6	0	5	5	17	0	120	5	40	0	860
5:30 PM	11	289	66	11	22	247	5	0	7	5	17	0	112	7	56	0	855
5:45 PM	11	330	52	11	20	211	8	0	5	2	7	0	70	4	40	0	771
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	87	2337	482	78	142	2103	52	0	49	49	126	0	903	60	400	0	6868
	2.92%	78.32%	16.15%	2.61%	6.18%	91.55%	2.26%	0.00%	21.88%	21.88%	56.25%	0.00%	66.25%	4.40%	29.35%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	35	1192	245	37	76	1123	19	0	25	27	70	0	501	31	212	0	3593
PEAK HR FACTOR :	0.625	0.898	0.972	0.771	0.613	0.906	0.679	0.000	0.625	0.519	0.795	0.000	0.829	0.775	0.746	0.000	0.976
	0.918				0.931				0.678				0.809				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Anaheim Blvd & Cerritos Ave
City: Anaheim
Control: Signalized

Project ID: 17-01160-007
Date: 8/15/2017

Bikes

NS/EW Streets:	Anaheim Blvd				Anaheim Blvd				Cerritos Ave				Cerritos Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	3 NT	1 NR	0 NU	1 SL	3 ST	0 SR	0 SU	1 EL	1 ET	0 ER	0 EU	1 WL	1 WT	1 WR	0 WU	
7:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	2	0	0	0	3	0	0	0	1	0	0	1	0	0	0	7
7:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES :	0	3	1	0	0	6	1	0	1	1	0	0	1	0	1	0	15
APPROACH %'s :	0.00%	75.00%	25.00%	0.00%	0.00%	85.71%	14.29%	0.00%	50.00%	50.00%	0.00%	0.00%	50.00%	0.00%	50.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	2	1	0	0	4	0	0	0	1	0	0	1	0	1	0	10
PEAK HR FACTOR :	0.000	0.250	0.250	0.000	0.000	0.333	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.250	0.000	0.357
			0.375				0.333				0.250				0.500		

NS/EW Streets:	Anaheim Blvd				Anaheim Blvd				Cerritos Ave				Cerritos Ave				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	3 NT	1 NR	0 NU	1 SL	3 ST	0 SR	0 SU	1 EL	1 ET	0 ER	0 EU	1 WL	1 WT	1 WR	0 WU	
4:00 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	4
4:30 PM	0	5	0	0	0	1	1	0	0	0	0	0	0	0	0	0	7
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
5:00 PM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
5:15 PM	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:30 PM	0	1	1	0	0	2	0	0	0	1	0	0	1	0	0	0	5
5:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	1	0	1	0	4
TOTAL VOLUMES :	0	14	3	0	0	9	1	0	0	0	0	0	3	0	1	0	31
APPROACH %'s :	0.00%	82.35%	17.65%	0.00%	0.00%	90.00%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	75.00%	0.00%	25.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	9	1	0	0	4	1	0	0	0	0	0	1	0	0	0	16
PEAK HR FACTOR :	0.00	0.450	0.250	0.000	0.000	0.333	0.250	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.571
			0.500				0.417								0.250		

National Data & Surveying Services

Intersection Turning Movement Count

Location: Anaheim Blvd & Cerritos Ave
City: Anaheim

Project ID: 17-01160-007
Date: 8/15/2017

Pedestrians (Crosswalks)

NS/EW Streets:	Anaheim Blvd		Anaheim Blvd		Cerritos Ave		Cerritos Ave		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
7:00 AM	0	0	0	1	1	0	1	0	3
7:15 AM	0	1	0	0	0	0	2	1	4
7:30 AM	0	1	0	0	0	0	1	0	2
7:45 AM	0	0	0	0	0	0	0	1	1
8:00 AM	0	0	0	0	1	1	1	0	3
8:15 AM	0	0	0	0	0	0	0	4	4
8:30 AM	0	1	1	0	0	0	9	1	12
8:45 AM	2	0	0	0	0	0	1	1	4
TOTAL VOLUMES :	EB 2	WB 3	EB 1	WB 1	NB 2	SB 1	NB 15	SB 8	TOTAL 33
APPROACH %'s :	40.00%	60.00%	50.00%	50.00%	66.67%	33.33%	65.22%	34.78%	
PEAK HR :	07:30 AM - 08:30 AM								TOTAL
PEAK HR VOL :	0	1	0	0	1	1	2	5	10
PEAK HR FACTOR :		0.250			0.250	0.250	0.500	0.313	0.625
	0.250				0.250		0.438		

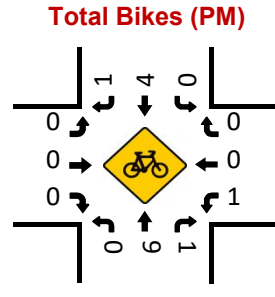
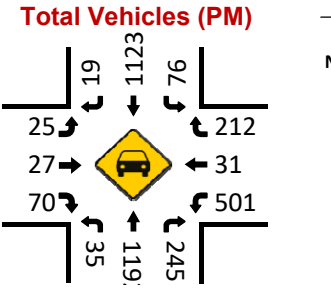
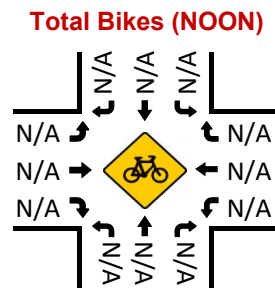
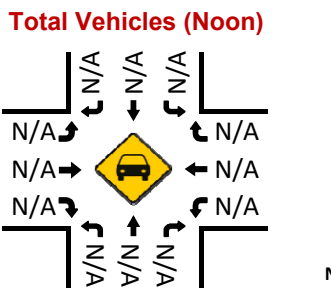
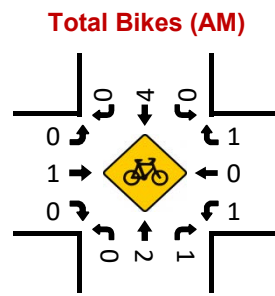
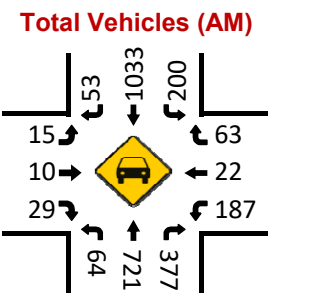
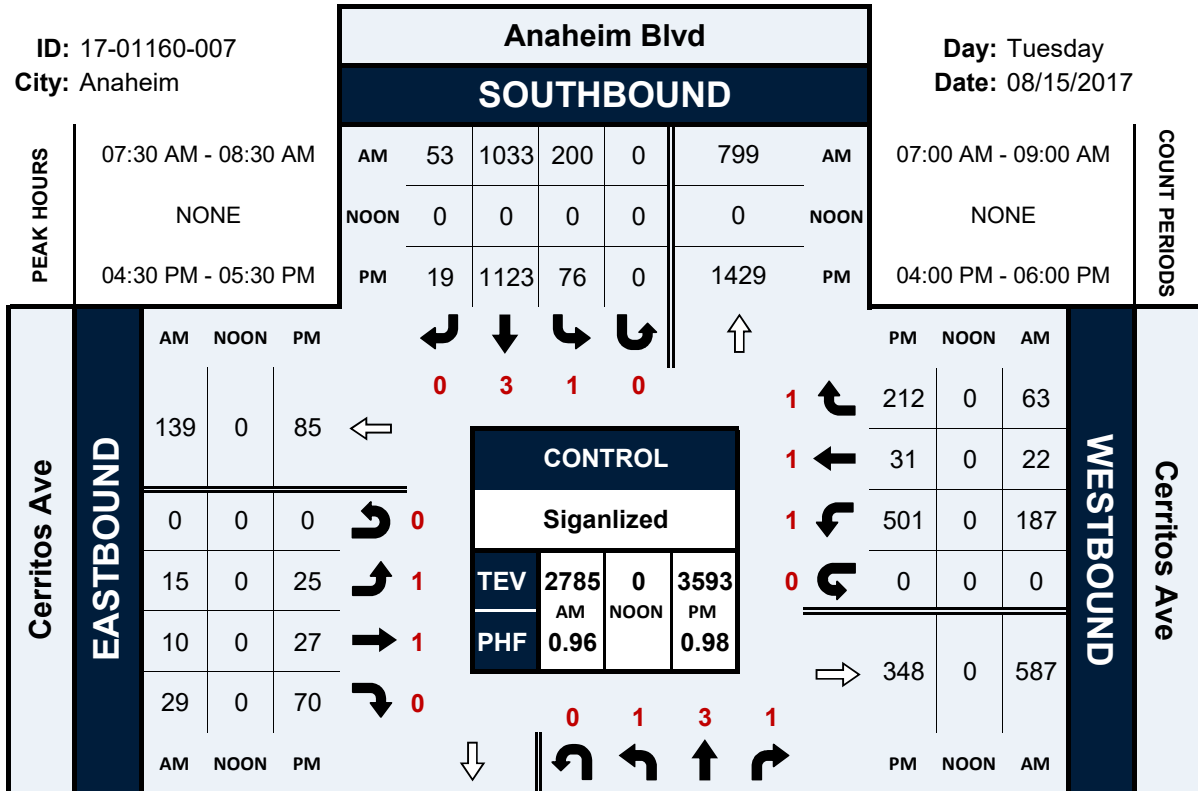
PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
4:00 PM	1	3	0	0	0	0	1	1	6
4:15 PM	2	2	1	0	0	0	0	2	7
4:30 PM	1	0	0	0	1	0	8	0	10
4:45 PM	0	1	0	0	1	0	0	2	4
5:00 PM	3	0	0	0	0	0	0	0	3
5:15 PM	1	1	0	1	0	1	2	0	6
5:30 PM	0	0	0	0	1	0	1	0	2
5:45 PM	0	0	0	0	0	0	3	2	5
TOTAL VOLUMES :	EB 8	WB 7	EB 1	WB 1	NB 3	SB 1	NB 15	SB 7	TOTAL 43
APPROACH %'s :	53.33%	46.67%	50.00%	50.00%	75.00%	25.00%	68.18%	31.82%	
PEAK HR :	04:30 PM - 05:30 PM								TOTAL
PEAK HR VOL :	5	2	0	1	2	1	10	2	23
PEAK HR FACTOR :	0.417	0.500		0.250	0.500	0.250	0.313	0.250	0.575
	0.583		0.250		0.750		0.375		

Anaheim Blvd & Cerritos Ave

Peak Hour Turning Movement Count

ID: 17-01160-007
City: Anaheim

Day: Tuesday
Date: 08/15/2017



National Data & Surveying Services

Intersection Turning Movement Count

Location: Anaheim Blvd & Anaheim Way
City: Anaheim
Control: Signalized

Project ID: 17-01160-006
Date: 8/15/2017

Total

NS/EW Streets:	Anaheim Blvd				Anaheim Blvd				Anaheim Way				Anaheim Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	3 NT	0 NR	0 NU	0 SL	3 ST	1 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0.5 WL	1 WT	1.5 WR	0 WU	
7:00 AM	37	150	0	0	0	269	20	0	0	0	0	0	5	1	89	0	571
7:15 AM	43	158	0	0	0	279	25	0	0	0	0	0	4	5	93	0	607
7:30 AM	41	193	0	0	0	315	36	1	0	0	0	0	5	3	91	0	685
7:45 AM	51	227	0	0	0	279	25	0	0	0	0	0	5	6	110	0	703
8:00 AM	37	184	0	0	0	278	30	0	0	0	0	0	3	5	92	0	629
8:15 AM	51	214	0	0	0	267	38	0	0	0	0	0	8	7	113	0	698
8:30 AM	50	181	0	1	0	257	44	0	0	0	0	0	6	2	101	0	642
8:45 AM	54	169	0	0	0	283	31	0	0	0	0	0	7	12	98	0	654
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	364	1476	0	1	0	2227	249	1	0	0	0	0	43	41	787	0	5189
	19.77%	80.17%	0.00%	0.05%	0.00%	89.91%	10.05%	0.04%					4.94%	4.71%	90.36%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	180	818	0	0	0	1139	129	1	0	0	0	0	21	21	406	0	2715
PEAK HR FACTOR :	0.882	0.901	0.000	0.000	0.000	0.904	0.849	0.250	0.000	0.000	0.000	0.000	0.656	0.750	0.898	0.000	0.966
	0.897				0.901								0.875				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	3 NT	0 NR	0 NU	0 SL	3 ST	1 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0.5 WL	1 WT	1.5 WR	0 WU	
4:00 PM	64	183	0	0	0	298	89	0	0	0	0	0	18	82	135	0	869
4:15 PM	50	211	0	0	0	330	80	0	0	0	0	0	8	86	146	0	911
4:30 PM	67	236	0	0	0	308	103	0	0	0	0	0	34	133	153	0	1034
4:45 PM	60	232	0	0	0	341	85	0	0	0	0	0	12	154	156	0	1040
5:00 PM	92	202	0	0	0	331	119	0	0	0	0	0	16	178	148	0	1086
5:15 PM	64	224	0	0	0	365	82	0	0	0	0	0	8	177	138	0	1058
5:30 PM	110	213	0	1	0	283	93	0	0	0	0	0	15	208	181	0	1104
5:45 PM	68	245	0	1	0	263	52	0	0	0	0	0	12	146	152	0	939
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	575	1746	0	2	0	2519	703	0	0	0	0	0	123	1164	1209	0	8041
	24.75%	75.16%	0.00%	0.09%	0.00%	78.18%	21.82%	0.00%					4.93%	46.63%	48.44%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	326	871	0	1	0	1320	379	0	0	0	0	0	51	717	623	0	4288
PEAK HR FACTOR :	0.741	0.939	0.000	0.250	0.000	0.904	0.796	0.000	0.000	0.000	0.000	0.000	0.797	0.862	0.860	0.000	0.971
	0.924				0.944								0.861				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Anaheim Blvd & Anaheim Way
City: Anaheim
Control: Signalized

Project ID: 17-01160-006
Date: 8/15/2017

Bikes

NS/EW Streets:	Anaheim Blvd				Anaheim Blvd				Anaheim Way				Anaheim Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	3	0	0	0	4	0	0	0	0	0	0	1	0	0	0	8
	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.417
	0.500				0.375												
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
4:00 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0	0	6
4:30 PM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	1	0	5
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
5:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:45 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	12	0	0	0	9	0	0	0	0	0	0	0	0	2	0	23
	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	4	0	0	0	2	0	0	0	0	0	0	0	0	1	0	7
PEAK HR FACTOR :	0.00	0.500	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.438
	0.500				0.250												

National Data & Surveying Services

Intersection Turning Movement Count

Location: Anaheim Blvd & Anaheim Way
City: Anaheim

Project ID: 17-01160-006
Date: 8/15/2017

Pedestrians (Crosswalks)

NS/EW Streets:	Anaheim Blvd		Anaheim Blvd		Anaheim Way		Anaheim Way		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
7:00 AM	0	0	0	0	1	0	2	0	3
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	1	1	2
7:45 AM	0	0	0	0	0	0	1	1	2
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	2	0	0	0	0	1	5	0	8
8:30 AM	2	0	0	0	0	0	4	1	7
8:45 AM	0	0	0	0	0	0	2	0	2
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	4	0	0	0	1	1	15	3	24
	100.00%	0.00%			50.00%	50.00%	83.33%	16.67%	
PEAK HR :	07:30 AM - 08:30 AM								TOTAL
PEAK HR VOL :	2	0	0	0	0	1	7	2	12
PEAK HR FACTOR :	0.250					0.250	0.350	0.500	0.375
	0.250				0.250		0.450		

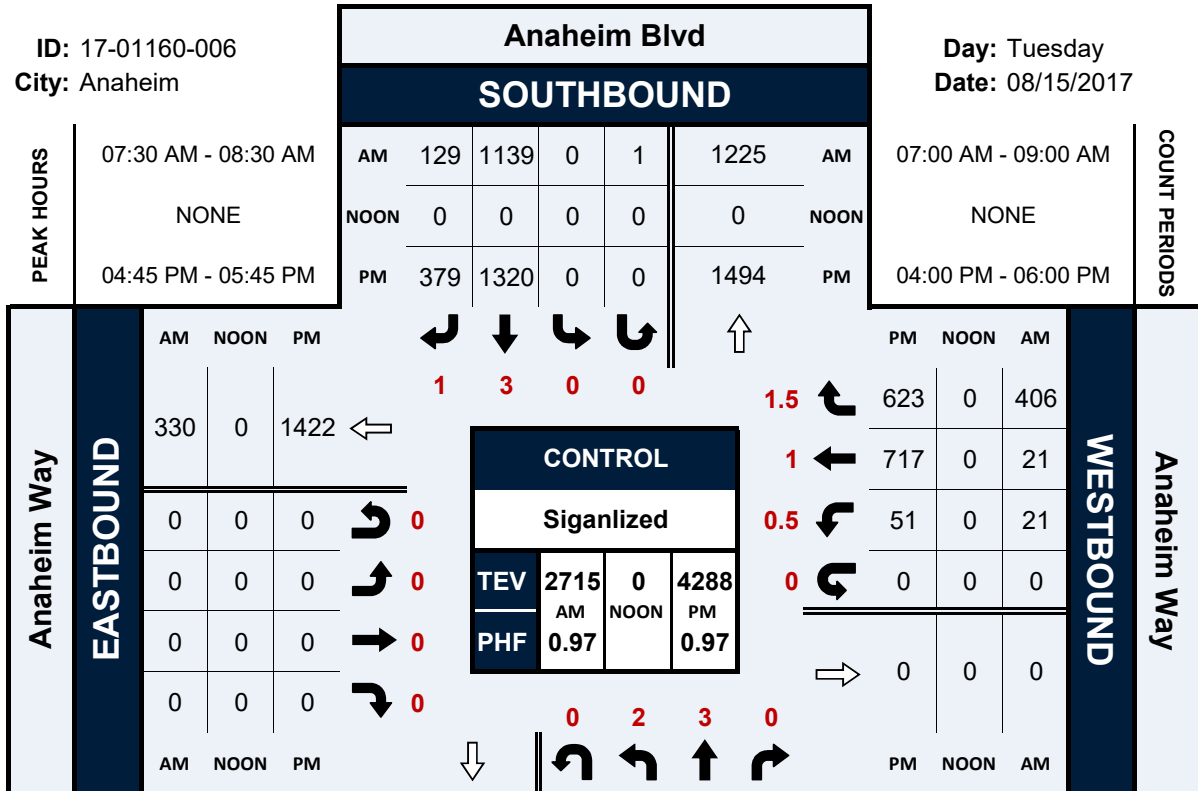
PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
4:00 PM	0	0	0	0	0	0	1	0	1
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	2	3	2	7
4:45 PM	0	0	0	0	1	0	0	2	3
5:00 PM	0	0	0	0	0	0	3	3	6
5:15 PM	0	0	0	0	0	0	5	0	5
5:30 PM	0	0	0	0	0	0	2	2	4
5:45 PM	0	0	0	0	0	0	3	4	7
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	0	0	0	0	1	2	17	13	33
					33.33%	66.67%	56.67%	43.33%	
PEAK HR :	04:45 PM - 05:45 PM								TOTAL
PEAK HR VOL :	0	0	0	0	1	0	10	7	18
PEAK HR FACTOR :					0.250		0.500	0.583	0.750
					0.250		0.708		

Anaheim Blvd & Anaheim Way

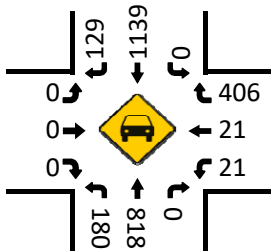
Peak Hour Turning Movement Count

ID: 17-01160-006
City: Anaheim

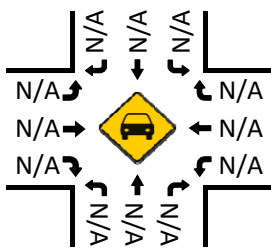
Day: Tuesday
Date: 08/15/2017



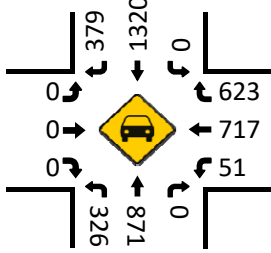
Total Vehicles (AM)



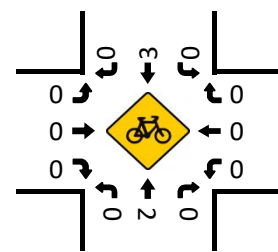
Total Vehicles (Noon)



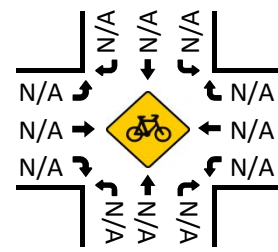
Total Vehicles (PM)



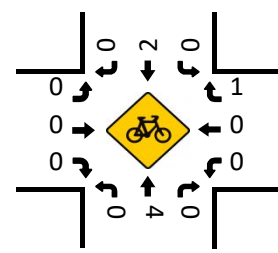
Total Bikes (AM)



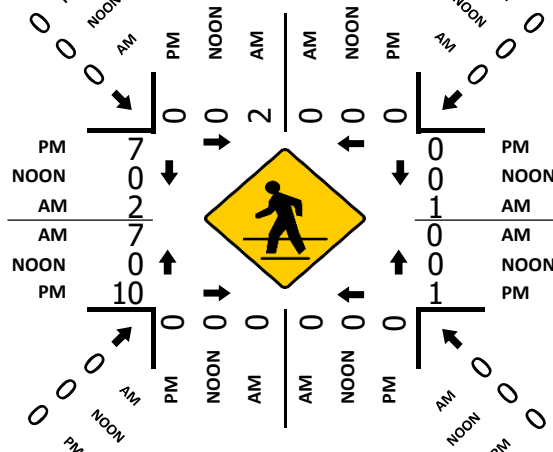
Total Bikes (NOON)



Total Bikes (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Anaheim Blvd & Disney Way
 City: Anaheim
 Control: Signalized

Project ID: 17-01160-005
 Date: 8/15/2017

		Total																							
NS/EW Streets:		Anaheim Blvd					Anaheim Blvd					Disney Way					Disney Way								
AM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					SOUTHBOUND2		TOTAL		
	1	2.5	0.5	0	0	2	2.5	0.5	0	0	2	3.5	0.5	0	0	0	2	0	0	0	0	0		0	0
	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EU	ET2	WL	WT	WR	WU	S2L	S2T2	S2R2	TOTAL		
7:00 AM	0	129	0	1	1	117	107	20	1	14	60	5	23	0	12	0	26	0	0	0	3	1	520		
7:15 AM	5	137	0	2	1	123	139	25	1	10	61	8	26	0	5	0	25	0	0	0	6	0	574		
7:30 AM	3	168	0	2	0	103	147	30	3	17	64	13	17	0	6	0	29	0	0	0	10	0	612		
7:45 AM	1	198	0	1	3	90	149	37	3	23	75	10	18	0	5	0	24	0	0	0	11	0	648		
8:00 AM	4	165	0	4	1	98	129	23	3	17	61	10	29	0	8	0	22	0	0	0	20	0	594		
8:15 AM	3	176	0	0	1	96	138	23	0	15	84	27	14	0	12	0	44	0	0	0	41	0	674		
8:30 AM	6	169	0	1	2	110	109	24	2	11	60	12	21	0	10	0	30	1	0	1	38	0	607		
8:45 AM	9	149	0	2	1	128	141	37	2	8	74	13	30	0	10	0	27	0	0	0	30	0	661		
TOTAL VOLUMES:	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EU	ET2	WL	WT	WR	WU	S2L	S2T2	S2R2	TOTAL		
APPROACH %:	2.30%	95.99%	0.00%	0.97%	0.74%	38.06%	46.59%	9.63%	0.66%	5.06%	61.04%	11.10%	20.16%	0.00%	7.70%	0.00%	99.56%	0.44%	0.00%	0.62%	98.76%	0.62%	4890		
PEAK HR VOL:	08:00 AM - 09:00 AM					432	517	107	7	51	279	62	94	0	40	0	123	1	0	1	129	0	2536		
PEAK HR FACTOR:	0.611	0.936	0.000	0.438	0.625	0.844	0.917	0.723	0.583	0.750	0.830	0.574	0.783	0.000	0.833	0.000	0.699	0.250	0.000	0.250	0.787	0.000	0.941		
			0.963					0.881					0.867					0.705			0.793				
PM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					SOUTHBOUND2		TOTAL		
	1	2.5	0.5	0	0	2	2.5	0.5	0	0	2	3.5	0.5	0	0	0	2	0	0	0	0	0		TOTAL	
	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EU	ET2	WL	WT	WR	WU	S2L	S2T2	S2R2	TOTAL		
4:00 PM	5	173	0	2	0	122	175	16	1	8	67	30	40	0	23	0	20	0	0	0	17	1	700		
4:15 PM	5	205	0	2	4	113	173	16	2	12	56	33	40	0	15	0	21	0	0	0	25	0	722		
4:30 PM	4	208	0	4	0	134	191	18	3	15	87	34	45	0	21	0	36	0	0	0	22	0	822		
4:45 PM	5	224	0	0	1	132	184	25	4	9	65	23	44	0	15	0	34	0	0	0	19	3	787		
5:00 PM	3	229	0	1	0	134	203	13	1	4	59	37	50	0	19	0	28	1	0	0	24	0	806		
5:15 PM	6	223	0	2	3	122	204	16	0	12	66	21	44	1	21	0	22	0	0	0	20	2	785		
5:30 PM	5	232	0	1	0	113	168	22	1	11	80	21	38	0	11	0	34	2	0	0	21	1	761		
5:45 PM	7	256	0	4	1	102	155	12	3	8	59	31	25	0	17	0	28	0	0	0	30	1	739		
TOTAL VOLUMES:	NL	NT	NR	NU	NR2	SL	ST	SR	SU	SL2	EL	ET	ER	EU	ET2	WL	WT	WR	WU	S2L	S2T2	S2R2	TOTAL		
APPROACH %:	2.20%	96.42%	0.00%	0.88%	0.50%	36.58%	54.69%	5.19%	0.56%	2.97%	43.54%	18.58%	26.33%	0.08%	11.47%	0.00%	98.67%	1.33%	0.00%	0.00%	95.70%	4.30%	6122		
PEAK HR VOL:	04:30 PM - 05:30 PM					522	782	72	8	40	277	115	183	1	76	0	120	1	0	0	85	5	3200		
PEAK HR FACTOR:	0.750	0.965	0.000	0.438	0.333	0.974	0.958	0.720	0.500	0.667	0.796	0.777	0.915	0.250	0.905	0.000	0.833	0.250	0.000	0.000	0.885	0.417	0.973		
			0.975					0.986					0.872					0.840			0.938				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Anaheim Blvd & Disney Way
City: Anaheim
Control: Signalized

Project ID: 17-01160-005
Date: 8/15/2017

Bikes

NS/EW Streets:	Anaheim Blvd				Anaheim Blvd				Disney Way				Disney Way						
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND						
	1	2.5	0.5	0	2	2.5	0.5	0	2	3.5	0.5	0	0	2	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL		
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	7:30 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
	7:45 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	3
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL		
APPROACH %'s :	1	4	0	0	1	3	0	0	0	0	2	0	0	2	0	0	0	13	
	20.00%	80.00%	0.00%	0.00%	25.00%	75.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%		
PEAK HR :	08:00 AM - 09:00 AM																TOTAL		
PEAK HR VOL :	0	1	0	0	1	1	0	0	0	0	1	0	0	2	0	0	0	6	
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.500	
		0.250				0.250				0.250				0.250					
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND						
	1	2.5	0.5	0	2	2.5	0.5	0	2	3.5	0.5	0	0	2	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL		
	4:00 PM	0	0	0	0	1	1	0	0	2	1	1	0	0	0	0	0	6	
	4:15 PM	0	3	0	0	0	1	0	0	0	0	0	0	0	1	0	0	5	
	4:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
	4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2	
	5:00 PM	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4	
	5:15 PM	0	3	0	0	0	0	0	0	0	1	1	0	0	0	0	0	5	
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
5:45 PM	0	0	0	0	0	3	1	0	1	0	0	0	0	0	0	0	5		
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL		
APPROACH %'s :	0	10	0	0	1	8	1	0	3	2	2	0	0	3	0	0	0	30	
	0.00%	100.00%	0.00%	0.00%	10.00%	80.00%	10.00%	0.00%	42.86%	28.57%	28.57%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%		
PEAK HR :	04:30 PM - 05:30 PM																TOTAL		
PEAK HR VOL :	0	7	0	0	0	3	0	0	0	1	1	0	0	1	0	0	0	13	
PEAK HR FACTOR :	0.00	0.583	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.650	
		0.583				0.375				0.250				0.250					

National Data & Surveying Services

Intersection Turning Movement Count

Location: Anaheim Blvd & Disney Way
City: Anaheim

Project ID: 17-01160-005
Date: 8/15/2017

Pedestrians (Crosswalks)

NS/EW Streets:	Anaheim Blvd		Anaheim Blvd		Disney Way		Disney Way		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
7:00 AM	0	0	0	1	1	1	2	0	5
7:15 AM	0	0	0	1	0	0	1	0	2
7:30 AM	0	0	0	0	0	0	1	0	1
7:45 AM	0	0	0	0	1	0	1	0	2
8:00 AM	0	0	0	1	0	0	0	1	2
8:15 AM	0	0	0	1	0	1	5	0	7
8:30 AM	0	0	0	4	0	0	4	3	11
8:45 AM	0	0	0	0	0	0	2	0	2
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	0	0	0	8	2	2	16	4	32
			0.00%	100.00%	50.00%	50.00%	80.00%	20.00%	
PEAK HR :	08:00 AM - 09:00 AM								TOTAL
PEAK HR VOL :	0	0	0	6	0	1	11	4	22
PEAK HR FACTOR :				0.375		0.250	0.550	0.333	0.500
			0.375		0.250		0.536		

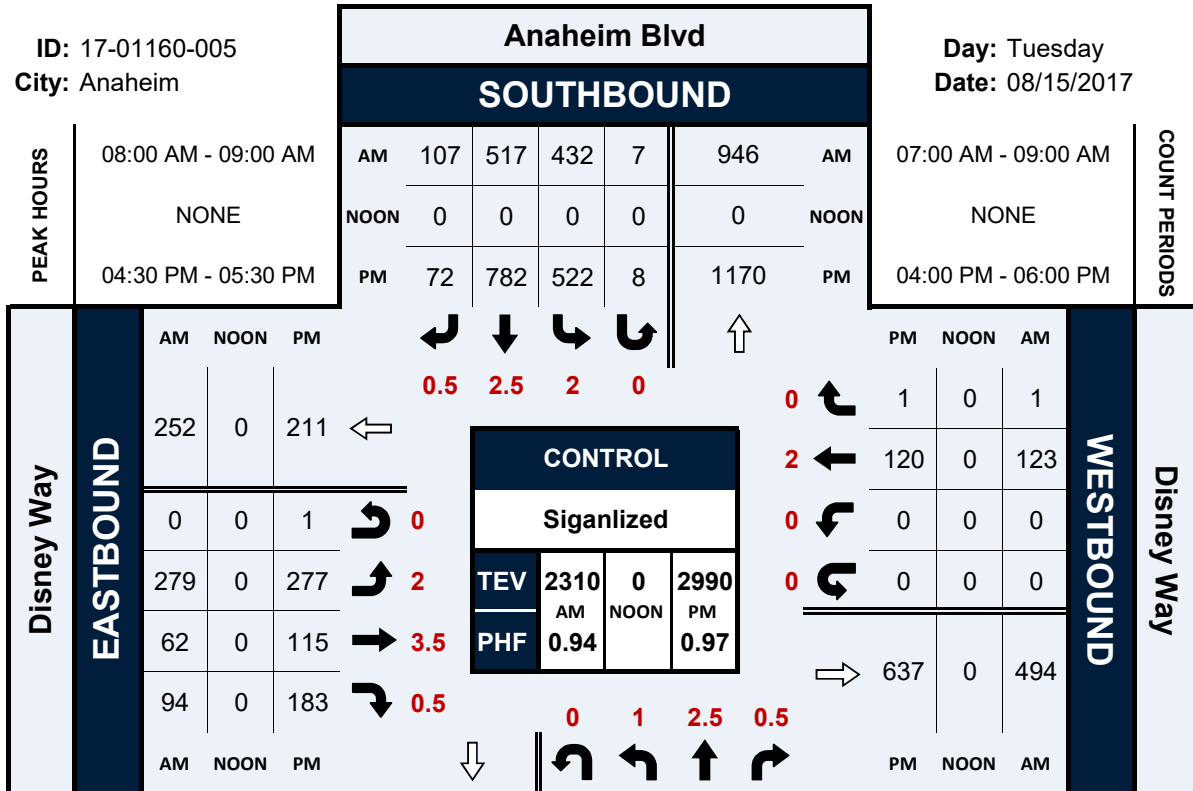
PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
4:00 PM	0	0	0	0	0	0	2	0	2
4:15 PM	0	0	0	0	0	0	0	1	1
4:30 PM	0	0	0	0	1	1	2	1	5
4:45 PM	0	0	0	0	0	0	0	2	2
5:00 PM	0	0	0	1	0	1	1	2	5
5:15 PM	0	0	0	0	1	0	2	0	3
5:30 PM	0	0	0	0	0	1	2	0	3
5:45 PM	0	0	0	0	0	0	2	1	3
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	0	0	0	1	2	3	11	7	24
			0.00%	100.00%	40.00%	60.00%	61.11%	38.89%	
PEAK HR :	04:30 PM - 05:30 PM								TOTAL
PEAK HR VOL :	0	0	0	1	2	2	5	5	15
PEAK HR FACTOR :				0.250	0.500	0.500	0.625	0.625	0.750
			0.250		0.500		0.833		

Anaheim Blvd & Disney Way

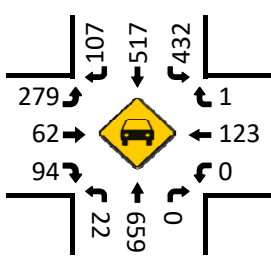
Peak Hour Turning Movement Count

ID: 17-01160-005
City: Anaheim

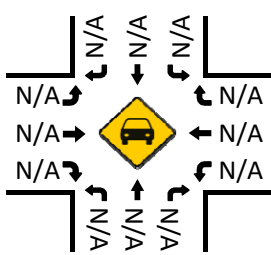
Day: Tuesday
Date: 08/15/2017



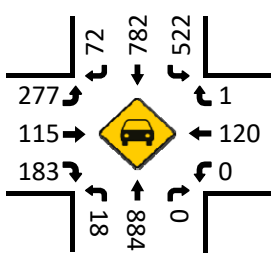
Total Vehicles (AM)



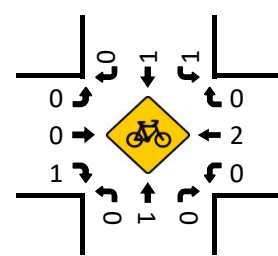
Total Vehicles (Noon)



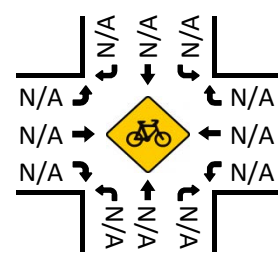
Total Vehicles (PM)



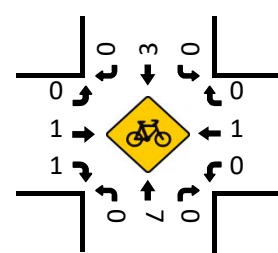
Total Bikes (AM)



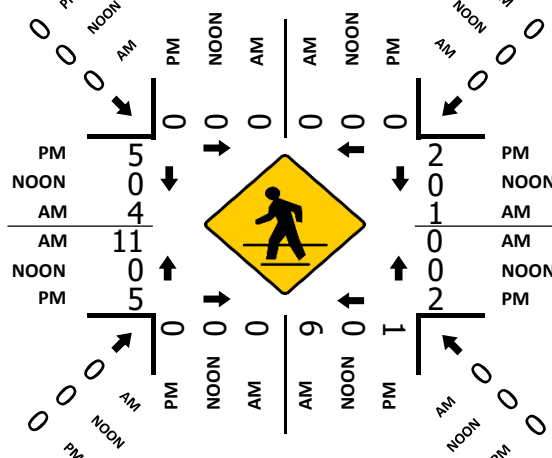
Total Bikes (NOON)



Total Bikes (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Haster St/Anaheim Blvd & Katella Ave
City: Anaheim
Control: Signalized

Project ID: 17-01160-004
Date: 8/15/2017

Total

NS/EW Streets:	Haster St/Anaheim Blvd				Haster St/Anaheim Blvd				Katella Ave				Katella Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	3 NT	1 NR	0 NU	2 SL	3 ST	1 SR	0 SU	2 EL	3.5 ET	0.5 ER	0 EU	2 WL	3 WT	1 WR	0 WU	
7:00 AM	17	93	37	0	15	72	23	4	28	179	10	5	10	170	2	2	667
7:15 AM	29	131	32	1	22	105	44	1	27	266	15	8	12	176	1	6	876
7:30 AM	42	121	38	0	29	106	33	1	29	282	11	7	12	227	1	6	945
7:45 AM	40	193	33	1	16	119	33	1	26	243	21	5	20	213	1	5	970
8:00 AM	39	107	27	0	17	92	33	5	36	220	26	5	14	219	2	3	845
8:15 AM	30	158	22	1	15	112	34	2	30	237	19	4	14	211	2	7	898
8:30 AM	34	138	29	0	18	88	28	1	37	249	15	4	12	194	2	8	857
8:45 AM	29	121	31	2	23	102	31	1	30	186	18	6	22	208	7	5	822
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	260	1062	249	5	155	796	259	16	243	1862	135	44	116	1618	18	42	6880
PEAK HR :	07:30 AM - 08:30 AM				12.64%	64.93%	21.13%	1.31%	10.64%	81.52%	5.91%	1.93%	6.47%	90.19%	1.00%	2.34%	TOTAL
PEAK HR VOL :	151	579	120	2	77	429	133	9	121	982	77	21	60	870	6	21	3658
PEAK HR FACTOR :	0.899	0.750	0.789	0.500	0.664	0.901	0.978	0.450	0.840	0.871	0.740	0.750	0.750	0.958	0.750	0.750	0.943
			0.798			0.959				0.913				0.973			
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	3 NT	1 NR	0 NU	2 SL	3 ST	1 SR	0 SU	2 EL	3.5 ET	0.5 ER	0 EU	2 WL	3 WT	1 WR	0 WU	
4:00 PM	28	146	28	1	17	150	52	4	19	218	34	7	27	325	9	9	1074
4:15 PM	50	155	32	2	15	134	35	3	48	226	29	6	34	301	6	9	1085
4:30 PM	25	183	11	1	24	201	51	1	44	253	27	3	42	319	12	14	1211
4:45 PM	48	154	25	5	15	152	36	1	50	221	19	2	26	312	7	7	1080
5:00 PM	35	192	33	3	18	200	43	4	40	245	32	5	26	379	7	10	1272
5:15 PM	49	174	27	3	17	172	40	2	41	251	32	3	38	342	9	7	1207
5:30 PM	43	221	32	0	18	172	35	1	34	234	26	5	36	318	6	11	1192
5:45 PM	44	203	30	1	17	120	35	2	37	246	30	9	26	300	7	7	1114
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	322	1428	218	16	141	1301	327	18	313	1894	229	40	255	2596	63	74	9235
PEAK HR :	05:00 PM - 06:00 PM				7.89%	72.80%	18.30%	1.01%	12.64%	76.49%	9.25%	1.62%	8.53%	86.88%	2.11%	2.48%	TOTAL
PEAK HR VOL :	171	790	122	7	70	664	153	9	152	976	120	22	126	1339	29	35	4785
PEAK HR FACTOR :	0.872	0.894	0.924	0.583	0.972	0.830	0.890	0.563	0.927	0.972	0.938	0.611	0.829	0.883	0.806	0.795	0.940
			0.921			0.845				0.971				0.906			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Haster St/Anaheim Blvd & Katella Ave
City: Anaheim
Control: Signalized

Project ID: 17-01160-004
Date: 8/15/2017

Bikes

NS/EW Streets:	Haster St/Anaheim Blvd				Haster St/Anaheim Blvd				Katella Ave				Katella Ave					
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	2	3	1	0	2	3	1	0	2	3.5	0.5	0	2	3	1	0		
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0		
	7:00 AM																	
	7:15 AM	1	2	0	0	0	0	0	0	0	0	0	0	1	0	0		0
	7:30 AM	5	1	0	0	0	1	0	0	0	1	0	0	0	2	0		0
	7:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0		0
	8:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0		0
8:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0		
8:45 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0		
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
APPROACH %'s :	7	4	0	0	0	3	0	0	0	4	1	0	1	7	0	0	27	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL	
PEAK HR VOL :	6	1	0	0	0	2	0	0	0	1	1	0	0	5	0	0	16	
PEAK HR FACTOR :	0.300	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.625	0.000	0.000	0.400	
	0.292				0.500				0.500				0.625					
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	2	3	1	0	2	3	1	0	2	3.5	0.5	0	2	3	1	0		
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
	0	1	0	0	0	1	0	0	0	1	1	0	0	0	0	0		
	4:00 PM																	
	4:15 PM	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0		0
	4:30 PM	0	3	0	0	0	0	0	0	0	1	0	0	0	2	0		0
	4:45 PM	1	0	0	0	0	3	0	0	0	4	0	0	0	0	0		0
	5:00 PM	0	1	0	0	0	3	1	0	1	0	0	0	1	2	0		0
	5:15 PM	2	2	0	0	0	0	0	0	0	1	0	0	0	1	0		0
5:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0		
5:45 PM	1	1	0	0	1	1	0	0	0	2	0	0	1	1	0	0		
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
APPROACH %'s :	4	11	0	0	2	8	1	0	1	11	1	0	3	6	0	0	48	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL	
PEAK HR VOL :	3	4	0	0	1	4	1	0	1	5	0	0	3	4	0	0	26	
PEAK HR FACTOR :	0.38	0.500	0.000	0.000	0.250	0.333	0.250	0.000	0.250	0.625	0.000	0.000	0.750	0.500	0.000	0.000	0.722	
	0.438				0.375				0.750				0.583					

National Data & Surveying Services

Intersection Turning Movement Count

Location: Haster St/Anaheim Blvd & Katella Ave
City: Anaheim

Project ID: 17-01160-004
Date: 8/15/2017

Pedestrians (Crosswalks)

NS/EW Streets:	Haster St/Anaheim Blvd		Haster St/Anaheim Blvd		Katella Ave		Katella Ave		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
7:00 AM	4	1	3	0	2	1	4	1	16
7:15 AM	1	7	0	3	3	1	2	0	17
7:30 AM	1	1	5	7	0	0	9	2	25
7:45 AM	1	1	1	3	1	2	10	2	21
8:00 AM	3	4	3	1	2	0	11	3	27
8:15 AM	0	2	0	4	6	0	9	0	21
8:30 AM	1	0	8	11	3	1	4	1	29
8:45 AM	1	2	1	5	1	1	7	1	19
TOTAL VOLUMES :	EB 12	WB 18	EB 21	WB 34	NB 18	SB 6	NB 56	SB 10	TOTAL 175
APPROACH %'s :	40.00%	60.00%	38.18%	61.82%	75.00%	25.00%	84.85%	15.15%	
PEAK HR :	07:30 AM - 08:30 AM								TOTAL
PEAK HR VOL :	5	8	9	15	9	2	39	7	TOTAL 94
PEAK HR FACTOR :	0.417	0.500	0.450	0.536	0.375	0.250	0.886	0.583	0.870
	0.464		0.500		0.458		0.821		

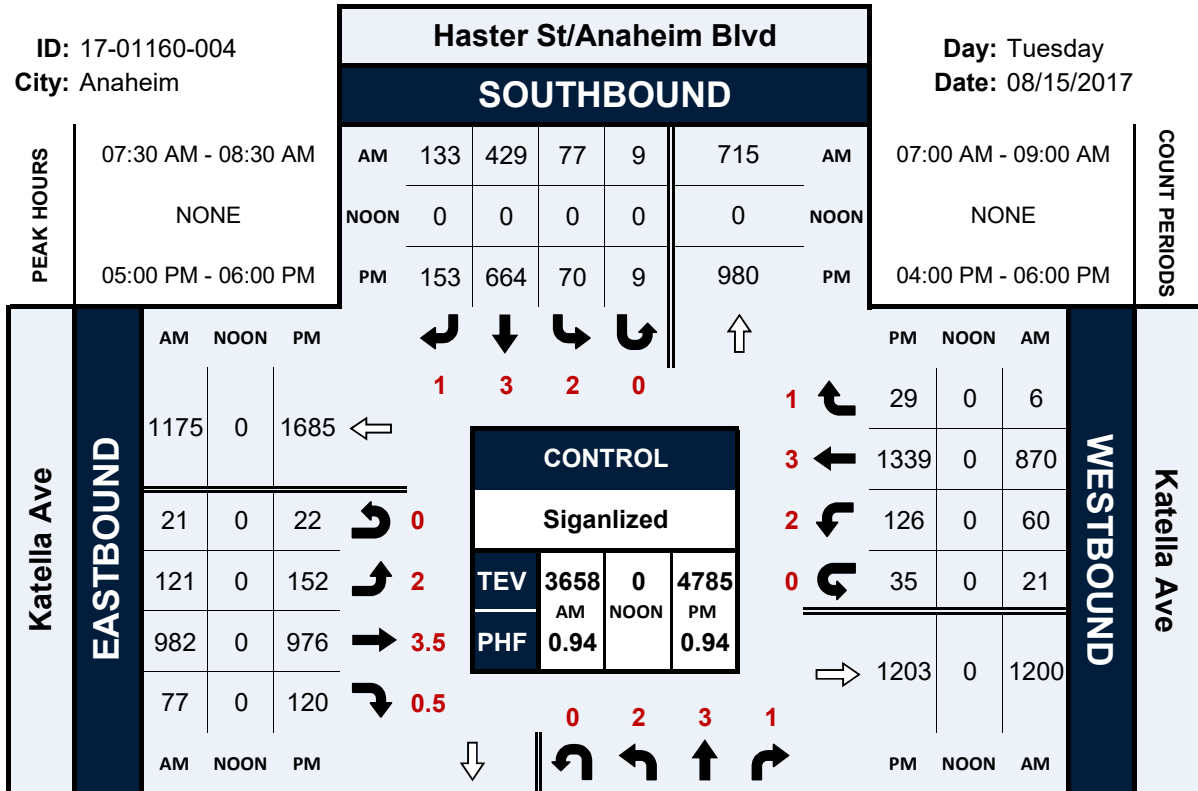
PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
4:00 PM	1	5	3	2	2	0	5	6	24
4:15 PM	2	2	1	1	2	1	3	1	13
4:30 PM	2	2	4	4	2	0	4	6	24
4:45 PM	0	3	7	1	0	0	2	3	16
5:00 PM	3	1	7	0	3	0	1	9	24
5:15 PM	2	2	2	0	3	3	5	3	20
5:30 PM	1	2	3	3	1	0	10	1	21
5:45 PM	7	0	4	1	3	3	1	3	22
TOTAL VOLUMES :	EB 18	WB 17	EB 31	WB 12	NB 16	SB 7	NB 31	SB 32	TOTAL 164
APPROACH %'s :	51.43%	48.57%	72.09%	27.91%	69.57%	30.43%	49.21%	50.79%	
PEAK HR :	05:00 PM - 06:00 PM								TOTAL
PEAK HR VOL :	13	5	16	4	10	6	17	16	87
PEAK HR FACTOR :	0.464	0.625	0.571	0.333	0.833	0.500	0.425	0.444	0.906
	0.643		0.714		0.667		0.750		

Haster St/Anaheim Blvd & Katella Ave

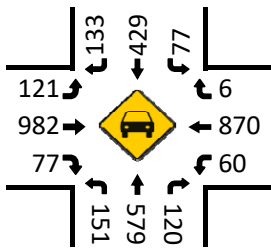
Peak Hour Turning Movement Count

ID: 17-01160-004
City: Anaheim

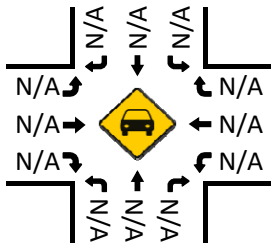
Day: Tuesday
Date: 08/15/2017



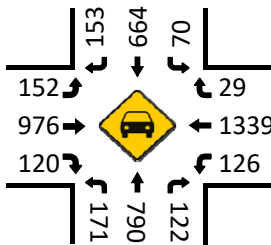
Total Vehicles (AM)



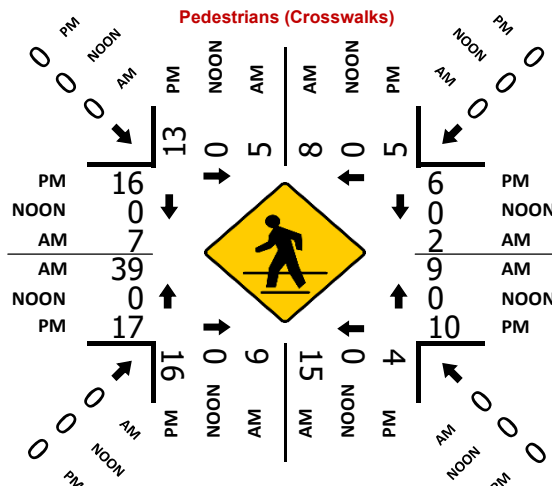
Total Vehicles (Noon)



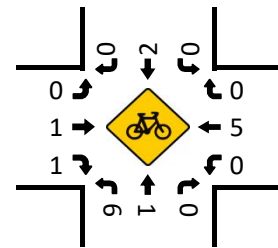
Total Vehicles (PM)



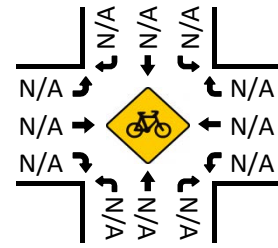
Haster St/Anaheim Blvd NORTHBOUND



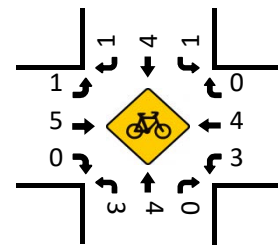
Total Bikes (AM)



Total Bikes (Noon)



Total Bikes (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 SB Loop Off Ramp & Katella Ave
City: Anaheim
Control: Signalized

Project ID: 17-01160-010
Date: 8/15/2017

Total

NS/EW Streets:	I-5 SB Loop Off Ramp				I-5 SB Loop Off Ramp				Katella Ave				Katella Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1.5 NL	0 NT	1.5 NR	0 NU	2 SL	2 ST	1 SR	0 SU	0 EL	3 ET	1 ER	0 EU	2 WL	4 WT	0 WR	0 WU	
7:00 AM	3	0	97	0	11	16	0	0	0	138	87	0	43	184	0	0	579
7:15 AM	8	0	126	0	3	11	0	0	0	214	146	0	46	198	0	1	753
7:30 AM	8	0	144	0	6	18	0	0	0	210	115	0	44	234	0	0	779
7:45 AM	4	0	141	0	8	21	1	0	0	216	96	0	41	247	0	4	779
8:00 AM	7	0	109	0	9	19	0	0	0	188	75	0	52	234	0	0	693
8:15 AM	6	0	92	0	5	18	2	0	0	206	98	1	37	213	0	0	678
8:30 AM	6	0	91	0	12	16	0	0	0	176	106	0	55	218	0	0	680
8:45 AM	7	0	101	0	7	8	1	0	0	176	82	0	51	241	0	0	674
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	5.16%	0.00%	94.84%	0.00%	31.77%	66.15%	2.08%	0.00%	0.00%	65.41%	34.55%	0.04%	17.22%	82.55%	0.00%	0.23%	5615
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	27	0	520	0	26	69	1	0	0	828	432	0	183	913	0	5	3004
PEAK HR FACTOR :	0.844	0.000	0.903	0.000	0.722	0.821	0.250	0.000	0.000	0.958	0.740	0.000	0.880	0.924	0.000	0.313	0.964
	0.900				0.800				0.875				0.943				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1.5 NL	0 NT	1.5 NR	0 NU	2 SL	2 ST	1 SR	0 SU	0 EL	3 ET	1 ER	0 EU	2 WL	4 WT	0 WR	0 WU	
4:00 PM	7	0	55	0	11	13	2	0	0	184	112	0	95	356	0	0	835
4:15 PM	7	0	50	0	18	12	2	0	0	132	122	0	101	344	0	1	789
4:30 PM	14	0	51	0	15	15	0	0	0	181	130	0	97	395	0	1	899
4:45 PM	5	0	75	0	14	13	0	0	0	159	99	0	99	324	0	2	790
5:00 PM	5	0	83	1	12	10	1	0	0	207	122	0	135	446	0	1	1023
5:15 PM	10	0	85	0	20	16	0	0	0	165	112	0	86	372	0	0	866
5:30 PM	12	0	60	0	10	13	1	0	0	208	108	0	87	375	0	1	875
5:45 PM	5	0	68	0	10	14	1	0	0	161	118	0	64	330	0	1	772
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	10.96%	0.00%	88.87%	0.17%	49.33%	47.53%	3.14%	0.00%	0.00%	60.22%	39.78%	0.00%	20.58%	79.24%	0.00%	0.19%	6849
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	34	0	294	1	61	54	1	0	0	712	463	0	417	1537	0	4	3578
PEAK HR FACTOR :	0.607	0.000	0.865	0.250	0.763	0.844	0.250	0.000	0.000	0.860	0.890	0.000	0.772	0.862	0.000	0.500	0.874
	0.866				0.806				0.893				0.841				

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 SB Loop Off Ramp & Katella Ave
City: Anaheim
Control: Signalized

Project ID: 17-01160-010
Date: 8/15/2017

Bikes

NS/EW Streets:	I-5 SB Loop Off Ramp				I-5 SB Loop Off Ramp				Katella Ave				Katella Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1.5 NL	0 NT	1.5 NR	0 NU	2 SL	2 ST	1 SR	0 SU	0 EL	3 ET	1 ER	0 EU	2 WL	4 WT	0 WR	0 WU	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
8:30 AM	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	3
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	0	1	0	0	0	4	0	0	0	4	0	0	9
	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.500
	0.250				0.375				0.500				0.583				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1.5 NL	0 NT	1.5 NR	0 NU	2 SL	2 ST	1 SR	0 SU	0 EL	3 ET	1 ER	0 EU	2 WL	4 WT	0 WR	0 WU	
4:00 PM	0	0	1	0	0	2	0	0	0	1	0	0	0	0	0	0	4
4:15 PM	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
4:45 PM	0	0	0	0	0	1	1	0	0	1	0	0	0	2	0	0	5
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
5:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	3	0	0	5
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:45 PM	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	2	0	2	0	1	3	1	0	0	8	0	0	0	8	0	0	25
	50.00%	0.00%	50.00%	0.00%	20.00%	60.00%	20.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	1	0	1	1	1	0	0	4	0	0	0	7	0	0	15
PEAK HR FACTOR :	0.00	0.000	0.250	0.000	0.250	0.250	0.250	0.000	0.000	0.500	0.000	0.000	0.000	0.583	0.000	0.000	0.750
	0.250				0.375				0.500				0.583				

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 SB Loop Off Ramp & Katella Ave
City: Anaheim

Project ID: 17-01160-010
Date: 8/15/2017

Pedestrians (Crosswalks)

NS/EW Streets:	I-5 SB Loop Off Ramp		I-5 SB Loop Off Ramp		Katella Ave		Katella Ave		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
7:00 AM	1	1	1	1	0	0	1	0	5
7:15 AM	0	2	1	0	0	0	0	1	4
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	1	0	0	0	0	0	1
8:00 AM	0	0	3	3	0	0	0	0	6
8:15 AM	0	0	1	0	0	0	0	0	1
8:30 AM	0	1	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	1	4	7	4	0	0	1	1	18
	20.00%	80.00%	63.64%	36.36%			50.00%	50.00%	
PEAK HR :	07:15 AM - 08:15 AM								TOTAL
PEAK HR VOL :	0	2	5	3	0	0	0	1	11
PEAK HR FACTOR :		0.250	0.417	0.250				0.250	0.458
		0.250		0.333				0.250	

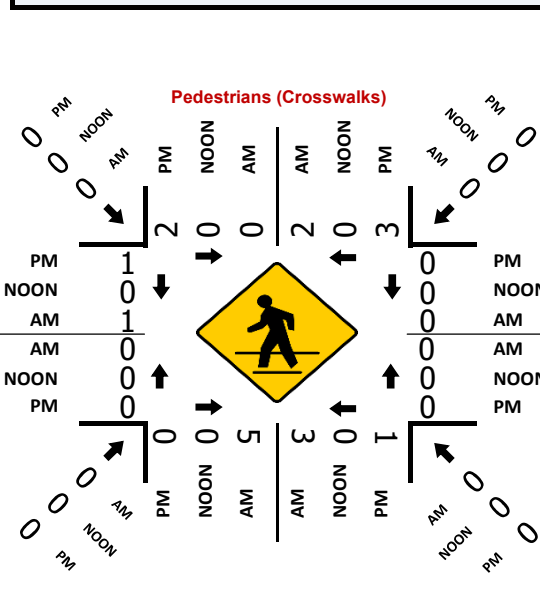
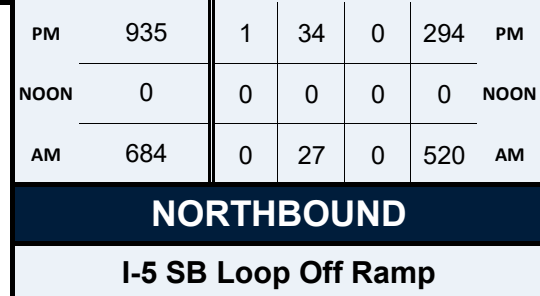
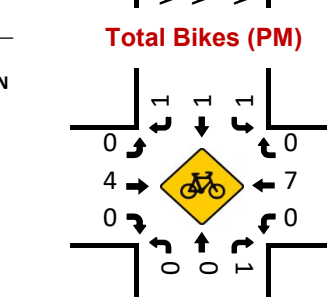
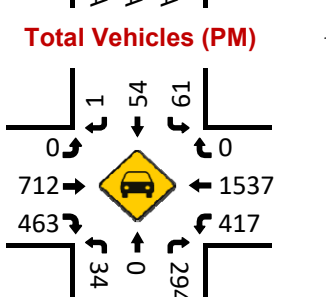
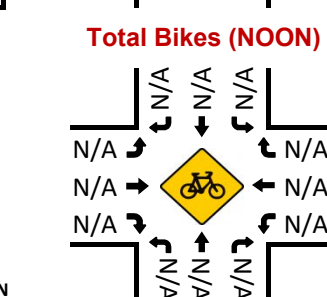
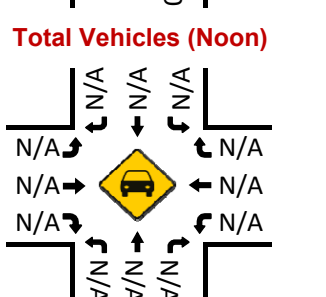
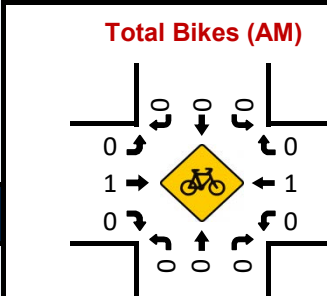
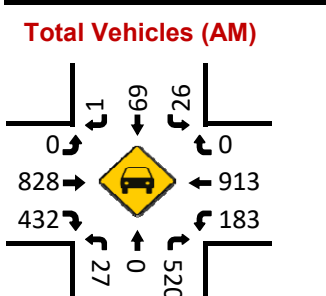
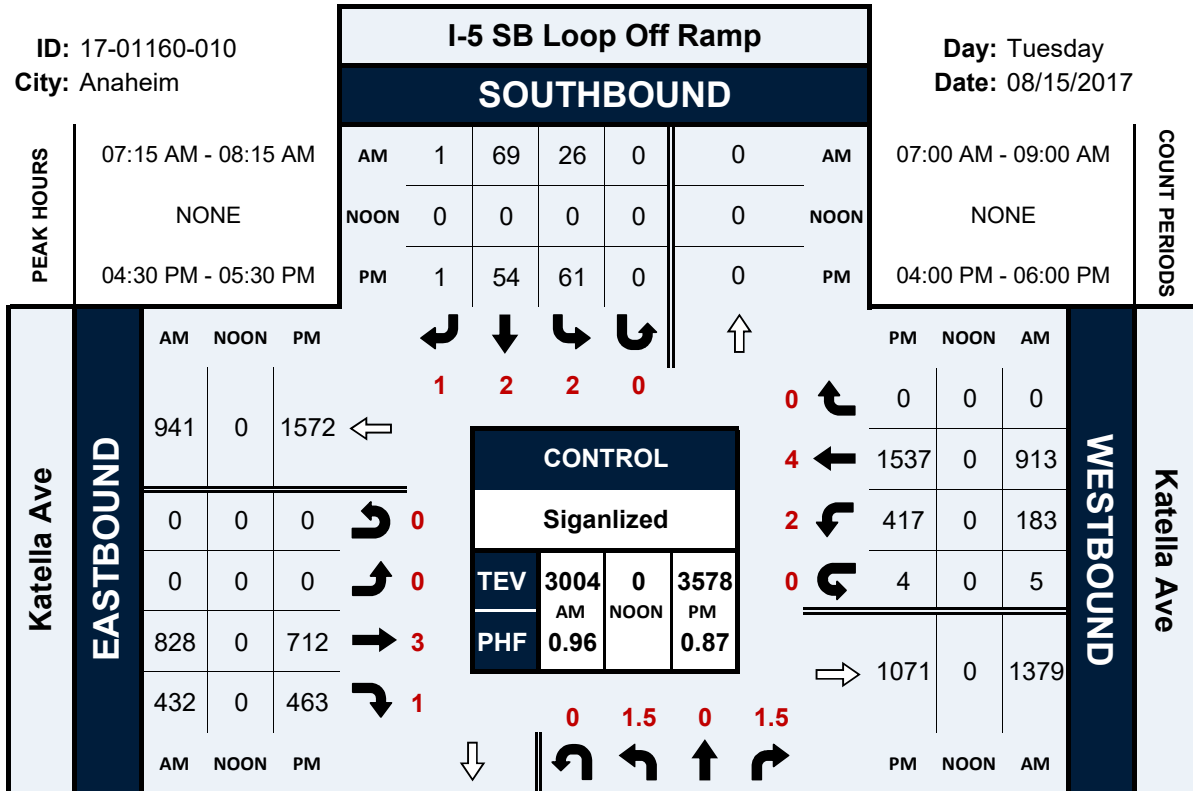
PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
4:00 PM	0	2	0	1	0	0	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	1	2
4:45 PM	1	1	0	0	0	0	0	0	2
5:00 PM	1	1	0	0	0	0	0	0	2
5:15 PM	0	0	0	1	0	0	0	0	1
5:30 PM	0	1	1	0	0	0	0	0	2
5:45 PM	0	2	0	0	0	0	0	5	7
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	2	8	1	2	0	0	0	6	19
	20.00%	80.00%	33.33%	66.67%			0.00%	100.00%	
PEAK HR :	04:30 PM - 05:30 PM								TOTAL
PEAK HR VOL :	2	3	0	1	0	0	0	1	7
PEAK HR FACTOR :	0.500	0.750		0.250				0.250	0.875
		0.625		0.250				0.250	

I-5 SB Loop Off Ramp & Katella Ave

Peak Hour Turning Movement Count

ID: 17-01160-010
City: Anaheim

Day: Tuesday
Date: 08/15/2017



National Data & Surveying Services

Intersection Turning Movement Count

Location: Anaheim Way & Katella Ave
 City: Anaheim
 Control: Signalized

Project ID: 17-01160-011
 Date: 8/15/2017

Total

NS/EW Streets:	Anaheim Way					Anaheim Way				Katella Ave					Katella Ave					TOTAL	
	NORTHBOUND					SOUTHBOUND				EASTBOUND					WESTBOUND						
AM	1.5 NL	3 NT	0.5 NR	0 NU	0 NL2	0 SL	0 ST	0 SR	0 SU	2 EL	4 ET	0 ER	0 EU	0 EU2	0 WL	3.5 WT	1.5 WR	0 WU	0 WT2		
7:00 AM	73	98	86	0	1	0	0	0	0	11	253	0	0	3	0	154	19	0	57	755	
7:15 AM	85	102	87	0	1	0	0	0	0	9	294	0	1	5	0	160	25	0	54	823	
7:30 AM	96	102	65	0	0	0	0	0	0	10	372	0	1	2	0	176	16	0	62	902	
7:45 AM	111	121	83	0	0	0	0	0	0	16	326	0	0	7	0	184	20	0	53	921	
8:00 AM	85	100	69	0	2	0	0	0	0	9	320	0	4	1	0	196	24	0	64	874	
8:15 AM	108	137	67	0	1	0	0	0	0	8	262	0	0	4	0	145	33	0	55	820	
8:30 AM	85	100	72	0	1	0	0	0	0	6	278	0	2	10	0	185	31	0	58	828	
8:45 AM	96	110	67	0	2	0	0	0	0	6	236	0	1	6	0	192	27	0	57	800	
TOTAL VOLUMES :	NL 739	NT 870	NR 596	NU 0	NL2 8	SL 0	ST 0	SR 0	SU 0	EL 75	ET 2341	ER 0	EU 9	EU2 38	WL 0	WT 1392	WR 195	WU 0	WT2 460	TOTAL 6723	
APPROACH %'s :	33.39%	39.31%	26.93%	0.00%	0.36%					3.05%	95.05%	0.00%	0.37%	1.54%	0.00%	68.00%	9.53%	0.00%	22.47%		
PEAK HR :	07:15 AM - 08:15 AM																				TOTAL 3520
PEAK HR VOL :	377	425	304	0	3	0	0	0	0	44	1312	0	6	15	0	716	85	0	233	955	
PEAK HR FACTOR :	0.849	0.878	0.874	0.000	0.375	0.000	0.000	0.000	0.000	0.688	0.882	0.000	0.375	0.536	0.000	0.913	0.850	0.000	0.910	0.955	
			0.880								0.894					0.910					
PM	1.5 NL	3 NT	0.5 NR	0 NU	0 NL2	0 SL	0 ST	0 SR	0 SU	2 EL	4 ET	0 ER	0 EU	0 EU2	0 WL	3.5 WT	1.5 WR	0 WU	0 WT2		
4:00 PM	134	181	33	0	0	0	0	0	0	7	219	0	2	13	0	314	20	0	133	1056	
4:15 PM	144	236	27	0	6	0	0	0	0	2	209	0	1	2	0	301	28	0	118	1074	
4:30 PM	142	217	17	0	5	0	0	0	0	15	215	0	3	11	0	337	41	0	112	1115	
4:45 PM	141	339	24	0	18	0	0	0	0	9	228	0	0	11	0	285	36	0	96	1187	
5:00 PM	160	281	13	0	8	0	0	0	0	9	264	0	1	9	0	383	30	0	151	1309	
5:15 PM	149	360	16	0	18	0	0	0	0	7	243	0	3	10	0	308	18	0	142	1274	
5:30 PM	148	303	15	0	12	0	0	0	0	8	262	0	1	10	0	318	34	0	124	1235	
5:45 PM	139	308	11	0	17	0	0	0	0	12	226	0	3	6	0	258	27	0	94	1101	
TOTAL VOLUMES :	NL 1157	NT 2225	NR 156	NU 0	NL2 84	SL 0	ST 0	SR 0	SU 0	EL 69	ET 1866	ER 0	EU 14	EU2 72	WL 0	WT 2504	WR 234	WU 0	WT2 970	TOTAL 9351	
APPROACH %'s :	31.94%	61.43%	4.31%	0.00%	2.32%					3.41%	92.33%	0.00%	0.69%	3.56%	0.00%	67.53%	6.31%	0.00%	26.16%		
PEAK HR :	04:45 PM - 05:45 PM																				TOTAL 5005
PEAK HR VOL :	598	1283	68	0	56	0	0	0	0	33	997	0	5	40	0	1294	118	0	513	951	
PEAK HR FACTOR :	0.934	0.891	0.708	0.000	0.778	0.000	0.000	0.000	0.000	0.917	0.944	0.000	0.417	0.909	0.000	0.845	0.819	0.000	0.849	0.956	
			0.923								0.950					0.853					

National Data & Surveying Services

Intersection Turning Movement Count

Location: Anaheim Way & Katella Ave
City: Anaheim
Control: Signalized

Project ID: 17-01160-011
Date: 8/15/2017

Bikes

NS/EW Streets:	Anaheim Way				Anaheim Way				Katella Ave				Katella Ave					
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	1.5	3	0.5	0	0	0	0	0	2	4	0	0	0	0	3.5	1.5		0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
APPROACH %'s :	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	9	
	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%		
PEAK HR :	07:15 AM - 08:15 AM																TOTAL	
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3	
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.375	
									0.250				0.500					
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	1.5	3	0.5	0	0	0	0	0	2	4	0	0	0	0	3.5	1.5		0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
4:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2	
4:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3	
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	
5:15 PM	1	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	5	
5:30 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL	
APPROACH %'s :	1	1	0	0	0	0	0	0	0	10	0	0	0	6	1	0	19	
	50.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	85.71%	14.29%	0.00%		
PEAK HR :	04:45 PM - 05:45 PM																TOTAL	
PEAK HR VOL :	1	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	12	
PEAK HR FACTOR :	0.25	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.000	0.000	0.000	0.625	0.000	0.000	0.600	
									0.625				0.625					

National Data & Surveying Services

Intersection Turning Movement Count

Location: Anaheim Way & Katella Ave
City: Anaheim

Project ID: 17-01160-011
Date: 8/15/2017

Pedestrians (Crosswalks)

NS/EW Streets:	Anaheim Way		Anaheim Way		Katella Ave		Katella Ave		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
7:00 AM	1	1	1	0	0	0	0	0	3
7:15 AM	0	2	1	0	0	0	0	0	3
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	1	0	0	0	0	0	1
8:00 AM	0	0	1	2	0	0	0	0	3
8:15 AM	0	0	3	0	0	0	0	0	3
8:30 AM	0	1	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	1	4	7	2	0	0	0	0	14
	20.00%	80.00%	77.78%	22.22%					
PEAK HR :	07:15 AM - 08:15 AM								TOTAL
PEAK HR VOL :	0	2	3	2	0	0	0	0	7
PEAK HR FACTOR :		0.250	0.750	0.250					0.583
		0.250		0.417					

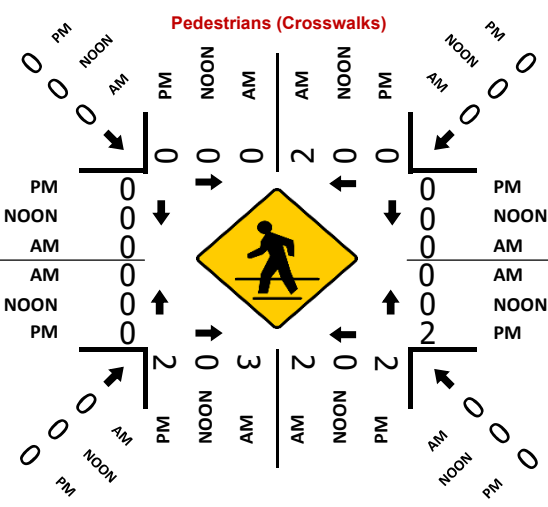
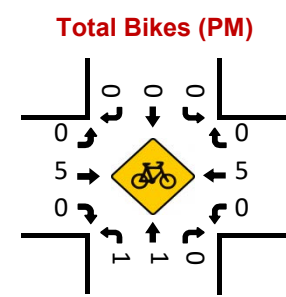
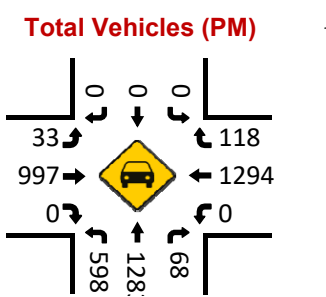
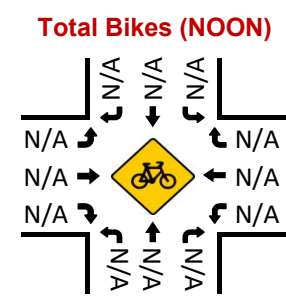
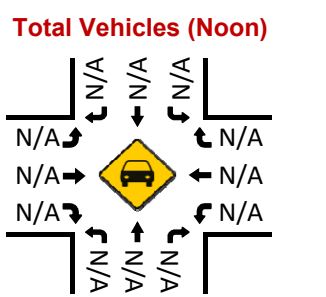
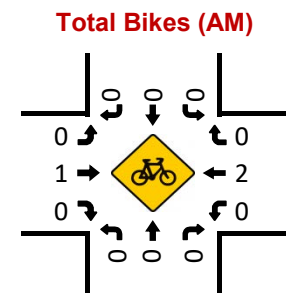
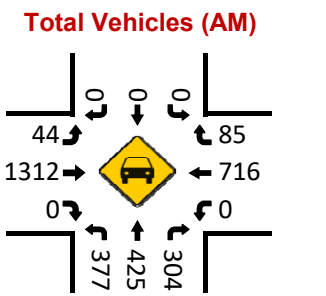
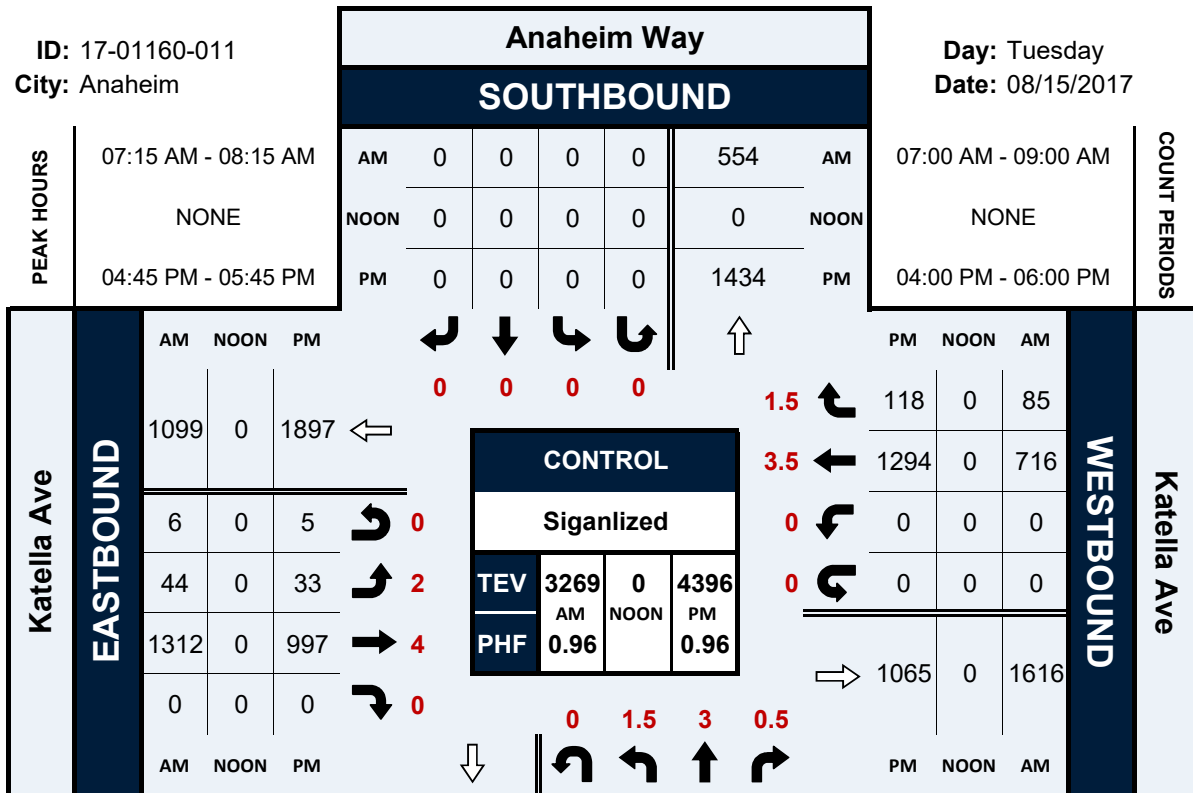
PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
4:00 PM	0	1	0	1	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	2	0	0	0	2
5:00 PM	0	0	0	1	0	0	0	0	1
5:15 PM	0	0	0	1	0	0	0	0	1
5:30 PM	0	0	2	0	0	0	0	0	2
5:45 PM	0	0	0	1	0	0	0	0	1
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	0	1	2	4	2	0	0	0	9
	0.00%	100.00%	33.33%	66.67%	100.00%	0.00%			
PEAK HR :	04:45 PM - 05:45 PM								TOTAL
PEAK HR VOL :	0	0	2	2	2	0	0	0	6
PEAK HR FACTOR :			0.250	0.500	0.250	0.250			0.750
				0.500		0.250			

Anaheim Way & Katella Ave

Peak Hour Turning Movement Count

ID: 17-01160-011
City: Anaheim

Day: Tuesday
Date: 08/15/2017



VOLUME

Ball Rd Bet. Harbor Blvd & Anaheim Blvd

Day: Tuesday
Date: 8/15/2017City: Anaheim
Project #: CA17_1161_001

DAILY TOTALS					NB	SB	EB				WB	Total			
					0	0	18,696				19,649	38,345			
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL			
00:00			166	62	228		12:00			241	278	519			
00:15			119	66	185		12:15			233	245	478			
00:30			93	51	144		12:30			238	249	487			
00:45			63	441	60	239	12:45			273	985	255	1027	528	2012
01:00			52	52	104		13:00			238	257	495			
01:15			53	38	91		13:15			259	252	511			
01:30			35	37	72		13:30			231	290	521			
01:45			44	184	31	158	13:45			289	1017	285	1084	574	2101
02:00			36	22	58		14:00			245	303	548			
02:15			31	32	63		14:15			280	359	639			
02:30			20	27	47		14:30			304	383	687			
02:45			25	112	23	104	14:45			281	1110	338	1383	619	2493
03:00			27	33	60		15:00			283	349	632			
03:15			27	30	57		15:15			274	341	615			
03:30			34	46	80		15:30			255	375	630			
03:45			37	125	44	153	15:45			273	1085	428	1493	701	2578
04:00			42	40	82		16:00			258	387	645			
04:15			42	62	104		16:15			292	392	684			
04:30			79	106	185		16:30			286	416	702			
04:45			104	267	103	311	16:45			263	1099	440	1635	703	2734
05:00			77	100	177		17:00			264	405	669			
05:15			84	130	214		17:15			283	414	697			
05:30			167	135	302		17:30			298	380	678			
05:45			215	543	124	489	17:45			254	1099	369	1568	623	2667
06:00			157	137	294		18:00			281	340	621			
06:15			190	153	343		18:15			190	293	483			
06:30			253	183	436		18:30			219	282	501			
06:45			293	893	202	675	18:45			205	895	232	1147	437	2042
07:00			260	217	477		19:00			189	243	432			
07:15			286	237	523		19:15			212	194	406			
07:30			328	254	582		19:30			217	202	419			
07:45			320	1194	294	1002	19:45			207	825	181	820	388	1645
08:00			297	261	558		20:00			186	197	383			
08:15			307	266	573		20:15			194	166	360			
08:30			288	320	608		20:30			174	155	329			
08:45			254	1146	353	1200	20:45			206	760	158	676	364	1436
09:00			225	238	463		21:00			213	158	371			
09:15			230	300	530		21:15			164	124	288			
09:30			215	259	474		21:30			180	146	326			
09:45			218	888	257	1054	21:45			194	751	168	596	362	1347
10:00			173	197	370		22:00			199	134	333			
10:15			216	238	454		22:15			220	116	336			
10:30			209	251	460		22:30			219	123	342			
10:45			205	803	240	926	22:45			201	839	102	475	303	1314
11:00			221	261	482		23:00			197	101	298			
11:15			239	242	481		23:15			155	109	264			
11:30			200	262	462		23:30			190	108	298			
11:45			222	882	263	1028	23:45			211	753	88	406	299	1159
TOTALS			7478	7339	14817		TOTALS			11218	12310	23528			
SPLIT %			50.5%	49.5%	38.6%		SPLIT %			47.7%	52.3%	61.4%			

DAILY TOTALS					NB	SB	EB				WB	Total
					0	0	18,696				19,649	38,345
AM Peak Hour			07:30	08:30	07:45	PM Peak Hour			14:15	16:30	16:30	
AM Pk Volume			1252	1211	2353	PM Pk Volume			1148	1675	2771	
Pk Hr Factor			0.954	0.858	0.958	Pk Hr Factor			0.944	0.952	0.985	
7 - 9 Volume	0	0	2340	2202	4542	4 - 6 Volume	0	0	2198	3203	5401	
7 - 9 Peak Hour			07:30	08:00	07:45	4 - 6 Peak Hour			16:45	16:30	16:30	
7 - 9 Pk Volume	0	0	1252	1200	2353	4 - 6 Pk Volume	0	0	1108	1675	2771	
Pk Hr Factor	0.000	0.000	0.954	0.850	0.958	Pk Hr Factor	0.000	0.000	0.930	0.952	0.985	

VOLUME

Disney Way Bet. I-5 SB Off Ramp & Anaheim Blvd

Day: Tuesday
Date: 8/15/2017City: Anaheim
Project #: CA17_1161_002

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0	9,404					4,195	13,599	
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			74	6	80	12:00			108	43	151			
00:15			69	4	73	12:15			121	64	185			
00:30			48	6	54	12:30			104	57	161			
00:45			41	232	7	23	12:45		105	438	42	206	147	644
01:00			32	8	40	13:00			125	51	176			
01:15			37	7	44	13:15			117	43	160			
01:30			15	4	19	13:30			124	55	179			
01:45			21	105	0	19	13:45		119	485	51	200	170	685
02:00			14	5	19	14:00			135	40	175			
02:15			21	2	23	14:15			119	62	181			
02:30			14	6	20	14:30			158	49	207			
02:45			15	64	4	17	14:45		128	540	59	210	187	750
03:00			21	5	26	15:00			128	42	170			
03:15			8	7	15	15:15			166	63	229			
03:30			24	2	26	15:30			166	65	231			
03:45			30	83	13	27	15:45		134	594	96	266	230	860
04:00			25	6	31	16:00			149	58	207			
04:15			30	8	38	16:15			154	68	222			
04:30			39	14	53	16:30			172	72	244			
04:45			31	125	16	44	16:45		150	625	82	280	232	905
05:00			38	17	55	17:00			147	63	210			
05:15			43	16	59	17:15			161	68	229			
05:30			68	23	91	17:30			144	75	219			
05:45			79	228	28	84	17:45		127	579	80	286	207	865
06:00			64	36	100	18:00			163	71	234			
06:15			61	44	105	18:15			131	76	207			
06:30			72	41	113	18:30			139	56	195			
06:45			95	292	51	172	18:45		132	565	65	268	197	833
07:00			104	53	157	19:00			139	54	193			
07:15			93	65	158	19:15			116	43	159			
07:30			98	70	168	19:30			111	44	155			
07:45			95	390	63	251	19:45		126	492	45	186	171	678
08:00			111	75	186	20:00			118	42	160			
08:15			132	103	235	20:15			131	43	174			
08:30			117	108	225	20:30			109	37	146			
08:45			121	481	101	387	20:45		114	472	31	153	145	625
09:00			116	92	208	21:00			107	31	138			
09:15			95	74	169	21:15			120	32	152			
09:30			98	69	167	21:30			113	21	134			
09:45			118	427	62	297	21:45		124	464	30	114	154	578
10:00			90	63	153	22:00			129	32	161			
10:15			85	77	162	22:15			126	23	149			
10:30			89	64	153	22:30			139	23	162			
10:45			104	368	65	269	22:45		106	500	12	90	118	590
11:00			111	64	175	23:00			108	27	135			
11:15			106	66	172	23:15			97	23	120			
11:30			113	64	177	23:30			106	17	123			
11:45			117	447	77	271	23:45		97	408	8	75	105	483
TOTALS			3242	1861	5103	TOTALS			6162	2334	8496			
SPLIT %			63.5%	36.5%	37.5%	SPLIT %			72.5%	27.5%	62.5%			

DAILY TOTALS					NB	SB	EB					WB	Total
					0	0	9,404					4,195	13,599
AM Peak Hour			08:15	08:15	08:15	PM Peak Hour			16:30	17:30	16:30		
AM Pk Volume			486	404	890	PM Pk Volume			630	302	915		
Pk Hr Factor			0.920	0.935	0.947	Pk Hr Factor			0.916	0.944	0.938		
7 - 9 Volume	0	0	871	638	1509	4 - 6 Volume	0	0	1204	566	1770		
7 - 9 Peak Hour			08:00	08:00	08:00	4 - 6 Peak Hour			16:30	16:45	16:30		
7 - 9 Pk Volume	0	0	481	387	868	4 - 6 Pk Volume	0	0	630	288	915		
Pk Hr Factor	0.000	0.000	0.911	0.896	0.923	Pk Hr Factor	0.000	0.000	0.916	0.878	0.938		

VOLUME

Katella Ave Bet. Harbor Blvd & Clementine St

Day: Tuesday
Date: 8/15/2017City: Anaheim
Project #: CA17_1161_003

DAILY TOTALS					NB	SB						EB	WB	Total
					0	0						18,147	20,219	38,366
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL		
00:00			133	83	216		12:00			191	210	401		
00:15			75	76	151		12:15			223	228	451		
00:30			72	103	175		12:30			206	240	446		
00:45			56	336	60	322	12:45			237	857	208	886	1743
01:00			54	57	111		13:00			199	235	434		
01:15			45	56	101		13:15			222	278	500		
01:30			40	30	70		13:30			260	312	572		
01:45			30	169	36	179	13:45			236	917	295	1120	2037
02:00			38	35	73		14:00			213	323	536		
02:15			23	28	51		14:15			251	282	533		
02:30			36	26	62		14:30			224	287	511		
02:45			23	120	23	112	14:45			243	931	314	1206	2137
03:00			30	24	54		15:00			255	306	561		
03:15			33	24	57		15:15			277	364	641		
03:30			36	30	66		15:30			280	417	697		
03:45			36	135	42	120	15:45			261	1073	463	1550	2623
04:00			36	39	75		16:00			259	408	667		
04:15			72	48	120		16:15			271	397	668		
04:30			76	86	162		16:30			281	415	696		
04:45			89	273	53	226	16:45			240	1051	347	1567	2618
05:00			88	74	162		17:00			307	483	790		
05:15			112	62	174		17:15			260	491	751		
05:30			171	80	251		17:30			237	424	661		
05:45			146	517	94	310	17:45			281	1085	377	1775	2860
06:00			130	109	239		18:00			234	376	610		
06:15			182	97	279		18:15			236	324	560		
06:30			214	145	359		18:30			231	325	556		
06:45			283	809	175	526	18:45			217	918	292	1317	2235
07:00			226	149	375		19:00			235	290	525		
07:15			342	198	540		19:15			200	263	463		
07:30			316	256	572		19:30			183	260	443		
07:45			301	1185	229	832	19:45			225	843	266	1079	1922
08:00			338	230	568		20:00			223	271	494		
08:15			310	235	545		20:15			208	236	444		
08:30			293	231	524		20:30			186	278	464		
08:45			256	1197	244	940	20:45			206	823	239	1024	1847
09:00			209	221	430		21:00			223	249	472		
09:15			241	227	468		21:15			171	262	433		
09:30			205	203	408		21:30			193	263	456		
09:45			208	863	237	888	21:45			194	781	186	960	1741
10:00			191	227	418		22:00			213	208	421		
10:15			206	205	411		22:15			204	244	448		
10:30			216	212	428		22:30			242	236	478		
10:45			228	841	205	849	22:45			200	859	202	890	1749
11:00			205	257	462		23:00			175	205	380		
11:15			213	195	408		23:15			174	168	342		
11:30			214	254	468		23:30			192	119	311		
11:45			200	832	236	942	23:45			191	732	107	599	1331
TOTALS			7277	6246	13523		TOTALS			10870	13973	24843		
SPLIT %			53.8%	46.2%	35.2%		SPLIT %			43.8%	56.2%	64.8%		

DAILY TOTALS					NB	SB						EB	WB	Total
					0	0						18,147	20,219	38,366
AM Peak Hour			07:15	07:30	07:30	PM Peak Hour			16:15	17:00	17:00			
AM Pk Volume			1297	950	2215	PM Pk Volume			1099	1775	2860			
Pk Hr Factor			0.948	0.928	0.968	Pk Hr Factor			0.895	0.904	0.905			
7 - 9 Volume	0	0	2382	1772	4154	4 - 6 Volume	0	0	2136	3342	5478			
7 - 9 Peak Hour			07:15	07:30	07:30	4 - 6 Peak Hour			16:15	17:00	17:00			
7 - 9 Pk Volume	0	0	1297	950	2215	4 - 6 Pk Volume	0	0	1099	1775	2860			
Pk Hr Factor	0.000	0.000	0.948	0.928	0.968	Pk Hr Factor	0.000	0.000	0.895	0.904	0.905			

VOLUME

Katella Ave Bet. Clementine St & Haster St/Anaheim Blvd

Day: Tuesday
Date: 8/15/2017City: Anaheim
Project #: CA17_1161_004

DAILY TOTALS					NB	SB						Total			
					0	0						40,316			
					19,795					20,521					
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL			
00:00			200	55	255		12:00			201	187	388			
00:15			129	60	189		12:15			227	250	477			
00:30			130	85	215		12:30			225	250	475			
00:45			86	545	48	248	12:45			224	877	223	910	447	1787
01:00			95	46	141		13:00			222	224	446			
01:15			60	48	108		13:15			266	242	508			
01:30			59	34	93		13:30			280	319	599			
01:45			42	256	31	159	13:45			285	1053	278	1063	563	2116
02:00			63	37	100		14:00			230	320	550			
02:15			36	40	76		14:15			257	279	536			
02:30			33	29	62		14:30			226	323	549			
02:45			28	160	21	127	14:45			266	979	301	1223	567	2202
03:00			37	28	65		15:00			295	349	644			
03:15			32	35	67		15:15			298	364	662			
03:30			38	58	96		15:30			315	414	729			
03:45			35	142	53	174	15:45			263	1171	449	1576	712	2747
04:00			36	63	99		16:00			317	412	729			
04:15			53	94	147		16:15			284	411	695			
04:30			60	133	193		16:30			329	373	702			
04:45			71	220	98	388	16:45			287	1217	399	1595	686	2812
05:00			80	97	177		17:00			331	452	783			
05:15			92	99	191		17:15			316	419	735			
05:30			168	97	265		17:30			318	400	718			
05:45			134	474	117	410	17:45			306	1271	400	1671	706	2942
06:00			128	134	262		18:00			288	351	639			
06:15			189	139	328		18:15			240	345	585			
06:30			196	196	392		18:30			294	293	587			
06:45			256	769	187	656	18:45			244	1066	292	1281	536	2347
07:00			221	213	434		19:00			244	251	495			
07:15			344	238	582		19:15			230	254	484			
07:30			308	327	635		19:30			217	211	428			
07:45			299	1172	290	1068	19:45			219	910	231	947	450	1857
08:00			287	288	575		20:00			262	209	471			
08:15			307	278	585		20:15			210	195	405			
08:30			295	269	564		20:30			228	223	451			
08:45			253	1142	263	1098	20:45			209	909	195	822	404	1731
09:00			190	255	445		21:00			239	193	432			
09:15			216	255	471		21:15			216	209	425			
09:30			209	261	470		21:30			242	201	443			
09:45			192	807	274	1045	21:45			231	928	157	760	388	1688
10:00			180	247	427		22:00			276	179	455			
10:15			192	270	462		22:15			263	193	456			
10:30			228	256	484		22:30			304	174	478			
10:45			240	840	213	986	22:45			255	1098	158	704	413	1802
11:00			211	304	515		23:00			237	156	393			
11:15			193	235	428		23:15			209	157	366			
11:30			234	268	502		23:30			245	116	361			
11:45			215	853	269	1076	23:45			245	936	105	534	350	1470
TOTALS				7380		7435	TOTALS				12415		13086		25501
SPLIT %				49.8%		50.2%	SPLIT %				48.7%		51.3%		63.3%

DAILY TOTALS					NB	SB						Total			
					0	0						40,316			
					19,795					20,521					
AM Peak Hour			07:15	07:30	07:30	PM Peak Hour			17:00	15:30	17:00				
AM Pk Volume			1238	1183	2384	PM Pk Volume			1271	1686	2942				
Pk Hr Factor			0.900	0.904	0.939	Pk Hr Factor			0.960	0.939	0.939				
7 - 9 Volume	0	0	2314	2166	4480	4 - 6 Volume	0	0	2488	3266	5754				
7 - 9 Peak Hour			07:15	07:30	07:30	4 - 6 Peak Hour			17:00	17:00	17:00				
7 - 9 Pk Volume	0	0	1238	1183	2384	4 - 6 Pk Volume	0	0	1271	1671	2942				
Pk Hr Factor	0.000	0.000	0.900	0.904	0.939	Pk Hr Factor	0.000	0.000	0.960	0.924	0.939				

VOLUME

Katella Ave Bet. Haster St/Anaheim Blvd & I-5 SB Loop Off Ramp

Day: Tuesday
Date: 8/15/2017

City: Anaheim
Project #: CA17_1161_005

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	19,544	18,326	37,870					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			171	50	221	12:00			191	176	367			
00:15			135	61	196	12:15			237	202	439			
00:30			113	71	184	12:30			196	223	419			
00:45			87	506	47	229	12:45		208	832	202	803	410	1635
01:00			85	32	117	13:00			245	203	448			
01:15			45	35	80	13:15			230	228	458			
01:30			51	35	86	13:30			265	269	534			
01:45			40	221	26	128	13:45		324	1064	276	976	600	2040
02:00			60	25	85	14:00			218	287	505			
02:15			39	36	75	14:15			269	243	512			
02:30			30	28	58	14:30			254	276	530			
02:45			27	156	22	111	14:45		276	1017	296	1102	572	2119
03:00			35	22	57	15:00			279	315	594			
03:15			25	28	53	15:15			299	301	600			
03:30			38	52	90	15:30			308	362	670			
03:45			45	143	48	150	15:45		299	1185	402	1380	701	2565
04:00			36	56	92	16:00			276	346	622			
04:15			49	107	156	16:15			278	364	642			
04:30			85	124	209	16:30			294	369	663			
04:45			74	244	78	365	16:45		260	1108	354	1433	614	2541
05:00			87	96	183	17:00			303	412	715			
05:15			116	79	195	17:15			296	392	688			
05:30			193	98	291	17:30			289	363	652			
05:45			163	559	111	384	17:45		296	1184	346	1513	642	2697
06:00			141	124	265	18:00			277	309	586			
06:15			215	146	361	18:15			254	309	563			
06:30			228	198	426	18:30			292	300	592			
06:45			283	867	179	647	18:45		246	1069	272	1190	518	2259
07:00			246	183	429	19:00			254	220	474			
07:15			317	188	505	19:15			237	259	496			
07:30			364	252	616	19:30			225	188	413			
07:45			292	1219	238	861	19:45		233	949	202	869	435	1818
08:00			281	250	531	20:00			235	166	401			
08:15			276	220	496	20:15			223	184	407			
08:30			297	223	520	20:30			220	206	426			
08:45			241	1095	242	935	20:45		223	901	174	730	397	1631
09:00			206	232	438	21:00			208	195	403			
09:15			225	215	440	21:15			206	184	390			
09:30			205	248	453	21:30			222	189	411			
09:45			188	824	231	926	21:45		219	855	137	705	356	1560
10:00			160	229	389	22:00			280	157	437			
10:15			195	229	424	22:15			250	179	429			
10:30			236	230	466	22:30			251	146	397			
10:45			240	831	169	857	22:45		252	1033	129	611	381	1644
11:00			183	246	429	23:00			208	137	345			
11:15			226	218	444	23:15			207	139	346			
11:30			205	244	449	23:30			196	110	306			
11:45			230	844	243	951	23:45		227	838	84	470	311	1308
TOTALS			7509	6544	14053	TOTALS			12035	11782	23817			
SPLIT %			53.4%	46.6%	37.1%	SPLIT %			50.5%	49.5%	62.9%			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	19,544	18,326	37,870

AM Peak Hour			07:15	07:30	07:15	PM Peak Hour			15:00	16:30	17:00
AM Pk Volume			1254	960	2182	PM Pk Volume			1185	1527	2697
Pk Hr Factor			0.861	0.952	0.886	Pk Hr Factor			0.962	0.927	0.943
7 - 9 Volume	0	0	2314	1796	4110	4 - 6 Volume	0	0	2292	2946	5238
7 - 9 Peak Hour			07:15	07:30	07:15	4 - 6 Peak Hour			17:00	16:30	17:00
7 - 9 Pk Volume	0	0	1254	960	2182	4 - 6 Pk Volume	0	0	1184	1527	2697
Pk Hr Factor	0.000	0.000	0.861	0.952	0.886	Pk Hr Factor	0.000	0.000	0.977	0.927	0.943

VOLUME

Anaheim Blvd Bet. Cerritos Ave & Ball Rd

Day: Tuesday
Date: 8/15/2017City: Anaheim
Project #: CA17_1161_011

DAILY TOTALS					NB	SB	EB	WB	Total		
					13,522	14,487	0	0	28,009		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	54	36			90	12:00	173	178			351
00:15	41	40			81	12:15	156	188			344
00:30	28	24			52	12:30	206	169			375
00:45	30	153	17	117	47	12:45	184	719	198	733	382
01:00	32	13			45	13:00	192	194			386
01:15	23	21			44	13:15	199	178			377
01:30	17	15			32	13:30	194	177			371
01:45	18	90	15	64	33	13:45	187	772	207	756	394
02:00	21	16			37	14:00	211	211			422
02:15	15	13			28	14:15	232	187			419
02:30	16	15			31	14:30	224	204			428
02:45	12	64	15	59	27	14:45	196	863	233	835	429
03:00	16	19			35	15:00	230	200			430
03:15	13	18			31	15:15	257	296			553
03:30	21	26			47	15:30	257	254			511
03:45	10	60	32	95	42	15:45	224	968	205	955	429
04:00	14	31			45	16:00	300	252			552
04:15	23	41			64	16:15	283	264			547
04:30	38	66			104	16:30	338	270			608
04:45	34	109	77	215	111	16:45	328	1249	263	1049	591
05:00	40	74			114	17:00	326	294			620
05:15	49	89			138	17:15	276	263			539
05:30	63	139			202	17:30	341	256			597
05:45	93	245	137	439	230	17:45	335	1278	208	1021	543
06:00	81	145			226	18:00	285	206			491
06:15	97	209			306	18:15	266	202			468
06:30	98	272			370	18:30	257	173			430
06:45	141	417	231	857	372	18:45	216	1024	155	736	371
07:00	137	267			404	19:00	225	186			411
07:15	140	288			428	19:15	188	157			345
07:30	149	344			493	19:30	160	157			317
07:45	193	619	295	1194	488	19:45	153	726	144	644	297
08:00	151	266			417	20:00	145	151			296
08:15	217	266			483	20:15	144	138			282
08:30	178	261			439	20:30	142	121			263
08:45	173	719	240	1033	413	20:45	147	578	118	528	265
09:00	154	232			386	21:00	103	142			245
09:15	141	184			325	21:15	124	121			245
09:30	122	153			275	21:30	114	134			248
09:45	138	555	151	720	289	21:45	123	464	120	517	243
10:00	159	161			320	22:00	83	110			193
10:15	128	155			283	22:15	128	91			219
10:30	141	184			325	22:30	99	88			187
10:45	162	590	153	653	315	22:45	80	390	61	350	141
11:00	152	193			345	23:00	60	60			120
11:15	147	164			311	23:15	67	42			109
11:30	160	195			355	23:30	63	52			115
11:45	156	615	180	732	336	23:45	65	255	31	185	96
TOTALS	4236	6178			10414	TOTALS	9286	8309			17595
SPLIT %	40.7%	59.3%			37.2%	SPLIT %	52.8%	47.2%			62.8%

DAILY TOTALS					NB	SB	EB	WB	Total
					13,522	14,487	0	0	28,009
AM Peak Hour	07:45	07:00	07:30	PM Peak Hour	17:00	16:15	16:15		
AM Pk Volume	739	1194	1881	PM Pk Volume	1278	1091	2366		
Pk Hr Factor	0.851	0.868	0.954	Pk Hr Factor	0.937	0.928	0.954		
7 - 9 Volume	1338	2227	3565	4 - 6 Volume	2527	2070	4597		
7 - 9 Peak Hour	07:45	07:00	07:30	4 - 6 Peak Hour	17:00	16:15	16:15		
7 - 9 Pk Volume	739	1194	1881	4 - 6 Pk Volume	1278	1091	2366		
Pk Hr Factor	0.851	0.868	0.954	Pk Hr Factor	0.937	0.928	0.954		

VOLUME

Anaheim Blvd Bet. Anaheim Way & Cerritos Ave

Day: Tuesday
Date: 8/15/2017

City: Anaheim
Project #: CA17_1161_010

DAILY TOTALS					NB	SB	EB	WB	Total		
					17,772	19,754	0	0	37,526		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	79	70			149	12:00	197	232			429
00:15	53	68			121	12:15	204	232			436
00:30	35	57			92	12:30	224	234			458
00:45	47	214	75	270	122	12:45	234	859	254	952	488
01:00	31	47			78	13:00	239	258			497
01:15	29	43			72	13:15	210	214			424
01:30	19	38			57	13:30	249	248			497
01:45	22	101	37	165	59	13:45	238	936	238	958	476
02:00	25	59			84	14:00	278	290			568
02:15	22	22			44	14:15	307	259			566
02:30	19	37			56	14:30	288	335			623
02:45	22	88	30	148	52	14:45	252	1125	320	1204	572
03:00	22	29			51	15:00	313	295			608
03:15	20	29			49	15:15	297	363			660
03:30	43	50			93	15:30	288	437			725
03:45	34	119	43	151	77	15:45	308	1206	363	1458	671
04:00	39	43			82	16:00	329	400			729
04:15	55	48			103	16:15	348	394			742
04:30	64	96			160	16:30	386	437			823
04:45	76	234	89	276	165	16:45	376	1439	401	1632	777
05:00	53	91			144	17:00	367	488			855
05:15	86	106			192	17:15	356	417			773
05:30	125	145			270	17:30	388	411			799
05:45	190	454	148	490	338	17:45	374	1485	307	1623	681
06:00	138	170			308	18:00	325	287			612
06:15	165	220			385	18:15	317	302			619
06:30	169	282			451	18:30	302	243			545
06:45	283	755	240	912	523	18:45	269	1213	227	1059	496
07:00	222	277			499	19:00	266	218			484
07:15	237	325			562	19:15	244	205			449
07:30	260	333			593	19:30	193	205			398
07:45	329	1048	353	1288	682	19:45	188	891	188	816	376
08:00	273	280			553	20:00	205	205			410
08:15	303	322			625	20:15	172	196			368
08:30	283	285			568	20:30	180	163			343
08:45	262	1121	327	1214	589	20:45	180	737	176	740	356
09:00	212	302			514	21:00	160	205			365
09:15	170	261			431	21:15	156	156			312
09:30	186	227			413	21:30	149	169			318
09:45	197	765	216	1006	413	21:45	168	633	203	733	371
10:00	176	214			390	22:00	128	145			273
10:15	177	209			386	22:15	127	159			286
10:30	188	228			416	22:30	118	129			247
10:45	214	755	202	853	416	22:45	102	475	117	550	219
11:00	198	221			419	23:00	80	96			176
11:15	179	254			433	23:15	81	74			155
11:30	195	236			431	23:30	98	76			174
11:45	198	770	232	943	430	23:45	90	349	67	313	157
TOTALS	6424	7716			14140	TOTALS	11348	12038			23386
SPLIT %	45.4%	54.6%			37.7%	SPLIT %	48.5%	51.5%			62.3%

DAILY TOTALS					NB	SB	EB	WB	Total
					17,772	19,754	0	0	37,526
AM Peak Hour	07:45	07:15			07:30	PM Peak Hour	16:45	16:30	16:30
AM Pk Volume	1188	1291			2453	PM Pk Volume	1487	1743	3228
Pk Hr Factor	0.903	0.914			0.899	Pk Hr Factor	0.958	0.893	0.944
7 - 9 Volume	2169	2502	0	0	4671	4 - 6 Volume	2924	3255	6179
7 - 9 Peak Hour	07:45	07:15			07:30	4 - 6 Peak Hour	16:45	16:30	16:30
7 - 9 Pk Volume	1188	1291	0	0	2453	4 - 6 Pk Volume	1487	1743	3228
Pk Hr Factor	0.903	0.914	0.000	0.000	0.899	Pk Hr Factor	0.958	0.893	0.944

VOLUME

Anaheim Blvd Bet. Disney Way & Anaheim Way

Day: Tuesday
Date: 8/15/2017

City: Anaheim
Project #: CA17_1161_009

DAILY TOTALS					NB	SB	EB	WB	Total		
					15,125	16,853	0	0	31,978		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	94	42			136	12:00	146	204			350
00:15	59	53			112	12:15	171	196			367
00:30	48	31			79	12:30	178	199			377
00:45	51	252	36	162	87 414	12:45	168	663	210	809	378 1472
01:00	40	31			71	13:00	186	221			407
01:15	35	31			66	13:15	177	185			362
01:30	27	15			42	13:30	197	209			406
01:45	26	128	17	94	43 222	13:45	192	752	204	819	396 1571
02:00	23	44			67	14:00	198	271			469
02:15	22	15			37	14:15	241	239			480
02:30	19	20			39	14:30	190	258			448
02:45	21	85	13	92	34 177	14:45	207	836	277	1045	484 1881
03:00	27	27			54	15:00	241	257			498
03:15	19	18			37	15:15	256	321			577
03:30	48	34			82	15:30	201	376			577
03:45	38	132	33	112	71 244	15:45	239	937	290	1244	529 2181
04:00	49	32			81	16:00	251	321			572
04:15	60	39			99	16:15	256	287			543
04:30	87	80			167	16:30	309	394			703
04:45	70	266	76	227	146 493	16:45	283	1099	309	1311	592 2410
05:00	67	87			154	17:00	301	379			680
05:15	92	90			182	17:15	275	319			594
05:30	127	135			262	17:30	322	336			658
05:45	174	460	141	453	315 913	17:45	302	1200	249	1283	551 2483
06:00	120	163			283	18:00	263	248			511
06:15	141	220			361	18:15	254	221			475
06:30	159	270			429	18:30	259	221			480
06:45	217	637	247	900	464 1537	18:45	230	1006	186	876	416 1882
07:00	181	257			438	19:00	214	207			421
07:15	212	297			509	19:15	212	159			371
07:30	213	295			508	19:30	176	197			373
07:45	293	899	317	1166	610 2065	19:45	162	764	175	738	337 1502
08:00	220	259			479	20:00	183	183			366
08:15	269	291			560	20:15	140	166			306
08:30	240	241			481	20:30	167	138			305
08:45	222	951	306	1097	528 2048	20:45	140	630	140	627	280 1257
09:00	183	262			445	21:00	135	163			298
09:15	149	236			385	21:15	131	166			297
09:30	187	204			391	21:30	147	154			301
09:45	176	695	192	894	368 1589	21:45	139	552	163	646	302 1198
10:00	150	175			325	22:00	113	125			238
10:15	138	194			332	22:15	145	136			281
10:30	176	200			376	22:30	138	116			254
10:45	161	625	156	725	317 1350	22:45	105	501	106	483	211 984
11:00	161	195			356	23:00	110	70			180
11:15	135	214			349	23:15	97	51			148
11:30	171	210			381	23:30	115	63			178
11:45	157	624	203	822	360 1446	23:45	109	431	44	228	153 659
TOTALS	5754	6744			12498	TOTALS	9371	10109			19480
SPLIT %	46.0%	54.0%			39.1%	SPLIT %	48.1%	51.9%			60.9%

DAILY TOTALS					NB	SB	EB	WB	Total
					15,125	16,853	0	0	31,978

AM Peak Hour	07:45	07:15			07:30	PM Peak Hour	17:00	16:30			16:30
AM Pk Volume	1022	1168			2157	PM Pk Volume	1200	1401			2569
Pk Hr Factor	0.872	0.921			0.884	Pk Hr Factor	0.932	0.889			0.914
7 - 9 Volume	1850	2263	0	0	4113	4 - 6 Volume	2299	2594	0	0	4893
7 - 9 Peak Hour	07:45	07:15			07:30	4 - 6 Peak Hour	17:00	16:30			16:30
7 - 9 Pk Volume	1022	1168	0	0	2157	4 - 6 Pk Volume	1200	1401	0	0	2569
Pk Hr Factor	0.872	0.921	0.000	0.000	0.884	Pk Hr Factor	0.932	0.889	0.000	0.000	0.914

VOLUME

Anaheim Blvd Bet. Katella Ave & Disney Way

Day: Tuesday
Date: 8/15/2017City: Anaheim
Project #: CA17_1161_008

DAILY TOTALS					NB	SB	EB	WB	Total		
					10,798	11,324	0	0	22,122		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	54	42			96	12:00	107	143			250
00:15	30	49			79	12:15	109	128			237
00:30	27	39			66	12:30	124	132			256
00:45	26	137	33	163	59	12:45	137	477	120	523	257
01:00	22	28			50	13:00	134	149			283
01:15	18	22			40	13:15	143	147			290
01:30	18	14			32	13:30	114	137			251
01:45	18	76	17	81	35	13:45	138	529	158	591	296
02:00	17	37			54	14:00	150	172			322
02:15	14	16			30	14:15	193	144			337
02:30	11	14			25	14:30	123	171			294
02:45	14	56	18	85	32	14:45	173	639	190	677	363
03:00	10	19			29	15:00	168	190			358
03:15	11	10			21	15:15	158	218			376
03:30	26	19			45	15:30	146	277			423
03:45	20	67	19	67	39	15:45	173	645	213	898	386
04:00	23	21			44	16:00	186	230			416
04:15	35	21			56	16:15	196	199			395
04:30	58	36			94	16:30	235	279			514
04:45	46	162	42	120	88	16:45	208	825	209	917	417
05:00	48	47			95	17:00	237	260			497
05:15	66	36			102	17:15	225	233			458
05:30	71	58			129	17:30	249	220			469
05:45	118	303	69	210	187	17:45	241	952	181	894	422
06:00	79	62			141	18:00	218	176			394
06:15	104	94			198	18:15	179	163			342
06:30	112	126			238	18:30	194	147			341
06:45	160	455	141	423	301	18:45	152	743	143	629	295
07:00	113	120			233	19:00	170	147			317
07:15	158	187			345	19:15	161	132			293
07:30	140	163			303	19:30	131	141			272
07:45	220	631	187	657	407	19:45	110	572	126	546	236
08:00	152	155			307	20:00	132	142			274
08:15	192	165			357	20:15	118	149			267
08:30	163	133			296	20:30	118	112			230
08:45	167	674	163	616	330	20:45	111	479	127	530	238
09:00	111	166			277	21:00	105	128			233
09:15	106	115			221	21:15	111	139			250
09:30	130	111			241	21:30	95	128			223
09:45	117	464	146	538	263	21:45	102	413	125	520	227
10:00	102	102			204	22:00	75	104			179
10:15	89	101			190	22:15	100	121			221
10:30	141	133			274	22:30	100	109			209
10:45	116	448	110	446	226	22:45	65	340	95	429	160
11:00	100	116			216	23:00	77	68			145
11:15	97	132			229	23:15	72	62			134
11:30	125	132			257	23:30	64	61			125
11:45	113	435	138	518	251	23:45	63	276	55	246	118
TOTALS	3908	3924			7832	TOTALS	6890	7400			14290
SPLIT %	49.9%	50.1%			35.4%	SPLIT %	48.2%	51.8%			64.6%

DAILY TOTALS					NB	SB	EB	WB	Total
					10,798	11,324	0	0	22,122
AM Peak Hour	07:45	07:15			07:30	PM Peak Hour	17:00	16:30	16:30
AM Pk Volume	727	692			1374	PM Pk Volume	952	981	1886
Pk Hr Factor	0.826	0.925			0.844	Pk Hr Factor	0.956	0.879	0.917
7 - 9 Volume	1305	1273	0	0	2578	4 - 6 Volume	1777	1811	3588
7 - 9 Peak Hour	07:45	07:15			07:30	4 - 6 Peak Hour	17:00	16:30	16:30
7 - 9 Pk Volume	727	692	0	0	1374	4 - 6 Pk Volume	952	981	1886
Pk Hr Factor	0.826	0.925	0.000	0.000	0.844	Pk Hr Factor	0.956	0.879	0.917

VOLUME

Anaheim Way Bet. Disney Way WB Ramp & Anaheim Blvd

Day: Tuesday
Date: 8/15/2017

City: Anaheim
Project #: CA17_1161_007

DAILY TOTALS					NB	SB	EB	WB	Total		
					9,747	0	0	0	9,747		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	12	0			12	12:00	102	0			102
00:15	11	0			11	12:15	97	0			97
00:30	12	0			12	12:30	106	0			106
00:45	20	55	0		20 55	12:45	120	425	0		120 425
01:00	14	0			14	13:00	134	0			134
01:15	10	0			10	13:15	116	0			116
01:30	7	0			7	13:30	123	0			123
01:45	8	39	0		8 39	13:45	125	498	0		125 498
02:00	8	0			8	14:00	199	0			199
02:15	8	0			8	14:15	166	0			166
02:30	7	0			7	14:30	157	0			157
02:45	5	28	0		5 28	14:45	149	671	0		149 671
03:00	8	0			8	15:00	173	0			173
03:15	6	0			6	15:15	143	0			143
03:30	14	0			14	15:30	242	0			242
03:45	14	42	0		14 42	15:45	200	758	0		200 758
04:00	5	0			5	16:00	245	0			245
04:15	11	0			11	16:15	257	0			257
04:30	17	0			17	16:30	340	0			340
04:45	33	66	0		33 66	16:45	337	1179	0		337 1179
05:00	25	0			25	17:00	332	0			332
05:15	40	0			40	17:15	307	0			307
05:30	42	0			42	17:30	406	0			406
05:45	64	171	0		64 171	17:45	316	1361	0		316 1361
06:00	72	0			72	18:00	247	0			247
06:15	72	0			72	18:15	223	0			223
06:30	67	0			67	18:30	160	0			160
06:45	111	322	0		111 322	18:45	145	775	0		145 775
07:00	101	0			101	19:00	129	0			129
07:15	98	0			98	19:15	109	0			109
07:30	115	0			115	19:30	94	0			94
07:45	117	431	0		117 431	19:45	105	437	0		105 437
08:00	102	0			102	20:00	97	0			97
08:15	119	0			119	20:15	87	0			87
08:30	122	0			122	20:30	87	0			87
08:45	110	453	0		110 453	20:45	76	347	0		76 347
09:00	96	0			96	21:00	74	0			74
09:15	86	0			86	21:15	71	0			71
09:30	76	0			76	21:30	73	0			73
09:45	93	351	0		93 351	21:45	65	283	0		65 283
10:00	87	0			87	22:00	39	0			39
10:15	95	0			95	22:15	42	0			42
10:30	76	0			76	22:30	39	0			39
10:45	108	366	0		108 366	22:45	57	177	0		57 177
11:00	104	0			104	23:00	26	0			26
11:15	95	0			95	23:15	33	0			33
11:30	95	0			95	23:30	34	0			34
11:45	101	395	0		101 395	23:45	24	117	0		24 117
TOTALS	2719				2719	TOTALS	7028				7028
SPLIT %	100.0%				27.9%	SPLIT %	100.0%				72.1%

DAILY TOTALS					NB	SB	EB	WB	Total
					9,747	0	0	0	9,747

AM Peak Hour	07:45				07:45	PM Peak Hour	16:45				16:45
AM Pk Volume	460				460	PM Pk Volume	1382				1382
Pk Hr Factor	0.943				0.943	Pk Hr Factor	0.851				0.851
7 - 9 Volume	884	0	0	0	884	4 - 6 Volume	2540	0	0	0	2540
7 - 9 Peak Hour	07:45				07:45	4 - 6 Peak Hour	16:45				16:45
7 - 9 Pk Volume	460	0	0	0	460	4 - 6 Pk Volume	1382	0	0	0	1382
Pk Hr Factor	0.943	0.000	0.000	0.000	0.943	Pk Hr Factor	0.851	0.000	0.000	0.000	0.851

VOLUME

Anaheim Way Bet. Katella Ave & Disney Way WB Ramp

Day: Tuesday
Date: 8/15/2017

City: Anaheim
Project #: CA17_1161_006

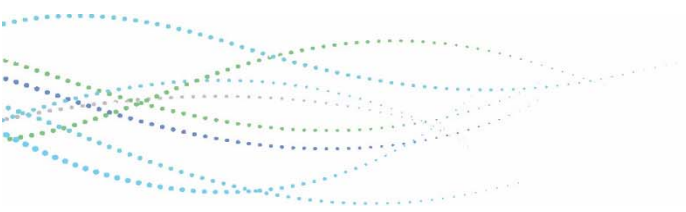
DAILY TOTALS					NB	SB	EB	WB	Total		
					10,511	0	0	0	10,511		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	14	0			14	12:00	102	0			102
00:15	12	0			12	12:15	109	0			109
00:30	14	0			14	12:30	117	0			117
00:45	23	63	0		23 63	12:45	117	445	0		117 445
01:00	18	0			18	13:00	137	0			137
01:15	13	0			13	13:15	110	0			110
01:30	9	0			9	13:30	128	0			128
01:45	8	48	0		8 48	13:45	145	520	0		145 520
02:00	9	0			9	14:00	207	0			207
02:15	8	0			8	14:15	171	0			171
02:30	9	0			9	14:30	176	0			176
02:45	6	32	0		6 32	14:45	149	703	0		149 703
03:00	8	0			8	15:00	169	0			169
03:15	9	0			9	15:15	146	0			146
03:30	14	0			14	15:30	252	0			252
03:45	18	49	0		18 49	15:45	225	792	0		225 792
04:00	9	0			9	16:00	230	0			230
04:15	14	0			14	16:15	249	0			249
04:30	22	0			22	16:30	300	0			300
04:45	37	82	0		37 82	16:45	344	1123	0		344 1123
05:00	41	0			41	17:00	319	0			319
05:15	52	0			52	17:15	327	0			327
05:30	52	0			52	17:30	377	0			377
05:45	80	225	0		80 225	17:45	319	1342	0		319 1342
06:00	87	0			87	18:00	238	0			238
06:15	97	0			97	18:15	251	0			251
06:30	81	0			81	18:30	160	0			160
06:45	130	395	0		130 395	18:45	168	817	0		168 817
07:00	125	0			125	19:00	139	0			139
07:15	114	0			114	19:15	117	0			117
07:30	128	0			128	19:30	99	0			99
07:45	130	497	0		130 497	19:45	120	475	0		120 475
08:00	124	0			124	20:00	102	0			102
08:15	151	0			151	20:15	99	0			99
08:30	147	0			147	20:30	91	0			91
08:45	131	553	0		131 553	20:45	80	372	0		80 372
09:00	122	0			122	21:00	86	0			86
09:15	100	0			100	21:15	80	0			80
09:30	98	0			98	21:30	78	0			78
09:45	99	419	0		99 419	21:45	80	324	0		80 324
10:00	110	0			110	22:00	52	0			52
10:15	109	0			109	22:15	45	0			45
10:30	97	0			97	22:30	50	0			50
10:45	117	433	0		117 433	22:45	63	210	0		63 210
11:00	115	0			115	23:00	37	0			37
11:15	106	0			106	23:15	41	0			41
11:30	106	0			106	23:30	37	0			37
11:45	125	452	0		125 452	23:45	25	140	0		25 140
TOTALS	3248				3248	TOTALS	7263				7263
SPLIT %	100.0%				30.9%	SPLIT %	100.0%				69.1%

DAILY TOTALS					NB	SB	EB	WB	Total
					10,511	0	0	0	10,511

AM Peak Hour	08:00				08:00	PM Peak Hour	16:45				16:45
AM Pk Volume	553				553	PM Pk Volume	1367				1367
Pk Hr Factor	0.916				0.916	Pk Hr Factor	0.906				0.906
7 - 9 Volume	1050	0	0	0	1050	4 - 6 Volume	2465	0	0	0	2465
7 - 9 Peak Hour	08:00				08:00	4 - 6 Peak Hour	16:45				16:45
7 - 9 Pk Volume	553	0	0	0	553	4 - 6 Pk Volume	1367	0	0	0	1367
Pk Hr Factor	0.916	0.000	0.000	0.000	0.916	Pk Hr Factor	0.906	0.000	0.000	0.000	0.906

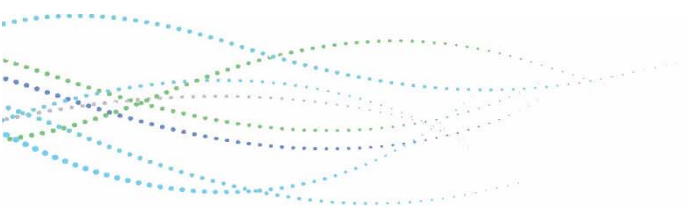


APPENDIX B – ICU ANALYSIS WORKSHEETS





Existing



PROJECT:		Radisson Hotel						
SCENARIO:		Existing						
INTERSECTION:		152	Harbor Boulevard/Ball Road					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	569	0.17 *	3,400	554	0.16 *	
NBT	3.0	5,100	621	0.12	5,100	936	0.18	
NBR	1.0	1,700	287	0.17	1,700	269	0.16	
SBL	2.0	3,400	114	0.03	3,400	92	0.03	
SBT	3.0	5,100	877	0.17 *	5,100	695	0.14 *	
SBR	1.0	1,700	358	0.21	1,700	272	0.16	
EBL	2.0	3,400	180	0.05	3,400	313	0.09 *	
EBT	3.0	5,100	827	0.16 *	5,100	728	0.14	
EBR	1.0	1,700	280	0.16	1,700	476	0.28	
WBL	2.0	3,400	168	0.05 *	3,400	218	0.06	
WBT	4.0	6,800	854	0.14	6,800	1,381	0.22 *	
WBR			81			84		
		N/S Movements		0.34			0.30	
		E/W Movements		0.21			0.31	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.60		0.66		
LEVEL OF SERVICE (LOS)				A		B		

PROJECT:		Radisson Hotel						
SCENARIO:		Existing						
INTERSECTION:		158 Harbor Boulevard/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	138	0.04 *	3,400	179	0.05	
NBT	3.0	5,100	544	0.11	5,100	803	0.16 *	
NBR	1.0	1,700	230	0.14	1,700	155	0.09	
SBL	2.0	3,400	71	0.02	3,400	83	0.02 *	
SBT	3.0	5,100	628	0.12 *	5,100	609	0.12	
SBR	1.0	1,700	117	0.07	1,700	153	0.09	
EBL	2.0	3,400	181	0.05	3,400	215	0.06 *	
EBT	3.0	5,100	994	0.19 *	5,100	865	0.17	
EBR	1.0	1,700	141	0.08	1,700	116	0.07	
WBL	2.0	3,400	239	0.07 *	3,400	321	0.09	
WBT	3.0	5,100	651	0.13	5,100	1,329	0.26 *	
WBR	1.0	1,700	88	0.05	1,700	103	0.06	
		N/S Movements		0.16			0.18	
		E/W Movements		0.27			0.32	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.48		0.56		
LEVEL OF SERVICE (LOS)				A		A		

PROJECT:		Radisson Hotel						
SCENARIO:		Existing						
INTERSECTION:		174 Clementine Street/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.0	1,700	21	0.01 *	1,700	100	0.06	
NBT	1.0	1,700	50	0.03	1,700	148	0.09 *	
NBR	1.0	1,700	78	0.05	1,700	279	0.16 *	
SBL	1.0	1,700	33	0.02	1,700	81	0.05 *	
SBT	1.0	1,700	209	0.12 *	1,700	120	0.07	
SBR	1.0	1,700	55	0.03	1,700	140	0.08	
EBL	2.0	3,400	100	0.03	3,400	134	0.04 *	
EBT	3.0	5,100	1,070	0.21 *	5,100	898	0.18	
EBR	1.0	1,700	131	0.08	1,700	66	0.04	
WBL	2.0	3,400	251	0.07 *	3,400	129	0.04	
WBT	3.0	5,100	871	0.18	5,100	1,519	0.32 *	
WBR			62			96		
		N/S Movements		0.14			0.13	
		E/W Movements		0.28			0.36	
		Rt. Turn Component		0.00			0.04	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.47		0.58		
LEVEL OF SERVICE (LOS)				A		A		

PROJECT:		Radisson Hotel					
SCENARIO:		Existing					
INTERSECTION:		196	I-5 Southbound Off-ramp/Disney Way				
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.0	1,700	5	0.00	1,700	8	0.00
NBT			0	0.00 *		0	0.00 *
NBR	1.0	1,700	40	0.02 *	1,700	53	0.03 *
SBL	1.3	2,210	246	0.11 *	2,210	239	0.11 *
SBT	0.3	510	15	0.03	510	14	0.03
SBR	1.3	2,210	175	0.08 *	2,210	142	0.06 *
EBL			0	*		0	
EBT	3.0	5,100	171	0.04	5,100	346	0.07 *
EBR			17			18	
WBL	1.0	1,700	19	0.01	1,700	15	0.01 *
WBT	3.0	5,100	363	0.07 *	5,100	278	0.05
WBR			0			0	
		N/S Movements		0.11			0.11
		E/W Movements		0.07			0.08
		Rt. Turn Component		0.06			0.06
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.29		0.30	
LEVEL OF SERVICE (LOS)				A		A	

PROJECT:		Radisson Hotel						
SCENARIO:		Existing						
INTERSECTION:		191 Anaheim Boulevard/Ball Road						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	112	0.03 *	3,400	215	0.06	
NBT	2.0	3,400	470	0.14	3,400	996	0.29 *	
NBR	1.0	1,700	151	0.09	1,700	115	0.07	
SBL	2.0	3,400	214	0.06	3,400	104	0.03 *	
SBT	3.0	5,100	903	0.18 *	5,100	849	0.17	
SBR	1.0	1,700	136	0.08	1,700	142	0.08	
EBL	1.0	1,700	127	0.07	1,700	163	0.10 *	
EBT	3.0	5,100	982	0.22 *	5,100	794	0.18	
EBR			137			116		
WBL	1.0	1,700	148	0.09 *	1,700	201	0.12	
WBT	3.0	5,100	741	0.15	5,100	1,266	0.25 *	
WBR	1.0	1,700	59	0.03	1,700	211	0.12	
		N/S Movements		0.21			0.32	
		E/W Movements		0.31			0.34	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.57		0.72		
LEVEL OF SERVICE (LOS)				A		C		

PROJECT:		Radisson Hotel						
SCENARIO:		Existing						
INTERSECTION:		193 Anaheim Boulevard/Cerritos Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.0	1,700	75	0.04	1,700	72	0.04	
NBT	3.0	5,100	721	0.14 *	5,100	1,192	0.23 *	
NBR	1.0	1,700	377	0.22	1,700	245	0.14	
SBL	1.0	1,700	200	0.12 *	1,700	76	0.04 *	
SBT	3.0	5,100	1,033	0.21	5,100	1,123	0.22	
SBR			53			19		
EBL	1.0	1,700	15	0.01	1,700	25	0.01	
EBT	1.0	1,700	10	0.02 *	1,700	27	0.06 *	
EBR			29			70		
WBL	1.0	1,700	187	0.11 *	1,700	501	0.29 *	
WBT	1.0	1,700	22	0.01	1,700	31	0.02	
WBR	1.0	1,700	63	0.04	1,700	212	0.12 *	
		N/S Movements		0.26			0.28	
		E/W Movements		0.13			0.35	
		Rt. Turn Component		0.00			0.06	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.44		0.74		
LEVEL OF SERVICE (LOS)				A		C		

PROJECT:		Radisson Hotel						
SCENARIO:		Existing						
INTERSECTION:		194 Anaheim Boulevard/Anaheim Way/I-5 Northbound Ramp						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	180	0.05 *	3,400	327	0.10 *	
NBT	3.0	5,100	818	0.16	5,100	871	0.17	
NBR			0			0		
SBL			0			0		
SBT	3.0	5,100	1,139	0.22 *	5,100	1,320	0.26 *	
SBR	1.0	1,700	129	0.08	1,700	379	0.22	
EBL			0			0	*	
EBT			0	0.00 *		0	0.00	
EBR			0			0		
WBL	0.5	850	21	0.02 *	850	51	0.06	
WBT	1.0	1,700	21	0.01	1,700	717	0.42 *	
WBR	1.5	2,550	406	0.16 *	2,550	623	0.24	
		N/S Movements		0.28			0.36	
		E/W Movements		0.02			0.42	
		Rt. Turn Component		0.15			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.50		0.83		
LEVEL OF SERVICE (LOS)				A		D		

PROJECT:		Radisson Hotel					
SCENARIO:		Existing					
INTERSECTION:		195	Anaheim Boulevard/Disney Way				
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.0	1,700	29	0.02	1,700	25	0.01
NBT	3.0	5,100	659	0.13 *	5,100	884	0.17 *
NBR			5			4	
SBL	2.0	3,400	490	0.14 *	3,400	570	0.17 *
SBT	3.0	5,100	517	0.12	5,100	782	0.17
SBR			107			72	
EBL	2.0	3,400	279	0.08 *	3,400	278	0.08 *
EBT	4.0	6,800	102	0.03	6,800	191	0.06
EBR			94			183	
WBL			0			0	
WBT	3.0	5,100	252	0.05 *	5,100	205	0.04 *
WBR			0			0	
		N/S Movements		0.27			0.34
		E/W Movements		0.13			0.12
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.46		0.51	
LEVEL OF SERVICE (LOS)				A		A	

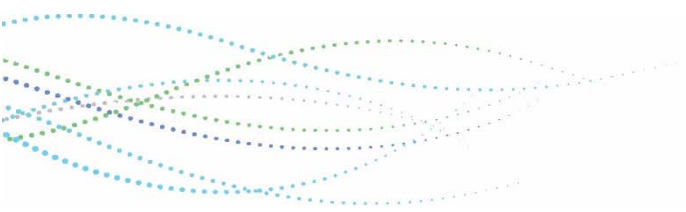
PROJECT:		Radisson Hotel					
SCENARIO:		Existing					
INTERSECTION:		197 Anaheim Boulevard/Katella Avenue					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	2.0	3,400	153	0.05	3,400	178	0.05 *
NBT	3.0	5,100	579	0.11 *	5,100	790	0.15
NBR	1.0	1,700	120	0.07	1,700	122	0.07
SBL	2.0	3,400	86	0.03 *	3,400	79	0.02
SBT	3.0	5,100	429	0.08	5,100	664	0.13 *
SBR	1.0	1,700	133	0.08	1,700	153	0.09
EBL	2.0	3,400	142	0.04 *	3,400	174	0.05 *
EBT	4.0	6,800	982	0.16	6,800	976	0.16
EBR			77			120	
WBL	2.0	3,400	81	0.02	3,400	161	0.05
WBT	3.0	5,100	870	0.17 *	5,100	1,339	0.26 *
WBR	1.0	1,700	6	0.00	1,700	29	0.02
		N/S Movements		0.14			0.18
		E/W Movements		0.21			0.31
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.40		0.55	
LEVEL OF SERVICE (LOS)				A		A	

PROJECT:		Radisson Hotel						
SCENARIO:		Existing						
INTERSECTION:		210 I-5 Southbound Ramps/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.5	1,700	27	0.02 *	1,700	35	0.02 *	
NBT			0	0.00		0	0.00	
NBR	1.5	3,400	520	0.15 *	3,400	294	0.09	
SBL	2.0	3,400	26	0.01	3,400	61	0.02	
SBT	2.0	3,400	69	0.02 *	3,400	54	0.02 *	
SBR	1.0	1,700	1	0.00	1,700	1	0.00	
EBL			0			0		
EBT	3.0	5,100	828	0.16 *	5,100	712	0.14 *	
EBR	1.0	1,700	432	0.25 *	1,700	463	0.27 *	
WBL	2.0	3,400	188	0.06 *	3,400	421	0.12 *	
WBT	4.0	6,800	913	0.13	6,800	1,537	0.23	
WBR			0			0		
		N/S Movements		0.04			0.04	
		E/W Movements		0.22			0.26	
		Rt. Turn Component		0.17			0.11	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.48		0.46		
LEVEL OF SERVICE (LOS)				A		A		

PROJECT:		Radisson Hotel					
SCENARIO:		Existing					
INTERSECTION:		211	I-5 Northbound Ramps/Katella Avenue				
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.5	2,550	380	0.15 *	2,550	654	0.26 *
NBT	3.5	5,950	425	0.12	5,950	1,283	0.23
NBR			304			68	
SBL			0			0	
SBT			0	0.00 *		0	0.00 *
SBR			0			0	
EBL	2.0	3,400	65	0.02	3,400	78	0.02 *
EBT	4.0	6,800	1,312	0.19 *	6,800	997	0.15
EBR			0			0	
WBL			0	*		0	
WBT	3.5	5,950	949	0.16	5,950	1,807	0.30 *
WBR	1.5	2,550	85	0.03	2,550	118	0.05
		N/S Movements		0.15			0.26
		E/W Movements		0.19			0.33
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.39		0.63	
LEVEL OF SERVICE (LOS)				A		B	



Existing Plus Project



PROJECT:		Radisson Hotel						
SCENARIO:		Existing Plus Project						
INTERSECTION:		152 Harbor Boulevard/Ball Road						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	572	0.17 *	3,400	559	0.16 *	
NBT	3.0	5,100	621	0.12	5,100	936	0.18	
NBR	1.0	1,700	287	0.17	1,700	269	0.16	
SBL	2.0	3,400	116	0.03	3,400	94	0.03	
SBT	3.0	5,100	877	0.17 *	5,100	695	0.14 *	
SBR	1.0	1,700	358	0.21	1,700	272	0.16	
EBL	2.0	3,400	180	0.05	3,400	313	0.09 *	
EBT	3.0	5,100	831	0.16 *	5,100	732	0.14	
EBR	1.0	1,700	280	0.16	1,700	476	0.28	
WBL	2.0	3,400	168	0.05 *	3,400	218	0.06	
WBT	4.0	6,800	854	0.14	6,800	1,381	0.22 *	
WBR			81			84		
		N/S Movements		0.34			0.30	
		E/W Movements		0.21			0.31	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.60		0.66		
LEVEL OF SERVICE (LOS)				A		B		

PROJECT:		Radisson Hotel						
SCENARIO:		Existing Plus Project						
INTERSECTION:		158 Harbor Boulevard/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	138	0.04 *	3,400	179	0.05	
NBT	3.0	5,100	544	0.11	5,100	803	0.16 *	
NBR	1.0	1,700	233	0.14	1,700	158	0.09	
SBL	2.0	3,400	71	0.02	3,400	83	0.02 *	
SBT	3.0	5,100	628	0.12 *	5,100	609	0.12	
SBR	1.0	1,700	117	0.07	1,700	153	0.09	
EBL	2.0	3,400	181	0.05	3,400	215	0.06 *	
EBT	3.0	5,100	997	0.20 *	5,100	872	0.17	
EBR	1.0	1,700	141	0.08	1,700	116	0.07	
WBL	2.0	3,400	240	0.07 *	3,400	322	0.09	
WBT	3.0	5,100	655	0.13	5,100	1,333	0.26 *	
WBR	1.0	1,700	88	0.05	1,700	103	0.06	
		N/S Movements		0.16			0.18	
		E/W Movements		0.27			0.32	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.48		0.56		
LEVEL OF SERVICE (LOS)				A		A		

PROJECT:		Radisson Hotel						
SCENARIO:		Existing Plus Project						
INTERSECTION:		174 Clementine Street/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.0	1,700	21	0.01 *	1,700	100	0.06	
NBT	1.0	1,700	50	0.03	1,700	148	0.09 *	
NBR	1.0	1,700	79	0.05	1,700	282	0.17 *	
SBL	1.0	1,700	33	0.02	1,700	81	0.05 *	
SBT	1.0	1,700	209	0.12 *	1,700	120	0.07	
SBR	1.0	1,700	55	0.03	1,700	140	0.08	
EBL	2.0	3,400	100	0.03	3,400	134	0.04 *	
EBT	3.0	5,100	1,076	0.21 *	5,100	908	0.18	
EBR	1.0	1,700	131	0.08	1,700	66	0.04	
WBL	2.0	3,400	251	0.07 *	3,400	129	0.04	
WBT	3.0	5,100	876	0.18	5,100	1,524	0.32 *	
WBR			62			96		
		N/S Movements		0.14			0.13	
		E/W Movements		0.28			0.36	
		Rt. Turn Component		0.00			0.04	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.47		0.58		
LEVEL OF SERVICE (LOS)				A		A		

PROJECT:		Radisson Hotel					
SCENARIO:		Existing Plus Project					
INTERSECTION:		196 I-5 Southbound Off-ramp/Disney Way					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.0	1,700	5	0.00	1,700	8	0.00
NBT			0	0.00 *		0	0.00 *
NBR	1.0	1,700	40	0.02 *	1,700	53	0.03 *
SBL	1.3	2,210	252	0.11 *	2,210	247	0.11 *
SBT	0.3	510	15	0.03	510	14	0.03
SBR	1.3	2,210	175	0.08 *	2,210	142	0.06 *
EBL			0	*		0	
EBT	3.0	5,100	171	0.04	5,100	349	0.07 *
EBR			17			18	
WBL	1.0	1,700	19	0.01	1,700	15	0.01 *
WBT	3.0	5,100	364	0.07 *	5,100	279	0.05
WBR			0			0	
		N/S Movements		0.11			0.11
		E/W Movements		0.07			0.08
		Rt. Turn Component		0.06			0.06
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.30		0.30	
LEVEL OF SERVICE (LOS)				A		A	

PROJECT:		Radisson Hotel						
SCENARIO:		Existing Plus Project						
INTERSECTION:		191 Anaheim Boulevard/Ball Road						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	112	0.03 *	3,400	215	0.06	
NBT	2.0	3,400	475	0.14	3,400	1,003	0.30 *	
NBR	1.0	1,700	151	0.09	1,700	115	0.07	
SBL	2.0	3,400	214	0.06	3,400	104	0.03 *	
SBT	3.0	5,100	910	0.18 *	5,100	861	0.17	
SBR	1.0	1,700	136	0.08	1,700	142	0.08	
EBL	1.0	1,700	127	0.07	1,700	163	0.10 *	
EBT	3.0	5,100	982	0.22 *	5,100	794	0.18	
EBR			143			122		
WBL	1.0	1,700	148	0.09 *	1,700	201	0.12	
WBT	3.0	5,100	741	0.15	5,100	1,266	0.25 *	
WBR	1.0	1,700	59	0.03	1,700	211	0.12	
		N/S Movements		0.21			0.33	
		E/W Movements		0.31			0.34	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.57		0.72		
LEVEL OF SERVICE (LOS)				A		C		

PROJECT:		Radisson Hotel						
SCENARIO:		Existing Plus Project						
INTERSECTION:		193 Anaheim Boulevard/Cerritos Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.0	1,700	106	0.06 *	1,700	129	0.08 *	
NBT	3.0	5,100	726	0.14	5,100	1,199	0.24	
NBR	1.0	1,700	383	0.23	1,700	253	0.15	
SBL	1.0	1,700	200	0.12	1,700	76	0.04	
SBT	3.0	5,100	1,045	0.22 *	5,100	1,142	0.23 *	
SBR			53			19		
EBL	1.0	1,700	15	0.01	1,700	25	0.01	
EBT	1.0	1,700	10	0.02 *	1,700	27	0.06 *	
EBR			29			70		
WBL	1.0	1,700	199	0.12 *	1,700	529	0.31 *	
WBT	1.0	1,700	22	0.01	1,700	31	0.02	
WBR	1.0	1,700	63	0.04	1,700	212	0.12 *	
		N/S Movements		0.28			0.30	
		E/W Movements		0.14			0.37	
		Rt. Turn Component		0.00			0.06	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.47		0.78		
LEVEL OF SERVICE (LOS)				A		C		

PROJECT:		Radisson Hotel						
SCENARIO:		Existing Plus Project						
INTERSECTION:		194 Anaheim Boulevard/Anaheim Way/I-5 Northbound Ramp						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	180	0.05 *	3,400	327	0.10 *	
NBT	3.0	5,100	848	0.17	5,100	923	0.18	
NBR			0			0		
SBL			0			0		
SBT	3.0	5,100	1,177	0.23 *	5,100	1,373	0.27 *	
SBR	1.0	1,700	139	0.08	1,700	392	0.23	
EBL			0			0	*	
EBT			0	0.00 *		0	0.00	
EBR			0			0		
WBL	0.5	850	21	0.02 *	850	51	0.06	
WBT	1.0	1,700	21	0.01	1,700	717	0.42 *	
WBR	1.5	2,550	418	0.16 *	2,550	643	0.25	
		N/S Movements		0.28			0.37	
		E/W Movements		0.02			0.42	
		Rt. Turn Component		0.15			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.51		0.84		
LEVEL OF SERVICE (LOS)				A		D		

PROJECT:		Radisson Hotel						
SCENARIO:		Existing Plus Project						
INTERSECTION:		195 Anaheim Boulevard/Disney Way						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.0	1,700	29	0.02	1,700	25	0.01	
NBT	3.0	5,100	672	0.13 *	5,100	910	0.18 *	
NBR			5			4		
SBL	2.0	3,400	513	0.15 *	3,400	599	0.18 *	
SBT	3.0	5,100	532	0.13	5,100	805	0.17	
SBR			108			73		
EBL	2.0	3,400	285	0.08 *	3,400	289	0.09 *	
EBT	4.0	6,800	102	0.03	6,800	191	0.06	
EBR			94			183		
WBL			0			0		
WBT	3.0	5,100	252	0.05 *	5,100	205	0.04 *	
WBR			0			0		
		N/S Movements		0.28			0.36	
		E/W Movements		0.13			0.13	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.47		0.53		
LEVEL OF SERVICE (LOS)				A		A		

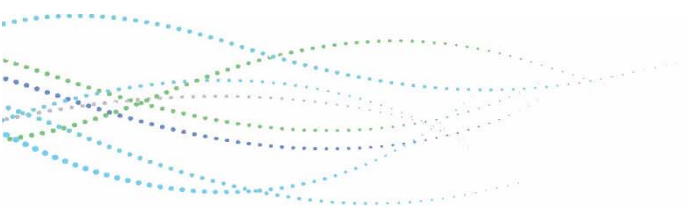
PROJECT:		Radisson Hotel					
SCENARIO:		Existing Plus Project					
INTERSECTION:		197 Anaheim Boulevard/Katella Avenue					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	2.0	3,400	153	0.05	3,400	178	0.05 *
NBT	3.0	5,100	586	0.11 *	5,100	802	0.16
NBR	1.0	1,700	120	0.07	1,700	122	0.07
SBL	2.0	3,400	91	0.03 *	3,400	88	0.03
SBT	3.0	5,100	434	0.09	5,100	674	0.13 *
SBR	1.0	1,700	138	0.08	1,700	158	0.09
EBL	2.0	3,400	148	0.04 *	3,400	187	0.06 *
EBT	4.0	6,800	982	0.16	6,800	976	0.16
EBR			77			120	
WBL	2.0	3,400	81	0.02	3,400	161	0.05
WBT	3.0	5,100	870	0.17 *	5,100	1,339	0.26 *
WBR	1.0	1,700	6	0.00	1,700	29	0.02
		N/S Movements		0.14			0.18
		E/W Movements		0.21			0.32
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.41		0.55	
LEVEL OF SERVICE (LOS)				A		A	

PROJECT:		Radisson Hotel						
SCENARIO:		Existing Plus Project						
INTERSECTION:		210 I-5 Southbound Ramps/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.5	1,700	27	0.02 *	1,700	35	0.02 *	
NBT			0	0.00		0	0.00	
NBR	1.5	3,400	520	0.15 *	3,400	294	0.09	
SBL	2.0	3,400	26	0.01	3,400	61	0.02	
SBT	2.0	3,400	76	0.02 *	3,400	60	0.02 *	
SBR	1.0	1,700	1	0.00	1,700	1	0.00	
EBL			0			0		
EBT	3.0	5,100	833	0.16 *	5,100	721	0.14 *	
EBR	1.0	1,700	432	0.25 *	1,700	463	0.27 *	
WBL	2.0	3,400	188	0.06 *	3,400	421	0.12 *	
WBT	4.0	6,800	913	0.13	6,800	1,537	0.23	
WBR			0			0		
		N/S Movements		0.04			0.04	
		E/W Movements		0.22			0.27	
		Rt. Turn Component		0.17			0.11	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.48		0.46		
LEVEL OF SERVICE (LOS)				A		A		

PROJECT:		Radisson Hotel						
SCENARIO:		Existing Plus Project						
INTERSECTION:		211 I-5 Northbound Ramps/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.5	2,550	380	0.15 *	2,550	654	0.26 *	
NBT	3.5	5,950	435	0.12	5,950	1,296	0.23	
NBR			304			68		
SBL			0			0		
SBT			0	0.00 *		0	0.00 *	
SBR			0			0		
EBL	2.0	3,400	65	0.02	3,400	78	0.02 *	
EBT	4.0	6,800	1,317	0.19 *	6,800	1,006	0.15	
EBR			0			0		
WBL			0	*		0		
WBT	3.5	5,950	949	0.16	5,950	1,807	0.30 *	
WBR	1.5	2,550	87	0.03	2,550	124	0.05	
		N/S Movements		0.15			0.26	
		E/W Movements		0.19			0.33	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.39		0.63		
LEVEL OF SERVICE (LOS)				A		B		



Opening Year 2019



PROJECT:		Radisson Hotel					
SCENARIO:		Opening Year 2019					
INTERSECTION:		152	Harbor Boulevard/Ball Road				
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	2.0	3,400	580	0.17 *	3,400	565	0.17 *
NBT	3.0	5,100	674	0.13	5,100	986	0.19
NBR	1.0	1,700	293	0.17	1,700	285	0.17
SBL	2.0	3,400	116	0.03	3,400	94	0.03
SBT	3.0	5,100	916	0.18 *	5,100	723	0.14 *
SBR	1.0	1,700	365	0.21	1,700	277	0.16
EBL	2.0	3,400	185	0.05	3,400	320	0.09 *
EBT	3.0	5,100	844	0.17 *	5,100	743	0.15
EBR	1.0	1,700	286	0.17	1,700	487	0.29
WBL	2.0	3,400	171	0.05 *	3,400	222	0.07
WBT	4.0	6,800	871	0.14	6,800	1,409	0.22 *
WBR			83			86	
		N/S Movements		0.35			0.31
		E/W Movements		0.22			0.31
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.62		0.67	
LEVEL OF SERVICE (LOS)				B		B	

PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019						
INTERSECTION:		158 Harbor Boulevard/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	141	0.04 *	3,400	183	0.05	
NBT	3.0	5,100	570	0.11	5,100	834	0.16 *	
NBR	1.0	1,700	285	0.17	1,700	184	0.11	
SBL	2.0	3,400	103	0.03	3,400	108	0.03 *	
SBT	3.0	5,100	653	0.13 *	5,100	633	0.12	
SBR	1.0	1,700	126	0.07	1,700	165	0.10	
EBL	2.0	3,400	198	0.06	3,400	233	0.07 *	
EBT	3.0	5,100	1,065	0.21 *	5,100	978	0.19	
EBR	1.0	1,700	150	0.09	1,700	123	0.07	
WBL	2.0	3,400	265	0.08 *	3,400	350	0.10	
WBT	3.0	5,100	728	0.14	5,100	1,390	0.27 *	
WBR	1.0	1,700	127	0.07	1,700	150	0.09	
		N/S Movements		0.17			0.20	
		E/W Movements		0.29			0.34	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.51		0.59		
LEVEL OF SERVICE (LOS)				A		A		

PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019						
INTERSECTION:		174 Clementine Street/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.0	1,700	21	0.01 *	1,700	102	0.06	
NBT	1.0	1,700	51	0.03	1,700	151	0.09 *	
NBR	1.0	1,700	80	0.05	1,700	285	0.17 *	
SBL	1.0	1,700	51	0.03	1,700	93	0.05 *	
SBT	1.0	1,700	213	0.13 *	1,700	122	0.07	
SBR	1.0	1,700	82	0.05	1,700	167	0.10	
EBL	2.0	3,400	162	0.05	3,400	184	0.05 *	
EBT	3.0	5,100	1,139	0.22 *	5,100	990	0.19	
EBR	1.0	1,700	134	0.08	1,700	67	0.04	
WBL	2.0	3,400	256	0.08 *	3,400	132	0.04	
WBT	3.0	5,100	983	0.22	5,100	1,632	0.35 *	
WBR			145			151		
		N/S Movements		0.14			0.14	
		E/W Movements		0.30			0.40	
		Rt. Turn Component		0.00			0.04	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.49		0.64		
LEVEL OF SERVICE (LOS)				A		B		

PROJECT:		Radisson Hotel					
SCENARIO:		Opening Year 2019					
INTERSECTION:		196 I-5 Southbound Off-ramp/Disney Way					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.0	1,700	5	0.00	1,700	8	0.00
NBT			0	0.00 *		0	0.00 *
NBR	1.0	1,700	41	0.02 *	1,700	54	0.03 *
SBL	1.3	2,210	301	0.14 *	2,210	268	0.12 *
SBT	0.3	510	17	0.03	510	16	0.03
SBR	1.3	2,210	198	0.09 *	2,210	158	0.07 *
EBL			0	*		0	
EBT	3.0	5,100	240	0.05	5,100	443	0.09 *
EBR			17			18	
WBL	1.0	1,700	19	0.01	1,700	15	0.01 *
WBT	3.0	5,100	383	0.08 *	5,100	303	0.06
WBR			0			0	
		N/S Movements		0.14			0.12
		E/W Movements		0.08			0.10
		Rt. Turn Component		0.07			0.06
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.33		0.33	
LEVEL OF SERVICE (LOS)				A		A	

PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019						
INTERSECTION:		191 Anaheim Boulevard/Ball Road						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	114	0.03 *	3,400	219	0.06	
NBT	2.0	3,400	484	0.14	3,400	1,024	0.30 *	
NBR	1.0	1,700	154	0.09	1,700	123	0.07	
SBL	2.0	3,400	218	0.06	3,400	106	0.03 *	
SBT	3.0	5,100	935	0.18 *	5,100	880	0.17	
SBR	1.0	1,700	139	0.08	1,700	145	0.09	
EBL	1.0	1,700	130	0.08	1,700	166	0.10 *	
EBT	3.0	5,100	1,002	0.22 *	5,100	810	0.18	
EBR			140			118		
WBL	1.0	1,700	151	0.09 *	1,700	205	0.12	
WBT	3.0	5,100	756	0.15	5,100	1,291	0.25 *	
WBR	1.0	1,700	60	0.04	1,700	215	0.13	
		N/S Movements		0.22			0.33	
		E/W Movements		0.31			0.35	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.58		0.73		
LEVEL OF SERVICE (LOS)				A		C		

PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019						
INTERSECTION:		193 Anaheim Boulevard/Cerritos Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.0	1,700	77	0.05 *	1,700	73	0.04	
NBT	3.0	5,100	740	0.15	5,100	1,231	0.24 *	
NBR	1.0	1,700	385	0.23	1,700	250	0.15	
SBL	1.0	1,700	204	0.12	1,700	78	0.05 *	
SBT	3.0	5,100	1,081	0.22 *	5,100	1,160	0.23	
SBR			54			19		
EBL	1.0	1,700	15	0.01	1,700	26	0.02	
EBT	1.0	1,700	10	0.02 *	1,700	28	0.06 *	
EBR			30			71		
WBL	1.0	1,700	191	0.11 *	1,700	511	0.30 *	
WBT	1.0	1,700	22	0.01	1,700	32	0.02	
WBR	1.0	1,700	64	0.04	1,700	216	0.13 *	
		N/S Movements		0.27			0.29	
		E/W Movements		0.14			0.36	
		Rt. Turn Component		0.00			0.06	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.45		0.76		
LEVEL OF SERVICE (LOS)				A		C		

PROJECT:		Radisson Hotel					
SCENARIO:		Opening Year 2019					
INTERSECTION:		194 Anaheim Boulevard/Anaheim Way/I-5 Northbound Ramp					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	2.0	3,400	201	0.06 *	3,400	357	0.11 *
NBT	3.0	5,100	778	0.15	5,100	866	0.17
NBR			0			0	
SBL			0			0	
SBT	3.0	5,100	1,142	0.22 *	5,100	1,414	0.28 *
SBR	1.0	1,700	132	0.08	1,700	387	0.23
EBL			0			0	*
EBT			0	0.00 *		0	0.00
EBR			0			0	
WBL	0.5	850	21	0.02 *	850	52	0.06
WBT	1.0	1,700	21	0.01	1,700	731	0.43 *
WBR	1.5	2,550	414	0.16 *	2,550	636	0.25
		N/S Movements		0.28			0.38
		E/W Movements		0.02			0.43
		Rt. Turn Component		0.15			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.51		0.86	
LEVEL OF SERVICE (LOS)				A		D	

PROJECT:		Radisson Hotel					
SCENARIO:		Opening Year 2019					
INTERSECTION:		195 Anaheim Boulevard/Disney Way					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.0	1,700	51	0.03	1,700	35	0.02
NBT	3.0	5,100	686	0.14 *	5,100	933	0.18 *
NBR			5			4	
SBL	2.0	3,400	513	0.15 *	3,400	581	0.17 *
SBT	3.0	5,100	530	0.13	5,100	802	0.17
SBR			120			83	
EBL	2.0	3,400	293	0.09 *	3,400	290	0.09 *
EBT	4.0	6,800	188	0.04	6,800	299	0.07
EBR			98			190	
WBL			0			0	
WBT	3.0	5,100	257	0.05 *	5,100	209	0.04 *
WBR			0			0	
		N/S Movements		0.29			0.35
		E/W Movements		0.14			0.13
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.47		0.53	
LEVEL OF SERVICE (LOS)				A		A	

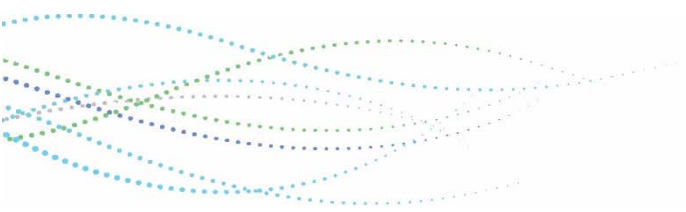
PROJECT:		Radisson Hotel					
SCENARIO:		Opening Year 2019					
INTERSECTION:		197 Anaheim Boulevard/Katella Avenue					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	2.0	3,400	171	0.05	3,400	196	0.06 *
NBT	3.0	5,100	606	0.12 *	5,100	808	0.16
NBR	1.0	1,700	122	0.07	1,700	124	0.07
SBL	2.0	3,400	91	0.03 *	3,400	85	0.03
SBT	3.0	5,100	440	0.09	5,100	678	0.13 *
SBR	1.0	1,700	136	0.08	1,700	156	0.09
EBL	2.0	3,400	178	0.05 *	3,400	240	0.07 *
EBT	4.0	6,800	1,033	0.16	6,800	1,025	0.17
EBR			79			122	
WBL	2.0	3,400	87	0.03	3,400	179	0.05
WBT	3.0	5,100	1,045	0.20 *	5,100	1,484	0.29 *
WBR	1.0	1,700	21	0.01	1,700	41	0.02
		N/S Movements		0.15			0.19
		E/W Movements		0.26			0.36
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.45		0.60	
LEVEL OF SERVICE (LOS)				A		A	

PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019						
INTERSECTION:		210 I-5 Southbound Ramps/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.5	1,700	28	0.02 *	1,700	36	0.02 *	
NBT			0	0.00		0	0.00	
NBR	1.5	3,400	530	0.16 *	3,400	300	0.09	
SBL	2.0	3,400	36	0.01	3,400	80	0.02	
SBT	2.0	3,400	79	0.02 *	3,400	80	0.02 *	
SBR	1.0	1,700	1	0.00	1,700	1	0.00	
EBL			0			0		
EBT	3.0	5,100	860	0.17 *	5,100	741	0.15 *	
EBR	1.0	1,700	455	0.27 *	1,700	483	0.28 *	
WBL	2.0	3,400	192	0.06 *	3,400	429	0.13 *	
WBT	4.0	6,800	1,106	0.16	6,800	1,706	0.25	
WBR			0			0		
		N/S Movements		0.04			0.04	
		E/W Movements		0.23			0.27	
		Rt. Turn Component		0.18			0.12	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.50		0.48		
LEVEL OF SERVICE (LOS)				A		A		

PROJECT:		Radisson Hotel					
SCENARIO:		Opening Year 2019					
INTERSECTION:		211 I-5 Northbound Ramps/Katella Avenue					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.5	2,550	542	0.21 *	2,550	790	0.31 *
NBT	3.5	5,950	434	0.13	5,950	1,309	0.23
NBR			310			69	
SBL			0			0	
SBT			0	0.00 *		0	0.00 *
SBR			0			0	
EBL	2.0	3,400	83	0.02	3,400	99	0.03 *
EBT	4.0	6,800	1,347	0.20 *	6,800	1,035	0.15
EBR			0			0	
WBL			0	*		0	
WBT	3.5	5,950	988	0.17	5,950	1,859	0.31 *
WBR	1.5	2,550	87	0.03	2,550	120	0.05
		N/S Movements		0.21			0.31
		E/W Movements		0.20			0.34
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.46		0.70	
LEVEL OF SERVICE (LOS)				A		B	



Opening Year 2019 With Project



PROJECT:		Radisson Hotel					
SCENARIO:		Opening Year 2019 With Project					
INTERSECTION:		152 Harbor Boulevard/Ball Road					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	2.0	3,400	583	0.17 *	3,400	570	0.17 *
NBT	3.0	5,100	674	0.13	5,100	986	0.19
NBR	1.0	1,700	293	0.17	1,700	285	0.17
SBL	2.0	3,400	118	0.03	3,400	96	0.03
SBT	3.0	5,100	916	0.18 *	5,100	723	0.14 *
SBR	1.0	1,700	365	0.21	1,700	277	0.16
EBL	2.0	3,400	185	0.05	3,400	320	0.09 *
EBT	3.0	5,100	848	0.17 *	5,100	747	0.15
EBR	1.0	1,700	286	0.17	1,700	487	0.29
WBL	2.0	3,400	171	0.05 *	3,400	222	0.07
WBT	4.0	6,800	871	0.14	6,800	1,409	0.22 *
WBR			83			86	
		N/S Movements		0.35			0.31
		E/W Movements		0.22			0.31
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.62		0.67	
LEVEL OF SERVICE (LOS)				B		B	

PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019 With Project						
INTERSECTION:		158 Harbor Boulevard/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	141	0.04 *	3,400	183	0.05	
NBT	3.0	5,100	570	0.11	5,100	834	0.16 *	
NBR	1.0	1,700	288	0.17	1,700	187	0.11	
SBL	2.0	3,400	103	0.03	3,400	108	0.03 *	
SBT	3.0	5,100	653	0.13 *	5,100	633	0.12	
SBR	1.0	1,700	126	0.07	1,700	165	0.10	
EBL	2.0	3,400	198	0.06	3,400	233	0.07 *	
EBT	3.0	5,100	1,068	0.21 *	5,100	985	0.19	
EBR	1.0	1,700	150	0.09	1,700	123	0.07	
WBL	2.0	3,400	266	0.08 *	3,400	351	0.10	
WBT	3.0	5,100	732	0.14	5,100	1,394	0.27 *	
WBR	1.0	1,700	127	0.07	1,700	150	0.09	
		N/S Movements		0.17			0.20	
		E/W Movements		0.29			0.34	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.51		0.59		
LEVEL OF SERVICE (LOS)				A		A		

PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019 With Project						
INTERSECTION:		174 Clementine Street/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.0	1,700	21	0.01 *	1,700	102	0.06	
NBT	1.0	1,700	51	0.03	1,700	151	0.09 *	
NBR	1.0	1,700	81	0.05	1,700	288	0.17 *	
SBL	1.0	1,700	51	0.03	1,700	93	0.05 *	
SBT	1.0	1,700	213	0.13 *	1,700	122	0.07	
SBR	1.0	1,700	82	0.05	1,700	167	0.10	
EBL	2.0	3,400	162	0.05	3,400	184	0.05 *	
EBT	3.0	5,100	1,145	0.22 *	5,100	1,000	0.20	
EBR	1.0	1,700	134	0.08	1,700	67	0.04	
WBL	2.0	3,400	256	0.08 *	3,400	132	0.04	
WBT	3.0	5,100	988	0.22	5,100	1,637	0.35 *	
WBR			145			151		
		N/S Movements		0.14			0.14	
		E/W Movements		0.30			0.40	
		Rt. Turn Component		0.00			0.04	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.49		0.64		
LEVEL OF SERVICE (LOS)				A		B		

PROJECT:		Radisson Hotel					
SCENARIO:		Opening Year 2019 With Project					
INTERSECTION:		196 I-5 Southbound Off-ramp/Disney Way					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.0	1,700	5	0.00	1,700	8	0.00
NBT			0	0.00 *		0	0.00 *
NBR	1.0	1,700	41	0.02 *	1,700	54	0.03 *
SBL	1.3	2,210	307	0.14 *	2,210	276	0.12 *
SBT	0.3	510	17	0.03	510	16	0.03
SBR	1.3	2,210	198	0.09 *	2,210	158	0.07 *
EBL			0	*		0	
EBT	3.0	5,100	240	0.05	5,100	446	0.09 *
EBR			17			18	
WBL	1.0	1,700	19	0.01	1,700	15	0.01 *
WBT	3.0	5,100	384	0.08 *	5,100	304	0.06
WBR			0			0	
		N/S Movements		0.14			0.12
		E/W Movements		0.08			0.10
		Rt. Turn Component		0.07			0.06
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.33		0.34	
LEVEL OF SERVICE (LOS)				A		A	

PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019 With Project						
INTERSECTION:		191 Anaheim Boulevard/Ball Road						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	114	0.03 *	3,400	219	0.06	
NBT	2.0	3,400	489	0.14	3,400	1,031	0.30 *	
NBR	1.0	1,700	154	0.09	1,700	123	0.07	
SBL	2.0	3,400	218	0.06	3,400	106	0.03 *	
SBT	3.0	5,100	942	0.18 *	5,100	892	0.17	
SBR	1.0	1,700	139	0.08	1,700	145	0.09	
EBL	1.0	1,700	130	0.08	1,700	166	0.10 *	
EBT	3.0	5,100	1,002	0.23 *	5,100	810	0.18	
EBR			146			124		
WBL	1.0	1,700	151	0.09 *	1,700	205	0.12	
WBT	3.0	5,100	756	0.15	5,100	1,291	0.25 *	
WBR	1.0	1,700	60	0.04	1,700	215	0.13	
		N/S Movements		0.22			0.33	
		E/W Movements		0.31			0.35	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.58		0.74		
LEVEL OF SERVICE (LOS)				A		C		

PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019 With Project						
INTERSECTION:		193 Anaheim Boulevard/Cerritos Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.0	1,700	108	0.06 *	1,700	130	0.08 *	
NBT	3.0	5,100	745	0.15	5,100	1,238	0.24	
NBR	1.0	1,700	391	0.23	1,700	258	0.15	
SBL	1.0	1,700	204	0.12	1,700	78	0.05	
SBT	3.0	5,100	1,093	0.22 *	5,100	1,179	0.23 *	
SBR			54			19		
EBL	1.0	1,700	15	0.01	1,700	26	0.02	
EBT	1.0	1,700	10	0.02 *	1,700	28	0.06 *	
EBR			30			71		
WBL	1.0	1,700	203	0.12 *	1,700	539	0.32 *	
WBT	1.0	1,700	22	0.01	1,700	32	0.02	
WBR	1.0	1,700	64	0.04	1,700	216	0.13 *	
		N/S Movements		0.29			0.31	
		E/W Movements		0.14			0.38	
		Rt. Turn Component		0.00			0.06	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.48		0.80		
LEVEL OF SERVICE (LOS)				A		C		

PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019 With Project						
INTERSECTION:		194 Anaheim Boulevard/Anaheim Way/I-5 Northbound Ramp						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	201	0.06 *	3,400	357	0.11 *	
NBT	3.0	5,100	808	0.16	5,100	918	0.18	
NBR			0			0		
SBL			0			0		
SBT	3.0	5,100	1,180	0.23 *	5,100	1,467	0.29 *	
SBR	1.0	1,700	142	0.08	1,700	400	0.24	
EBL			0			0	*	
EBT			0	0.00 *		0	0.00	
EBR			0			0		
WBL	0.5	850	21	0.02 *	850	52	0.06	
WBT	1.0	1,700	21	0.01	1,700	731	0.43 *	
WBR	1.5	2,550	426	0.17 *	2,550	656	0.26	
		N/S Movements		0.29			0.39	
		E/W Movements		0.02			0.43	
		Rt. Turn Component		0.15			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.52		0.87		
LEVEL OF SERVICE (LOS)				A		D		

PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019 With Project						
INTERSECTION:		195 Anaheim Boulevard/Disney Way						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.0	1,700	51	0.03	1,700	35	0.02	
NBT	3.0	5,100	699	0.14 *	5,100	959	0.19 *	
NBR			5			4		
SBL	2.0	3,400	536	0.16 *	3,400	610	0.18 *	
SBT	3.0	5,100	545	0.13	5,100	825	0.18	
SBR			121			84		
EBL	2.0	3,400	299	0.09 *	3,400	301	0.09 *	
EBT	4.0	6,800	188	0.04	6,800	299	0.07	
EBR			98			190		
WBL			0			0		
WBT	3.0	5,100	257	0.05 *	5,100	209	0.04 *	
WBR			0			0		
		N/S Movements		0.30			0.37	
		E/W Movements		0.14			0.13	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.48		0.55		
LEVEL OF SERVICE (LOS)				A		A		

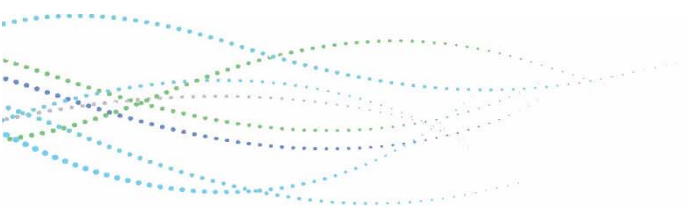
PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019 With Project						
INTERSECTION:		197 Anaheim Boulevard/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	171	0.05	3,400	196	0.06 *	
NBT	3.0	5,100	613	0.12 *	5,100	820	0.16	
NBR	1.0	1,700	122	0.07	1,700	124	0.07	
SBL	2.0	3,400	96	0.03 *	3,400	94	0.03	
SBT	3.0	5,100	445	0.09	5,100	688	0.13 *	
SBR	1.0	1,700	141	0.08	1,700	161	0.09	
EBL	2.0	3,400	184	0.05 *	3,400	253	0.07 *	
EBT	4.0	6,800	1,033	0.16	6,800	1,025	0.17	
EBR			79			122		
WBL	2.0	3,400	87	0.03	3,400	179	0.05	
WBT	3.0	5,100	1,045	0.20 *	5,100	1,484	0.29 *	
WBR	1.0	1,700	21	0.01	1,700	41	0.02	
		N/S Movements		0.15			0.19	
		E/W Movements		0.26			0.37	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.46		0.61		
LEVEL OF SERVICE (LOS)				A		B		

PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019 With Project						
INTERSECTION:		210 I-5 Southbound Ramps/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.5	1,700	28	0.02 *	1,700	36	0.02 *	
NBT			0	0.00		0	0.00	
NBR	1.5	3,400	530	0.16 *	3,400	300	0.09	
SBL	2.0	3,400	36	0.01	3,400	80	0.02	
SBT	2.0	3,400	86	0.03 *	3,400	86	0.03 *	
SBR	1.0	1,700	1	0.00	1,700	1	0.00	
EBL			0			0		
EBT	3.0	5,100	865	0.17 *	5,100	750	0.15 *	
EBR	1.0	1,700	455	0.27 *	1,700	483	0.28 *	
WBL	2.0	3,400	192	0.06 *	3,400	429	0.13 *	
WBT	4.0	6,800	1,106	0.16	6,800	1,706	0.25	
WBR			0			0		
		N/S Movements		0.04			0.05	
		E/W Movements		0.23			0.27	
		Rt. Turn Component		0.18			0.12	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.50		0.49		
LEVEL OF SERVICE (LOS)				A		A		

PROJECT:		Radisson Hotel					
SCENARIO:		Opening Year 2019 With Project					
INTERSECTION:		211 I-5 Northbound Ramps/Katella Avenue					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.5	2,550	542	0.21 *	2,550	790	0.31 *
NBT	3.5	5,950	444	0.13	5,950	1,322	0.23
NBR			310			69	
SBL			0			0	
SBT			0	0.00 *		0	0.00 *
SBR			0			0	
EBL	2.0	3,400	83	0.02	3,400	99	0.03 *
EBT	4.0	6,800	1,352	0.20 *	6,800	1,044	0.15
EBR			0			0	
WBL			0	*		0	
WBT	3.5	5,950	988	0.17	5,950	1,859	0.31 *
WBR	1.5	2,550	89	0.03	2,550	126	0.05
		N/S Movements		0.21			0.31
		E/W Movements		0.20			0.34
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.46		0.70	
LEVEL OF SERVICE (LOS)				A		B	



General Plan Build Out Without Project



PROJECT:		Radisson Hotel						
SCENARIO:		General Plan Build Out Without Project						
INTERSECTION:		152 Harbor Boulevard/Ball Road						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	580	0.17 *	3,400	980	0.29 *	
NBT	3.0	5,100	805	0.16	5,100	1,535	0.30	
NBR	1.0	1,700	300	0.18	1,700	360	0.21	
SBL	2.0	3,400	185	0.05	3,400	135	0.04	
SBT	3.0	5,100	1,555	0.30 *	5,100	930	0.18 *	
SBR	1.0	1,700	395	0.23	1,700	325	0.19	
EBL	2.0	3,400	190	0.06	3,400	320	0.09 *	
EBT	3.0	5,100	1,120	0.22 *	5,100	1,000	0.20	
EBR	1.0	1,700	570	0.34	1,700	580	0.34	
WBL	2.0	3,400	180	0.05 *	3,400	230	0.07	
WBT	4.0	6,800	875	0.14	6,800	1,410	0.22 *	
WBR			85			90		
		N/S Movements		0.48			0.47	
		E/W Movements		0.27			0.31	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.80				0.84
LEVEL OF SERVICE (LOS)				C				D

PROJECT:		Radisson Hotel						
SCENARIO:		General Plan Build Out Without Project						
INTERSECTION:		158 Harbor Boulevard/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	150	0.04 *	3,400	430	0.13 *	
NBT	3.0	5,100	570	0.11	5,100	840	0.16	
NBR	1.0	1,700	290	0.17	1,700	255	0.15	
SBL	2.0	3,400	110	0.03	3,400	110	0.03	
SBT	3.0	5,100	785	0.15 *	5,100	640	0.13 *	
SBR	1.0	1,700	140	0.08	1,700	270	0.16	
EBL	2.0	3,400	200	0.06	3,400	240	0.07 *	
EBT	4.0	6,800	1,380	0.28 *	6,800	1,340	0.26	
EBR			490			425		
WBL	2.0	3,400	270	0.08 *	3,400	350	0.10	
WBT	4.0	6,800	960	0.16	6,800	2,070	0.33 *	
WBR			155			150		
		N/S Movements		0.20			0.25	
		E/W Movements		0.35			0.40	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.60		0.70		
LEVEL OF SERVICE (LOS)				A		B		

PROJECT:		Radisson Hotel						
SCENARIO:		General Plan Build Out Without Project						
INTERSECTION:		174 Clementine Street/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.0	1,700	50	0.03 *	1,700	110	0.06 *	
NBT	1.0	1,700	105	0.06	1,700	170	0.10	
NBR	1.0	1,700	175	0.10	1,700	435	0.26 *	
SBL	1.0	1,700	85	0.05	1,700	100	0.06	
SBT	1.0	1,700	225	0.13 *	1,700	250	0.15 *	
SBR	1.0	1,700	90	0.05	1,700	170	0.10	
EBL	2.0	3,400	170	0.05	3,400	190	0.06 *	
EBT	4.0	6,800	1,220	0.20 *	6,800	1,390	0.21	
EBR			140			70		
WBL	2.0	3,400	375	0.11 *	3,400	240	0.07	
WBT	4.0	6,800	1,325	0.22	6,800	2,125	0.34 *	
WBR			150			160		
		N/S Movements		0.16			0.21	
		E/W Movements		0.31			0.39	
		Rt. Turn Component		0.00			0.09	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.52		0.74		
LEVEL OF SERVICE (LOS)				A		C		

PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out Without Project					
INTERSECTION:		196	I-5 Southbound Off-ramp/Disney Way				
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.0	1,700	20	0.01	1,700	10	0.01
NBT			0	0.00 *		0	0.00 *
NBR	1.0	1,700	50	0.03 *	1,700	75	0.04 *
SBL	1.3	2,261	385	0.17 *	2,261	360	0.16 *
SBT	0.3	578	15	0.03	578	20	0.03
SBR	1.3	2,261	200	0.09 *	2,261	160	0.07 *
EBL			0			0	
EBT	3.0	5,100	860	0.17 *	5,100	960	0.19 *
EBR			20			20	
WBL	1.0	1,700	20	0.01 *	1,700	25	0.01 *
WBT	3.0	5,100	815	0.16	5,100	805	0.16
WBR			0			0	
		N/S Movements		0.17			0.16
		E/W Movements		0.18			0.21
		Rt. Turn Component		0.08			0.07
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.48		0.48	
LEVEL OF SERVICE (LOS)				A		A	

PROJECT:		Radisson Hotel						
SCENARIO:		General Plan Build Out Without Project						
INTERSECTION:		191 Anaheim Boulevard/Ball Road						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	120	0.04 *	3,400	315	0.09	
NBT	3.0	5,100	620	0.12	5,100	1,700	0.33 *	
NBR	1.0	1,700	160	0.09	1,700	175	0.10	
SBL	2.0	3,400	530	0.16	3,400	200	0.06 *	
SBT	3.0	5,100	1,760	0.35 *	5,100	930	0.18	
SBR	1.0	1,700	345	0.20	1,700	160	0.09	
EBL	2.0	3,400	150	0.04	3,400	260	0.08 *	
EBT	3.0	5,100	1,100	0.22 *	5,100	900	0.18	
EBR	1.0	1,700	315	0.19	1,700	135	0.08	
WBL	2.0	3,400	160	0.05 *	3,400	205	0.06	
WBT	3.0	5,100	760	0.15	5,100	1,300	0.25 *	
WBR	1.0	1,700	60	0.04	1,700	300	0.18	
		N/S Movements		0.38			0.39	
		E/W Movements		0.26			0.33	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.69		0.77		
LEVEL OF SERVICE (LOS)				B		C		

PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out Without Project					
INTERSECTION:		193 Anaheim Boulevard/Cerritos Avenue					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	2.0	3,400	80	0.02	3,400	80	0.02
NBT	3.0	5,100	745	0.15 *	5,100	1,925	0.38 *
NBR	1.0	1,700	545	0.32 *	1,700	575	0.34
SBL	2.0	3,400	765	0.23 *	3,400	200	0.06 *
SBT	3.0	5,100	1,610	0.33	5,100	1,160	0.23
SBR			60			30	
EBL	1.0	1,700	20	0.01	1,700	30	0.02
EBT	1.0	1,700	10	0.02 *	1,700	30	0.07 *
EBR			30			95	
WBL	2.0	3,400	360	0.11 *	3,400	625	0.18 *
WBT	0.5	850	30	0.04	850	45	0.05
WBR	1.5	2,550	115	0.05	2,550	425	0.17 *
		N/S Movements		0.37			0.44
		E/W Movements		0.13			0.26
		Rt. Turn Component		0.07			0.05
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.62		0.80	
LEVEL OF SERVICE (LOS)				B		C	

PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out Without Project					
INTERSECTION:		194 Anaheim Boulevard/Anaheim Way/I-5 Northbound Ramp					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	2.0	3,400	205	0.06 *	3,400	360	0.11 *
NBT	3.0	5,100	1,040	0.20	5,100	1,450	0.28
NBR			0			0	
SBL			0			0	
SBT	4.0	6,800	1,910	0.28 *	6,800	1,525	0.22 *
SBR	1.0	1,700	140	0.08	1,700	390	0.23 *
EBL			0			0	*
EBT			0	0.00 *		0	0.00
EBR			0			0	
WBL	0.5	850	30	0.04 *	850	80	0.09
WBT	1.0	1,700	30	0.02	1,700	740	0.44 *
WBR	1.5	2,550	420	0.16 *	2,550	927	0.36
		N/S Movements		0.34			0.33
		E/W Movements		0.04			0.44
		Rt. Turn Component		0.15			0.01
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.57		0.82	
LEVEL OF SERVICE (LOS)				A		D	

PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out Without Project					
INTERSECTION:		195 Anaheim Boulevard/Disney Way					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.0	1,700	65	0.04	1,700	160	0.09
NBT	3.0	5,100	945	0.19 *	5,100	1,270	0.25 *
NBR			10			5	
SBL	2.0	3,400	580	0.17 *	3,400	590	0.17 *
SBT	3.0	5,100	1,110	0.27	5,100	860	0.20
SBR			250			155	
EBL	2.0	3,400	300	0.09 *	3,400	540	0.16 *
EBT	4.0	6,800	745	0.15	6,800	660	0.13
EBR			245			195	
WBL			0			0	
WBT	3.0	5,100	485	0.10 *	5,100	525	0.10 *
WBR			0			0	
		N/S Movements		0.36			0.42
		E/W Movements		0.18			0.26
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.59		0.74	
LEVEL OF SERVICE (LOS)				A		C	

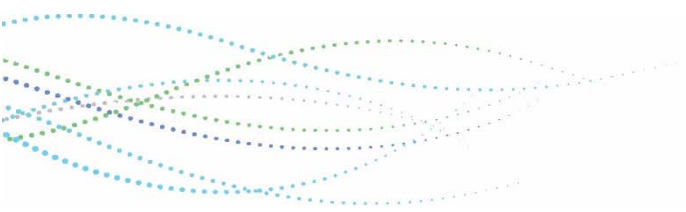
PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out Without Project					
INTERSECTION:		197 Anaheim Boulevard/Katella Avenue					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	2.0	3,400	180	0.05	3,400	200	0.06
NBT	3.0	5,100	610	0.12 *	5,100	1,025	0.20 *
NBR	1.0	1,700	130	0.08	1,700	540	0.32
SBL	2.0	3,400	270	0.08 *	3,400	85	0.03 *
SBT	3.0	5,100	445	0.09	5,100	820	0.16
SBR	1.0	1,700	210	0.12	1,700	160	0.09
EBL	2.0	3,400	205	0.06 *	3,400	285	0.08 *
EBT	4.0	6,800	1,255	0.20	6,800	1,355	0.22
EBR			80			130	
WBL	2.0	3,400	85	0.03	3,400	640	0.19
WBT	4.0	6,800	1,455	0.22 *	6,800	2,225	0.34 *
WBR			30			70	
		N/S Movements		0.20			0.23
		E/W Movements		0.28			0.42
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.53		0.70	
LEVEL OF SERVICE (LOS)				A		B	

PROJECT:		Radisson Hotel						
SCENARIO:		General Plan Build Out Without Project						
INTERSECTION:		210 I-5 Southbound Ramps/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.5	1,700	30	0.02	1,700	60	0.04	
NBT			0	0.00 *		0	0.00 *	
NBR	1.5	3,400	740	0.22 *	3,400	380	0.11	
SBL	2.0	3,400	395	0.12 *	3,400	355	0.10 *	
SBT	2.0	3,400	320	0.09	3,400	220	0.06	
SBR	1.0	1,700	15	0.01	1,700	35	0.02	
EBL			0			0	*	
EBT	4.0	6,800	1,575	0.23 *	6,800	1,490	0.22	
EBR	2.0	3,400	965	0.28 *	3,400	780	0.23	
WBL	2.0	3,400	285	0.08 *	3,400	480	0.14	
WBT	4.0	6,800	1,990	0.29	6,800	2,825	0.42 *	
WBR			0			0		
		N/S Movements		0.12			0.10	
		E/W Movements		0.32			0.42	
		Rt. Turn Component		0.17			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.65		0.57		
LEVEL OF SERVICE (LOS)				B		A		

PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out Without Project					
INTERSECTION:		211		I-5 Northbound Ramps/Katella Avenue			
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.5	2,550	865	0.34 *	2,550	1,070	0.42 *
NBT	3.5	5,950	545	0.20	5,950	1,325	0.27
NBR			660			310	
SBL			0			0	
SBT			0	0.00 *		0	0.00 *
SBR			0			0	
EBL	2.0	3,400	125	0.04	3,400	105	0.03 *
EBT	4.0	6,800	2,545	0.37 *	6,800	2,120	0.31
EBR			0			0	
WBL			0	*		0	
WBT	4.5	7,650	1,200	0.16	7,650	2,350	0.31 *
WBR	1.5	2,550	90	0.04	2,550	430	0.17
		N/S Movements		0.34			0.42
		E/W Movements		0.37			0.34
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.76		0.81	
LEVEL OF SERVICE (LOS)				C		D	



General Plan Build Out With Project



PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out With Project					
INTERSECTION:		152	Harbor Boulevard/Ball Road				
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	2.0	3,400	583	0.17 *	3,400	985	0.29 *
NBT	3.0	5,100	805	0.16	5,100	1,535	0.30
NBR	1.0	1,700	300	0.18	1,700	360	0.21
SBL	2.0	3,400	187	0.06	3,400	137	0.04
SBT	3.0	5,100	1,555	0.30 *	5,100	930	0.18 *
SBR	1.0	1,700	395	0.23	1,700	325	0.19
EBL	2.0	3,400	190	0.06	3,400	320	0.09 *
EBT	3.0	5,100	1,124	0.22 *	5,100	1,004	0.20
EBR	1.0	1,700	570	0.34	1,700	580	0.34
WBL	2.0	3,400	180	0.05 *	3,400	230	0.07
WBT	4.0	6,800	875	0.14	6,800	1,410	0.22 *
WBR			85			90	
		N/S Movements		0.48			0.47
		E/W Movements		0.27			0.31
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.80		0.84	
LEVEL OF SERVICE (LOS)				C		D	

PROJECT:		Radisson Hotel						
SCENARIO:		General Plan Build Out With Project						
INTERSECTION:		158 Harbor Boulevard/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	150	0.04 *	3,400	430	0.13 *	
NBT	3.0	5,100	570	0.11	5,100	840	0.16	
NBR	1.0	1,700	293	0.17	1,700	258	0.15	
SBL	2.0	3,400	110	0.03	3,400	110	0.03	
SBT	3.0	5,100	785	0.15 *	5,100	640	0.13 *	
SBR	1.0	1,700	140	0.08	1,700	270	0.16	
EBL	2.0	3,400	200	0.06	3,400	240	0.07 *	
EBT	4.0	6,800	1,383	0.28 *	6,800	1,347	0.26	
EBR			490			425		
WBL	2.0	3,400	271	0.08 *	3,400	351	0.10	
WBT	4.0	6,800	964	0.16	6,800	2,074	0.33 *	
WBR			155			150		
		N/S Movements		0.20			0.25	
		E/W Movements		0.36			0.40	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.60		0.70		
LEVEL OF SERVICE (LOS)				A		B		

PROJECT:		Radisson Hotel						
SCENARIO:		General Plan Build Out With Project						
INTERSECTION:		174 Clementine Street/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.0	1,700	50	0.03 *	1,700	110	0.06 *	
NBT	1.0	1,700	105	0.06	1,700	170	0.10	
NBR	1.0	1,700	176	0.10	1,700	438	0.26 *	
SBL	1.0	1,700	85	0.05	1,700	100	0.06	
SBT	1.0	1,700	225	0.13 *	1,700	250	0.15 *	
SBR	1.0	1,700	90	0.05	1,700	170	0.10	
EBL	2.0	3,400	170	0.05	3,400	190	0.06 *	
EBT	4.0	6,800	1,226	0.20 *	6,800	1,400	0.22	
EBR			140			70		
WBL	2.0	3,400	375	0.11 *	3,400	240	0.07	
WBT	4.0	6,800	1,330	0.22	6,800	2,130	0.34 *	
WBR			150			160		
		N/S Movements		0.16			0.21	
		E/W Movements		0.31			0.39	
		Rt. Turn Component		0.00			0.09	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.52		0.74		
LEVEL OF SERVICE (LOS)				A		C		

PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out With Project					
INTERSECTION:		196 I-5 Southbound Off-ramp/Disney Way					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.0	1,700	20	0.01	1,700	10	0.01
NBT			0	0.00 *		0	0.00 *
NBR	1.0	1,700	50	0.03 *	1,700	75	0.04 *
SBL	1.3	2,261	391	0.17 *	2,261	368	0.16 *
SBT	0.3	578	15	0.03	578	20	0.03
SBR	1.3	2,261	200	0.09 *	2,261	160	0.07 *
EBL			0			0	
EBT	3.0	5,100	860	0.17 *	5,100	963	0.19 *
EBR			20			20	
WBL	1.0	1,700	20	0.01 *	1,700	25	0.01 *
WBT	3.0	5,100	816	0.16	5,100	806	0.16
WBR			0			0	
		N/S Movements		0.17			0.16
		E/W Movements		0.18			0.21
		Rt. Turn Component		0.08			0.07
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.49		0.49	
LEVEL OF SERVICE (LOS)				A		A	

PROJECT:		Radisson Hotel						
SCENARIO:		General Plan Build Out With Project						
INTERSECTION:		191 Anaheim Boulevard/Ball Road						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	120	0.04 *	3,400	315	0.09	
NBT	3.0	5,100	625	0.12	5,100	1,707	0.33 *	
NBR	1.0	1,700	160	0.09	1,700	175	0.10	
SBL	2.0	3,400	530	0.16	3,400	200	0.06 *	
SBT	3.0	5,100	1,767	0.35 *	5,100	942	0.18	
SBR	1.0	1,700	345	0.20	1,700	160	0.09	
EBL	2.0	3,400	150	0.04	3,400	260	0.08 *	
EBT	3.0	5,100	1,100	0.22 *	5,100	900	0.18	
EBR	1.0	1,700	321	0.19	1,700	141	0.08	
WBL	2.0	3,400	160	0.05 *	3,400	205	0.06	
WBT	3.0	5,100	760	0.15	5,100	1,300	0.25 *	
WBR	1.0	1,700	60	0.04	1,700	300	0.18	
		N/S Movements		0.38			0.39	
		E/W Movements		0.26			0.33	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.69		0.77		
LEVEL OF SERVICE (LOS)				B		C		

PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out With Project					
INTERSECTION:		193 Anaheim Boulevard/Cerritos Avenue					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	2.0	3,400	111	0.03	3,400	137	0.04
NBT	3.0	5,100	750	0.15 *	5,100	1,932	0.38 *
NBR	1.0	1,700	551	0.32 *	1,700	583	0.34
SBL	2.0	3,400	765	0.23 *	3,400	200	0.06 *
SBT	3.0	5,100	1,622	0.33	5,100	1,179	0.24
SBR			60			30	
EBL	1.0	1,700	20	0.01	1,700	30	0.02
EBT	1.0	1,700	10	0.02 *	1,700	30	0.07 *
EBR			30			95	
WBL	2.0	3,400	372	0.11 *	3,400	653	0.19 *
WBT	0.5	850	30	0.04	850	45	0.05
WBR	1.5	2,550	115	0.05	2,550	425	0.17 *
		N/S Movements		0.37			0.44
		E/W Movements		0.13			0.27
		Rt. Turn Component		0.07			0.05
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.62		0.81	
LEVEL OF SERVICE (LOS)				B		D	

PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out With Project					
INTERSECTION:		194 Anaheim Boulevard/Anaheim Way/I-5 Northbound Ramp					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	2.0	3,400	205	0.06 *	3,400	360	0.11 *
NBT	3.0	5,100	1,070	0.21	5,100	1,502	0.29
NBR			0			0	
SBL			0			0	
SBT	4.0	6,800	1,948	0.29 *	6,800	1,578	0.23 *
SBR	1.0	1,700	150	0.09	1,700	403	0.24 *
EBL			0			0	*
EBT			0	0.00 *		0	0.00
EBR			0			0	
WBL	0.5	850	30	0.04 *	850	80	0.09
WBT	1.0	1,700	30	0.02	1,700	740	0.44 *
WBR	1.5	2,550	432	0.17 *	2,550	947	0.37
		N/S Movements		0.35			0.34
		E/W Movements		0.04			0.44
		Rt. Turn Component		0.15			0.01
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.58		0.83	
LEVEL OF SERVICE (LOS)				A		D	

PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out With Project					
INTERSECTION:		195 Anaheim Boulevard/Disney Way					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.0	1,700	65	0.04	1,700	160	0.09
NBT	3.0	5,100	958	0.19 *	5,100	1,296	0.26 *
NBR			10			5	
SBL	2.0	3,400	603	0.18 *	3,400	619	0.18 *
SBT	3.0	5,100	1,125	0.27	5,100	883	0.20
SBR			251			156	
EBL	2.0	3,400	306	0.09 *	3,400	551	0.16 *
EBT	4.0	6,800	745	0.15	6,800	660	0.13
EBR			245			195	
WBL			0			0	
WBT	3.0	5,100	485	0.10 *	5,100	525	0.10 *
WBR			0			0	
		N/S Movements		0.37			0.44
		E/W Movements		0.19			0.27
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.60		0.75	
LEVEL OF SERVICE (LOS)				A		C	

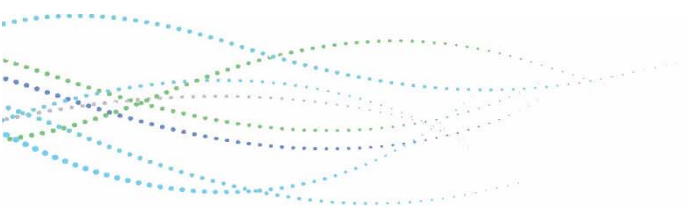
PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out With Project					
INTERSECTION:		197 Anaheim Boulevard/Katella Avenue					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	2.0	3,400	180	0.05	3,400	200	0.06
NBT	3.0	5,100	617	0.12 *	5,100	1,037	0.20 *
NBR	1.0	1,700	130	0.08	1,700	540	0.32
SBL	2.0	3,400	275	0.08 *	3,400	94	0.03 *
SBT	3.0	5,100	450	0.09	5,100	830	0.16
SBR	1.0	1,700	215	0.13	1,700	165	0.10
EBL	2.0	3,400	211	0.06 *	3,400	298	0.09 *
EBT	4.0	6,800	1,255	0.20	6,800	1,355	0.22
EBR			80			130	
WBL	2.0	3,400	85	0.03	3,400	640	0.19
WBT	4.0	6,800	1,455	0.22 *	6,800	2,225	0.34 *
WBR			30			70	
		N/S Movements		0.20			0.23
		E/W Movements		0.28			0.43
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.53		0.71	
LEVEL OF SERVICE (LOS)				A		C	

PROJECT:		Radisson Hotel						
SCENARIO:		General Plan Build Out With Project						
INTERSECTION:		210 I-5 Southbound Ramps/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.5	1,700	30	0.02	1,700	60	0.04	
NBT			0	0.00 *		0	0.00 *	
NBR	1.5	3,400	740	0.22 *	3,400	380	0.11	
SBL	2.0	3,400	395	0.12 *	3,400	355	0.10 *	
SBT	2.0	3,400	327	0.10	3,400	226	0.07	
SBR	1.0	1,700	15	0.01	1,700	35	0.02	
EBL			0			0	*	
EBT	4.0	6,800	1,580	0.23 *	6,800	1,499	0.22	
EBR	2.0	3,400	965	0.28 *	3,400	780	0.23	
WBL	2.0	3,400	285	0.08 *	3,400	480	0.14	
WBT	4.0	6,800	1,990	0.29	6,800	2,825	0.42 *	
WBR			0			0		
		N/S Movements		0.12			0.10	
		E/W Movements		0.32			0.42	
		Rt. Turn Component		0.17			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.65		0.57		
LEVEL OF SERVICE (LOS)				B		A		

PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out With Project					
INTERSECTION:		211		I-5 Northbound Ramps/Katella Avenue			
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.5	2,550	865	0.34 *	2,550	1,070	0.42 *
NBT	3.5	5,950	555	0.20	5,950	1,338	0.28
NBR			660			310	
SBL			0			0	
SBT			0	0.00 *		0	0.00 *
SBR			0			0	
EBL	2.0	3,400	125	0.04	3,400	105	0.03 *
EBT	4.0	6,800	2,550	0.38 *	6,800	2,129	0.31
EBR			0			0	
WBL			0	*		0	
WBT	4.5	7,650	1,200	0.16	7,650	2,350	0.31 *
WBR	1.5	2,550	92	0.04	2,550	436	0.17
		N/S Movements		0.34			0.42
		E/W Movements		0.38			0.34
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.76		0.81	
LEVEL OF SERVICE (LOS)				C		D	

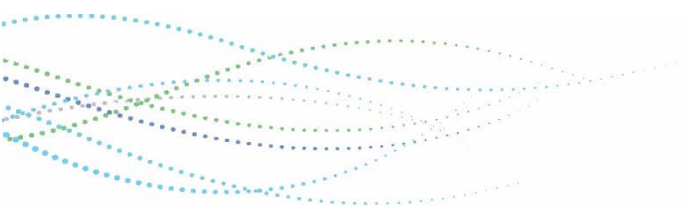


APPENDIX C – HCM ANALYSIS WORKSHEETS

















Existing



HCM 2010 Signalized Intersection Summary
 4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave



















10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑		↵		↵	↵	↔	↵
Traffic Volume (veh/h)	0	171	17	19	363	0	5	0	40	246	15	175
Future Volume (veh/h)	0	171	17	19	363	0	5	0	40	246	15	175
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.97		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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	0	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	197	20	21	399	0	6	0	47	336	0	133
Adj No. of Lanes	0	3	0	1	3	0	1	0	1	2	0	1
Peak Hour Factor	0.87	0.87	0.87	0.91	0.91	0.91	0.86	0.86	0.86	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1819	179	607	1975	0	0	0	0	482	0	215
Arrive On Green	0.00	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	0	4428	421	1143	4794	0		0		3238	0	1445
Grp Volume(v), veh/h	0	141	76	21	399	0		0.0		336	0	133
Grp Sat Flow(s),veh/h/ln	0	1547	1601	1143	1547	0				1619	0	1445
Q Serve(g_s), s	0.0	1.3	1.3	0.5	2.5	0.0				4.6	0.0	4.1
Cycle Q Clear(g_c), s	0.0	1.3	1.3	1.9	2.5	0.0				4.6	0.0	4.1
Prop In Lane	0.00		0.26	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1317	681	607	1975	0				482	0	215
V/C Ratio(X)	0.00	0.11	0.11	0.03	0.20	0.00				0.70	0.00	0.62
Avail Cap(c_a), veh/h	0	1317	681	607	1975	0				482	0	215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.78	0.78	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.1	8.1	8.7	8.5	0.0				19.0	0.0	18.7
Incr Delay (d2), s/veh	0.0	0.2	0.3	0.1	0.2	0.0				8.1	0.0	12.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.7	0.2	1.1	0.0				2.6	0.0	2.3
LnGrp Delay(d),s/veh	0.0	8.3	8.5	8.8	8.7	0.0				27.1	0.0	31.4
LnGrp LOS		A	A	A	A					C		C
Approach Vol, veh/h		217			420							469
Approach Delay, s/veh		8.4			8.7							28.3
Approach LOS		A			A							C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.0				25.0		12.1				
Change Period (Y+Rc), s		5.0				5.0		5.1				
Max Green Setting (Gmax), s		20.0				20.0		7.0				
Max Q Clear Time (g_c+I1), s		4.5				3.3		6.6				
Green Ext Time (p_c), s		3.0				1.4		0.1				
Intersection Summary												
HCM 2010 Ctrl Delay				16.9								
HCM 2010 LOS				B								
Notes												

HCM 2010 Signalized Intersection Summary

8: Anaheim Blvd & Anaheim Way





























10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	21	21	406	180	818	0	0	1139	129
Future Volume (veh/h)	0	0	0	21	21	406	180	818	0	0	1139	129
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1700	1700	1700	1700	1700	0	0	1700	1700
Adj Flow Rate, veh/h				24	24	461	200	909	0	0	1266	0
Adj No. of Lanes				0	2	1	2	3	0	0	3	1
Peak Hour Factor				0.88	0.88	0.88	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				281	857	489	1056	2681	0	0	928	289
Arrive On Green				0.34	0.34	0.34	0.34	0.58	0.00	0.00	0.20	0.00
Sat Flow, veh/h				829	2529	1442	3141	4794	0	0	4794	1445
Grp Volume(v), veh/h				48	0	461	200	909	0	0	1266	0
Grp Sat Flow(s),veh/h/ln				1659	1700	1442	1570	1547	0	0	1547	1445
Q Serve(g_s), s				2.4	0.0	37.3	5.4	12.3	0.0	0.0	24.0	0.0
Cycle Q Clear(g_c), s				2.4	0.0	37.3	5.4	12.3	0.0	0.0	24.0	0.0
Prop In Lane				0.50		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				562	576	489	1056	2681	0	0	928	289
V/C Ratio(X)				0.09	0.00	0.94	0.19	0.34	0.00	0.00	1.36	0.00
Avail Cap(c_a), veh/h				733	751	637	1056	2681	0	0	928	289
HCM Platoon Ratio				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	0.76	0.76	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				27.0	0.0	38.5	28.2	13.3	0.0	0.0	48.0	0.0
Incr Delay (d2), s/veh				0.0	0.0	18.2	0.0	0.3	0.0	0.0	170.7	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
%ile BackOfQ(50%),veh/ln				1.1	0.0	17.3	2.4	5.3	0.0	0.0	24.9	0.0
LnGrp Delay(d),s/veh				27.0	0.0	56.8	28.3	13.6	0.0	0.0	218.7	0.0
LnGrp LOS				C		E	C	B			F	
Approach Vol, veh/h					509			1109			1266	
Approach Delay, s/veh					54.0			16.2			218.7	
Approach LOS					D			B			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		74.3			45.3	29.0		45.7				
Change Period (Y+Rc), s		5.0			5.0	* 5		5.0				
Max Green Setting (Gmax), s		57.0			28.8	* 24		53.0				
Max Q Clear Time (g_c+I1), s		14.3			7.4	26.0		39.3				
Green Ext Time (p_c), s		10.5			0.3	0.0		1.0				
Intersection Summary												
HCM 2010 Ctrl Delay					111.8							
HCM 2010 LOS					F							
Notes												

HCM 2010 Signalized Intersection Summary













9: Anaheim Blvd & Manchester Ave/Manchester Ave/I-5 SB On

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  			  		 	  	
Traffic Volume (veh/h)	279	102	94	0	252	0	29	659	5	490	517	107
Future Volume (veh/h)	279	102	94	0	252	0	29	659	5	490	517	107
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.98	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1700	1700	1700	0	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	321	117	108	0	360	0	30	686	5	557	588	122
Adj No. of Lanes	2	4	0	0	3	0	1	3	0	2	3	0
Peak Hour Factor	0.87	0.87	0.87	0.70	0.70	0.70	0.96	0.96	0.96	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	383	1203	394	0	506	0	65	1930	14	512	2058	419
Arrive On Green	0.12	0.27	0.27	0.00	0.11	0.00	0.04	0.41	0.41	0.16	0.53	0.53
Sat Flow, veh/h	3141	4386	1436	0	4947	0	1619	4752	35	3141	3853	784
Grp Volume(v), veh/h	321	117	108	0	360	0	30	446	245	557	470	240
Grp Sat Flow(s),veh/h/ln	1570	1462	1436	0	1547	0	1619	1547	1693	1570	1547	1542
Q Serve(g_s), s	9.7	1.9	5.7	0.0	7.3	0.0	1.8	9.7	9.7	15.8	8.1	8.3
Cycle Q Clear(g_c), s	9.7	1.9	5.7	0.0	7.3	0.0	1.8	9.7	9.7	15.8	8.1	8.3
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.02	1.00		0.51
Lane Grp Cap(c), veh/h	383	1203	394	0	506	0	65	1256	687	512	1653	824
V/C Ratio(X)	0.84	0.10	0.27	0.00	0.71	0.00	0.46	0.36	0.36	1.09	0.28	0.29
Avail Cap(c_a), veh/h	447	1944	636	0	1196	0	172	1256	687	512	1653	824
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)	0.95	0.95	0.95	0.00	1.00	0.00	1.00	1.00	1.00	0.75	0.75	0.75
Uniform Delay (d), s/veh	41.6	26.2	27.6	0.0	41.7	0.0	45.5	20.0	20.0	40.6	12.4	12.5
Incr Delay (d2), s/veh	9.7	0.0	0.4	0.0	0.7	0.0	3.8	0.8	1.4	61.1	0.3	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	4.7	0.8	2.3	0.0	3.1	0.0	0.9	4.3	4.8	11.2	3.5	3.7
LnGrp Delay(d),s/veh	51.3	26.3	28.0	0.0	42.4	0.0	49.3	20.8	21.4	101.7	12.7	13.1
LnGrp LOS	D	C	C		D		D	C	C	F	B	B
Approach Vol, veh/h		546			360			721			1267	
Approach Delay, s/veh		41.3			42.4			22.2			51.9	
Approach LOS		D			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.0	44.4		31.6	8.6	56.8	16.0	15.6				
Change Period (Y+Rc), s	* 5.2	5.0		5.0	* 4.7	5.0	* 4.2	5.0				
Max Green Setting (Gmax), s	* 16	20.0		43.0	* 10	29.0	* 14	25.0				
Max Q Clear Time (g_c+I1), s	17.8	11.7		7.7	3.8	10.3	11.7	9.3				
Green Ext Time (p_c), s	0.0	3.4		1.4	0.0	5.7	0.1	1.3				
Intersection Summary												
HCM 2010 Ctrl Delay			41.3									
HCM 2010 LOS			D									
Notes												




























HCM 2010 Signalized Intersection Summary
 11: I-5 SB Ramps & Katella Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗	↘	↑↑↑		↖	↕	↗	↘	↑↑	↗
Traffic Volume (veh/h)	0	828	432	188	913	0	27	0	520	26	69	1
Future Volume (veh/h)	0	828	432	188	913	0	27	0	520	26	69	1
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.98
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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	941	491	200	971	0	20	0	589	32	86	1
Adj No. of Lanes	0	3	1	2	4	0	1	0	2	2	2	1
Peak Hour Factor	0.88	0.88	0.88	0.94	0.94	0.94	0.90	0.90	0.90	0.80	0.80	0.80
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	2173	906	277	3527	0	279	0	497	203	209	92
Arrive On Green	0.00	0.47	0.47	0.18	1.00	0.00	0.17	0.00	0.17	0.06	0.06	0.06
Sat Flow, veh/h	0	4794	1403	3141	6086	0	1619	0	2885	3141	3230	1417
Grp Volume(v), veh/h	0	941	491	200	971	0	20	0	589	32	86	1
Grp Sat Flow(s),veh/h/ln	0	1547	1403	1570	1462	0	1619	0	1442	1570	1615	1417
Q Serve(g_s), s	0.0	12.2	17.4	5.4	0.0	0.0	0.9	0.0	15.5	0.9	2.3	0.1
Cycle Q Clear(g_c), s	0.0	12.2	17.4	5.4	0.0	0.0	0.9	0.0	15.5	0.9	2.3	0.1
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	2173	906	277	3527	0	279	0	497	203	209	92
V/C Ratio(X)	0.00	0.43	0.54	0.72	0.28	0.00	0.07	0.00	1.19	0.16	0.41	0.01
Avail Cap(c_a), veh/h	0	2173	906	551	3527	0	279	0	497	537	553	242
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.89	0.89	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	16.0	9.0	36.0	0.0	0.0	31.2	0.0	37.2	39.8	40.4	39.4
Incr Delay (d2), s/veh	0.0	0.6	2.3	1.2	0.2	0.0	0.5	0.0	102.3	0.1	0.5	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	5.3	10.5	2.4	0.0	0.0	0.5	0.0	13.2	0.4	1.0	0.0
LnGrp Delay(d),s/veh	0.0	16.6	11.3	37.2	0.2	0.0	31.7	0.0	139.6	39.9	40.9	39.4
LnGrp LOS		B	B	D	A		C		F	D	D	D
Approach Vol, veh/h		1432			1171			609			119	
Approach Delay, s/veh		14.8			6.5			136.0			40.6	
Approach LOS		B			A			F			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	12.1	47.4		20.0		59.6		10.4				
Change Period (Y+Rc), s	* 4.2	5.3		4.5		5.3		4.6				
Max Green Setting (Gmax), s	* 16	24.7		15.5		44.7		15.4				
Max Q Clear Time (g_c+I1), s	7.4	19.4		17.5		2.0		4.3				
Green Ext Time (p_c), s	0.2	4.0		0.0		11.5		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay			35.0									
HCM 2010 LOS			C									
Notes												


























HCM 2010 Signalized Intersection Summary
 12: I-5 NB Ramps & Katella Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  	 	 	  				
Traffic Volume (veh/h)	65	1312	0	0	949	85	380	425	304	0	0	0
Future Volume (veh/h)	65	1312	0	0	949	85	380	425	304	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	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			
Adj Sat Flow, veh/h/ln	1700	1700	0	0	1700	1700	1700	1700	1700			
Adj Flow Rate, veh/h	73	1474	0	0	1043	93	252	735	345			
Adj No. of Lanes	2	4	0	0	4	1	1	4	0			
Peak Hour Factor	0.89	0.89	0.89	0.91	0.91	0.91	0.88	0.88	0.88			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	174	3302	0	0	3106	651	489	1540	436			
Arrive On Green	0.11	1.00	0.00	0.00	0.46	0.46	0.30	0.30	0.30			
Sat Flow, veh/h	3141	6086	0	0	6800	1424	1619	5100	1445			
Grp Volume(v), veh/h	73	1474	0	0	1043	93	252	735	345			
Grp Sat Flow(s),veh/h/ln	1570	1462	0	0	1700	1424	1619	1700	1445			
Q Serve(g_s), s	1.9	0.0	0.0	0.0	8.9	3.4	11.6	10.6	19.7			
Cycle Q Clear(g_c), s	1.9	0.0	0.0	0.0	8.9	3.4	11.6	10.6	19.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	174	3302	0	0	3106	651	489	1540	436			
V/C Ratio(X)	0.42	0.45	0.00	0.00	0.34	0.14	0.52	0.48	0.79			
Avail Cap(c_a), veh/h	429	3302	0	0	3106	651	720	2267	642			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.87	0.87	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	38.6	0.0	0.0	0.0	15.7	14.2	26.0	25.6	28.8			
Incr Delay (d2), s/veh	0.5	0.4	0.0	0.0	0.3	0.5	0.5	0.1	2.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.8	0.1	0.0	0.0	4.2	1.4	5.2	5.0	8.2			
LnGrp Delay(d),s/veh	39.2	0.4	0.0	0.0	16.0	14.7	26.4	25.7	31.5			
LnGrp LOS	D	A			B	B	C	C	C			
Approach Vol, veh/h		1547			1136			1332				
Approach Delay, s/veh		2.2			15.9			27.4				
Approach LOS		A			B			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		56.8			9.7	47.1		33.2				
Change Period (Y+Rc), s		6.0			* 4.7	6.0		6.0				
Max Green Setting (Gmax), s		38.0			* 12	21.0		40.0				
Max Q Clear Time (g_c+I1), s		2.0			3.9	10.9		21.7				
Green Ext Time (p_c), s		18.8			0.1	6.2		5.5				
Intersection Summary												
HCM 2010 Ctrl Delay				14.4								
HCM 2010 LOS				B								
Notes												



















HCM 2010 Signalized Intersection Summary
 4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	0	346	18	15	278	0	8	0	53	239	14	142
Future Volume (veh/h)	0	346	18	15	278	0	8	0	53	239	14	142
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	0.99		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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	0	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	384	20	17	323	0	9	0	59	304	0	104
Adj No. of Lanes	0	3	0	1	3	0	1	0	1	2	0	1
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1920	99	521	1975	0	0	0	0	482	0	215
Arrive On Green	0.00	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	0	4664	232	991	4794	0		0		3238	0	1445
Grp Volume(v), veh/h	0	262	142	17	323	0		0.0		304	0	104
Grp Sat Flow(s),veh/h/ln	0	1547	1650	991	1547	0				1619	0	1445
Q Serve(g_s), s	0.0	2.5	2.5	0.5	2.0	0.0				4.1	0.0	3.1
Cycle Q Clear(g_c), s	0.0	2.5	2.5	3.1	2.0	0.0				4.1	0.0	3.1
Prop In Lane	0.00		0.14	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1317	702	521	1975	0				482	0	215
V/C Ratio(X)	0.00	0.20	0.20	0.03	0.16	0.00				0.63	0.00	0.48
Avail Cap(c_a), veh/h	0	1317	702	521	1975	0				482	0	215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.89	0.89	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.5	8.5	9.4	8.3	0.0				18.8	0.0	18.3
Incr Delay (d2), s/veh	0.0	0.3	0.6	0.1	0.2	0.0				6.1	0.0	7.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.1	1.3	0.2	0.9	0.0				2.3	0.0	1.7
LnGrp Delay(d),s/veh	0.0	8.8	9.1	9.5	8.5	0.0				24.9	0.0	25.9
LnGrp LOS		A	A	A	A					C		C
Approach Vol, veh/h		404			340							408
Approach Delay, s/veh		8.9			8.5							25.2
Approach LOS		A			A							C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.0				25.0		12.1				
Change Period (Y+Rc), s		5.0				5.0		5.1				
Max Green Setting (Gmax), s		20.0				20.0		7.0				
Max Q Clear Time (g_c+I1), s		5.1				4.5		6.1				
Green Ext Time (p_c), s		2.4				2.8		0.1				
Intersection Summary												
HCM 2010 Ctrl Delay				14.6								
HCM 2010 LOS				B								
Notes												

HCM 2010 Signalized Intersection Summary
 8: Anaheim Blvd & Anaheim Way





















10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	51	717	623	327	871	0	0	1320	379
Future Volume (veh/h)	0	0	0	51	717	623	327	871	0	0	1320	379
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1700	1700	1700	1700	1700	0	0	1700	1700
Adj Flow Rate, veh/h				59	961	640	355	947	0	0	1404	0
Adj No. of Lanes				0	2	1	2	3	0	0	3	1
Peak Hour Factor				0.86	0.86	0.86	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				83	1415	638	411	2204	0	0	1434	447
Arrive On Green				0.44	0.44	0.44	0.13	0.47	0.00	0.00	0.31	0.00
Sat Flow, veh/h				187	3204	1445	3141	4794	0	0	4794	1445
Grp Volume(v), veh/h				533	487	640	355	947	0	0	1404	0
Grp Sat Flow(s),veh/h/ln				1691	1700	1445	1570	1547	0	0	1547	1445
Q Serve(g_s), s				30.9	26.9	53.0	13.3	16.2	0.0	0.0	36.0	0.0
Cycle Q Clear(g_c), s				30.9	26.9	53.0	13.3	16.2	0.0	0.0	36.0	0.0
Prop In Lane				0.11		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				747	751	638	411	2204	0	0	1434	447
V/C Ratio(X)				0.71	0.65	1.00	0.86	0.43	0.00	0.00	0.98	0.00
Avail Cap(c_a), veh/h				747	751	638	597	2204	0	0	1434	447
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.62	0.62	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				27.3	26.2	33.5	51.1	20.8	0.0	0.0	41.1	0.0
Incr Delay (d2), s/veh				2.9	1.7	36.3	4.1	0.4	0.0	0.0	19.3	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
%ile BackOfQ(50%),veh/ln				15.0	12.9	27.5	6.0	6.9	0.0	0.0	17.9	0.0
LnGrp Delay(d),s/veh				30.2	27.9	69.8	55.2	21.2	0.0	0.0	60.3	0.0
LnGrp LOS				C	C	F	E	C			E	
Approach Vol, veh/h					1660			1302			1404	
Approach Delay, s/veh					44.8			30.4			60.3	
Approach LOS					D			C			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		62.0			19.9	42.1		58.0				
Change Period (Y+Rc), s		5.0			* 4.2	5.0		5.0				
Max Green Setting (Gmax), s		57.0			* 23	30.0		53.0				
Max Q Clear Time (g_c+I1), s		18.2			15.3	38.0		55.0				
Green Ext Time (p_c), s		10.8			0.4	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				45.5								
HCM 2010 LOS				D								
Notes												

HCM 2010 Signalized Intersection Summary

9: Anaheim Blvd & Manchester Ave/Manchester Ave/I-5 SB On













10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	278	191	183	0	205	0	25	884	4	570	782	72
Future Volume (veh/h)	278	191	183	0	205	0	25	884	4	570	782	72
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.98	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1700	1700	1700	0	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	320	220	210	0	244	0	26	911	4	576	790	73
Adj No. of Lanes	2	4	0	0	3	0	1	3	0	2	3	0
Peak Hour Factor	0.87	0.87	0.87	0.84	0.84	0.84	0.97	0.97	0.97	0.99	0.99	0.99
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	382	1176	382	0	478	0	59	1966	9	512	2349	216
Arrive On Green	0.12	0.27	0.27	0.00	0.10	0.00	0.04	0.41	0.41	0.16	0.54	0.54
Sat Flow, veh/h	3141	4386	1425	0	4947	0	1619	4769	21	3141	4318	397
Grp Volume(v), veh/h	320	220	210	0	244	0	26	591	324	576	565	298
Grp Sat Flow(s),veh/h/ln	1570	1462	1425	0	1547	0	1619	1547	1696	1570	1547	1621
Q Serve(g_s), s	9.7	3.7	12.3	0.0	4.8	0.0	1.5	13.5	13.5	15.8	9.9	10.0
Cycle Q Clear(g_c), s	9.7	3.7	12.3	0.0	4.8	0.0	1.5	13.5	13.5	15.8	9.9	10.0
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.01	1.00		0.24
Lane Grp Cap(c), veh/h	382	1176	382	0	478	0	59	1275	699	512	1683	882
V/C Ratio(X)	0.84	0.19	0.55	0.00	0.51	0.00	0.44	0.46	0.46	1.13	0.34	0.34
Avail Cap(c_a), veh/h	447	1944	632	0	1196	0	172	1275	699	512	1683	882
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)	0.96	0.96	0.96	0.00	1.00	0.00	1.00	1.00	1.00	0.19	0.19	0.19
Uniform Delay (d), s/veh	41.7	27.3	30.5	0.0	41.2	0.0	45.8	20.7	20.7	40.6	12.3	12.4
Incr Delay (d2), s/veh	9.8	0.1	1.2	0.0	0.3	0.0	3.8	1.2	2.2	62.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	1.5	5.0	0.0	2.1	0.0	0.7	6.0	6.7	11.2	4.2	4.5
LnGrp Delay(d),s/veh	51.4	27.4	31.7	0.0	41.5	0.0	49.6	21.9	22.9	102.6	12.4	12.6
LnGrp LOS	D	C	C		D		D	C	C	F	B	B
Approach Vol, veh/h		750			244			941			1439	
Approach Delay, s/veh		38.9			41.5			23.0			48.5	
Approach LOS		D			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.0	45.0		31.0	8.2	57.8	16.0	15.0				
Change Period (Y+Rc), s	* 5.2	5.0		5.0	* 4.7	5.0	* 4.2	5.0				
Max Green Setting (Gmax), s	* 16	20.0		43.0	* 10	29.0	* 14	25.0				
Max Q Clear Time (g_c+I1), s	17.8	15.5		14.3	3.5	12.0	11.7	6.8				
Green Ext Time (p_c), s	0.0	2.7		2.8	0.0	6.7	0.2	0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			38.8									
HCM 2010 LOS			D									
Notes												

HCM 2010 Signalized Intersection Summary

11: I-5 SB Ramps & Katella Ave



















10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑↑		↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	0	712	463	421	1537	0	35	0	294	61	54	1
Future Volume (veh/h)	0	712	463	421	1537	0	35	0	294	61	54	1
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.98
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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	800	520	501	1830	0	27	0	352	75	67	1
Adj No. of Lanes	0	3	1	2	4	0	1	0	2	2	2	1
Peak Hour Factor	0.89	0.89	0.89	0.84	0.84	0.84	0.87	0.87	0.87	0.81	0.81	0.81
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1765	784	549	3518	0	279	0	497	208	214	94
Arrive On Green	0.00	0.38	0.38	0.35	1.00	0.00	0.17	0.00	0.17	0.07	0.07	0.07
Sat Flow, veh/h	0	4794	1409	3141	6086	0	1619	0	2885	3141	3230	1417
Grp Volume(v), veh/h	0	800	520	501	1830	0	27	0	352	75	67	1
Grp Sat Flow(s),veh/h/ln	0	1547	1409	1570	1462	0	1619	0	1442	1570	1615	1417
Q Serve(g_s), s	0.0	11.6	23.6	13.7	0.0	0.0	1.3	0.0	10.4	2.1	1.8	0.1
Cycle Q Clear(g_c), s	0.0	11.6	23.6	13.7	0.0	0.0	1.3	0.0	10.4	2.1	1.8	0.1
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	1765	784	549	3518	0	279	0	497	208	214	94
V/C Ratio(X)	0.00	0.45	0.66	0.91	0.52	0.00	0.10	0.00	0.71	0.36	0.31	0.01
Avail Cap(c_a), veh/h	0	1765	784	551	3518	0	279	0	497	537	553	242
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.09	0.09	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	20.9	14.3	28.6	0.0	0.0	31.4	0.0	35.1	40.2	40.1	39.3
Incr Delay (d2), s/veh	0.0	0.8	4.4	2.4	0.0	0.0	0.7	0.0	8.3	0.4	0.3	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	5.1	13.5	6.0	0.0	0.0	0.6	0.0	4.7	0.9	0.8	0.0
LnGrp Delay(d),s/veh	0.0	21.7	18.7	31.0	0.0	0.0	32.0	0.0	43.4	40.6	40.4	39.3
LnGrp LOS		C	B	C	A		C		D	D	D	D
Approach Vol, veh/h		1320			2331			379			143	
Approach Delay, s/veh		20.5			6.7			42.6			40.5	
Approach LOS		C			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	19.9	39.5		20.0		59.4		10.6				
Change Period (Y+Rc), s	* 4.2	5.3		4.5		5.3		4.6				
Max Green Setting (Gmax), s	* 16	24.7		15.5		44.7		15.4				
Max Q Clear Time (g_c+I1), s	15.7	25.6		12.4		2.0		4.1				
Green Ext Time (p_c), s	0.0	0.0		0.3		27.1		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay				15.5								
HCM 2010 LOS				B								
Notes												

HCM 2010 Signalized Intersection Summary

12: I-5 NB Ramps & Katella Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	997	0	0	1807	118	654	1283	68	0	0	0
Future Volume (veh/h)	78	997	0	0	1807	118	654	1283	68	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1700	1700	0	0	1700	1700	1700	1700	1700			
Adj Flow Rate, veh/h	82	1049	0	0	2126	139	436	1780	74			
Adj No. of Lanes	2	4	0	0	4	1	1	4	0			
Peak Hour Factor	0.95	0.95	0.95	0.85	0.85	0.85	0.92	0.92	0.92			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	174	2913	0	0	2655	556	597	2387	99			
Arrive On Green	0.11	1.00	0.00	0.00	0.39	0.39	0.37	0.37	0.37			
Sat Flow, veh/h	3141	6086	0	0	6800	1424	1619	6479	269			
Grp Volume(v), veh/h	82	1049	0	0	2126	139	436	1401	453			
Grp Sat Flow(s),veh/h/ln	1570	1462	0	0	1700	1424	1619	1700	1648			
Q Serve(g_s), s	2.2	0.1	0.0	0.0	25.0	5.9	20.9	21.5	21.5			
Cycle Q Clear(g_c), s	2.2	0.1	0.0	0.0	25.0	5.9	20.9	21.5	21.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.16			
Lane Grp Cap(c), veh/h	174	2913	0	0	2655	556	597	1879	607			
V/C Ratio(X)	0.47	0.36	0.00	0.00	0.80	0.25	0.73	0.75	0.75			
Avail Cap(c_a), veh/h	429	2913	0	0	2655	556	720	2267	732			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.88	0.88	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	38.8	0.1	0.0	0.0	24.3	18.5	24.6	24.7	24.7			
Incr Delay (d2), s/veh	0.6	0.3	0.0	0.0	2.6	1.1	2.4	0.9	2.8			
Initial Q Delay(d3),s/veh	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	0.1	0.0	0.0	12.2	2.5	9.7	10.3	10.3			
LnGrp Delay(d),s/veh	39.4	0.4	0.0	0.0	27.0	19.6	27.0	25.6	27.5			
LnGrp LOS	D	A			C	B	C	C	C			
Approach Vol, veh/h		1131			2265			2290				
Approach Delay, s/veh		3.2			26.5			26.3				
Approach LOS		A			C			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		50.8			9.7	41.1		39.2				
Change Period (Y+Rc), s		6.0			* 4.7	6.0		6.0				
Max Green Setting (Gmax), s		38.0			* 12	21.0		40.0				
Max Q Clear Time (g_c+I1), s		2.1			4.2	27.0		23.5				
Green Ext Time (p_c), s		12.1			0.1	0.0		9.5				
Intersection Summary												
HCM 2010 Ctrl Delay				21.8								
HCM 2010 LOS				C								
Notes												

Queues

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/05/2017



Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	217	21	399	6	47	165	163	150
v/c Ratio	0.11	0.05	0.20	0.03	0.16	0.72	0.68	0.44
Control Delay	7.5	8.3	8.7	19.4	1.1	41.0	33.4	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.5	8.3	8.7	19.4	1.1	41.0	33.4	8.7
Queue Length 50th (ft)	10	3	23	2	0	45	37	0
Queue Length 95th (ft)	20	12	37	9	0	#125	#117	37
Internal Link Dist (ft)	1148		509				920	
Turn Bay Length (ft)		155		150	150	480		350
Base Capacity (vph)	1955	427	1983	172	302	229	241	338
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.05	0.20	0.03	0.16	0.72	0.68	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

11: I-5 SB Ramps & Katella Ave

10/05/2017



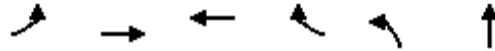
Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	941	491	200	971	27	292	289	33	86	1
v/c Ratio	0.45	0.47	0.56	0.27	0.10	0.63	0.61	0.13	0.34	0.00
Control Delay	19.0	3.3	43.7	8.1	32.7	11.1	10.3	39.2	42.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	3.3	43.7	8.1	32.7	11.1	10.3	39.2	42.6	0.0
Queue Length 50th (ft)	135	16	60	63	13	1	0	9	24	0
Queue Length 95th (ft)	186	57	95	111	38	83	75	20	42	0
Internal Link Dist (ft)	812			868		2402			478	
Turn Bay Length (ft)			225				705	390		
Base Capacity (vph)	2094	1047	550	3582	264	466	475	536	552	354
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.47	0.36	0.27	0.10	0.63	0.61	0.06	0.16	0.00

Intersection Summary

Queues

12: I-5 NB Ramps & Katella Ave

10/05/2017



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	73	1474	1052	84	255	1005
v/c Ratio	0.32	0.44	0.41	0.14	0.66	0.65
Control Delay	49.0	9.4	18.6	4.8	34.9	28.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	9.4	18.6	4.8	34.9	28.7
Queue Length 50th (ft)	22	71	120	0	158	153
Queue Length 95th (ft)	m41	132	191	34	212	154
Internal Link Dist (ft)		868	1064			1268
Turn Bay Length (ft)	130			225	1000	
Base Capacity (vph)	428	3326	2559	585	581	2307
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.44	0.41	0.14	0.44	0.44

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/05/2017



Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	404	17	323	9	59	144	142	130
v/c Ratio	0.20	0.05	0.16	0.05	0.20	0.63	0.62	0.38
Control Delay	8.3	8.3	8.5	19.6	1.4	34.4	31.9	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	8.3	8.5	19.6	1.4	34.4	31.9	6.9
Queue Length 50th (ft)	22	3	18	2	0	38	36	0
Queue Length 95th (ft)	36	10	29	12	0	#106	#107	29
Internal Link Dist (ft)	1111		501				1080	
Turn Bay Length (ft)		155		150	150	480		350
Base Capacity (vph)	1977	365	1983	172	302	229	230	338
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.05	0.16	0.05	0.20	0.63	0.62	0.38

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

11: I-5 SB Ramps & Katella Ave

10/05/2017



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	800	520	501	1830	36	170	172	75	67	1
v/c Ratio	0.49	0.57	0.74	0.51	0.14	0.47	0.46	0.31	0.27	0.00
Control Delay	25.6	7.4	35.1	18.0	33.2	10.6	9.7	42.5	41.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	7.4	35.1	18.0	33.2	10.6	9.7	42.5	41.6	0.0
Queue Length 50th (ft)	134	50	154	223	18	2	0	21	19	0
Queue Length 95th (ft)	186	145	m139	m204	45	57	51	37	35	0
Internal Link Dist (ft)	812			868		2402			478	
Turn Bay Length (ft)			225					390		
Base Capacity (vph)	1636	918	680	3594	264	364	378	536	552	354
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.57	0.74	0.51	0.14	0.47	0.46	0.14	0.12	0.00

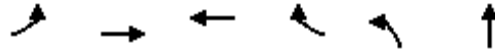
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

12: I-5 NB Ramps & Katella Ave

10/05/2017



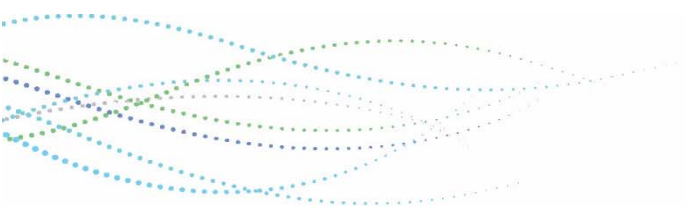
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	82	1049	2140	125	427	1753
v/c Ratio	0.35	0.41	1.16	0.28	0.77	0.76
Control Delay	51.1	16.8	110.5	9.7	32.4	24.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	16.8	110.5	9.7	32.4	24.1
Queue Length 50th (ft)	25	65	~494	12	239	242
Queue Length 95th (ft)	50	149	#551	58	391	290
Internal Link Dist (ft)		868	1064			1230
Turn Bay Length (ft)	130			225	1000	
Base Capacity (vph)	428	2578	1840	452	581	2418
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.41	1.16	0.28	0.73	0.72

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.















Existing Plus Project



HCM 2010 Signalized Intersection Summary
 4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑		↵		↵	↵	↔	↵
Traffic Volume (veh/h)	0	171	17	19	364	0	5	0	40	252	15	175
Future Volume (veh/h)	0	171	17	19	364	0	5	0	40	252	15	175
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.97		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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	0	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	197	20	21	400	0	6	0	47	343	0	133
Adj No. of Lanes	0	3	0	1	3	0	1	0	1	2	0	1
Peak Hour Factor	0.87	0.87	0.87	0.91	0.91	0.91	0.86	0.86	0.86	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1819	179	607	1975	0	0	0	0	482	0	215
Arrive On Green	0.00	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	0	4428	421	1143	4794	0		0		3238	0	1445
Grp Volume(v), veh/h	0	141	76	21	400	0		0.0		343	0	133
Grp Sat Flow(s),veh/h/ln	0	1547	1601	1143	1547	0				1619	0	1445
Q Serve(g_s), s	0.0	1.3	1.3	0.5	2.5	0.0				4.7	0.0	4.1
Cycle Q Clear(g_c), s	0.0	1.3	1.3	1.9	2.5	0.0				4.7	0.0	4.1
Prop In Lane	0.00		0.26	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1317	681	607	1975	0				482	0	215
V/C Ratio(X)	0.00	0.11	0.11	0.03	0.20	0.00				0.71	0.00	0.62
Avail Cap(c_a), veh/h	0	1317	681	607	1975	0				482	0	215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.78	0.78	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.1	8.1	8.7	8.5	0.0				19.0	0.0	18.7
Incr Delay (d2), s/veh	0.0	0.2	0.3	0.1	0.2	0.0				8.6	0.0	12.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.7	0.2	1.1	0.0				2.7	0.0	2.3
LnGrp Delay(d),s/veh	0.0	8.3	8.5	8.8	8.7	0.0				27.7	0.0	31.4
LnGrp LOS		A	A	A	A					C		C
Approach Vol, veh/h		217			421							476
Approach Delay, s/veh		8.4			8.7							28.7
Approach LOS		A			A							C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.0				25.0		12.1				
Change Period (Y+Rc), s		5.0				5.0		5.1				
Max Green Setting (Gmax), s		20.0				20.0		7.0				
Max Q Clear Time (g_c+I1), s		4.5				3.3		6.7				
Green Ext Time (p_c), s		3.0				1.4		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				17.2								
HCM 2010 LOS				B								
Notes												

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑↑	↑↑↑	
Traffic Vol, veh/h	0	48	0	1184	1268	53
Future Vol, veh/h	0	48	0	1184	1268	53
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, %	0	0	0	0	0	0
Mvmt Flow	0	51	0	1246	1335	56

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	-	696	-	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.1	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-
Pot Cap-1 Maneuver	0	333	0	-	-
Stage 1	0	-	0	-	-
Stage 2	0	-	0	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	333	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-



















Approach	EB	NB	SB
HCM Control Delay, s	17.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	333	-	-
HCM Lane V/C Ratio	-	0.152	-	-
HCM Control Delay (s)	-	17.7	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.5	-	-

HCM 2010 Signalized Intersection Summary

8: Anaheim Blvd & Anaheim Way





















10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	21	21	418	180	848	0	0	1177	139
Future Volume (veh/h)	0	0	0	21	21	418	180	848	0	0	1177	139
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1700	1700	1700	1700	1700	0	0	1700	1700
Adj Flow Rate, veh/h				24	24	475	200	942	0	0	1308	0
Adj No. of Lanes				0	2	1	2	3	0	0	3	1
Peak Hour Factor				0.88	0.88	0.88	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				289	881	502	1027	2639	0	0	928	289
Arrive On Green				0.35	0.35	0.35	0.33	0.57	0.00	0.00	0.20	0.00
Sat Flow, veh/h				829	2529	1443	3141	4794	0	0	4794	1445
Grp Volume(v), veh/h				48	0	475	200	942	0	0	1308	0
Grp Sat Flow(s),veh/h/ln				1659	1700	1443	1570	1547	0	0	1547	1445
Q Serve(g_s), s				2.3	0.0	38.4	5.5	13.2	0.0	0.0	24.0	0.0
Cycle Q Clear(g_c), s				2.3	0.0	38.4	5.5	13.2	0.0	0.0	24.0	0.0
Prop In Lane				0.50		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				577	592	502	1027	2639	0	0	928	289
V/C Ratio(X)				0.08	0.00	0.95	0.19	0.36	0.00	0.00	1.41	0.00
Avail Cap(c_a), veh/h				733	751	637	1027	2639	0	0	928	289
HCM Platoon Ratio				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	0.72	0.72	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				26.3	0.0	38.0	29.0	14.0	0.0	0.0	48.0	0.0
Incr Delay (d2), s/veh				0.0	0.0	19.2	0.0	0.3	0.0	0.0	190.6	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
%ile BackOfQ(50%),veh/ln				1.1	0.0	18.0	2.4	5.6	0.0	0.0	26.6	0.0
LnGrp Delay(d),s/veh				26.3	0.0	57.3	29.1	14.3	0.0	0.0	238.6	0.0
LnGrp LOS				C		E	C	B			F	
Approach Vol, veh/h					523			1142			1308	
Approach Delay, s/veh					54.4			16.9			238.6	
Approach LOS					D			B			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		73.2			44.2	29.0		46.8				
Change Period (Y+Rc), s		5.0			5.0	* 5		5.0				
Max Green Setting (Gmax), s		57.0			28.8	* 24		53.0				
Max Q Clear Time (g_c+I1), s		15.2			7.5	26.0		40.4				
Green Ext Time (p_c), s		11.0			0.3	0.0		1.0				
Intersection Summary												
HCM 2010 Ctrl Delay				121.0								
HCM 2010 LOS				F								
Notes												

HCM 2010 Signalized Intersection Summary













9: Anaheim Blvd & Manchester Ave/Manchester Ave/I-5 SB On

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	285	102	94	0	252	0	29	672	5	513	532	108
Future Volume (veh/h)	285	102	94	0	252	0	29	672	5	513	532	108
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.98	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1700	1700	1700	0	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	328	117	108	0	360	0	30	700	5	583	605	123
Adj No. of Lanes	2	4	0	0	3	0	1	3	0	2	3	0
Peak Hour Factor	0.87	0.87	0.87	0.70	0.70	0.70	0.96	0.96	0.96	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	390	1212	397	0	506	0	65	1920	14	512	2057	411
Arrive On Green	0.12	0.28	0.28	0.00	0.11	0.00	0.04	0.40	0.40	0.16	0.53	0.53
Sat Flow, veh/h	3141	4386	1436	0	4947	0	1619	4753	34	3141	3867	772
Grp Volume(v), veh/h	328	117	108	0	360	0	30	455	250	583	482	246
Grp Sat Flow(s),veh/h/ln	1570	1462	1436	0	1547	0	1619	1547	1693	1570	1547	1545
Q Serve(g_s), s	9.9	1.9	5.7	0.0	7.3	0.0	1.8	10.0	10.0	15.8	8.4	8.6
Cycle Q Clear(g_c), s	9.9	1.9	5.7	0.0	7.3	0.0	1.8	10.0	10.0	15.8	8.4	8.6
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.02	1.00		0.50
Lane Grp Cap(c), veh/h	390	1212	397	0	506	0	65	1250	684	512	1646	822
V/C Ratio(X)	0.84	0.10	0.27	0.00	0.71	0.00	0.46	0.36	0.36	1.14	0.29	0.30
Avail Cap(c_a), veh/h	447	1944	636	0	1196	0	172	1250	684	512	1646	822
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)	0.94	0.94	0.94	0.00	1.00	0.00	1.00	1.00	1.00	0.71	0.71	0.71
Uniform Delay (d), s/veh	41.5	26.1	27.5	0.0	41.7	0.0	45.5	20.2	20.2	40.6	12.6	12.6
Incr Delay (d2), s/veh	10.3	0.0	0.3	0.0	0.7	0.0	3.8	0.8	1.5	79.1	0.3	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	4.8	0.8	2.3	0.0	3.1	0.0	0.9	4.4	4.9	12.4	3.6	3.8
LnGrp Delay(d),s/veh	51.8	26.1	27.8	0.0	42.4	0.0	49.3	21.0	21.7	119.7	12.9	13.3
LnGrp LOS	D	C	C		D		D	C	C	F	B	B
Approach Vol, veh/h		553			360			735			1311	
Approach Delay, s/veh		41.7			42.4			22.4			60.5	
Approach LOS		D			D			C			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.0	44.2		31.8	8.6	56.6	16.2	15.6				
Change Period (Y+Rc), s	* 5.2	5.0		5.0	* 4.7	5.0	* 4.2	5.0				
Max Green Setting (Gmax), s	* 16	20.0		43.0	* 10	29.0	* 14	25.0				
Max Q Clear Time (g_c+I1), s	17.8	12.0		7.7	3.8	10.6	11.9	9.3				
Green Ext Time (p_c), s	0.0	3.4		1.4	0.0	5.9	0.1	1.3				
Intersection Summary												
HCM 2010 Ctrl Delay			45.3									
HCM 2010 LOS			D									
Notes												




















HCM 2010 Signalized Intersection Summary
 11: I-5 SB Ramps & Katella Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗	↘	↑↑↑		↖	↕	↗	↘	↑↑	↗
Traffic Volume (veh/h)	0	833	432	188	913	0	27	0	520	26	76	1
Future Volume (veh/h)	0	833	432	188	913	0	27	0	520	26	76	1
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.98
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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	947	491	200	971	0	20	0	589	32	95	1
Adj No. of Lanes	0	3	1	2	4	0	1	0	2	2	2	1
Peak Hour Factor	0.88	0.88	0.88	0.94	0.94	0.94	0.90	0.90	0.90	0.80	0.80	0.80
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	2170	905	277	3523	0	279	0	497	205	211	93
Arrive On Green	0.00	0.47	0.47	0.18	1.00	0.00	0.17	0.00	0.17	0.07	0.07	0.07
Sat Flow, veh/h	0	4794	1403	3141	6086	0	1619	0	2885	3141	3230	1417
Grp Volume(v), veh/h	0	947	491	200	971	0	20	0	589	32	95	1
Grp Sat Flow(s),veh/h/ln	0	1547	1403	1570	1462	0	1619	0	1442	1570	1615	1417
Q Serve(g_s), s	0.0	12.3	17.5	5.4	0.0	0.0	0.9	0.0	15.5	0.9	2.5	0.1
Cycle Q Clear(g_c), s	0.0	12.3	17.5	5.4	0.0	0.0	0.9	0.0	15.5	0.9	2.5	0.1
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	2170	905	277	3523	0	279	0	497	205	211	93
V/C Ratio(X)	0.00	0.44	0.54	0.72	0.28	0.00	0.07	0.00	1.19	0.16	0.45	0.01
Avail Cap(c_a), veh/h	0	2170	905	551	3523	0	279	0	497	537	553	242
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.88	0.88	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	16.0	9.0	36.0	0.0	0.0	31.2	0.0	37.2	39.7	40.5	39.3
Incr Delay (d2), s/veh	0.0	0.6	2.3	1.2	0.2	0.0	0.5	0.0	102.3	0.1	0.6	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	5.4	10.5	2.4	0.0	0.0	0.5	0.0	13.2	0.4	1.2	0.0
LnGrp Delay(d),s/veh	0.0	16.7	11.3	37.2	0.2	0.0	31.7	0.0	139.6	39.8	41.1	39.4
LnGrp LOS		B	B	D	A		C		F	D	D	D
Approach Vol, veh/h		1438			1171			609			128	
Approach Delay, s/veh		14.8			6.5			136.0			40.7	
Approach LOS		B			A			F			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	12.1	47.4		20.0		59.5		10.5				
Change Period (Y+Rc), s	* 4.2	5.3		4.5		5.3		4.6				
Max Green Setting (Gmax), s	* 16	24.7		15.5		44.7		15.4				
Max Q Clear Time (g_c+I1), s	7.4	19.5		17.5		2.0		4.5				
Green Ext Time (p_c), s	0.2	4.0		0.0		11.5		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay			35.0									
HCM 2010 LOS			C									
Notes												













HCM 2010 Signalized Intersection Summary
 12: I-5 NB Ramps & Katella Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	1317	0	0	949	87	380	435	304	0	0	0
Future Volume (veh/h)	65	1317	0	0	949	87	380	435	304	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	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			
Adj Sat Flow, veh/h/ln	1700	1700	0	0	1700	1700	1700	1700	1700			
Adj Flow Rate, veh/h	73	1480	0	0	1043	96	254	743	345			
Adj No. of Lanes	2	4	0	0	4	1	1	4	0			
Peak Hour Factor	0.89	0.89	0.89	0.91	0.91	0.91	0.88	0.88	0.88			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	174	3299	0	0	3104	650	490	1543	437			
Arrive On Green	0.11	1.00	0.00	0.00	0.46	0.46	0.30	0.30	0.30			
Sat Flow, veh/h	3141	6086	0	0	6800	1424	1619	5100	1445			
Grp Volume(v), veh/h	73	1480	0	0	1043	96	254	743	345			
Grp Sat Flow(s),veh/h/ln	1570	1462	0	0	1700	1424	1619	1700	1445			
Q Serve(g_s), s	1.9	0.0	0.0	0.0	8.9	3.5	11.7	10.7	19.7			
Cycle Q Clear(g_c), s	1.9	0.0	0.0	0.0	8.9	3.5	11.7	10.7	19.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	174	3299	0	0	3104	650	490	1543	437			
V/C Ratio(X)	0.42	0.45	0.00	0.00	0.34	0.15	0.52	0.48	0.79			
Avail Cap(c_a), veh/h	429	3299	0	0	3104	650	720	2267	642			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.87	0.87	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	38.6	0.0	0.0	0.0	15.7	14.3	26.0	25.6	28.8			
Incr Delay (d2), s/veh	0.5	0.4	0.0	0.0	0.3	0.5	0.5	0.1	2.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.8	0.1	0.0	0.0	4.2	1.5	5.3	5.0	8.2			
LnGrp Delay(d),s/veh	39.2	0.4	0.0	0.0	16.0	14.7	26.4	25.8	31.5			
LnGrp LOS	D	A			B	B	C	C	C			
Approach Vol, veh/h		1553			1139			1342				
Approach Delay, s/veh		2.2			15.9			27.4				
Approach LOS		A			B			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		56.8			9.7	47.1		33.2				
Change Period (Y+Rc), s		6.0			* 4.7	6.0		6.0				
Max Green Setting (Gmax), s		38.0			* 12	21.0		40.0				
Max Q Clear Time (g_c+I1), s		2.0			3.9	10.9		21.7				
Green Ext Time (p_c), s		18.8			0.1	6.2		5.5				
Intersection Summary												
HCM 2010 Ctrl Delay				14.4								
HCM 2010 LOS				B								
Notes												

HCM 2010 Signalized Intersection Summary
 4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑		↵		↵	↵	↔	↵
Traffic Volume (veh/h)	0	349	18	15	279	0	8	0	53	247	14	142
Future Volume (veh/h)	0	349	18	15	279	0	8	0	53	247	14	142
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	0.99		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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	0	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	388	20	17	324	0	9	0	59	312	0	104
Adj No. of Lanes	0	3	0	1	3	0	1	0	1	2	0	1
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1921	98	519	1975	0	0	0	0	482	0	215
Arrive On Green	0.00	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	0	4667	230	987	4794	0		0		3238	0	1445
Grp Volume(v), veh/h	0	265	143	17	324	0		0.0		312	0	104
Grp Sat Flow(s),veh/h/ln	0	1547	1650	987	1547	0				1619	0	1445
Q Serve(g_s), s	0.0	2.5	2.6	0.5	2.0	0.0				4.3	0.0	3.1
Cycle Q Clear(g_c), s	0.0	2.5	2.6	3.1	2.0	0.0				4.3	0.0	3.1
Prop In Lane	0.00		0.14	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1317	702	519	1975	0				482	0	215
V/C Ratio(X)	0.00	0.20	0.20	0.03	0.16	0.00				0.65	0.00	0.48
Avail Cap(c_a), veh/h	0	1317	702	519	1975	0				482	0	215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.89	0.89	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.5	8.5	9.5	8.3	0.0				18.8	0.0	18.3
Incr Delay (d2), s/veh	0.0	0.3	0.7	0.1	0.2	0.0				6.6	0.0	7.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.1	1.3	0.2	0.9	0.0				2.3	0.0	1.7
LnGrp Delay(d),s/veh	0.0	8.8	9.1	9.6	8.5	0.0				25.4	0.0	25.9
LnGrp LOS		A	A	A	A					C		C
Approach Vol, veh/h		408			341							416
Approach Delay, s/veh		8.9			8.5							25.5
Approach LOS		A			A							C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.0				25.0		12.1				
Change Period (Y+Rc), s		5.0				5.0		5.1				
Max Green Setting (Gmax), s		20.0				20.0		7.0				
Max Q Clear Time (g_c+I1), s		5.1				4.6		6.3				
Green Ext Time (p_c), s		2.4				2.8		0.1				
Intersection Summary												
HCM 2010 Ctrl Delay				14.7								
HCM 2010 LOS				B								
Notes												

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑↑	↑↑↑	
Traffic Vol, veh/h	0	66	0	1524	1699	103
Future Vol, veh/h	0	66	0	1524	1699	103
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, %	0	0	0	0	0	0
Mvmt Flow	0	69	0	1604	1788	108



















Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	948	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	228	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %			-
Mov Cap-1 Maneuver	-	228	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.6	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	-	228	-
HCM Lane V/C Ratio	-	0.305	-
HCM Control Delay (s)	-	27.6	-
HCM Lane LOS	-	D	-
HCM 95th %tile Q(veh)	-	1.2	-

HCM 2010 Signalized Intersection Summary
8: Anaheim Blvd & Anaheim Way






























10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	51	717	643	327	923	0	0	1373	392
Future Volume (veh/h)	0	0	0	51	717	643	327	923	0	0	1373	392
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1700	1700	1700	1700	1700	0	0	1700	1700
Adj Flow Rate, veh/h				59	943	676	355	1003	0	0	1461	0
Adj No. of Lanes				0	2	1	2	3	0	0	3	1
Peak Hour Factor				0.86	0.86	0.86	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				84	1413	638	411	2204	0	0	1434	447
Arrive On Green				0.44	0.44	0.44	0.13	0.47	0.00	0.00	0.31	0.00
Sat Flow, veh/h				190	3200	1445	3141	4794	0	0	4794	1445
Grp Volume(v), veh/h				524	478	676	355	1003	0	0	1461	0
Grp Sat Flow(s),veh/h/ln				1690	1700	1445	1570	1547	0	0	1547	1445
Q Serve(g_s), s				30.1	26.2	53.0	13.3	17.4	0.0	0.0	37.1	0.0
Cycle Q Clear(g_c), s				30.1	26.2	53.0	13.3	17.4	0.0	0.0	37.1	0.0
Prop In Lane				0.11		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				747	751	638	411	2204	0	0	1434	447
V/C Ratio(X)				0.70	0.64	1.06	0.86	0.45	0.00	0.00	1.02	0.00
Avail Cap(c_a), veh/h				747	751	638	597	2204	0	0	1434	447
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.52	0.52	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				27.1	26.0	33.5	51.1	21.1	0.0	0.0	41.5	0.0
Incr Delay (d2), s/veh				2.6	1.5	52.3	3.5	0.4	0.0	0.0	28.6	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
%ile BackOfQ(50%),veh/ln				14.5	12.5	30.4	6.0	7.5	0.0	0.0	19.6	0.0
LnGrp Delay(d),s/veh				29.7	27.5	85.8	54.6	21.5	0.0	0.0	70.0	0.0
LnGrp LOS				C	C	F	D	C			F	
Approach Vol, veh/h					1678			1358			1461	
Approach Delay, s/veh					51.7			30.1			70.0	
Approach LOS					D			C			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		62.0			19.9	42.1		58.0				
Change Period (Y+Rc), s		5.0			* 4.2	5.0		5.0				
Max Green Setting (Gmax), s		57.0			* 23	30.0		53.0				
Max Q Clear Time (g_c+I1), s		19.4			15.3	39.1		55.0				
Green Ext Time (p_c), s		11.6			0.4	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				51.1								
HCM 2010 LOS				D								
Notes												

HCM 2010 Signalized Intersection Summary













9: Anaheim Blvd & Manchester Ave/Manchester Ave/I-5 SB On

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			  		 	  	
Traffic Volume (veh/h)	289	191	183	0	205	0	25	910	4	599	805	73
Future Volume (veh/h)	289	191	183	0	205	0	25	910	4	599	805	73
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.98	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1700	1700	1700	0	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	332	220	210	0	244	0	26	938	4	605	813	74
Adj No. of Lanes	2	4	0	0	3	0	1	3	0	2	3	0
Peak Hour Factor	0.87	0.87	0.87	0.84	0.84	0.84	0.97	0.97	0.97	0.99	0.99	0.99
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	394	1192	387	0	478	0	59	1949	8	512	2337	212
Arrive On Green	0.13	0.27	0.27	0.00	0.10	0.00	0.04	0.41	0.41	0.16	0.54	0.54
Sat Flow, veh/h	3141	4386	1425	0	4947	0	1619	4770	20	3141	4324	392
Grp Volume(v), veh/h	332	220	210	0	244	0	26	608	334	605	580	307
Grp Sat Flow(s),veh/h/ln	1570	1462	1425	0	1547	0	1619	1547	1696	1570	1547	1622
Q Serve(g_s), s	10.0	3.7	12.2	0.0	4.8	0.0	1.5	14.0	14.0	15.8	10.3	10.4
Cycle Q Clear(g_c), s	10.0	3.7	12.2	0.0	4.8	0.0	1.5	14.0	14.0	15.8	10.3	10.4
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.01	1.00		0.24
Lane Grp Cap(c), veh/h	394	1192	387	0	478	0	59	1264	693	512	1672	877
V/C Ratio(X)	0.84	0.18	0.54	0.00	0.51	0.00	0.44	0.48	0.48	1.18	0.35	0.35
Avail Cap(c_a), veh/h	447	1944	632	0	1196	0	172	1264	693	512	1672	877
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)	0.96	0.96	0.96	0.00	1.00	0.00	1.00	1.00	1.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	41.5	27.1	30.2	0.0	41.2	0.0	45.8	21.1	21.1	40.6	12.6	12.6
Incr Delay (d2), s/veh	10.8	0.1	1.1	0.0	0.3	0.0	3.8	1.3	2.4	84.1	0.1	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	4.9	1.5	4.9	0.0	2.1	0.0	0.7	6.2	7.0	12.8	4.4	4.6
LnGrp Delay(d),s/veh	52.3	27.2	31.3	0.0	41.5	0.0	49.6	22.4	23.5	124.7	12.7	12.7
LnGrp LOS	D	C	C		D		D	C	C	F	B	B
Approach Vol, veh/h		762			244			968			1492	
Approach Delay, s/veh		39.2			41.5			23.5			58.1	
Approach LOS		D			D			C			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.0	44.6		31.4	8.2	57.4	16.4	15.0				
Change Period (Y+Rc), s	* 5.2	5.0		5.0	* 4.7	5.0	* 4.2	5.0				
Max Green Setting (Gmax), s	* 16	20.0		43.0	* 10	29.0	* 14	25.0				
Max Q Clear Time (g_c+I1), s	17.8	16.0		14.2	3.5	12.4	12.0	6.8				
Green Ext Time (p_c), s	0.0	2.4		2.8	0.0	6.8	0.1	0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			43.1									
HCM 2010 LOS			D									
Notes												



















HCM 2010 Signalized Intersection Summary
 11: I-5 SB Ramps & Katella Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗	↘↘	↑↑↑		↘	↔	↗	↘↘	↑↑	↗
Traffic Volume (veh/h)	0	721	463	421	1537	0	35	0	294	61	60	1
Future Volume (veh/h)	0	721	463	421	1537	0	35	0	294	61	60	1
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.98
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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	810	520	501	1830	0	27	0	352	75	74	1
Adj No. of Lanes	0	3	1	2	4	0	1	0	2	2	2	1
Peak Hour Factor	0.89	0.89	0.89	0.84	0.84	0.84	0.87	0.87	0.87	0.81	0.81	0.81
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1763	784	549	3517	0	279	0	497	209	215	94
Arrive On Green	0.00	0.38	0.38	0.35	1.00	0.00	0.17	0.00	0.17	0.07	0.07	0.07
Sat Flow, veh/h	0	4794	1409	3141	6086	0	1619	0	2885	3141	3230	1417
Grp Volume(v), veh/h	0	810	520	501	1830	0	27	0	352	75	74	1
Grp Sat Flow(s),veh/h/ln	0	1547	1409	1570	1462	0	1619	0	1442	1570	1615	1417
Q Serve(g_s), s	0.0	11.8	23.6	13.7	0.0	0.0	1.3	0.0	10.4	2.1	2.0	0.1
Cycle Q Clear(g_c), s	0.0	11.8	23.6	13.7	0.0	0.0	1.3	0.0	10.4	2.1	2.0	0.1
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	1763	784	549	3517	0	279	0	497	209	215	94
V/C Ratio(X)	0.00	0.46	0.66	0.91	0.52	0.00	0.10	0.00	0.71	0.36	0.34	0.01
Avail Cap(c_a), veh/h	0	1763	784	551	3517	0	279	0	497	537	553	242
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.09	0.09	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	21.0	14.3	28.6	0.0	0.0	31.4	0.0	35.1	40.2	40.1	39.2
Incr Delay (d2), s/veh	0.0	0.9	4.4	2.4	0.0	0.0	0.7	0.0	8.3	0.4	0.4	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	5.2	13.7	6.0	0.0	0.0	0.6	0.0	4.7	0.9	0.9	0.0
LnGrp Delay(d),s/veh	0.0	21.8	18.7	31.0	0.0	0.0	32.0	0.0	43.4	40.6	40.5	39.3
LnGrp LOS		C	B	C	A		C		D	D	D	D
Approach Vol, veh/h		1330			2331			379			150	
Approach Delay, s/veh		20.6			6.7			42.6			40.5	
Approach LOS		C			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	19.9	39.5		20.0		59.4		10.6				
Change Period (Y+Rc), s	* 4.2	5.3		4.5		5.3		4.6				
Max Green Setting (Gmax), s	* 16	24.7		15.5		44.7		15.4				
Max Q Clear Time (g_c+I1), s	15.7	25.6		12.4		2.0		4.1				
Green Ext Time (p_c), s	0.0	0.0		0.3		27.1		0.3				
Intersection Summary												
HCM 2010 Ctrl Delay				15.6								
HCM 2010 LOS				B								
Notes												

HCM 2010 Signalized Intersection Summary
 12: I-5 NB Ramps & Katella Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	1006	0	0	1807	124	654	1296	68	0	0	0
Future Volume (veh/h)	78	1006	0	0	1807	124	654	1296	68	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1700	1700	0	0	1700	1700	1700	1700	1700			
Adj Flow Rate, veh/h	82	1059	0	0	2126	146	439	1790	74			
Adj No. of Lanes	2	4	0	0	4	1	1	4	0			
Peak Hour Factor	0.95	0.95	0.95	0.85	0.85	0.85	0.92	0.92	0.92			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	174	2905	0	0	2645	554	599	2397	99			
Arrive On Green	0.11	0.99	0.00	0.00	0.39	0.39	0.37	0.37	0.37			
Sat Flow, veh/h	3141	6086	0	0	6800	1424	1619	6480	268			
Grp Volume(v), veh/h	82	1059	0	0	2126	146	439	1409	455			
Grp Sat Flow(s),veh/h/ln	1570	1462	0	0	1700	1424	1619	1700	1648			
Q Serve(g_s), s	2.2	0.2	0.0	0.0	25.0	6.3	21.1	21.6	21.6			
Cycle Q Clear(g_c), s	2.2	0.2	0.0	0.0	25.0	6.3	21.1	21.6	21.6			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.16			
Lane Grp Cap(c), veh/h	174	2905	0	0	2645	554	599	1886	610			
V/C Ratio(X)	0.47	0.36	0.00	0.00	0.80	0.26	0.73	0.75	0.75			
Avail Cap(c_a), veh/h	429	2905	0	0	2645	554	720	2267	733			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.88	0.88	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	38.8	0.1	0.0	0.0	24.4	18.7	24.5	24.7	24.7			
Incr Delay (d2), s/veh	0.6	0.3	0.0	0.0	2.7	1.2	2.5	0.9	2.8			
Initial Q Delay(d3),s/veh	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	0.1	0.0	0.0	12.2	2.7	9.8	10.3	10.3			
LnGrp Delay(d),s/veh	39.4	0.5	0.0	0.0	27.1	19.9	27.0	25.6	27.5			
LnGrp LOS	D	A			C	B	C	C	C			
Approach Vol, veh/h		1141			2272			2303				
Approach Delay, s/veh		3.3			26.7			26.3				
Approach LOS		A			C			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		50.7			9.7	41.0		39.3				
Change Period (Y+Rc), s		6.0			* 4.7	6.0		6.0				
Max Green Setting (Gmax), s		38.0			* 12	21.0		40.0				
Max Q Clear Time (g_c+I1), s		2.2			4.2	27.0		23.6				
Green Ext Time (p_c), s		12.2			0.1	0.0		9.5				
Intersection Summary												
HCM 2010 Ctrl Delay				21.8								
HCM 2010 LOS				C								
Notes												

Queues

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/05/2017



Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	217	21	400	6	47	166	167	152
v/c Ratio	0.11	0.05	0.20	0.03	0.16	0.72	0.70	0.45
Control Delay	7.5	8.3	8.7	19.4	1.1	41.4	35.4	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.5	8.3	8.7	19.4	1.1	41.4	35.4	8.9
Queue Length 50th (ft)	10	3	23	2	0	46	39	0
Queue Length 95th (ft)	20	12	38	9	0	#126	#123	38
Internal Link Dist (ft)	1148		509				920	
Turn Bay Length (ft)		155		150	150	480		350
Base Capacity (vph)	1955	427	1983	172	302	229	239	338
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.05	0.20	0.03	0.16	0.72	0.70	0.45

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

11: I-5 SB Ramps & Katella Ave

10/05/2017



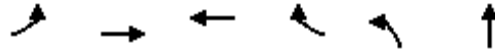
Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	947	491	200	971	27	292	289	33	95	1
v/c Ratio	0.45	0.47	0.56	0.27	0.10	0.63	0.61	0.13	0.37	0.00
Control Delay	19.2	3.6	43.7	8.3	32.7	11.1	10.3	38.9	42.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.2	3.6	43.7	8.3	32.7	11.1	10.3	38.9	42.9	0.0
Queue Length 50th (ft)	136	19	60	63	13	1	0	9	27	0
Queue Length 95th (ft)	188	64	95	113	38	83	75	20	45	0
Internal Link Dist (ft)	812			868		2402			478	
Turn Bay Length (ft)			225				705	390		
Base Capacity (vph)	2085	1039	550	3571	264	466	475	536	552	354
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.47	0.36	0.27	0.10	0.63	0.61	0.06	0.17	0.00

Intersection Summary

Queues

12: I-5 NB Ramps & Katella Ave

10/05/2017



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	73	1480	1053	86	259	1012
v/c Ratio	0.32	0.45	0.42	0.15	0.66	0.64
Control Delay	49.1	9.6	18.8	5.0	34.7	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.1	9.6	18.8	5.0	34.7	28.4
Queue Length 50th (ft)	22	72	120	0	160	154
Queue Length 95th (ft)	m42	136	193	35	214	154
Internal Link Dist (ft)		868	1064			1268
Turn Bay Length (ft)	130			225	1000	
Base Capacity (vph)	428	3302	2536	580	581	2308
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.45	0.42	0.15	0.45	0.44

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/05/2017



Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	408	17	324	9	59	148	145	131
v/c Ratio	0.21	0.05	0.16	0.05	0.20	0.65	0.63	0.39
Control Delay	8.3	8.3	8.5	19.6	1.4	35.6	33.0	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	8.3	8.5	19.6	1.4	35.6	33.0	7.0
Queue Length 50th (ft)	22	3	18	2	0	41	37	0
Queue Length 95th (ft)	37	10	29	12	0	#111	#109	29
Internal Link Dist (ft)	1111		501				1080	
Turn Bay Length (ft)		155		150	150	480		350
Base Capacity (vph)	1977	364	1983	172	302	229	229	338
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.05	0.16	0.05	0.20	0.65	0.63	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

11: I-5 SB Ramps & Katella Ave

10/05/2017



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	810	520	501	1830	36	170	172	75	74	1
v/c Ratio	0.50	0.57	0.74	0.51	0.14	0.47	0.46	0.31	0.30	0.00
Control Delay	25.6	7.9	35.1	18.0	33.2	10.6	9.7	42.5	42.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	7.9	35.1	18.0	33.2	10.6	9.7	42.5	42.2	0.0
Queue Length 50th (ft)	136	56	154	223	18	2	0	21	21	0
Queue Length 95th (ft)	188	155	m138	m203	45	57	51	37	37	0
Internal Link Dist (ft)	812			868		2402			478	
Turn Bay Length (ft)			225					390		
Base Capacity (vph)	1636	910	680	3594	264	364	378	536	552	354
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.57	0.74	0.51	0.14	0.47	0.46	0.14	0.13	0.00

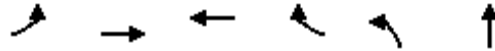
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

12: I-5 NB Ramps & Katella Ave

10/05/2017



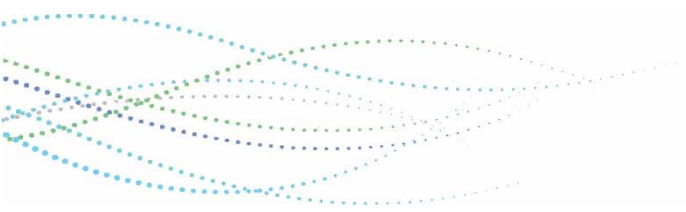
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	82	1059	2141	131	427	1767
v/c Ratio	0.35	0.41	1.17	0.29	0.77	0.76
Control Delay	51.3	17.0	111.7	9.7	32.3	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.3	17.0	111.7	9.7	32.3	24.2
Queue Length 50th (ft)	25	65	~495	12	239	245
Queue Length 95th (ft)	50	151	#551	60	391	293
Internal Link Dist (ft)		868	1064			1230
Turn Bay Length (ft)	130			225	1000	
Base Capacity (vph)	428	2574	1836	454	581	2418
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.41	1.17	0.29	0.73	0.73

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.






























Opening Year 2019





















HCM 2010 Signalized Intersection Summary
 4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  					  	  	
Traffic Volume (veh/h)	0	240	17	19	383	0	5	0	41	301	17	198
Future Volume (veh/h)	0	240	17	19	383	0	5	0	41	301	17	198
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.97		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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	0	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	276	20	21	421	0	6	0	48	406	0	152
Adj No. of Lanes	0	3	0	1	3	0	1	0	1	2	0	1
Peak Hour Factor	0.87	0.87	0.87	0.91	0.91	0.91	0.86	0.86	0.86	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1875	133	566	1975	0	0	0	0	482	0	215
Arrive On Green	0.00	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	0	4560	313	1068	4794	0		0		3238	0	1445
Grp Volume(v), veh/h	0	192	104	21	421	0		0.0		406	0	152
Grp Sat Flow(s),veh/h/ln	0	1547	1627	1068	1547	0				1619	0	1445
Q Serve(g_s), s	0.0	1.8	1.8	0.6	2.7	0.0				5.7	0.0	4.7
Cycle Q Clear(g_c), s	0.0	1.8	1.8	2.4	2.7	0.0				5.7	0.0	4.7
Prop In Lane	0.00		0.19	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1317	692	566	1975	0				482	0	215
V/C Ratio(X)	0.00	0.15	0.15	0.04	0.21	0.00				0.84	0.00	0.71
Avail Cap(c_a), veh/h	0	1317	692	566	1975	0				482	0	215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.72	0.72	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.3	8.3	9.0	8.5	0.0				19.5	0.0	19.0
Incr Delay (d2), s/veh	0.0	0.2	0.5	0.1	0.2	0.0				16.2	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
%ile BackOfQ(50%),veh/ln	0.0	0.8	0.9	0.2	1.2	0.0				3.6	0.0	2.9
LnGrp Delay(d),s/veh	0.0	8.5	8.7	9.1	8.7	0.0				35.6	0.0	36.8
LnGrp LOS		A	A	A	A					D		D
Approach Vol, veh/h		296			442						558	
Approach Delay, s/veh		8.6			8.7						35.9	
Approach LOS		A			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.0				25.0		12.1				
Change Period (Y+Rc), s		5.0				5.0		5.1				
Max Green Setting (Gmax), s		20.0				20.0		7.0				
Max Q Clear Time (g_c+I1), s		4.7				3.8		7.7				
Green Ext Time (p_c), s		3.2				2.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			20.4									
HCM 2010 LOS			C									
Notes												

HCM 2010 Signalized Intersection Summary
 8: Anaheim Blvd & Anaheim Way





















10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	21	21	414	201	778	0	0	1142	132
Future Volume (veh/h)	0	0	0	21	21	414	201	778	0	0	1142	132
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1700	1700	1700	1700	1700	0	0	1700	1700
Adj Flow Rate, veh/h				24	24	470	223	864	0	0	1269	0
Adj No. of Lanes				0	2	1	2	3	0	0	3	1
Peak Hour Factor				0.88	0.88	0.88	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				286	872	497	280	2654	0	0	2078	647
Arrive On Green				0.34	0.34	0.34	0.09	0.57	0.00	0.00	0.45	0.00
Sat Flow, veh/h				829	2529	1442	3141	4794	0	0	4794	1445
Grp Volume(v), veh/h				48	0	470	223	864	0	0	1269	0
Grp Sat Flow(s),veh/h/ln				1659	1700	1442	1570	1547	0	0	1547	1445
Q Serve(g_s), s				2.3	0.0	38.0	8.4	11.8	0.0	0.0	24.9	0.0
Cycle Q Clear(g_c), s				2.3	0.0	38.0	8.4	11.8	0.0	0.0	24.9	0.0
Prop In Lane				0.50		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				572	586	497	280	2654	0	0	2078	647
V/C Ratio(X)				0.08	0.00	0.94	0.80	0.33	0.00	0.00	0.61	0.00
Avail Cap(c_a), veh/h				733	751	637	754	2654	0	0	2078	647
HCM Platoon Ratio				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	0.79	0.79	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				26.5	0.0	38.2	53.6	13.5	0.0	0.0	25.2	0.0
Incr Delay (d2), s/veh				0.0	0.0	18.9	1.6	0.3	0.0	0.0	1.3	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
%ile BackOfQ(50%),veh/ln				1.1	0.0	17.8	3.7	5.0	0.0	0.0	10.8	0.0
LnGrp Delay(d),s/veh				26.6	0.0	57.1	55.1	13.8	0.0	0.0	26.5	0.0
LnGrp LOS				C		E	E	B			C	
Approach Vol, veh/h					518			1087			1269	
Approach Delay, s/veh					54.3			22.3			26.5	
Approach LOS					D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		73.6			14.9	58.7		46.4				
Change Period (Y+Rc), s		5.0			* 4.2	5.0		5.0				
Max Green Setting (Gmax), s		57.0			* 29	24.0		53.0				
Max Q Clear Time (g_c+I1), s		13.8			10.4	26.9		40.0				
Green Ext Time (p_c), s		9.9			0.4	0.0		1.0				
Intersection Summary												
HCM 2010 Ctrl Delay				29.9								
HCM 2010 LOS				C								
Notes												

HCM 2010 Signalized Intersection Summary













9: Anaheim Blvd & Manchester Ave/Manchester Ave/I-5 SB On

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	293	188	98	0	257	0	51	686	5	513	530	120
Future Volume (veh/h)	293	188	98	0	257	0	51	686	5	513	530	120
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.98	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1700	1700	1700	0	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	337	216	113	0	367	0	53	715	5	583	602	136
Adj No. of Lanes	2	4	0	0	3	0	1	3	0	2	3	0
Peak Hour Factor	0.87	0.87	0.87	0.70	0.70	0.70	0.96	0.96	0.96	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	404	1206	395	0	478	0	89	1704	12	659	1964	435
Arrive On Green	0.13	0.27	0.27	0.00	0.10	0.00	0.05	0.36	0.36	0.21	0.52	0.52
Sat Flow, veh/h	3141	4386	1436	0	4947	0	1619	4754	33	3141	3787	838
Grp Volume(v), veh/h	337	216	113	0	367	0	53	465	255	583	490	248
Grp Sat Flow(s),veh/h/ln	1570	1462	1436	0	1547	0	1619	1547	1693	1570	1547	1531
Q Serve(g_s), s	10.2	3.6	6.0	0.0	7.5	0.0	3.1	11.0	11.0	17.5	8.8	9.0
Cycle Q Clear(g_c), s	10.2	3.6	6.0	0.0	7.5	0.0	3.1	11.0	11.0	17.5	8.8	9.0
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.02	1.00		0.55
Lane Grp Cap(c), veh/h	404	1206	395	0	478	0	89	1109	607	659	1605	794
V/C Ratio(X)	0.84	0.18	0.29	0.00	0.77	0.00	0.60	0.42	0.42	0.88	0.31	0.31
Avail Cap(c_a), veh/h	547	1497	490	0	574	0	129	1109	607	868	1605	794
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)	0.92	0.92	0.92	0.00	1.00	0.00	1.00	1.00	1.00	0.88	0.88	0.88
Uniform Delay (d), s/veh	41.3	26.8	27.7	0.0	42.4	0.0	44.8	23.5	23.5	37.2	13.3	13.4
Incr Delay (d2), s/veh	5.7	0.1	0.4	0.0	4.0	0.0	4.7	1.2	2.1	6.8	0.4	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	1.5	2.4	0.0	3.4	0.0	1.5	4.9	5.5	8.2	3.8	4.0
LnGrp Delay(d),s/veh	46.9	26.9	28.0	0.0	46.4	0.0	49.5	24.7	25.6	44.0	13.8	14.3
LnGrp LOS	D	C	C		D		D	C	C	D	B	B
Approach Vol, veh/h		666			367			773			1321	
Approach Delay, s/veh		37.2			46.4			26.7			27.2	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.6	39.8		31.7	10.0	55.3	16.7	15.0				
Change Period (Y+Rc), s	* 5.2	5.0		5.0	* 4.7	5.0	* 4.2	5.0				
Max Green Setting (Gmax), s	* 27	21.9		33.1	* 7.7	41.5	* 17	12.0				
Max Q Clear Time (g_c+I1), s	19.5	13.0		8.0	5.1	11.0	12.2	9.5				
Green Ext Time (p_c), s	0.9	3.7		2.0	0.0	7.2	0.3	0.4				
Intersection Summary												
HCM 2010 Ctrl Delay			31.5									
HCM 2010 LOS			C									
Notes												



















HCM 2010 Signalized Intersection Summary
 11: I-5 SB Ramps & Katella Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑↑		↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	0	860	455	192	1106	0	28	0	530	36	79	1
Future Volume (veh/h)	0	860	455	192	1106	0	28	0	530	36	79	1
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.98
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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	977	517	204	1177	0	21	0	600	45	99	1
Adj No. of Lanes	0	3	1	2	4	0	1	0	2	2	2	1
Peak Hour Factor	0.88	0.88	0.88	0.94	0.94	0.94	0.90	0.90	0.90	0.80	0.80	0.80
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	2165	903	277	3518	0	279	0	497	208	214	94
Arrive On Green	0.00	0.47	0.47	0.18	1.00	0.00	0.17	0.00	0.17	0.07	0.07	0.07
Sat Flow, veh/h	0	4794	1403	3141	6086	0	1619	0	2885	3141	3230	1417
Grp Volume(v), veh/h	0	977	517	204	1177	0	21	0	600	45	99	1
Grp Sat Flow(s),veh/h/ln	0	1547	1403	1570	1462	0	1619	0	1442	1570	1615	1417
Q Serve(g_s), s	0.0	12.8	19.0	5.5	0.0	0.0	1.0	0.0	15.5	1.2	2.7	0.1
Cycle Q Clear(g_c), s	0.0	12.8	19.0	5.5	0.0	0.0	1.0	0.0	15.5	1.2	2.7	0.1
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	2165	903	277	3518	0	279	0	497	208	214	94
V/C Ratio(X)	0.00	0.45	0.57	0.74	0.33	0.00	0.08	0.00	1.21	0.22	0.46	0.01
Avail Cap(c_a), veh/h	0	2165	903	551	3518	0	279	0	497	537	553	242
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.84	0.84	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	16.2	9.3	36.1	0.0	0.0	31.2	0.0	37.2	39.8	40.5	39.3
Incr Delay (d2), s/veh	0.0	0.7	2.6	1.2	0.2	0.0	0.5	0.0	111.1	0.2	0.6	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	5.6	11.4	2.4	0.1	0.0	0.5	0.0	13.8	0.5	1.2	0.0
LnGrp Delay(d),s/veh	0.0	16.9	11.9	37.3	0.2	0.0	31.8	0.0	148.4	40.0	41.1	39.3
LnGrp LOS		B	B	D	A		C		F	D	D	D
Approach Vol, veh/h		1494			1381			621			145	
Approach Delay, s/veh		15.2			5.7			144.4			40.7	
Approach LOS		B			A			F			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	12.2	47.3		20.0		59.4		10.6				
Change Period (Y+Rc), s	* 4.2	5.3		4.5		5.3		4.6				
Max Green Setting (Gmax), s	* 16	24.7		15.5		44.7		15.4				
Max Q Clear Time (g_c+I1), s	7.5	21.0		17.5		2.0		4.7				
Green Ext Time (p_c), s	0.2	3.0		0.0		14.9		0.3				
Intersection Summary												
HCM 2010 Ctrl Delay				34.6								
HCM 2010 LOS				C								
Notes												













HCM 2010 Signalized Intersection Summary
 12: I-5 NB Ramps & Katella Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	1347	0	0	988	87	542	434	310	0	0	0
Future Volume (veh/h)	83	1347	0	0	988	87	542	434	310	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	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			
Adj Sat Flow, veh/h/ln	1700	1700	0	0	1700	1700	1700	1700	1700			
Adj Flow Rate, veh/h	93	1513	0	0	1086	96	292	946	352			
Adj No. of Lanes	2	4	0	0	4	1	1	4	0			
Peak Hour Factor	0.89	0.89	0.89	0.91	0.91	0.91	0.88	0.88	0.88			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	174	3213	0	0	3003	629	514	1618	458			
Arrive On Green	0.11	1.00	0.00	0.00	0.44	0.44	0.32	0.32	0.32			
Sat Flow, veh/h	3141	6086	0	0	6800	1424	1619	5100	1445			
Grp Volume(v), veh/h	93	1513	0	0	1086	96	292	946	352			
Grp Sat Flow(s),veh/h/ln	1570	1462	0	0	1700	1424	1619	1700	1445			
Q Serve(g_s), s	2.5	0.0	0.0	0.0	9.6	3.6	13.5	14.0	19.8			
Cycle Q Clear(g_c), s	2.5	0.0	0.0	0.0	9.6	3.6	13.5	14.0	19.8			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	174	3213	0	0	3003	629	514	1618	458			
V/C Ratio(X)	0.53	0.47	0.00	0.00	0.36	0.15	0.57	0.58	0.77			
Avail Cap(c_a), veh/h	429	3213	0	0	3003	629	720	2267	642			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.86	0.86	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	38.9	0.0	0.0	0.0	16.7	15.0	25.6	25.8	27.7			
Incr Delay (d2), s/veh	0.8	0.4	0.0	0.0	0.3	0.5	0.5	0.2	2.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.1	0.1	0.0	0.0	4.5	1.5	6.1	6.6	8.1			
LnGrp Delay(d),s/veh	39.7	0.4	0.0	0.0	17.0	15.6	26.1	25.9	30.3			
LnGrp LOS	D	A			B	B	C	C	C			
Approach Vol, veh/h		1606			1182			1590				
Approach Delay, s/veh		2.7			16.9			26.9				
Approach LOS		A			B			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		55.4			9.7	45.7		34.6				
Change Period (Y+Rc), s		6.0			* 4.7	6.0		6.0				
Max Green Setting (Gmax), s		38.0			* 12	21.0		40.0				
Max Q Clear Time (g_c+I1), s		2.0			4.5	11.6		21.8				
Green Ext Time (p_c), s		19.4			0.1	6.0		6.8				
Intersection Summary												
HCM 2010 Ctrl Delay			15.3									
HCM 2010 LOS			B									
Notes												

HCM 2010 Signalized Intersection Summary
 4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave



















10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑		↵		↵	↵	↔	↵
Traffic Volume (veh/h)	0	416	18	15	303	0	8	0	54	268	16	158
Future Volume (veh/h)	0	416	18	15	303	0	8	0	54	268	16	158
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	0	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	462	20	17	352	0	9	0	60	340	0	116
Adj No. of Lanes	0	3	0	1	3	0	1	0	1	2	0	1
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1939	83	486	1975	0	0	0	0	482	0	215
Arrive On Green	0.00	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	0	4709	196	923	4794	0		0		3238	0	1445
Grp Volume(v), veh/h	0	313	169	17	352	0		0.0		340	0	116
Grp Sat Flow(s),veh/h/ln	0	1547	1658	923	1547	0				1619	0	1445
Q Serve(g_s), s	0.0	3.0	3.1	0.6	2.2	0.0				4.7	0.0	3.5
Cycle Q Clear(g_c), s	0.0	3.0	3.1	3.6	2.2	0.0				4.7	0.0	3.5
Prop In Lane	0.00		0.12	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1317	705	486	1975	0				482	0	215
V/C Ratio(X)	0.00	0.24	0.24	0.04	0.18	0.00				0.70	0.00	0.54
Avail Cap(c_a), veh/h	0	1317	705	486	1975	0				482	0	215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.88	0.88	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.6	8.6	9.8	8.4	0.0				19.0	0.0	18.5
Incr Delay (d2), s/veh	0.0	0.4	0.8	0.1	0.2	0.0				8.4	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
%ile BackOfQ(50%),veh/ln	0.0	1.3	1.5	0.2	1.0	0.0				2.6	0.0	1.9
LnGrp Delay(d),s/veh	0.0	9.1	9.4	9.9	8.6	0.0				27.4	0.0	27.9
LnGrp LOS		A	A	A	A					C		C
Approach Vol, veh/h		482			369							456
Approach Delay, s/veh		9.2			8.6							27.5
Approach LOS		A			A							C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.0				25.0		12.1				
Change Period (Y+Rc), s		5.0				5.0		5.1				
Max Green Setting (Gmax), s		20.0				20.0		7.0				
Max Q Clear Time (g_c+I1), s		5.6				5.1		6.7				
Green Ext Time (p_c), s		2.6				3.3		0.1				
Intersection Summary												
HCM 2010 Ctrl Delay				15.4								
HCM 2010 LOS				B								
Notes												

HCM 2010 Signalized Intersection Summary

8: Anaheim Blvd & Anaheim Way





















10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	52	731	636	357	866	0	0	1414	387
Future Volume (veh/h)	0	0	0	52	731	636	357	866	0	0	1414	387
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1700	1700	1700	1700	1700	0	0	1700	1700
Adj Flow Rate, veh/h				60	978	655	388	941	0	0	1504	0
Adj No. of Lanes				0	2	1	2	3	0	0	3	1
Peak Hour Factor				0.86	0.86	0.86	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				81	1388	626	895	3295	0	0	1779	554
Arrive On Green				0.43	0.43	0.43	0.28	0.71	0.00	0.00	0.38	0.00
Sat Flow, veh/h				187	3204	1445	3141	4794	0	0	4794	1445
Grp Volume(v), veh/h				543	495	655	388	941	0	0	1504	0
Grp Sat Flow(s),veh/h/ln				1691	1700	1445	1570	1547	0	0	1547	1445
Q Serve(g_s), s				32.2	27.9	52.0	12.1	8.9	0.0	0.0	35.5	0.0
Cycle Q Clear(g_c), s				32.2	27.9	52.0	12.1	8.9	0.0	0.0	35.5	0.0
Prop In Lane				0.11		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				733	737	626	895	3295	0	0	1779	554
V/C Ratio(X)				0.74	0.67	1.05	0.43	0.29	0.00	0.00	0.85	0.00
Avail Cap(c_a), veh/h				733	737	626	895	3295	0	0	1779	554
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.69	0.69	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				28.4	27.2	34.0	35.0	6.3	0.0	0.0	33.8	0.0
Incr Delay (d2), s/veh				3.7	2.1	48.6	0.1	0.2	0.0	0.0	5.2	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
%ile BackOfQ(50%),veh/ln				15.7	13.5	29.1	5.2	3.8	0.0	0.0	15.9	0.0
LnGrp Delay(d),s/veh				32.1	29.3	82.6	35.1	6.5	0.0	0.0	38.9	0.0
LnGrp LOS				C	C	F	D	A			D	
Approach Vol, veh/h					1693			1329			1504	
Approach Delay, s/veh					50.8			14.8			38.9	
Approach LOS					D			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		91.0			40.0	51.0		57.0				
Change Period (Y+Rc), s		5.0			5.0	* 5		5.0				
Max Green Setting (Gmax), s		58.0			7.8	* 46		52.0				
Max Q Clear Time (g_c+I1), s		10.9			14.1	37.5		54.0				
Green Ext Time (p_c), s		11.2			0.0	6.7		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				36.3								
HCM 2010 LOS				D								
Notes												

HCM 2010 Signalized Intersection Summary













9: Anaheim Blvd & Manchester Ave/Manchester Ave/I-5 SB On

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	299	190	0	209	0	35	933	4	581	802	83
Future Volume (veh/h)	290	299	190	0	209	0	35	933	4	581	802	83
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.98	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1700	1700	1700	0	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	333	344	218	0	249	0	36	962	4	587	810	84
Adj No. of Lanes	2	4	0	0	3	0	1	3	0	2	3	0
Peak Hour Factor	0.87	0.87	0.87	0.84	0.84	0.84	0.97	0.97	0.97	0.99	0.99	0.99
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	399	1200	390	0	478	0	73	1720	7	657	2262	233
Arrive On Green	0.13	0.27	0.27	0.00	0.10	0.00	0.04	0.36	0.36	0.21	0.53	0.53
Sat Flow, veh/h	3141	4386	1425	0	4947	0	1619	4770	20	3141	4266	440
Grp Volume(v), veh/h	333	344	218	0	249	0	36	624	342	587	586	308
Grp Sat Flow(s),veh/h/ln	1570	1462	1425	0	1547	0	1619	1547	1696	1570	1547	1612
Q Serve(g_s), s	10.0	6.0	12.7	0.0	4.9	0.0	2.1	15.7	15.7	17.6	10.7	10.8
Cycle Q Clear(g_c), s	10.0	6.0	12.7	0.0	4.9	0.0	2.1	15.7	15.7	17.6	10.7	10.8
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.01	1.00		0.27
Lane Grp Cap(c), veh/h	399	1200	390	0	478	0	73	1116	612	657	1640	855
V/C Ratio(X)	0.83	0.29	0.56	0.00	0.52	0.00	0.50	0.56	0.56	0.89	0.36	0.36
Avail Cap(c_a), veh/h	544	1492	485	0	574	0	119	1116	612	771	1640	855
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)	0.95	0.95	0.95	0.00	1.00	0.00	1.00	1.00	1.00	0.48	0.48	0.48
Uniform Delay (d), s/veh	41.3	27.8	30.2	0.0	41.2	0.0	45.3	24.8	24.8	37.3	13.2	13.2
Incr Delay (d2), s/veh	5.7	0.1	1.2	0.0	0.3	0.0	3.9	2.0	3.7	5.7	0.3	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	4.7	2.4	5.2	0.0	2.1	0.0	1.0	7.0	7.9	8.2	4.6	4.9
LnGrp Delay(d),s/veh	47.0	27.9	31.4	0.0	41.6	0.0	49.1	26.9	28.5	43.1	13.5	13.8
LnGrp LOS	D	C	C		D		D	C	C	D	B	B
Approach Vol, veh/h		895			249			1002			1481	
Approach Delay, s/veh		35.9			41.6			28.2			25.3	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.5	40.0		31.5	9.0	56.4	16.5	15.0				
Change Period (Y+Rc), s	* 5.2	5.0		5.0	* 4.7	5.0	* 4.2	5.0				
Max Green Setting (Gmax), s	* 24	25.0		33.0	* 7.1	42.2	* 17	12.0				
Max Q Clear Time (g_c+I1), s	19.6	17.7		14.7	4.1	12.8	12.0	6.9				
Green Ext Time (p_c), s	0.6	4.2		3.3	0.0	8.9	0.3	0.4				
Intersection Summary												
HCM 2010 Ctrl Delay			29.8									
HCM 2010 LOS			C									
Notes												



















HCM 2010 Signalized Intersection Summary
 11: I-5 SB Ramps & Katella Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑↑		↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	0	741	483	429	1706	0	36	0	300	80	80	1
Future Volume (veh/h)	0	741	483	429	1706	0	36	0	300	80	80	1
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.98
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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	833	543	511	2031	0	27	0	360	99	99	1
Adj No. of Lanes	0	3	1	2	4	0	1	0	2	2	2	1
Peak Hour Factor	0.89	0.89	0.89	0.84	0.84	0.84	0.87	0.87	0.87	0.81	0.81	0.81
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1754	781	551	3510	0	279	0	497	212	218	96
Arrive On Green	0.00	0.38	0.38	0.35	1.00	0.00	0.17	0.00	0.17	0.07	0.07	0.07
Sat Flow, veh/h	0	4794	1409	3141	6086	0	1619	0	2885	3141	3230	1417
Grp Volume(v), veh/h	0	833	543	511	2031	0	27	0	360	99	99	1
Grp Sat Flow(s),veh/h/ln	0	1547	1409	1570	1462	0	1619	0	1442	1570	1615	1417
Q Serve(g_s), s	0.0	12.2	25.4	14.1	0.0	0.0	1.3	0.0	10.6	2.7	2.7	0.1
Cycle Q Clear(g_c), s	0.0	12.2	25.4	14.1	0.0	0.0	1.3	0.0	10.6	2.7	2.7	0.1
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	1754	781	551	3510	0	279	0	497	212	218	96
V/C Ratio(X)	0.00	0.47	0.69	0.93	0.58	0.00	0.10	0.00	0.72	0.47	0.45	0.01
Avail Cap(c_a), veh/h	0	1754	781	551	3510	0	279	0	497	537	553	242
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.09	0.09	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	21.2	14.8	28.6	0.0	0.0	31.4	0.0	35.2	40.4	40.4	39.2
Incr Delay (d2), s/veh	0.0	0.9	5.1	3.0	0.1	0.0	0.7	0.0	8.9	0.6	0.5	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	5.4	14.5	6.2	0.0	0.0	0.6	0.0	4.8	1.2	1.2	0.0
LnGrp Delay(d),s/veh	0.0	22.1	19.9	31.6	0.1	0.0	32.0	0.0	44.1	41.0	40.9	39.2
LnGrp LOS		C	B	C	A		C		D	D	D	D
Approach Vol, veh/h		1376			2542			387			199	
Approach Delay, s/veh		21.2			6.4			43.3			40.9	
Approach LOS		C			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	20.0	39.3		20.0		59.3		10.7				
Change Period (Y+Rc), s	* 4.2	5.3		4.5		5.3		4.6				
Max Green Setting (Gmax), s	* 16	24.7		15.5		44.7		15.4				
Max Q Clear Time (g_c+I1), s	16.1	27.4		12.6		2.0		4.7				
Green Ext Time (p_c), s	0.0	0.0		0.3		30.6		0.4				
Intersection Summary												
HCM 2010 Ctrl Delay				15.6								
HCM 2010 LOS				B								
Notes												

HCM 2010 Signalized Intersection Summary
 12: I-5 NB Ramps & Katella Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	1035	0	0	1859	120	790	1309	69	0	0	0
Future Volume (veh/h)	99	1035	0	0	1859	120	790	1309	69	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1700	1700	0	0	1700	1700	1700	1700	1700			
Adj Flow Rate, veh/h	104	1089	0	0	2187	141	471	1966	75			
Adj No. of Lanes	2	4	0	0	4	1	1	4	0			
Peak Hour Factor	0.95	0.95	0.95	0.85	0.85	0.85	0.92	0.92	0.92			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	174	2775	0	0	2494	522	635	2550	97			
Arrive On Green	0.11	0.95	0.00	0.00	0.37	0.37	0.39	0.39	0.39			
Sat Flow, veh/h	3141	6086	0	0	6800	1423	1619	6504	248			
Grp Volume(v), veh/h	104	1089	0	0	2187	141	471	1542	499			
Grp Sat Flow(s),veh/h/ln	1570	1462	0	0	1700	1423	1619	1700	1652			
Q Serve(g_s), s	2.8	1.4	0.0	0.0	27.0	6.3	22.4	23.7	23.7			
Cycle Q Clear(g_c), s	2.8	1.4	0.0	0.0	27.0	6.3	22.4	23.7	23.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.15			
Lane Grp Cap(c), veh/h	174	2775	0	0	2494	522	635	2000	648			
V/C Ratio(X)	0.60	0.39	0.00	0.00	0.88	0.27	0.74	0.77	0.77			
Avail Cap(c_a), veh/h	429	2775	0	0	2494	522	720	2267	734			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.84	0.84	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	39.0	1.2	0.0	0.0	26.6	20.0	23.5	23.8	23.8			
Incr Delay (d2), s/veh	1.0	0.3	0.0	0.0	4.7	1.3	3.1	1.3	3.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.2	0.5	0.0	0.0	13.4	2.7	10.5	11.4	11.5			
LnGrp Delay(d),s/veh	40.1	1.6	0.0	0.0	31.3	21.3	26.5	25.1	27.8			
LnGrp LOS	D	A			C	C	C	C	C			
Approach Vol, veh/h		1193			2328			2512				
Approach Delay, s/veh		4.9			30.7			25.9				
Approach LOS		A			C			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		48.7			9.7	39.0		41.3				
Change Period (Y+Rc), s		6.0			* 4.7	6.0		6.0				
Max Green Setting (Gmax), s		38.0			* 12	21.0		40.0				
Max Q Clear Time (g_c+I1), s		3.4			4.8	29.0		25.7				
Green Ext Time (p_c), s		12.5			0.1	0.0		9.5				
Intersection Summary												
HCM 2010 Ctrl Delay				23.6								
HCM 2010 LOS				C								
Notes												

Queues

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/05/2017



Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	296	21	421	6	48	195	194	179
v/c Ratio	0.15	0.05	0.21	0.03	0.16	0.85	0.82	0.50
Control Delay	7.9	8.4	8.8	19.4	1.1	56.6	49.3	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	8.4	8.8	19.4	1.1	56.6	49.3	9.4
Queue Length 50th (ft)	15	3	24	2	0	55	50	0
Queue Length 95th (ft)	26	12	39	9	0	#151	#151	43
Internal Link Dist (ft)	1148		509				920	
Turn Bay Length (ft)		155		150	150	480		350
Base Capacity (vph)	1966	397	1983	172	302	229	236	357
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.05	0.21	0.03	0.16	0.85	0.82	0.50

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

11: I-5 SB Ramps & Katella Ave

10/05/2017



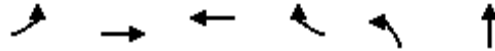
Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	977	517	204	1177	28	298	294	45	99	1
v/c Ratio	0.47	0.50	0.56	0.33	0.11	0.63	0.61	0.18	0.37	0.00
Control Delay	19.6	4.2	39.7	10.4	32.7	11.2	10.4	39.4	42.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.6	4.2	39.7	10.4	32.7	11.2	10.4	39.4	42.8	0.0
Queue Length 50th (ft)	143	27	59	85	14	1	0	12	28	0
Queue Length 95th (ft)	197	84	95	181	40	84	76	25	46	0
Internal Link Dist (ft)	812			868		2402			478	
Turn Bay Length (ft)			225				705	390		
Base Capacity (vph)	2072	1031	550	3562	264	471	479	536	552	354
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.50	0.37	0.33	0.11	0.63	0.61	0.08	0.18	0.00

Intersection Summary

Queues

12: I-5 NB Ramps & Katella Ave

10/05/2017



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	93	1513	1096	86	308	1153
v/c Ratio	0.38	0.49	0.48	0.16	0.69	0.65
Control Delay	51.5	11.3	22.3	5.8	33.4	26.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.5	11.3	22.3	5.8	33.4	26.3
Queue Length 50th (ft)	27	86	140	0	186	169
Queue Length 95th (ft)	m51	151	217	39	243	166
Internal Link Dist (ft)		868	1064			1268
Turn Bay Length (ft)	130			225	1000	
Base Capacity (vph)	428	3081	2296	534	581	2308
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.49	0.48	0.16	0.53	0.50

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/05/2017



Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	482	17	352	9	60	161	160	144
v/c Ratio	0.24	0.05	0.18	0.05	0.20	0.70	0.70	0.43
Control Delay	8.7	8.5	8.6	19.6	1.5	39.6	37.3	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.7	8.5	8.6	19.6	1.5	39.6	37.3	8.2
Queue Length 50th (ft)	27	3	20	2	0	44	41	0
Queue Length 95th (ft)	43	10	31	12	0	#122	#124	34
Internal Link Dist (ft)	1111		501				1080	
Turn Bay Length (ft)		155		150	150	480		350
Base Capacity (vph)	1978	337	1983	172	302	229	230	338
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.05	0.18	0.05	0.20	0.70	0.70	0.43

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

11: I-5 SB Ramps & Katella Ave

10/05/2017



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	833	543	511	2031	37	173	176	99	99	1
v/c Ratio	0.56	0.64	0.75	0.59	0.14	0.47	0.46	0.38	0.37	0.00
Control Delay	27.8	11.3	35.0	20.3	33.2	10.6	9.7	43.1	42.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	11.3	35.0	20.3	33.2	10.6	9.7	43.1	42.7	0.0
Queue Length 50th (ft)	143	91	154	259	18	2	0	28	28	0
Queue Length 95th (ft)	194	205	m134	m227	46	57	52	46	46	0
Internal Link Dist (ft)	812			868		2402			478	
Turn Bay Length (ft)			225					390		
Base Capacity (vph)	1488	848	682	3421	264	366	382	536	552	354
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.64	0.75	0.59	0.14	0.47	0.46	0.18	0.18	0.00

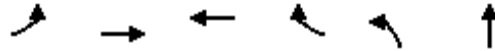
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

12: I-5 NB Ramps & Katella Ave

10/05/2017



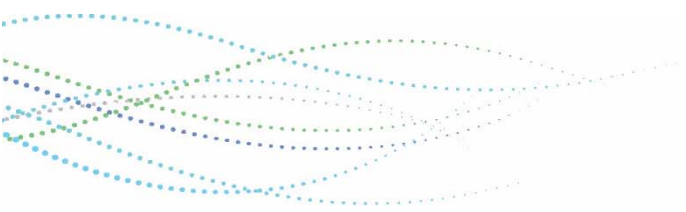
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	104	1089	2201	127	464	1893
v/c Ratio	0.41	0.43	1.26	0.29	0.81	0.80
Control Delay	51.0	18.4	151.8	10.4	35.3	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.0	18.4	151.8	10.4	35.3	24.8
Queue Length 50th (ft)	32	78	~524	13	271	272
Queue Length 95th (ft)	m59	158	#583	61	#483	324
Internal Link Dist (ft)		868	1064			1230
Turn Bay Length (ft)	130			225	1000	
Base Capacity (vph)	428	2513	1746	433	581	2413
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.43	1.26	0.29	0.80	0.78

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.















Opening Year 2019 With Project



HCM 2010 Signalized Intersection Summary
 4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑		↵		↵	↵	↕	↵
Traffic Volume (veh/h)	0	240	17	19	384	0	5	0	41	307	17	198
Future Volume (veh/h)	0	240	17	19	384	0	5	0	41	307	17	198
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.97		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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	0	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	276	20	21	422	0	6	0	48	412	0	152
Adj No. of Lanes	0	3	0	1	3	0	1	0	1	2	0	1
Peak Hour Factor	0.87	0.87	0.87	0.91	0.91	0.91	0.86	0.86	0.86	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1875	133	566	1975	0	0	0	0	482	0	215
Arrive On Green	0.00	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	0	4560	313	1068	4794	0		0		3238	0	1445
Grp Volume(v), veh/h	0	192	104	21	422	0		0.0		412	0	152
Grp Sat Flow(s),veh/h/ln	0	1547	1627	1068	1547	0				1619	0	1445
Q Serve(g_s), s	0.0	1.8	1.8	0.6	2.7	0.0				5.8	0.0	4.7
Cycle Q Clear(g_c), s	0.0	1.8	1.8	2.4	2.7	0.0				5.8	0.0	4.7
Prop In Lane	0.00		0.19	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1317	692	566	1975	0				482	0	215
V/C Ratio(X)	0.00	0.15	0.15	0.04	0.21	0.00				0.85	0.00	0.71
Avail Cap(c_a), veh/h	0	1317	692	566	1975	0				482	0	215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.72	0.72	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.3	8.3	9.0	8.5	0.0				19.5	0.0	19.0
Incr Delay (d2), s/veh	0.0	0.2	0.5	0.1	0.2	0.0				17.3	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
%ile BackOfQ(50%),veh/ln	0.0	0.8	0.9	0.2	1.2	0.0				3.7	0.0	2.9
LnGrp Delay(d),s/veh	0.0	8.5	8.7	9.1	8.7	0.0				36.8	0.0	36.8
LnGrp LOS		A	A	A	A					D		D
Approach Vol, veh/h		296			443							564
Approach Delay, s/veh		8.6			8.7							36.8
Approach LOS		A			A							D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.0				25.0		12.1				
Change Period (Y+Rc), s		5.0				5.0		5.1				
Max Green Setting (Gmax), s		20.0				20.0		7.0				
Max Q Clear Time (g_c+I1), s		4.7				3.8		7.8				
Green Ext Time (p_c), s		3.2				2.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				20.8								
HCM 2010 LOS				C								
Notes												

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑↑	↑↑↑	
Traffic Vol, veh/h	0	48	0	1213	1274	53
Future Vol, veh/h	0	48	0	1213	1274	53
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, %	0	0	0	0	0	0
Mvmt Flow	0	51	0	1277	1341	56

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	699	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	332	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %			-
Mov Cap-1 Maneuver	-	332	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-



















Approach	EB	NB	SB
HCM Control Delay, s	17.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	-	332	-
HCM Lane V/C Ratio	-	0.152	-
HCM Control Delay (s)	-	17.8	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	0.5	-

HCM 2010 Signalized Intersection Summary

8: Anaheim Blvd & Anaheim Way




















10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	21	21	426	201	808	0	0	1180	142
Future Volume (veh/h)	0	0	0	21	21	426	201	808	0	0	1180	142
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1700	1700	1700	1700	1700	0	0	1700	1700
Adj Flow Rate, veh/h				24	24	484	223	898	0	0	1311	0
Adj No. of Lanes				0	2	1	2	3	0	0	3	1
Peak Hour Factor				0.88	0.88	0.88	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				294	896	511	280	2611	0	0	2035	634
Arrive On Green				0.35	0.35	0.35	0.09	0.56	0.00	0.00	0.44	0.00
Sat Flow, veh/h				829	2529	1443	3141	4794	0	0	4794	1445
Grp Volume(v), veh/h				48	0	484	223	898	0	0	1311	0
Grp Sat Flow(s),veh/h/ln				1659	1700	1443	1570	1547	0	0	1547	1445
Q Serve(g_s), s				2.3	0.0	39.1	8.4	12.6	0.0	0.0	26.5	0.0
Cycle Q Clear(g_c), s				2.3	0.0	39.1	8.4	12.6	0.0	0.0	26.5	0.0
Prop In Lane				0.50		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				587	602	511	280	2611	0	0	2035	634
V/C Ratio(X)				0.08	0.00	0.95	0.80	0.34	0.00	0.00	0.64	0.00
Avail Cap(c_a), veh/h				733	751	637	754	2611	0	0	2035	634
HCM Platoon Ratio				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	0.77	0.77	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				25.8	0.0	37.7	53.6	14.2	0.0	0.0	26.4	0.0
Incr Delay (d2), s/veh				0.0	0.0	19.9	1.5	0.3	0.0	0.0	1.6	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
%ile BackOfQ(50%),veh/ln				1.1	0.0	18.4	3.7	5.4	0.0	0.0	11.6	0.0
LnGrp Delay(d),s/veh				25.8	0.0	57.6	55.1	14.5	0.0	0.0	28.0	0.0
LnGrp LOS				C		E	E	B			C	
Approach Vol, veh/h					532			1121			1311	
Approach Delay, s/veh					54.7			22.6			28.0	
Approach LOS					D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		72.5			14.9	57.6		47.5				
Change Period (Y+Rc), s		5.0			* 4.2	5.0		5.0				
Max Green Setting (Gmax), s		57.0			* 29	24.0		53.0				
Max Q Clear Time (g_c+I1), s		14.6			10.4	28.5		41.1				
Green Ext Time (p_c), s		10.3			0.4	0.0		1.0				
Intersection Summary												
HCM 2010 Ctrl Delay				30.7								
HCM 2010 LOS				C								
Notes												

HCM 2010 Signalized Intersection Summary

9: Anaheim Blvd & Manchester Ave/Manchester Ave/I-5 SB On

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	299	188	98	0	257	0	51	699	5	536	545	121
Future Volume (veh/h)	299	188	98	0	257	0	51	699	5	536	545	121
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.97	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1700	1700	1700	0	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	344	216	113	0	367	0	53	728	5	609	619	138
Adj No. of Lanes	2	4	0	0	3	0	1	3	0	2	3	0
Peak Hour Factor	0.87	0.87	0.87	0.70	0.70	0.70	0.96	0.96	0.96	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	411	1216	398	0	478	0	89	1654	11	685	1960	429
Arrive On Green	0.13	0.28	0.28	0.00	0.10	0.00	0.05	0.35	0.35	0.22	0.52	0.52
Sat Flow, veh/h	3141	4386	1436	0	4947	0	1619	4755	33	3141	3796	831
Grp Volume(v), veh/h	344	216	113	0	367	0	53	474	259	609	502	255
Grp Sat Flow(s),veh/h/ln	1570	1462	1436	0	1547	0	1619	1547	1693	1570	1547	1533
Q Serve(g_s), s	10.4	3.6	6.0	0.0	7.5	0.0	3.1	11.4	11.4	18.2	9.1	9.3
Cycle Q Clear(g_c), s	10.4	3.6	6.0	0.0	7.5	0.0	3.1	11.4	11.4	18.2	9.1	9.3
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.02	1.00		0.54
Lane Grp Cap(c), veh/h	411	1216	398	0	478	0	89	1077	589	685	1598	791
V/C Ratio(X)	0.84	0.18	0.28	0.00	0.77	0.00	0.60	0.44	0.44	0.89	0.31	0.32
Avail Cap(c_a), veh/h	557	1510	494	0	574	0	129	1077	589	881	1598	791
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)	0.91	0.91	0.91	0.00	1.00	0.00	1.00	1.00	1.00	0.86	0.86	0.86
Uniform Delay (d), s/veh	41.2	26.7	27.5	0.0	42.4	0.0	44.8	24.3	24.4	36.8	13.5	13.6
Incr Delay (d2), s/veh	5.7	0.1	0.4	0.0	4.0	0.0	4.7	1.3	2.4	7.2	0.4	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	1.5	2.4	0.0	3.4	0.0	1.5	5.1	5.7	8.5	3.9	4.2
LnGrp Delay(d),s/veh	46.8	26.7	27.9	0.0	46.4	0.0	49.5	25.7	26.7	44.0	14.0	14.5
LnGrp LOS	D	C	C		D		D	C	C	D	B	B
Approach Vol, veh/h		673			367			786			1366	
Approach Delay, s/veh		37.2			46.4			27.6			27.4	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.4	38.8		31.9	10.0	55.1	16.9	15.0				
Change Period (Y+Rc), s	* 5.2	5.0		5.0	* 4.7	5.0	* 4.2	5.0				
Max Green Setting (Gmax), s	* 27	21.2		33.4	* 7.7	41.2	* 17	12.0				
Max Q Clear Time (g_c+I1), s	20.2	13.4		8.0	5.1	11.3	12.4	9.5				
Green Ext Time (p_c), s	0.9	3.4		2.0	0.0	7.4	0.3	0.4				
Intersection Summary												
HCM 2010 Ctrl Delay			31.7									
HCM 2010 LOS			C									
Notes												



















HCM 2010 Signalized Intersection Summary
 11: I-5 SB Ramps & Katella Ave

10/09/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑↑		↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	0	865	455	192	1106	0	28	0	530	36	86	1
Future Volume (veh/h)	0	865	455	192	1106	0	28	0	530	36	86	1
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.98
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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	983	517	204	1177	0	21	0	600	45	108	1
Adj No. of Lanes	0	3	1	2	4	0	1	0	2	2	2	1
Peak Hour Factor	0.88	0.88	0.88	0.94	0.94	0.94	0.90	0.90	0.90	0.80	0.80	0.80
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	2164	903	277	3516	0	279	0	497	209	215	94
Arrive On Green	0.00	0.47	0.47	0.18	1.00	0.00	0.17	0.00	0.17	0.07	0.07	0.07
Sat Flow, veh/h	0	4794	1403	3141	6086	0	1619	0	2885	3141	3230	1417
Grp Volume(v), veh/h	0	983	517	204	1177	0	21	0	600	45	108	1
Grp Sat Flow(s),veh/h/ln	0	1547	1403	1570	1462	0	1619	0	1442	1570	1615	1417
Q Serve(g_s), s	0.0	12.9	19.0	5.5	0.0	0.0	1.0	0.0	15.5	1.2	2.9	0.1
Cycle Q Clear(g_c), s	0.0	12.9	19.0	5.5	0.0	0.0	1.0	0.0	15.5	1.2	2.9	0.1
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	2164	903	277	3516	0	279	0	497	209	215	94
V/C Ratio(X)	0.00	0.45	0.57	0.74	0.33	0.00	0.08	0.00	1.21	0.22	0.50	0.01
Avail Cap(c_a), veh/h	0	2164	903	551	3516	0	279	0	497	537	553	242
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.84	0.84	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	16.3	9.3	36.1	0.0	0.0	31.2	0.0	37.2	39.8	40.6	39.2
Incr Delay (d2), s/veh	0.0	0.7	2.6	1.2	0.2	0.0	0.5	0.0	111.1	0.2	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	5.6	11.4	2.4	0.1	0.0	0.5	0.0	13.8	0.5	1.3	0.0
LnGrp Delay(d),s/veh	0.0	17.0	12.0	37.3	0.2	0.0	31.8	0.0	148.4	40.0	41.2	39.3
LnGrp LOS		B	B	D	A		C		F	D	D	D
Approach Vol, veh/h		1500			1381			621			154	
Approach Delay, s/veh		15.2			5.7			144.4			40.9	
Approach LOS		B			A			F			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	12.2	47.3		20.0		59.4		10.6				
Change Period (Y+Rc), s	* 4.2	5.3		4.5		5.3		4.6				
Max Green Setting (Gmax), s	* 16	24.7		15.5		44.7		15.4				
Max Q Clear Time (g_c+I1), s	7.5	21.0		17.5		2.0		4.9				
Green Ext Time (p_c), s	0.2	3.0		0.0		14.9		0.3				
Intersection Summary												
HCM 2010 Ctrl Delay				34.7								
HCM 2010 LOS				C								
Notes												

HCM 2010 Signalized Intersection Summary
 12: I-5 NB Ramps & Katella Ave













10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	1352	0	0	988	89	542	444	310	0	0	0
Future Volume (veh/h)	83	1352	0	0	988	89	542	444	310	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	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			
Adj Sat Flow, veh/h/ln	1700	1700	0	0	1700	1700	1700	1700	1700			
Adj Flow Rate, veh/h	93	1519	0	0	1086	98	295	955	352			
Adj No. of Lanes	2	4	0	0	4	1	1	4	0			
Peak Hour Factor	0.89	0.89	0.89	0.91	0.91	0.91	0.88	0.88	0.88			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	174	3210	0	0	3000	628	515	1621	459			
Arrive On Green	0.11	1.00	0.00	0.00	0.44	0.44	0.32	0.32	0.32			
Sat Flow, veh/h	3141	6086	0	0	6800	1424	1619	5100	1445			
Grp Volume(v), veh/h	93	1519	0	0	1086	98	295	955	352			
Grp Sat Flow(s),veh/h/ln	1570	1462	0	0	1700	1424	1619	1700	1445			
Q Serve(g_s), s	2.5	0.0	0.0	0.0	9.6	3.7	13.7	14.1	19.8			
Cycle Q Clear(g_c), s	2.5	0.0	0.0	0.0	9.6	3.7	13.7	14.1	19.8			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	174	3210	0	0	3000	628	515	1621	459			
V/C Ratio(X)	0.53	0.47	0.00	0.00	0.36	0.16	0.57	0.59	0.77			
Avail Cap(c_a), veh/h	429	3210	0	0	3000	628	720	2267	642			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.86	0.86	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	38.9	0.0	0.0	0.0	16.7	15.1	25.6	25.8	27.7			
Incr Delay (d2), s/veh	0.8	0.4	0.0	0.0	0.3	0.5	0.5	0.2	2.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.1	0.1	0.0	0.0	4.5	1.6	6.1	6.7	8.1			
LnGrp Delay(d),s/veh	39.7	0.4	0.0	0.0	17.1	15.6	26.2	26.0	30.2			
LnGrp LOS	D	A			B	B	C	C	C			
Approach Vol, veh/h		1612			1184			1602				
Approach Delay, s/veh		2.7			16.9			26.9				
Approach LOS		A			B			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		55.4			9.7	45.7		34.6				
Change Period (Y+Rc), s		6.0			* 4.7	6.0		6.0				
Max Green Setting (Gmax), s		38.0			* 12	21.0		40.0				
Max Q Clear Time (g_c+I1), s		2.0			4.5	11.6		21.8				
Green Ext Time (p_c), s		19.5			0.1	6.0		6.8				
Intersection Summary												
HCM 2010 Ctrl Delay				15.4								
HCM 2010 LOS				B								
Notes												

HCM 2010 Signalized Intersection Summary

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑		↑		↑	↑	↔	↑
Traffic Volume (veh/h)	0	419	18	15	304	10	8	0	54	276	16	158
Future Volume (veh/h)	0	419	18	15	304	10	8	0	54	276	16	158
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	1700	1700	0	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	466	20	17	353	12	9	0	60	349	0	116
Adj No. of Lanes	0	3	0	1	3	0	1	0	1	2	0	1
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1940	83	484	1960	66	0	0	0	482	0	215
Arrive On Green	0.00	0.43	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	0	4711	194	920	4605	155		0		3238	0	1445
Grp Volume(v), veh/h	0	315	171	17	236	129		0.0		349	0	116
Grp Sat Flow(s),veh/h/ln	0	1547	1658	920	1547	1667				1619	0	1445
Q Serve(g_s), s	0.0	3.1	3.1	0.6	2.2	2.3				4.8	0.0	3.5
Cycle Q Clear(g_c), s	0.0	3.1	3.1	3.7	2.2	2.3				4.8	0.0	3.5
Prop In Lane	0.00		0.12	1.00		0.09				1.00		1.00
Lane Grp Cap(c), veh/h	0	1317	706	484	1317	709				482	0	215
V/C Ratio(X)	0.00	0.24	0.24	0.04	0.18	0.18				0.72	0.00	0.54
Avail Cap(c_a), veh/h	0	1317	706	484	1317	709				482	0	215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.88	0.88	0.88				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.6	8.6	9.8	8.4	8.4				19.1	0.0	18.5
Incr Delay (d2), s/veh	0.0	0.4	0.8	0.1	0.3	0.5				9.1	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
%ile BackOfQ(50%),veh/ln	0.0	1.3	1.5	0.2	1.0	1.1				2.7	0.0	1.9
LnGrp Delay(d),s/veh	0.0	9.1	9.5	9.9	8.7	8.9				28.2	0.0	27.9
LnGrp LOS		A	A	A	A	A				C		C
Approach Vol, veh/h		486			382							465
Approach Delay, s/veh		9.2			8.8							28.1
Approach LOS		A			A							C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.0				25.0		12.1				
Change Period (Y+Rc), s		5.0				5.0		5.1				
Max Green Setting (Gmax), s		20.0				20.0		7.0				
Max Q Clear Time (g_c+I1), s		5.7				5.1		6.8				
Green Ext Time (p_c), s		2.5				3.4		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				15.7								
HCM 2010 LOS				B								
Notes												

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑↑	↑↑↑	
Traffic Vol, veh/h	0	66	0	1569	1801	103
Future Vol, veh/h	0	66	0	1569	1801	103
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, %	0	0	0	0	0	0
Mvmt Flow	0	69	0	1652	1896	108

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	-	1002	-	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.1	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-
Pot Cap-1 Maneuver	0	210	0	-	-
Stage 1	0	-	0	-	-
Stage 2	0	-	0	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	210	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-



















Approach	EB	NB	SB
HCM Control Delay, s	30.4	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	210	-	-
HCM Lane V/C Ratio	-	0.331	-	-
HCM Control Delay (s)	-	30.4	-	-
HCM Lane LOS	-	D	-	-
HCM 95th %tile Q(veh)	-	1.4	-	-

HCM 2010 Signalized Intersection Summary

8: Anaheim Blvd & Anaheim Way





















10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	52	731	656	357	918	0	0	1467	400
Future Volume (veh/h)	0	0	0	52	731	656	357	918	0	0	1467	400
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1700	1700	1700	1700	1700	0	0	1700	1700
Adj Flow Rate, veh/h				60	960	690	388	998	0	0	1561	0
Adj No. of Lanes				0	2	1	2	3	0	0	3	1
Peak Hour Factor				0.86	0.86	0.86	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				82	1387	626	895	3295	0	0	1779	554
Arrive On Green				0.43	0.43	0.43	0.28	0.71	0.00	0.00	0.38	0.00
Sat Flow, veh/h				190	3200	1445	3141	4794	0	0	4794	1445
Grp Volume(v), veh/h				533	487	690	388	998	0	0	1561	0
Grp Sat Flow(s),veh/h/ln				1690	1700	1445	1570	1547	0	0	1547	1445
Q Serve(g_s), s				31.3	27.3	52.0	12.1	9.5	0.0	0.0	37.5	0.0
Cycle Q Clear(g_c), s				31.3	27.3	52.0	12.1	9.5	0.0	0.0	37.5	0.0
Prop In Lane				0.11		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				733	737	626	895	3295	0	0	1779	554
V/C Ratio(X)				0.73	0.66	1.10	0.43	0.30	0.00	0.00	0.88	0.00
Avail Cap(c_a), veh/h				733	737	626	895	3295	0	0	1779	554
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.65	0.65	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				28.1	27.0	34.0	35.0	6.4	0.0	0.0	34.4	0.0
Incr Delay (d2), s/veh				3.3	1.9	67.1	0.1	0.2	0.0	0.0	6.5	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
%ile BackOfQ(50%),veh/ln				15.2	13.1	32.4	5.2	4.1	0.0	0.0	17.0	0.0
LnGrp Delay(d),s/veh				31.5	28.9	101.1	35.1	6.6	0.0	0.0	40.9	0.0
LnGrp LOS				C	C	F	D	A			D	
Approach Vol, veh/h					1710			1386			1561	
Approach Delay, s/veh					58.8			14.6			40.9	
Approach LOS					E			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		91.0			40.0	51.0		57.0				
Change Period (Y+Rc), s		5.0			5.0	* 5		5.0				
Max Green Setting (Gmax), s		58.0			7.8	* 46		52.0				
Max Q Clear Time (g_c+I1), s		11.5			14.1	39.5		54.0				
Green Ext Time (p_c), s		12.1			0.0	5.3		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				39.6								
HCM 2010 LOS				D								
Notes												

HCM 2010 Signalized Intersection Summary













9: Anaheim Blvd & Manchester Ave/Manchester Ave/I-5 SB On

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	301	299	190	0	209	0	35	959	4	610	825	84
Future Volume (veh/h)	301	299	190	0	209	0	35	959	4	610	825	84
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.98	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1700	1700	1700	0	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	346	344	218	0	249	0	36	989	4	616	833	85
Adj No. of Lanes	2	4	0	0	3	0	1	3	0	2	3	0
Peak Hour Factor	0.87	0.87	0.87	0.84	0.84	0.84	0.97	0.97	0.97	0.99	0.99	0.99
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	413	1218	396	0	478	0	73	1661	7	683	2247	228
Arrive On Green	0.13	0.28	0.28	0.00	0.10	0.00	0.04	0.35	0.35	0.22	0.53	0.53
Sat Flow, veh/h	3141	4386	1425	0	4947	0	1619	4771	19	3141	4274	434
Grp Volume(v), veh/h	346	344	218	0	249	0	36	641	352	616	602	316
Grp Sat Flow(s),veh/h/ln	1570	1462	1425	0	1547	0	1619	1547	1696	1570	1547	1614
Q Serve(g_s), s	10.4	6.0	12.7	0.0	4.9	0.0	2.1	16.5	16.5	18.5	11.1	11.2
Cycle Q Clear(g_c), s	10.4	6.0	12.7	0.0	4.9	0.0	2.1	16.5	16.5	18.5	11.1	11.2
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.01	1.00		0.27
Lane Grp Cap(c), veh/h	413	1218	396	0	478	0	73	1077	590	683	1627	849
V/C Ratio(X)	0.84	0.28	0.55	0.00	0.52	0.00	0.50	0.60	0.60	0.90	0.37	0.37
Avail Cap(c_a), veh/h	557	1492	485	0	555	0	117	1077	590	771	1627	849
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)	0.95	0.95	0.95	0.00	1.00	0.00	1.00	1.00	1.00	0.42	0.42	0.42
Uniform Delay (d), s/veh	41.1	27.5	29.9	0.0	41.2	0.0	45.3	26.0	26.0	36.9	13.5	13.6
Incr Delay (d2), s/veh	6.0	0.1	1.1	0.0	0.3	0.0	3.9	2.4	4.4	5.8	0.3	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	4.9	2.4	5.1	0.0	2.1	0.0	1.0	7.4	8.4	8.6	4.7	5.0
LnGrp Delay(d),s/veh	47.1	27.6	31.0	0.0	41.6	0.0	49.1	28.4	30.4	42.7	13.8	14.1
LnGrp LOS	D	C	C		D		D	C	C	D	B	B
Approach Vol, veh/h		908			249			1029			1534	
Approach Delay, s/veh		35.8			41.6			29.8			25.5	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.3	38.8		31.9	9.0	56.0	16.9	15.0				
Change Period (Y+Rc), s	* 5.2	5.0		5.0	* 4.7	5.0	* 4.2	5.0				
Max Green Setting (Gmax), s	* 24	25.0		33.0	* 7	42.3	* 17	11.6				
Max Q Clear Time (g_c+I1), s	20.5	18.5		14.7	4.1	13.2	12.4	6.9				
Green Ext Time (p_c), s	0.6	3.9		3.3	0.0	9.1	0.3	0.4				
Intersection Summary												
HCM 2010 Ctrl Delay			30.3									
HCM 2010 LOS			C									
Notes												



















HCM 2010 Signalized Intersection Summary
 11: I-5 SB Ramps & Katella Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑↑		↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	0	750	483	429	1706	0	36	0	300	80	86	1
Future Volume (veh/h)	0	750	483	429	1706	0	36	0	300	80	86	1
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.98
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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	843	543	511	2031	0	27	0	360	99	106	1
Adj No. of Lanes	0	3	1	2	4	0	1	0	2	2	2	1
Peak Hour Factor	0.89	0.89	0.89	0.84	0.84	0.84	0.87	0.87	0.87	0.81	0.81	0.81
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1754	781	551	3510	0	279	0	497	212	218	96
Arrive On Green	0.00	0.38	0.38	0.35	1.00	0.00	0.17	0.00	0.17	0.07	0.07	0.07
Sat Flow, veh/h	0	4794	1409	3141	6086	0	1619	0	2885	3141	3230	1417
Grp Volume(v), veh/h	0	843	543	511	2031	0	27	0	360	99	106	1
Grp Sat Flow(s),veh/h/ln	0	1547	1409	1570	1462	0	1619	0	1442	1570	1615	1417
Q Serve(g_s), s	0.0	12.4	25.4	14.1	0.0	0.0	1.3	0.0	10.6	2.7	2.8	0.1
Cycle Q Clear(g_c), s	0.0	12.4	25.4	14.1	0.0	0.0	1.3	0.0	10.6	2.7	2.8	0.1
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	1754	781	551	3510	0	279	0	497	212	218	96
V/C Ratio(X)	0.00	0.48	0.70	0.93	0.58	0.00	0.10	0.00	0.72	0.47	0.49	0.01
Avail Cap(c_a), veh/h	0	1754	781	551	3510	0	279	0	497	537	553	242
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.09	0.09	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	21.3	14.8	28.6	0.0	0.0	31.4	0.0	35.2	40.4	40.4	39.1
Incr Delay (d2), s/veh	0.0	0.9	5.1	3.0	0.1	0.0	0.7	0.0	8.9	0.6	0.6	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	5.5	14.5	6.2	0.0	0.0	0.6	0.0	4.8	1.2	1.3	0.0
LnGrp Delay(d),s/veh	0.0	22.2	19.9	31.6	0.1	0.0	32.0	0.0	44.1	41.0	41.1	39.2
LnGrp LOS		C	B	C	A		C		D	D	D	D
Approach Vol, veh/h		1386			2542			387			206	
Approach Delay, s/veh		21.3			6.4			43.3			41.0	
Approach LOS		C			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	20.0	39.3		20.0		59.3		10.7				
Change Period (Y+Rc), s	* 4.2	5.3		4.5		5.3		4.6				
Max Green Setting (Gmax), s	* 16	24.7		15.5		44.7		15.4				
Max Q Clear Time (g_c+I1), s	16.1	27.4		12.6		2.0		4.8				
Green Ext Time (p_c), s	0.0	0.0		0.3		30.6		0.4				
Intersection Summary												
HCM 2010 Ctrl Delay				15.7								
HCM 2010 LOS				B								
Notes												

HCM 2010 Signalized Intersection Summary
 12: I-5 NB Ramps & Katella Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	1044	0	0	1859	126	790	1322	69	0	0	0
Future Volume (veh/h)	99	1044	0	0	1859	126	790	1322	69	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1700	1700	0	0	1700	1700	1700	1700	1700			
Adj Flow Rate, veh/h	104	1099	0	0	2187	148	474	1976	75			
Adj No. of Lanes	2	4	0	0	4	1	1	4	0			
Peak Hour Factor	0.95	0.95	0.95	0.85	0.85	0.85	0.92	0.92	0.92			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	174	2768	0	0	2486	520	637	2558	97			
Arrive On Green	0.11	0.95	0.00	0.00	0.37	0.37	0.39	0.39	0.39			
Sat Flow, veh/h	3141	6086	0	0	6800	1423	1619	6505	247			
Grp Volume(v), veh/h	104	1099	0	0	2187	148	474	1549	502			
Grp Sat Flow(s),veh/h/ln	1570	1462	0	0	1700	1423	1619	1700	1652			
Q Serve(g_s), s	2.8	1.4	0.0	0.0	27.1	6.6	22.6	23.8	23.8			
Cycle Q Clear(g_c), s	2.8	1.4	0.0	0.0	27.1	6.6	22.6	23.8	23.8			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.15			
Lane Grp Cap(c), veh/h	174	2768	0	0	2486	520	637	2006	650			
V/C Ratio(X)	0.60	0.40	0.00	0.00	0.88	0.28	0.74	0.77	0.77			
Avail Cap(c_a), veh/h	429	2768	0	0	2486	520	720	2267	734			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.83	0.83	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	39.0	1.3	0.0	0.0	26.7	20.2	23.4	23.8	23.8			
Incr Delay (d2), s/veh	1.0	0.4	0.0	0.0	4.9	1.4	3.2	1.3	4.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.2	0.5	0.0	0.0	13.4	2.8	10.6	11.4	11.6			
LnGrp Delay(d),s/veh	40.0	1.7	0.0	0.0	31.5	21.6	26.6	25.1	27.8			
LnGrp LOS	D	A			C	C	C	C	C			
Approach Vol, veh/h		1203			2335			2525				
Approach Delay, s/veh		5.0			30.9			25.9				
Approach LOS		A			C			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		48.6			9.7	38.9		41.4				
Change Period (Y+Rc), s		6.0			* 4.7	6.0		6.0				
Max Green Setting (Gmax), s		38.0			* 12	21.0		40.0				
Max Q Clear Time (g_c+I1), s		3.4			4.8	29.1		25.8				
Green Ext Time (p_c), s		12.7			0.1	0.0		9.4				
Intersection Summary												
HCM 2010 Ctrl Delay				23.7								
HCM 2010 LOS				C								
Notes												

Queues

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/05/2017



Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	296	21	422	6	48	199	196	179
v/c Ratio	0.15	0.05	0.21	0.03	0.16	0.87	0.83	0.50
Control Delay	7.9	8.4	8.8	19.4	1.1	59.4	51.2	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	8.4	8.8	19.4	1.1	59.4	51.2	9.4
Queue Length 50th (ft)	15	3	24	2	0	56	50	0
Queue Length 95th (ft)	26	12	39	9	0	#155	#153	43
Internal Link Dist (ft)	1148		509				920	
Turn Bay Length (ft)		155		150	150	480		350
Base Capacity (vph)	1966	397	1983	172	302	229	235	357
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.05	0.21	0.03	0.16	0.87	0.83	0.50

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

11: I-5 SB Ramps & Katella Ave

10/05/2017



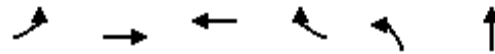
Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	983	517	204	1177	28	298	294	45	108	1
v/c Ratio	0.48	0.51	0.56	0.33	0.11	0.63	0.61	0.17	0.40	0.00
Control Delay	19.8	4.6	39.8	10.7	32.7	11.2	10.4	39.1	43.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	4.6	39.8	10.7	32.7	11.2	10.4	39.1	43.0	0.0
Queue Length 50th (ft)	145	31	59	86	14	1	0	12	31	0
Queue Length 95th (ft)	200	93	95	181	40	84	76	25	49	0
Internal Link Dist (ft)	812			868		2402			478	
Turn Bay Length (ft)			225				705	390		
Base Capacity (vph)	2063	1023	550	3550	264	471	479	536	552	354
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.51	0.37	0.33	0.11	0.63	0.61	0.08	0.20	0.00

Intersection Summary

Queues

12: I-5 NB Ramps & Katella Ave

10/05/2017



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	93	1519	1096	88	308	1165
v/c Ratio	0.38	0.50	0.48	0.17	0.69	0.65
Control Delay	51.6	11.6	22.5	6.1	33.0	26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	11.6	22.5	6.1	33.0	26.2
Queue Length 50th (ft)	27	86	140	0	186	171
Queue Length 95th (ft)	m51	154	217	40	243	169
Internal Link Dist (ft)		868	1064			1268
Turn Bay Length (ft)	130			225	1000	
Base Capacity (vph)	428	3068	2284	532	581	2311
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.50	0.48	0.17	0.53	0.50

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/05/2017



Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	486	17	365	9	60	163	163	148
v/c Ratio	0.25	0.05	0.18	0.05	0.20	0.71	0.71	0.44
Control Delay	8.7	8.5	8.4	19.6	1.5	40.3	39.4	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.7	8.5	8.4	19.6	1.5	40.3	39.4	8.5
Queue Length 50th (ft)	27	3	20	2	0	45	43	0
Queue Length 95th (ft)	44	10	32	12	0	#123	#128	37
Internal Link Dist (ft)	1111		501				1080	
Turn Bay Length (ft)		155		150	150	480		350
Base Capacity (vph)	1978	335	1979	172	302	229	228	338
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.05	0.18	0.05	0.20	0.71	0.71	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

11: I-5 SB Ramps & Katella Ave

10/05/2017



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	843	543	511	2031	37	173	176	99	106	1
v/c Ratio	0.57	0.65	0.75	0.59	0.14	0.47	0.46	0.38	0.39	0.00
Control Delay	28.0	11.8	35.1	20.3	33.2	10.6	9.7	42.9	43.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	11.8	35.1	20.3	33.2	10.6	9.7	42.9	43.1	0.0
Queue Length 50th (ft)	145	98	153	259	18	2	0	27	30	0
Queue Length 95th (ft)	196	214	m134	m226	46	57	52	45	49	0
Internal Link Dist (ft)	812			868		2402			478	
Turn Bay Length (ft)			225					390		
Base Capacity (vph)	1485	841	682	3416	264	366	382	536	552	354
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.65	0.75	0.59	0.14	0.47	0.46	0.18	0.19	0.00

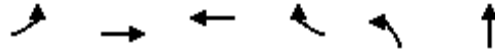
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

12: I-5 NB Ramps & Katella Ave

10/05/2017



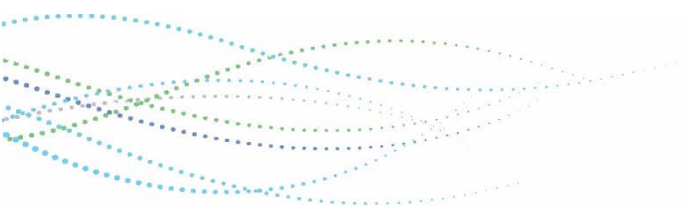
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	104	1099	2202	133	464	1907
v/c Ratio	0.41	0.44	1.26	0.31	0.81	0.80
Control Delay	50.9	18.7	152.8	10.5	35.3	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.9	18.7	152.8	10.5	35.3	25.0
Queue Length 50th (ft)	32	80	~525	14	271	276
Queue Length 95th (ft)	m58	160	#584	64	#483	328
Internal Link Dist (ft)		868	1064			1230
Turn Bay Length (ft)	130			225	1000	
Base Capacity (vph)	428	2511	1744	435	581	2413
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.44	1.26	0.31	0.80	0.79

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.















General Plan Build Out Year 2035 Without Project



HCM 2010 Signalized Intersection Summary



















4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑		↑		↑	↑	↔	↑
Traffic Volume (veh/h)	0	860	20	20	815	0	20	0	50	385	15	200
Future Volume (veh/h)	0	860	20	20	815	0	20	0	50	385	15	200
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	0	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	905	21	21	858	0	21	0	53	477	0	146
Adj No. of Lanes	0	3	0	1	3	0	1	0	1	2	0	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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1983	46	327	1975	0	0	0	0	482	0	215
Arrive On Green	0.00	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	0	4814	108	607	4794	0		0		3238	0	1445
Grp Volume(v), veh/h	0	600	326	21	858	0		0.0		477	0	146
Grp Sat Flow(s),veh/h/ln	0	1547	1675	607	1547	0				1619	0	1445
Q Serve(g_s), s	0.0	6.5	6.5	1.2	6.1	0.0				6.9	0.0	4.5
Cycle Q Clear(g_c), s	0.0	6.5	6.5	7.7	6.1	0.0				6.9	0.0	4.5
Prop In Lane	0.00		0.06	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1317	713	327	1975	0				482	0	215
V/C Ratio(X)	0.00	0.46	0.46	0.06	0.43	0.00				0.99	0.00	0.68
Avail Cap(c_a), veh/h	0	1317	713	327	1975	0				482	0	215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.61	0.61	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	9.6	9.6	12.4	9.5	0.0				20.0	0.0	18.9
Incr Delay (d2), s/veh	0.0	1.1	2.1	0.2	0.4	0.0				38.4	0.0	15.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.0	3.4	0.2	2.6	0.0				5.6	0.0	2.7
LnGrp Delay(d),s/veh	0.0	10.8	11.7	12.6	9.9	0.0				58.3	0.0	34.8
LnGrp LOS		B	B	B	A					E		C
Approach Vol, veh/h		926			879						623	
Approach Delay, s/veh		11.1			10.0						52.8	
Approach LOS		B			B						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.0				25.0		12.1				
Change Period (Y+Rc), s		5.0				5.0		5.1				
Max Green Setting (Gmax), s		20.0				20.0		7.0				
Max Q Clear Time (g_c+I1), s		9.7				8.5		8.9				
Green Ext Time (p_c), s		5.2				5.6		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				21.4								
HCM 2010 LOS				C								
Notes												

HCM 2010 Signalized Intersection Summary
 8: Anaheim Blvd & Anaheim Way






























10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	30	30	420	205	1040	0	0	1910	140
Future Volume (veh/h)	0	0	0	30	30	420	205	1040	0	0	1910	140
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1700	1700	1700	1700	1700	0	0	1700	1700
Adj Flow Rate, veh/h				32	32	442	216	1095	0	0	2011	0
Adj No. of Lanes				0	2	1	2	3	0	0	3	1
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				271	826	471	273	2738	0	0	2173	677
Arrive On Green				0.33	0.33	0.33	0.09	0.59	0.00	0.00	0.47	0.00
Sat Flow, veh/h				829	2529	1442	3141	4794	0	0	4794	1445
Grp Volume(v), veh/h				64	0	442	216	1095	0	0	2011	0
Grp Sat Flow(s),veh/h/ln				1659	1700	1442	1570	1547	0	0	1547	1445
Q Serve(g_s), s				3.2	0.0	35.7	8.1	15.2	0.0	0.0	48.8	0.0
Cycle Q Clear(g_c), s				3.2	0.0	35.7	8.1	15.2	0.0	0.0	48.8	0.0
Prop In Lane				0.50		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				542	555	471	273	2738	0	0	2173	677
V/C Ratio(X)				0.12	0.00	0.94	0.79	0.40	0.00	0.00	0.93	0.00
Avail Cap(c_a), veh/h				733	751	637	754	2738	0	0	2173	677
HCM Platoon Ratio				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	0.59	0.59	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				28.3	0.0	39.2	53.7	13.2	0.0	0.0	29.9	0.0
Incr Delay (d2), s/veh				0.1	0.0	16.6	1.2	0.3	0.0	0.0	8.3	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
%ile BackOfQ(50%),veh/ln				1.5	0.0	16.4	3.6	6.6	0.0	0.0	22.3	0.0
LnGrp Delay(d),s/veh				28.3	0.0	55.9	54.9	13.5	0.0	0.0	38.2	0.0
LnGrp LOS				C		E	D	B			D	
Approach Vol, veh/h					506			1311			2011	
Approach Delay, s/veh					52.4			20.3			38.2	
Approach LOS					D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		75.8			14.6	61.2		44.2				
Change Period (Y+Rc), s		5.0			* 4.2	5.0		5.0				
Max Green Setting (Gmax), s		57.0			* 29	24.0		53.0				
Max Q Clear Time (g_c+I1), s		17.2			10.1	50.8		37.7				
Green Ext Time (p_c), s		13.2			0.3	0.0		1.0				
Intersection Summary												
HCM 2010 Ctrl Delay				33.9								
HCM 2010 LOS				C								
Notes												

HCM 2010 Signalized Intersection Summary













9: Anaheim Blvd & Manchester Ave/Manchester Ave/I-5 SB On

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			  		 	  	
Traffic Volume (veh/h)	300	745	245	0	485	0	65	945	10	580	1110	250
Future Volume (veh/h)	300	745	245	0	485	0	65	945	10	580	1110	250
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.97	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1700	1700	1700	0	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	316	784	258	0	511	0	68	995	11	611	1168	263
Adj No. of Lanes	2	4	0	0	3	0	1	3	0	2	3	0
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	377	1321	421	0	629	0	98	1554	17	678	1845	415
Arrive On Green	0.12	0.30	0.30	0.00	0.14	0.00	0.06	0.33	0.33	0.22	0.49	0.49
Sat Flow, veh/h	3141	4420	1407	0	4947	0	1619	4731	52	3141	3773	849
Grp Volume(v), veh/h	316	778	264	0	511	0	68	651	355	611	958	473
Grp Sat Flow(s),veh/h/ln	1570	1462	1442	0	1547	0	1619	1547	1689	1570	1547	1528
Q Serve(g_s), s	9.5	14.7	15.3	0.0	10.4	0.0	4.0	17.3	17.4	18.4	22.2	22.2
Cycle Q Clear(g_c), s	9.5	14.7	15.3	0.0	10.4	0.0	4.0	17.3	17.4	18.4	22.2	22.2
Prop In Lane	1.00		0.98	0.00		0.00	1.00		0.03	1.00		0.56
Lane Grp Cap(c), veh/h	377	1311	431	0	629	0	98	1016	555	678	1513	747
V/C Ratio(X)	0.84	0.59	0.61	0.00	0.81	0.00	0.69	0.64	0.64	0.90	0.63	0.63
Avail Cap(c_a), veh/h	421	1492	490	0	756	0	122	1016	555	771	1513	747
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)	0.82	0.82	0.82	0.00	1.00	0.00	1.00	1.00	1.00	0.55	0.55	0.55
Uniform Delay (d), s/veh	41.7	29.0	29.2	0.0	40.7	0.0	44.7	27.7	27.7	37.0	18.3	18.3
Incr Delay (d2), s/veh	9.6	0.4	1.5	0.0	4.7	0.0	10.0	3.1	5.6	7.3	1.1	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	6.0	6.3	0.0	4.7	0.0	2.1	7.8	9.0	8.7	9.7	9.8
LnGrp Delay(d),s/veh	51.4	29.4	30.7	0.0	45.5	0.0	54.6	30.8	33.3	44.3	19.5	20.6
LnGrp LOS	D	C	C		D		D	C	C	D	B	C
Approach Vol, veh/h		1358			511			1074			2042	
Approach Delay, s/veh		34.8			45.5			33.1			27.2	
Approach LOS		C			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.2	36.9		34.0	10.6	52.4	15.9	18.1				
Change Period (Y+Rc), s	* 5.2	5.0		5.0	* 4.7	5.0	* 4.2	5.0				
Max Green Setting (Gmax), s	* 24	25.0		33.0	* 7.3	42.0	* 13	15.8				
Max Q Clear Time (g_c+I1), s	20.4	19.4		17.3	6.0	24.2	11.5	12.4				
Green Ext Time (p_c), s	0.6	3.5		6.1	0.0	11.5	0.1	0.8				
Intersection Summary												
HCM 2010 Ctrl Delay				32.4								
HCM 2010 LOS				C								
Notes												



















HCM 2010 Signalized Intersection Summary
 11: I-5 SB Ramps & Katella Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑↑		↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	0	1575	965	285	1990	0	30	0	740	395	320	15
Future Volume (veh/h)	0	1575	965	285	1990	0	30	0	740	395	320	15
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.98
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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	1658	1016	300	2095	0	21	0	790	416	337	16
Adj No. of Lanes	0	3	1	2	4	0	1	0	2	2	2	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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1676	850	279	2905	0	387	0	690	328	337	148
Arrive On Green	0.00	0.36	0.36	0.18	0.99	0.00	0.24	0.00	0.24	0.10	0.10	0.10
Sat Flow, veh/h	0	4794	1399	3141	6086	0	1619	0	2886	3141	3230	1421
Grp Volume(v), veh/h	0	1658	1016	300	2095	0	21	0	790	416	337	16
Grp Sat Flow(s),veh/h/ln	0	1547	1399	1570	1462	0	1619	0	1443	1570	1615	1421
Q Serve(g_s), s	0.0	32.0	32.5	8.0	0.8	0.0	0.9	0.0	21.5	9.4	9.4	0.9
Cycle Q Clear(g_c), s	0.0	32.0	32.5	8.0	0.8	0.0	0.9	0.0	21.5	9.4	9.4	0.9
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	1676	850	279	2905	0	387	0	690	328	337	148
V/C Ratio(X)	0.00	0.99	1.19	1.07	0.72	0.00	0.05	0.00	1.15	1.27	1.00	0.11
Avail Cap(c_a), veh/h	0	1676	850	279	2905	0	387	0	690	328	337	148
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.57	0.57	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	28.6	13.7	37.0	0.2	0.0	26.4	0.0	34.3	40.3	40.3	36.5
Incr Delay (d2), s/veh	0.0	19.6	99.1	62.3	0.9	0.0	0.3	0.0	82.0	142.6	48.7	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	16.6	44.4	5.8	0.3	0.0	0.4	0.0	16.4	10.6	6.4	0.4
LnGrp Delay(d),s/veh	0.0	48.2	112.8	99.3	1.1	0.0	26.7	0.0	116.2	182.9	89.0	36.6
LnGrp LOS		D	F	F	A		C		F	F	F	D
Approach Vol, veh/h		2674			2395			811			769	
Approach Delay, s/veh		72.7			13.4			113.9			138.7	
Approach LOS		E			B			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	12.2	37.8		26.0		50.0		14.0				
Change Period (Y+Rc), s	* 4.2	5.3		4.5		5.3		4.6				
Max Green Setting (Gmax), s	* 8	32.5		21.5		44.7		9.4				
Max Q Clear Time (g_c+I1), s	10.0	34.5		23.5		2.8		11.4				
Green Ext Time (p_c), s	0.0	0.0		0.0		31.2		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			64.0									
HCM 2010 LOS			E									
Notes												

HCM 2010 Signalized Intersection Summary
 12: I-5 NB Ramps & Katella Ave


























10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	2545	0	0	1200	90	865	545	660	0	0	0
Future Volume (veh/h)	125	2545	0	0	1200	90	865	545	660	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	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			
Adj Sat Flow, veh/h/ln	1700	1700	0	0	1700	1700	1700	1700	1700			
Adj Flow Rate, veh/h	132	2679	0	0	1263	95	1106	301	695			
Adj No. of Lanes	2	4	0	0	4	1	2	3	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	196	2469	0	0	2091	438	1439	1511	642			
Arrive On Green	0.12	0.84	0.00	0.00	0.31	0.31	0.44	0.44	0.44			
Sat Flow, veh/h	3141	6086	0	0	6800	1423	3238	3400	1445			
Grp Volume(v), veh/h	132	2679	0	0	1263	95	1106	301	695			
Grp Sat Flow(s),veh/h/ln	1570	1462	0	0	1700	1423	1619	1700	1445			
Q Serve(g_s), s	3.6	38.0	0.0	0.0	14.2	4.5	25.9	4.9	40.0			
Cycle Q Clear(g_c), s	3.6	38.0	0.0	0.0	14.2	4.5	25.9	4.9	40.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	196	2469	0	0	2091	438	1439	1511	642			
V/C Ratio(X)	0.67	1.08	0.00	0.00	0.60	0.22	0.77	0.20	1.08			
Avail Cap(c_a), veh/h	213	2469	0	0	2091	438	1439	1511	642			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	38.5	7.0	0.0	0.0	26.5	23.1	21.1	15.2	25.0			
Incr Delay (d2), s/veh	0.5	39.1	0.0	0.0	1.3	1.1	2.4	0.0	59.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.6	20.1	0.0	0.0	6.9	1.9	12.0	2.3	26.5			
LnGrp Delay(d),s/veh	39.0	46.1	0.0	0.0	27.8	24.3	23.5	15.3	84.8			
LnGrp LOS	D	F			C	C	C	B	F			
Approach Vol, veh/h		2811			1358			2102				
Approach Delay, s/veh		45.7			27.6			42.6				
Approach LOS		D			C			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		44.0			10.3	33.7		46.0				
Change Period (Y+Rc), s		6.0			* 4.7	6.0		6.0				
Max Green Setting (Gmax), s		38.0			* 6.1	27.2		40.0				
Max Q Clear Time (g_c+I1), s		40.0			5.6	16.2		42.0				
Green Ext Time (p_c), s		0.0			0.0	7.6		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			40.7									
HCM 2010 LOS			D									
Notes												

HCM 2010 Signalized Intersection Summary

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave



















10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	0	960	20	25	805	0	10	0	75	360	20	160
Future Volume (veh/h)	0	960	20	25	805	0	10	0	75	360	20	160
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	0	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	1011	21	26	847	0	11	0	79	440	0	119
Adj No. of Lanes	0	3	0	1	3	0	1	0	1	2	0	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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1990	41	301	1975	0	0	0	0	482	0	215
Arrive On Green	0.00	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	0	4829	97	554	4794	0		0		3238	0	1445
Grp Volume(v), veh/h	0	669	363	26	847	0		0.0		440	0	119
Grp Sat Flow(s),veh/h/ln	0	1547	1679	554	1547	0				1619	0	1445
Q Serve(g_s), s	0.0	7.4	7.5	1.7	6.0	0.0				6.3	0.0	3.6
Cycle Q Clear(g_c), s	0.0	7.4	7.5	9.2	6.0	0.0				6.3	0.0	3.6
Prop In Lane	0.00		0.06	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1317	715	301	1975	0				482	0	215
V/C Ratio(X)	0.00	0.51	0.51	0.09	0.43	0.00				0.91	0.00	0.55
Avail Cap(c_a), veh/h	0	1317	715	301	1975	0				482	0	215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.27	0.27	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	9.9	9.9	13.3	9.5	0.0				19.7	0.0	18.5
Incr Delay (d2), s/veh	0.0	1.4	2.6	0.2	0.2	0.0				24.1	0.0	9.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.4	3.9	0.3	2.5	0.0				4.4	0.0	2.0
LnGrp Delay(d),s/veh	0.0	11.3	12.5	13.4	9.7	0.0				43.8	0.0	28.4
LnGrp LOS		B	B	B	A					D		C
Approach Vol, veh/h		1032			873							559
Approach Delay, s/veh		11.7			9.8							40.5
Approach LOS		B			A							D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.0				25.0		12.1				
Change Period (Y+Rc), s		5.0				5.0		5.1				
Max Green Setting (Gmax), s		20.0				20.0		7.0				
Max Q Clear Time (g_c+I1), s		11.2				9.5		8.3				
Green Ext Time (p_c), s		4.6				5.8		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				17.6								
HCM 2010 LOS				B								
Notes												

HCM 2010 Signalized Intersection Summary

8: Anaheim Blvd & Anaheim Way





















10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	80	740	927	360	1450	0	0	1525	390
Future Volume (veh/h)	0	0	0	80	740	927	360	1450	0	0	1525	390
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1700	1700	1700	1700	1700	0	0	1700	1700
Adj Flow Rate, veh/h				84	779	976	379	1526	0	0	1605	0
Adj No. of Lanes				0	2	1	2	3	0	0	3	1
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				136	1331	626	895	3295	0	0	1779	554
Arrive On Green				0.43	0.43	0.43	0.28	0.71	0.00	0.00	0.38	0.00
Sat Flow, veh/h				313	3071	1445	3141	4794	0	0	4794	1445
Grp Volume(v), veh/h				451	412	976	379	1526	0	0	1605	0
Grp Sat Flow(s),veh/h/ln				1684	1700	1445	1570	1547	0	0	1547	1445
Q Serve(g_s), s				24.9	21.7	52.0	11.8	17.0	0.0	0.0	39.1	0.0
Cycle Q Clear(g_c), s				24.9	21.7	52.0	11.8	17.0	0.0	0.0	39.1	0.0
Prop In Lane				0.19		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				730	737	626	895	3295	0	0	1779	554
V/C Ratio(X)				0.62	0.56	1.56	0.42	0.46	0.00	0.00	0.90	0.00
Avail Cap(c_a), veh/h				730	737	626	895	3295	0	0	1779	554
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.09	0.09	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				26.3	25.4	34.0	34.9	7.5	0.0	0.0	34.9	0.0
Incr Delay (d2), s/veh				1.3	0.7	259.2	0.0	0.0	0.0	0.0	7.9	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
%ile BackOfQ(50%),veh/ln				11.8	10.3	65.8	5.1	7.2	0.0	0.0	17.9	0.0
LnGrp Delay(d),s/veh				27.6	26.1	293.2	34.9	7.6	0.0	0.0	42.8	0.0
LnGrp LOS				C	C	F	C	A			D	
Approach Vol, veh/h					1839			1905			1605	
Approach Delay, s/veh					168.2			13.0			42.8	
Approach LOS					F			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		91.0			40.0	51.0		57.0				
Change Period (Y+Rc), s		5.0			5.0	* 5		5.0				
Max Green Setting (Gmax), s		58.0			7.8	* 46		52.0				
Max Q Clear Time (g_c+I1), s		19.0			13.8	41.1		54.0				
Green Ext Time (p_c), s		20.4			0.0	4.2		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay					75.3							
HCM 2010 LOS					E							
Notes												

HCM 2010 Signalized Intersection Summary













9: Anaheim Blvd & Manchester Ave/Manchester Ave/I-5 SB On

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	540	660	195	0	525	0	160	1270	5	590	860	155
Future Volume (veh/h)	540	660	195	0	525	0	160	1270	5	590	860	155
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.97	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1700	1700	1700	0	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	568	695	205	0	553	0	168	1337	5	621	905	163
Adj No. of Lanes	2	4	0	0	3	0	1	3	0	2	3	0
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	576	1595	451	0	574	0	197	1378	5	641	1484	266
Arrive On Green	0.18	0.35	0.35	0.00	0.12	0.00	0.12	0.29	0.29	0.20	0.38	0.38
Sat Flow, veh/h	3141	4550	1288	0	4947	0	1619	4772	18	3141	3944	707
Grp Volume(v), veh/h	568	669	231	0	553	0	168	867	475	621	709	359
Grp Sat Flow(s),veh/h/ln	1570	1462	1452	0	1547	0	1619	1547	1696	1570	1547	1557
Q Serve(g_s), s	17.5	11.3	11.9	0.0	11.5	0.0	9.9	26.9	26.9	19.0	18.0	18.1
Cycle Q Clear(g_c), s	17.5	11.3	11.9	0.0	11.5	0.0	9.9	26.9	26.9	19.0	18.0	18.1
Prop In Lane	1.00		0.89	0.00		0.00	1.00		0.01	1.00		0.45
Lane Grp Cap(c), veh/h	576	1537	509	0	574	0	197	893	490	641	1164	586
V/C Ratio(X)	0.99	0.44	0.45	0.00	0.96	0.00	0.85	0.97	0.97	0.97	0.61	0.61
Avail Cap(c_a), veh/h	576	1537	509	0	574	0	232	893	490	641	1164	586
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.80	0.00	1.00	0.00	1.00	1.00	1.00	0.31	0.31	0.31
Uniform Delay (d), s/veh	39.5	24.1	24.3	0.0	42.3	0.0	41.8	34.1	34.1	38.3	24.5	24.5
Incr Delay (d2), s/veh	29.8	0.2	0.5	0.0	28.3	0.0	21.5	23.8	34.0	13.1	0.7	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.0	4.6	4.8	0.0	6.4	0.0	5.6	14.4	17.2	9.4	7.8	8.0
LnGrp Delay(d),s/veh	69.2	24.3	24.8	0.0	70.5	0.0	63.3	57.9	68.1	51.4	25.2	26.0
LnGrp LOS	E	C	C		E		E	E	E	D	C	C
Approach Vol, veh/h		1468			553			1510			1689	
Approach Delay, s/veh		41.8			70.5			61.7			35.0	
Approach LOS		D			E			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.0	33.0		39.0	16.5	41.5	22.0	17.0				
Change Period (Y+Rc), s	* 5.2	5.0		5.0	* 4.7	5.0	* 4.2	5.0				
Max Green Setting (Gmax), s	* 20	28.0		34.0	* 14	34.4	* 18	12.0				
Max Q Clear Time (g_c+I1), s	21.0	28.9		13.9	11.9	20.1	19.5	13.5				
Green Ext Time (p_c), s	0.0	0.0		5.8	0.1	7.5	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			48.4									
HCM 2010 LOS			D									
Notes												



















HCM 2010 Signalized Intersection Summary
 11: I-5 SB Ramps & Katella Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑↑		↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	0	1490	780	480	2825	0	60	0	380	355	220	35
Future Volume (veh/h)	0	1490	780	480	2825	0	60	0	380	355	220	35
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.98
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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	1568	821	505	2974	0	42	0	422	374	232	37
Adj No. of Lanes	0	3	1	2	4	0	1	0	2	2	2	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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1395	672	551	3057	0	279	0	497	455	468	206
Arrive On Green	0.00	0.30	0.30	0.35	1.00	0.00	0.17	0.00	0.17	0.14	0.14	0.14
Sat Flow, veh/h	0	4794	1407	3141	6086	0	1619	0	2885	3141	3230	1423
Grp Volume(v), veh/h	0	1568	821	505	2974	0	42	0	422	374	232	37
Grp Sat Flow(s),veh/h/ln	0	1547	1407	1570	1462	0	1619	0	1442	1570	1615	1423
Q Serve(g_s), s	0.0	27.1	27.1	13.8	0.0	0.0	2.0	0.0	12.8	10.4	6.0	2.1
Cycle Q Clear(g_c), s	0.0	27.1	27.1	13.8	0.0	0.0	2.0	0.0	12.8	10.4	6.0	2.1
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	1395	672	551	3057	0	279	0	497	455	468	206
V/C Ratio(X)	0.00	1.12	1.22	0.92	0.97	0.00	0.15	0.00	0.85	0.82	0.50	0.18
Avail Cap(c_a), veh/h	0	1395	672	551	3057	0	279	0	497	537	553	243
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.09	0.09	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	31.5	19.6	28.6	0.0	0.0	31.7	0.0	36.1	37.3	35.4	33.8
Incr Delay (d2), s/veh	0.0	65.8	113.1	2.5	1.7	0.0	1.1	0.0	16.4	7.3	0.3	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	0.0	20.0	37.7	6.1	0.4	0.0	1.0	0.0	6.2	5.0	2.7	0.8
LnGrp Delay(d),s/veh	0.0	97.2	132.7	31.1	1.7	0.0	32.8	0.0	52.6	44.7	35.7	33.9
LnGrp LOS		F	F	C	A		C		D	D	D	C
Approach Vol, veh/h		2389			3479				464		643	
Approach Delay, s/veh		109.4			5.9				50.8		40.8	
Approach LOS		F			A				D		D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	20.0	32.4		20.0		52.4		17.6				
Change Period (Y+Rc), s	* 4.2	5.3		4.5		5.3		4.6				
Max Green Setting (Gmax), s	* 16	24.7		15.5		44.7		15.4				
Max Q Clear Time (g_c+I1), s	15.8	29.1		14.8		2.0		12.4				
Green Ext Time (p_c), s	0.0	0.0		0.1		40.5		0.6				
Intersection Summary												
HCM 2010 Ctrl Delay			47.6									
HCM 2010 LOS			D									
Notes												

HCM 2010 Signalized Intersection Summary
 12: I-5 NB Ramps & Katella Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	2120	0	0	2350	430	1070	1325	310	0	0	0
Future Volume (veh/h)	105	2120	0	0	2350	430	1070	1325	310	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1700	1700	0	0	1700	1700	1700	1700	1700			
Adj Flow Rate, veh/h	111	2232	0	0	2474	453	569	2174	326			
Adj No. of Lanes	2	4	0	0	4	1	1	4	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	174	2526	0	0	2205	461	704	2510	374			
Arrive On Green	0.11	0.86	0.00	0.00	0.32	0.32	0.43	0.43	0.43			
Sat Flow, veh/h	3141	6086	0	0	6800	1423	1619	5774	860			
Grp Volume(v), veh/h	111	2232	0	0	2474	453	569	1918	582			
Grp Sat Flow(s),veh/h/ln	1570	1462	0	0	1700	1423	1619	1700	1534			
Q Serve(g_s), s	3.0	19.7	0.0	0.0	29.2	28.4	27.6	30.7	31.1			
Cycle Q Clear(g_c), s	3.0	19.7	0.0	0.0	29.2	28.4	27.6	30.7	31.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.56			
Lane Grp Cap(c), veh/h	174	2526	0	0	2205	461	704	2217	667			
V/C Ratio(X)	0.64	0.88	0.00	0.00	1.12	0.98	0.81	0.87	0.87			
Avail Cap(c_a), veh/h	174	2526	0	0	2205	461	720	2267	682			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	39.1	4.8	0.0	0.0	30.4	30.2	22.2	23.1	23.2			
Incr Delay (d2), s/veh	0.5	0.5	0.0	0.0	61.7	37.7	6.3	3.6	11.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.3	6.9	0.0	0.0	23.1	15.9	13.4	14.9	15.2			
LnGrp Delay(d),s/veh	39.7	5.3	0.0	0.0	92.1	67.8	28.5	26.6	34.6			
LnGrp LOS	D	A			F	E	C	C	C			
Approach Vol, veh/h		2343			2927			3069				
Approach Delay, s/veh		6.9			88.3			28.5				
Approach LOS		A			F			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		44.9			9.7	35.2		45.1				
Change Period (Y+Rc), s		6.0			* 4.7	6.0		6.0				
Max Green Setting (Gmax), s		38.0			* 5	28.3		40.0				
Max Q Clear Time (g_c+I1), s		21.7			5.0	31.2		33.1				
Green Ext Time (p_c), s		14.6			0.0	0.0		6.0				
Intersection Summary												
HCM 2010 Ctrl Delay			43.4									
HCM 2010 LOS			D									
Notes												

Queues

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/05/2017



Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	926	21	858	21	53	223	219	190
v/c Ratio	0.47	0.11	0.43	0.12	0.18	0.97	0.96	0.52
Control Delay	10.5	9.8	10.3	20.8	1.3	80.8	78.0	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.5	9.8	10.3	20.8	1.3	80.8	78.0	9.5
Queue Length 50th (ft)	60	3	55	5	0	64	62	0
Queue Length 95th (ft)	87	14	80	20	0	#174	#182	45
Internal Link Dist (ft)	1148		509				920	
Turn Bay Length (ft)		155		150	150	480		350
Base Capacity (vph)	1979	199	1983	172	302	229	227	366
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.11	0.43	0.12	0.18	0.97	0.96	0.52

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

11: I-5 SB Ramps & Katella Ave

10/05/2017



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1658	1016	300	2095	29	393	389	416	337	16
v/c Ratio	0.99	1.14	1.08	0.72	0.08	0.88	0.84	1.27	1.00	0.06
Control Delay	49.3	92.2	107.4	21.6	27.4	40.2	35.7	179.7	91.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.3	92.2	107.4	21.6	27.4	40.2	35.7	179.7	91.4	0.4
Queue Length 50th (ft)	338	-449	-101	262	13	135	124	-155	102	0
Queue Length 95th (ft)	#453	#921	m#164	314	36	#323	#295	#247	#192	0
Internal Link Dist (ft)	812			868		2402			478	
Turn Bay Length (ft)			225				705	390		
Base Capacity (vph)	1675	895	278	2904	366	449	462	327	337	267
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	1.14	1.08	0.72	0.08	0.88	0.84	1.27	1.00	0.06

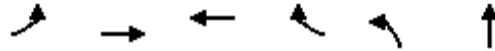
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues

12: I-5 NB Ramps & Katella Ave

10/05/2017



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	132	2679	1273	85	455	1725
v/c Ratio	0.61	1.05	0.73	0.20	0.81	1.18dr
Control Delay	44.2	52.1	30.8	5.9	35.3	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	52.1	30.8	5.9	35.3	25.0
Queue Length 50th (ft)	37	-487	201	0	262	245
Queue Length 95th (ft)	m37	m#485	246	35	#469	295
Internal Link Dist (ft)		868	1064			1268
Turn Bay Length (ft)	130			225	1000	
Base Capacity (vph)	218	2552	1736	426	581	2271
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.61	1.05	0.73	0.20	0.78	0.76

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Queues

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/05/2017



Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1032	26	847	11	79	208	209	151
v/c Ratio	0.52	0.15	0.43	0.06	0.26	0.91	0.92	0.45
Control Delay	11.0	11.0	10.2	19.8	2.7	66.4	69.4	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	11.0	10.2	19.8	2.7	66.4	69.4	8.8
Queue Length 50th (ft)	69	4	54	3	0	60	60	0
Queue Length 95th (ft)	100	17	80	14	5	#162	#173	37
Internal Link Dist (ft)	1111		501				1080	
Turn Bay Length (ft)		155		150	150	480		350
Base Capacity (vph)	1980	171	1983	172	302	229	226	338
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.15	0.43	0.06	0.26	0.91	0.92	0.45

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

11: I-5 SB Ramps & Katella Ave

10/05/2017



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1568	821	505	2974	57	202	204	374	232	37
v/c Ratio	1.18	1.14	0.90	0.99	0.22	0.52	0.50	0.77	0.46	0.11
Control Delay	120.8	99.9	41.5	32.4	34.5	10.9	9.8	47.8	37.5	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	120.8	99.9	41.5	32.4	34.5	10.9	9.8	47.8	37.5	0.7
Queue Length 50th (ft)	~407	~373	152	~389	29	3	0	105	63	0
Queue Length 95th (ft)	#501	#577	m118	m303	66	70	63	152	98	0
Internal Link Dist (ft)	812			868		2402			478	
Turn Bay Length (ft)			225					390		
Base Capacity (vph)	1328	722	568	3000	264	389	405	536	552	354
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.14	0.89	0.99	0.22	0.52	0.50	0.70	0.42	0.10

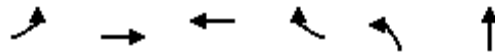
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues

12: I-5 NB Ramps & Katella Ave

10/05/2017



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	111	2232	2519	408	563	2284
v/c Ratio	0.64	0.90	1.46	0.96	0.97	0.97
Control Delay	46.8	33.0	236.3	60.4	57.0	37.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	33.0	236.3	60.4	57.0	37.3
Queue Length 50th (ft)	33	297	-616	225	372	377
Queue Length 95th (ft)	m36	m281	#698	#461	#646	#488
Internal Link Dist (ft)		868	1064			1230
Turn Bay Length (ft)	130			225	1000	
Base Capacity (vph)	174	2469	1729	425	581	2363
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.90	1.46	0.96	0.97	0.97

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

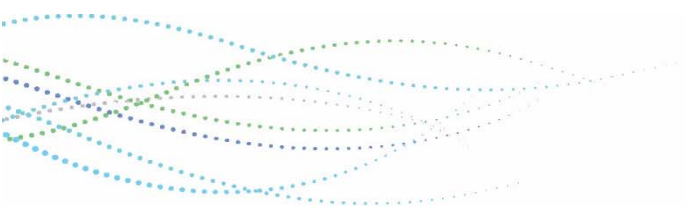
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.















General Plan Build Out Year 2035 With Project



HCM 2010 Signalized Intersection Summary
 4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑		↵		↵	↵	↕	↵
Traffic Volume (veh/h)	0	860	20	20	816	0	20	0	50	391	15	200
Future Volume (veh/h)	0	860	20	20	816	0	20	0	50	391	15	200
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	0	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	905	21	21	859	0	21	0	53	484	0	146
Adj No. of Lanes	0	3	0	1	3	0	1	0	1	2	0	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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1983	46	327	1975	0	0	0	0	482	0	215
Arrive On Green	0.00	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	0	4814	108	607	4794	0		0		3238	0	1445
Grp Volume(v), veh/h	0	600	326	21	859	0		0.0		484	0	146
Grp Sat Flow(s),veh/h/ln	0	1547	1675	607	1547	0				1619	0	1445
Q Serve(g_s), s	0.0	6.5	6.5	1.2	6.1	0.0				7.0	0.0	4.5
Cycle Q Clear(g_c), s	0.0	6.5	6.5	7.7	6.1	0.0				7.0	0.0	4.5
Prop In Lane	0.00		0.06	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1317	713	327	1975	0				482	0	215
V/C Ratio(X)	0.00	0.46	0.46	0.06	0.43	0.00				1.00	0.00	0.68
Avail Cap(c_a), veh/h	0	1317	713	327	1975	0				482	0	215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.61	0.61	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	9.6	9.6	12.4	9.5	0.0				20.0	0.0	18.9
Incr Delay (d2), s/veh	0.0	1.1	2.1	0.2	0.4	0.0				41.9	0.0	15.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.0	3.4	0.2	2.6	0.0				5.9	0.0	2.7
LnGrp Delay(d),s/veh	0.0	10.8	11.7	12.6	9.9	0.0				61.9	0.0	34.8
LnGrp LOS		B	B	B	A					F		C
Approach Vol, veh/h		926			880							630
Approach Delay, s/veh		11.1			10.0							55.6
Approach LOS		B			B							E
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.0				25.0		12.1				
Change Period (Y+Rc), s		5.0				5.0		5.1				
Max Green Setting (Gmax), s		20.0				20.0		7.0				
Max Q Clear Time (g_c+I1), s		9.7				8.5		9.0				
Green Ext Time (p_c), s		5.2				5.6		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				22.2								
HCM 2010 LOS				C								
Notes												

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑↑	↑↑↑	
Traffic Vol, veh/h	0	48	0	1381	2050	53
Future Vol, veh/h	0	48	0	1381	2050	53
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, %	0	0	0	0	0	0
Mvmt Flow	0	51	0	1454	2158	56



















Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	-	1107	-	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.1	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-
Pot Cap-1 Maneuver	0	179	0	-	-
Stage 1	0	-	0	-	-
Stage 2	0	-	0	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	179	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	32.8	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	179	-	-
HCM Lane V/C Ratio	-	0.282	-	-
HCM Control Delay (s)	-	32.8	-	-
HCM Lane LOS	-	D	-	-
HCM 95th %tile Q(veh)	-	1.1	-	-

HCM 2010 Signalized Intersection Summary
 8: Anaheim Blvd & Anaheim Way




















10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	30	30	432	205	1070	0	0	1948	150
Future Volume (veh/h)	0	0	0	30	30	432	205	1070	0	0	1948	150
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1700	1700	1700	1700	1700	0	0	1700	1700
Adj Flow Rate, veh/h				32	32	455	216	1126	0	0	2051	0
Adj No. of Lanes				0	2	1	2	3	0	0	3	1
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				278	848	484	273	2698	0	0	2133	664
Arrive On Green				0.34	0.34	0.34	0.09	0.58	0.00	0.00	0.46	0.00
Sat Flow, veh/h				829	2529	1442	3141	4794	0	0	4794	1445
Grp Volume(v), veh/h				64	0	455	216	1126	0	0	2051	0
Grp Sat Flow(s),veh/h/ln				1659	1700	1442	1570	1547	0	0	1547	1445
Q Serve(g_s), s				3.2	0.0	36.8	8.1	16.1	0.0	0.0	51.4	0.0
Cycle Q Clear(g_c), s				3.2	0.0	36.8	8.1	16.1	0.0	0.0	51.4	0.0
Prop In Lane				0.50		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				556	570	484	273	2698	0	0	2133	664
V/C Ratio(X)				0.12	0.00	0.94	0.79	0.42	0.00	0.00	0.96	0.00
Avail Cap(c_a), veh/h				733	751	637	754	2698	0	0	2133	664
HCM Platoon Ratio				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	0.56	0.56	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				27.6	0.0	38.7	53.7	13.9	0.0	0.0	31.4	0.0
Incr Delay (d2), s/veh				0.0	0.0	17.6	1.1	0.3	0.0	0.0	12.3	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
%ile BackOfQ(50%),veh/ln				1.5	0.0	17.0	3.6	6.9	0.0	0.0	24.3	0.0
LnGrp Delay(d),s/veh				27.6	0.0	56.4	54.8	14.1	0.0	0.0	43.7	0.0
LnGrp LOS				C		E	D	B			D	
Approach Vol, veh/h					519			1342			2051	
Approach Delay, s/veh					52.8			20.7			43.7	
Approach LOS					D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		74.8			14.6	60.1		45.2				
Change Period (Y+Rc), s		5.0			* 4.2	5.0		5.0				
Max Green Setting (Gmax), s		57.0			* 29	24.0		53.0				
Max Q Clear Time (g_c+I1), s		18.1			10.1	53.4		38.8				
Green Ext Time (p_c), s		13.6			0.3	0.0		1.1				
Intersection Summary												
HCM 2010 Ctrl Delay				37.0								
HCM 2010 LOS				D								
Notes												

HCM 2010 Signalized Intersection Summary

9: Anaheim Blvd & Manchester Ave/Manchester Ave/I-5 SB On

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	306	745	245	0	485	0	65	958	10	603	1125	251
Future Volume (veh/h)	306	745	245	0	485	0	65	958	10	603	1125	251
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.97	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1700	1700	1700	0	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	322	784	258	0	511	0	68	1008	11	635	1184	264
Adj No. of Lanes	2	4	0	0	3	0	1	3	0	2	3	0
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	383	1329	423	0	628	0	98	1514	17	700	1842	411
Arrive On Green	0.12	0.30	0.30	0.00	0.14	0.00	0.06	0.32	0.32	0.22	0.49	0.49
Sat Flow, veh/h	3141	4420	1407	0	4947	0	1619	4732	52	3141	3781	843
Grp Volume(v), veh/h	322	778	264	0	511	0	68	659	360	635	969	479
Grp Sat Flow(s),veh/h/ln	1570	1462	1442	0	1547	0	1619	1547	1689	1570	1547	1529
Q Serve(g_s), s	9.7	14.6	15.2	0.0	10.4	0.0	4.0	17.9	17.9	19.1	22.7	22.7
Cycle Q Clear(g_c), s	9.7	14.6	15.2	0.0	10.4	0.0	4.0	17.9	17.9	19.1	22.7	22.7
Prop In Lane	1.00		0.98	0.00		0.00	1.00		0.03	1.00		0.55
Lane Grp Cap(c), veh/h	383	1318	433	0	628	0	98	990	540	700	1508	745
V/C Ratio(X)	0.84	0.59	0.61	0.00	0.81	0.00	0.69	0.67	0.67	0.91	0.64	0.64
Avail Cap(c_a), veh/h	424	1492	490	0	751	0	122	990	540	771	1508	745
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)	0.81	0.81	0.81	0.00	1.00	0.00	1.00	1.00	1.00	0.52	0.52	0.52
Uniform Delay (d), s/veh	41.7	28.8	29.1	0.0	40.7	0.0	44.7	28.5	28.5	36.7	18.6	18.6
Incr Delay (d2), s/veh	9.9	0.4	1.5	0.0	4.9	0.0	10.0	3.5	6.4	7.7	1.1	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	6.0	6.2	0.0	4.7	0.0	2.1	8.1	9.3	9.0	9.9	10.0
LnGrp Delay(d),s/veh	51.5	29.2	30.5	0.0	45.6	0.0	54.6	32.0	34.9	44.4	19.7	20.8
LnGrp LOS	D	C	C		D		D	C	C	D	B	C
Approach Vol, veh/h		1364			511			1087			2083	
Approach Delay, s/veh		34.7			45.6			34.4			27.5	
Approach LOS		C			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.8	36.0		34.2	10.6	52.3	16.0	18.1				
Change Period (Y+Rc), s	* 5.2	5.0		5.0	* 4.7	5.0	* 4.2	5.0				
Max Green Setting (Gmax), s	* 24	25.0		33.0	* 7.3	42.0	* 13	15.7				
Max Q Clear Time (g_c+I1), s	21.1	19.9		17.2	6.0	24.7	11.7	12.4				
Green Ext Time (p_c), s	0.5	3.2		6.1	0.0	11.4	0.1	0.7				
Intersection Summary												
HCM 2010 Ctrl Delay				32.8								
HCM 2010 LOS				C								
Notes												



















HCM 2010 Signalized Intersection Summary
 11: I-5 SB Ramps & Katella Ave

10/09/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑↑		↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	0	1580	965	285	1990	0	30	0	740	395	327	15
Future Volume (veh/h)	0	1580	965	285	1990	0	30	0	740	395	327	15
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.98
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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	1663	1016	300	2095	0	21	0	790	416	344	16
Adj No. of Lanes	0	3	1	2	4	0	1	0	2	2	2	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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1676	850	279	2905	0	387	0	690	328	337	148
Arrive On Green	0.00	0.36	0.36	0.18	0.99	0.00	0.24	0.00	0.24	0.10	0.10	0.10
Sat Flow, veh/h	0	4794	1399	3141	6086	0	1619	0	2886	3141	3230	1421
Grp Volume(v), veh/h	0	1663	1016	300	2095	0	21	0	790	416	344	16
Grp Sat Flow(s),veh/h/ln	0	1547	1399	1570	1462	0	1619	0	1443	1570	1615	1421
Q Serve(g_s), s	0.0	32.1	32.5	8.0	0.8	0.0	0.9	0.0	21.5	9.4	9.4	0.9
Cycle Q Clear(g_c), s	0.0	32.1	32.5	8.0	0.8	0.0	0.9	0.0	21.5	9.4	9.4	0.9
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	1676	850	279	2905	0	387	0	690	328	337	148
V/C Ratio(X)	0.00	0.99	1.19	1.07	0.72	0.00	0.05	0.00	1.15	1.27	1.02	0.11
Avail Cap(c_a), veh/h	0	1676	850	279	2905	0	387	0	690	328	337	148
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.57	0.57	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	28.6	13.7	37.0	0.2	0.0	26.4	0.0	34.3	40.3	40.3	36.5
Incr Delay (d2), s/veh	0.0	20.2	99.1	62.3	0.9	0.0	0.3	0.0	82.0	142.6	54.1	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	0.0	16.8	44.4	5.8	0.3	0.0	0.4	0.0	16.4	10.6	6.7	0.4
LnGrp Delay(d),s/veh	0.0	48.9	112.8	99.3	1.1	0.0	26.7	0.0	116.2	182.9	94.5	36.6
LnGrp LOS		D	F	F	A		C		F	F	F	D
Approach Vol, veh/h		2679			2395			811			776	
Approach Delay, s/veh		73.1			13.4			113.9			140.7	
Approach LOS		E			B			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	12.2	37.8		26.0		50.0		14.0				
Change Period (Y+Rc), s	* 4.2	5.3		4.5		5.3		4.6				
Max Green Setting (Gmax), s	* 8	32.5		21.5		44.7		9.4				
Max Q Clear Time (g_c+I1), s	10.0	34.5		23.5		2.8		11.4				
Green Ext Time (p_c), s	0.0	0.0		0.0		31.2		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				64.5								
HCM 2010 LOS				E								
Notes												













HCM 2010 Signalized Intersection Summary
 12: I-5 NB Ramps & Katella Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	2550	0	0	1200	92	865	555	660	0	0	0
Future Volume (veh/h)	125	2550	0	0	1200	92	865	555	660	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	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			
Adj Sat Flow, veh/h/ln	1700	1700	0	0	1700	1700	1700	1700	1700			
Adj Flow Rate, veh/h	132	2684	0	0	1263	97	1114	299	695			
Adj No. of Lanes	2	4	0	0	4	1	2	3	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	196	2469	0	0	2091	438	1439	1511	642			
Arrive On Green	0.12	0.84	0.00	0.00	0.31	0.31	0.44	0.44	0.44			
Sat Flow, veh/h	3141	6086	0	0	6800	1423	3238	3400	1445			
Grp Volume(v), veh/h	132	2684	0	0	1263	97	1114	299	695			
Grp Sat Flow(s),veh/h/ln	1570	1462	0	0	1700	1423	1619	1700	1445			
Q Serve(g_s), s	3.6	38.0	0.0	0.0	14.2	4.6	26.2	4.8	40.0			
Cycle Q Clear(g_c), s	3.6	38.0	0.0	0.0	14.2	4.6	26.2	4.8	40.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	196	2469	0	0	2091	438	1439	1511	642			
V/C Ratio(X)	0.67	1.09	0.00	0.00	0.60	0.22	0.77	0.20	1.08			
Avail Cap(c_a), veh/h	213	2469	0	0	2091	438	1439	1511	642			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	38.5	7.0	0.0	0.0	26.5	23.2	21.2	15.2	25.0			
Incr Delay (d2), s/veh	0.5	40.0	0.0	0.0	1.3	1.2	2.5	0.0	59.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.6	20.2	0.0	0.0	6.9	1.9	12.1	2.2	26.5			
LnGrp Delay(d),s/veh	39.0	47.0	0.0	0.0	27.8	24.3	23.7	15.3	84.8			
LnGrp LOS	D	F			C	C	C	B	F			
Approach Vol, veh/h		2816			1360			2108				
Approach Delay, s/veh		46.6			27.6			42.6				
Approach LOS		D			C			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		44.0			10.3	33.7		46.0				
Change Period (Y+Rc), s		6.0			* 4.7	6.0		6.0				
Max Green Setting (Gmax), s		38.0			* 6.1	27.2		40.0				
Max Q Clear Time (g_c+I1), s		40.0			5.6	16.2		42.0				
Green Ext Time (p_c), s		0.0			0.0	7.6		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				41.1								
HCM 2010 LOS				D								
Notes												

HCM 2010 Signalized Intersection Summary
 4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑		↵		↵	↵	↕	↵
Traffic Volume (veh/h)	0	963	20	25	806	0	10	0	75	368	20	160
Future Volume (veh/h)	0	963	20	25	806	0	10	0	75	368	20	160
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	0	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	1014	21	26	848	0	11	0	79	448	0	119
Adj No. of Lanes	0	3	0	1	3	0	1	0	1	2	0	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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1990	41	300	1975	0	0	0	0	482	0	215
Arrive On Green	0.00	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	0	4829	97	553	4794	0		0		3238	0	1445
Grp Volume(v), veh/h	0	671	364	26	848	0		0.0		448	0	119
Grp Sat Flow(s),veh/h/ln	0	1547	1679	553	1547	0				1619	0	1445
Q Serve(g_s), s	0.0	7.5	7.5	1.7	6.0	0.0				6.4	0.0	3.6
Cycle Q Clear(g_c), s	0.0	7.5	7.5	9.2	6.0	0.0				6.4	0.0	3.6
Prop In Lane	0.00		0.06	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1317	715	300	1975	0				482	0	215
V/C Ratio(X)	0.00	0.51	0.51	0.09	0.43	0.00				0.93	0.00	0.55
Avail Cap(c_a), veh/h	0	1317	715	300	1975	0				482	0	215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.15	0.15	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	9.9	9.9	13.3	9.5	0.0				19.8	0.0	18.5
Incr Delay (d2), s/veh	0.0	1.4	2.6	0.1	0.1	0.0				26.6	0.0	9.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.4	4.0	0.3	2.5	0.0				4.6	0.0	2.0
LnGrp Delay(d),s/veh	0.0	11.3	12.5	13.4	9.6	0.0				46.4	0.0	28.4
LnGrp LOS		B	B	B	A					D		C
Approach Vol, veh/h		1035			874							567
Approach Delay, s/veh		11.7			9.7							42.6
Approach LOS		B			A							D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.0				25.0		12.1				
Change Period (Y+Rc), s		5.0				5.0		5.1				
Max Green Setting (Gmax), s		20.0				20.0		7.0				
Max Q Clear Time (g_c+I1), s		11.2				9.5		8.4				
Green Ext Time (p_c), s		4.6				5.8		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				18.1								
HCM 2010 LOS				B								
Notes												

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑↑	↑↑↑	
Traffic Vol, veh/h	0	66	0	2595	1915	103
Future Vol, veh/h	0	66	0	2595	1915	103
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, %	0	0	0	0	0	0
Mvmt Flow	0	69	0	2732	2016	108



















Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	-	1062	-	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.1	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-
Pot Cap-1 Maneuver	0	191	0	-	-
Stage 1	0	-	0	-	-
Stage 2	0	-	0	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	191	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	34.2	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	191	-	-
HCM Lane V/C Ratio	-	0.364	-	-
HCM Control Delay (s)	-	34.2	-	-
HCM Lane LOS	-	D	-	-
HCM 95th %tile Q(veh)	-	1.6	-	-

HCM 2010 Signalized Intersection Summary
8: Anaheim Blvd & Anaheim Way





















10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	80	740	947	360	1502	0	0	1578	403
Future Volume (veh/h)	0	0	0	80	740	947	360	1502	0	0	1578	403
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1700	1700	1700	1700	1700	0	0	1700	1700
Adj Flow Rate, veh/h				84	779	997	379	1581	0	0	1661	0
Adj No. of Lanes				0	2	1	2	3	0	0	3	1
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				136	1331	626	895	3295	0	0	1779	554
Arrive On Green				0.43	0.43	0.43	0.28	0.71	0.00	0.00	0.38	0.00
Sat Flow, veh/h				313	3071	1445	3141	4794	0	0	4794	1445
Grp Volume(v), veh/h				451	412	997	379	1581	0	0	1661	0
Grp Sat Flow(s),veh/h/ln				1684	1700	1445	1570	1547	0	0	1547	1445
Q Serve(g_s), s				24.9	21.7	52.0	11.8	18.0	0.0	0.0	41.2	0.0
Cycle Q Clear(g_c), s				24.9	21.7	52.0	11.8	18.0	0.0	0.0	41.2	0.0
Prop In Lane				0.19		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				730	737	626	895	3295	0	0	1779	554
V/C Ratio(X)				0.62	0.56	1.59	0.42	0.48	0.00	0.00	0.93	0.00
Avail Cap(c_a), veh/h				730	737	626	895	3295	0	0	1779	554
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.09	0.09	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				26.3	25.4	34.0	34.9	7.7	0.0	0.0	35.5	0.0
Incr Delay (d2), s/veh				1.3	0.7	274.0	0.0	0.0	0.0	0.0	10.5	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
%ile BackOfQ(50%),veh/ln				11.8	10.3	68.4	5.1	7.6	0.0	0.0	19.3	0.0
LnGrp Delay(d),s/veh				27.6	26.1	308.0	34.9	7.7	0.0	0.0	46.1	0.0
LnGrp LOS				C	C	F	C	A			D	
Approach Vol, veh/h					1860			1960			1661	
Approach Delay, s/veh					177.6			13.0			46.1	
Approach LOS					F			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		91.0			40.0	51.0		57.0				
Change Period (Y+Rc), s		5.0			5.0	* 5		5.0				
Max Green Setting (Gmax), s		58.0			7.8	* 46		52.0				
Max Q Clear Time (g_c+I1), s		20.0			13.8	43.2		54.0				
Green Ext Time (p_c), s		21.1			0.0	2.4		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay					78.9							
HCM 2010 LOS					E							
Notes												

HCM 2010 Signalized Intersection Summary













9: Anaheim Blvd & Manchester Ave/Manchester Ave/I-5 SB On

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	551	660	195	0	525	0	160	1296	5	619	883	156
Future Volume (veh/h)	551	660	195	0	525	0	160	1296	5	619	883	156
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.97	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1700	1700	1700	0	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	580	695	205	0	553	0	168	1364	5	652	929	164
Adj No. of Lanes	2	4	0	0	3	0	1	3	0	2	3	0
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	583	1557	441	0	526	0	198	1402	5	651	1520	267
Arrive On Green	0.19	0.34	0.34	0.00	0.11	0.00	0.12	0.29	0.29	0.21	0.38	0.38
Sat Flow, veh/h	3141	4550	1288	0	4947	0	1619	4773	17	3141	3958	696
Grp Volume(v), veh/h	580	669	231	0	553	0	168	884	485	652	725	368
Grp Sat Flow(s),veh/h/ln	1570	1462	1452	0	1547	0	1619	1547	1696	1570	1547	1559
Q Serve(g_s), s	17.9	11.5	12.1	0.0	11.0	0.0	9.9	27.4	27.4	20.1	18.3	18.4
Cycle Q Clear(g_c), s	17.9	11.5	12.1	0.0	11.0	0.0	9.9	27.4	27.4	20.1	18.3	18.4
Prop In Lane	1.00		0.89	0.00		0.00	1.00		0.01	1.00		0.45
Lane Grp Cap(c), veh/h	583	1501	497	0	526	0	198	909	498	651	1188	599
V/C Ratio(X)	1.00	0.45	0.47	0.00	1.05	0.00	0.85	0.97	0.97	1.00	0.61	0.61
Avail Cap(c_a), veh/h	583	1501	497	0	526	0	275	909	498	651	1188	599
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.80	0.00	1.00	0.00	1.00	1.00	1.00	0.24	0.24	0.24
Uniform Delay (d), s/veh	39.5	24.8	25.0	0.0	43.0	0.0	41.7	33.9	33.9	38.5	24.0	24.1
Incr Delay (d2), s/veh	31.9	0.2	0.5	0.0	53.2	0.0	14.5	23.9	34.1	17.8	0.6	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	4.7	4.9	0.0	7.3	0.0	5.2	14.7	17.5	10.3	7.9	8.1
LnGrp Delay(d),s/veh	71.4	24.9	25.5	0.0	96.2	0.0	56.2	57.8	67.9	56.3	24.6	25.2
LnGrp LOS	E	C	C		F		E	E	E	F	C	C
Approach Vol, veh/h		1480			553			1537			1745	
Approach Delay, s/veh		43.2			96.2			60.8			36.6	
Approach LOS		D			F			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.3	33.5		38.2	16.6	42.2	22.2	16.0				
Change Period (Y+Rc), s	* 5.2	5.0		5.0	* 4.7	5.0	* 4.2	5.0				
Max Green Setting (Gmax), s	* 20	28.5		33.2	* 17	32.6	* 18	11.0				
Max Q Clear Time (g_c+I1), s	22.1	29.4		14.1	11.9	20.4	19.9	13.0				
Green Ext Time (p_c), s	0.0	0.0		5.7	0.1	6.9	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			51.6									
HCM 2010 LOS			D									
Notes												



















HCM 2010 Signalized Intersection Summary
 11: I-5 SB Ramps & Katella Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑↑		↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	0	1499	780	480	2825	0	60	0	380	355	226	35
Future Volume (veh/h)	0	1499	780	480	2825	0	60	0	380	355	226	35
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.98
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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	1578	821	505	2974	0	42	0	422	374	238	37
Adj No. of Lanes	0	3	1	2	4	0	1	0	2	2	2	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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1395	672	551	3057	0	279	0	497	456	469	206
Arrive On Green	0.00	0.30	0.30	0.35	1.00	0.00	0.17	0.00	0.17	0.15	0.15	0.15
Sat Flow, veh/h	0	4794	1407	3141	6086	0	1619	0	2885	3141	3230	1423
Grp Volume(v), veh/h	0	1578	821	505	2974	0	42	0	422	374	238	37
Grp Sat Flow(s),veh/h/ln	0	1547	1407	1570	1462	0	1619	0	1442	1570	1615	1423
Q Serve(g_s), s	0.0	27.0	27.0	13.8	0.0	0.0	2.0	0.0	12.8	10.4	6.1	2.1
Cycle Q Clear(g_c), s	0.0	27.0	27.0	13.8	0.0	0.0	2.0	0.0	12.8	10.4	6.1	2.1
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	1395	672	551	3057	0	279	0	497	456	469	206
V/C Ratio(X)	0.00	1.13	1.22	0.92	0.97	0.00	0.15	0.00	0.85	0.82	0.51	0.18
Avail Cap(c_a), veh/h	0	1395	672	551	3057	0	279	0	497	537	553	243
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.09	0.09	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	31.5	19.6	28.6	0.0	0.0	31.7	0.0	36.1	37.3	35.5	33.8
Incr Delay (d2), s/veh	0.0	68.8	113.2	2.5	1.7	0.0	1.1	0.0	16.4	7.3	0.3	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	0.0	20.4	37.7	6.1	0.4	0.0	1.0	0.0	6.2	5.0	2.8	0.8
LnGrp Delay(d),s/veh	0.0	100.2	132.8	31.1	1.7	0.0	32.8	0.0	52.6	44.6	35.8	33.9
LnGrp LOS		F	F	C	A		C		D	D	D	C
Approach Vol, veh/h		2399			3479			464			649	
Approach Delay, s/veh		111.4			5.9			50.8			40.8	
Approach LOS		F			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	20.0	32.3		20.0		52.3		17.7				
Change Period (Y+Rc), s	* 4.2	5.3		4.5		5.3		4.6				
Max Green Setting (Gmax), s	* 16	24.7		15.5		44.7		15.4				
Max Q Clear Time (g_c+I1), s	15.8	29.0		14.8		2.0		12.4				
Green Ext Time (p_c), s	0.0	0.0		0.1		40.5		0.6				
Intersection Summary												
HCM 2010 Ctrl Delay				48.3								
HCM 2010 LOS				D								
Notes												

HCM 2010 Signalized Intersection Summary
 12: I-5 NB Ramps & Katella Ave

10/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	2129	0	0	2350	436	1070	1338	310	0	0	0
Future Volume (veh/h)	105	2129	0	0	2350	436	1070	1338	310	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1700	1700	0	0	1700	1700	1700	1700	1700			
Adj Flow Rate, veh/h	111	2241	0	0	2474	459	572	2184	326			
Adj No. of Lanes	2	4	0	0	4	1	1	4	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	174	2523	0	0	2201	461	705	2515	373			
Arrive On Green	0.11	0.86	0.00	0.00	0.32	0.32	0.44	0.44	0.44			
Sat Flow, veh/h	3141	6086	0	0	6800	1423	1619	5778	856			
Grp Volume(v), veh/h	111	2241	0	0	2474	459	572	1926	584			
Grp Sat Flow(s),veh/h/ln	1570	1462	0	0	1700	1423	1619	1700	1535			
Q Serve(g_s), s	3.0	20.2	0.0	0.0	29.1	29.0	27.8	30.8	31.2			
Cycle Q Clear(g_c), s	3.0	20.2	0.0	0.0	29.1	29.0	27.8	30.8	31.2			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.56			
Lane Grp Cap(c), veh/h	174	2523	0	0	2201	461	705	2219	668			
V/C Ratio(X)	0.64	0.89	0.00	0.00	1.12	1.00	0.81	0.87	0.87			
Avail Cap(c_a), veh/h	174	2523	0	0	2201	461	720	2267	682			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	39.1	4.9	0.0	0.0	30.4	30.4	22.2	23.1	23.2			
Incr Delay (d2), s/veh	0.5	0.5	0.0	0.0	62.4	41.1	6.5	3.7	11.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.3	7.2	0.0	0.0	23.1	16.6	13.7	15.2	15.3			
LnGrp Delay(d),s/veh	39.7	5.4	0.0	0.0	92.8	71.5	28.7	26.7	34.8			
LnGrp LOS	D	A			F	E	C	C	C			
Approach Vol, veh/h		2352			2933			3082				
Approach Delay, s/veh		7.0			89.5			28.6				
Approach LOS		A			F			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		44.8			9.7	35.1		45.2				
Change Period (Y+Rc), s		6.0			* 4.7	6.0		6.0				
Max Green Setting (Gmax), s		38.0			* 5	28.3		40.0				
Max Q Clear Time (g_c+I1), s		22.2			5.0	31.1		33.2				
Green Ext Time (p_c), s		14.2			0.0	0.0		5.9				
Intersection Summary												
HCM 2010 Ctrl Delay			43.9									
HCM 2010 LOS			D									
Notes												

Queues

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/05/2017



Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	926	21	859	21	53	227	222	190
v/c Ratio	0.47	0.11	0.43	0.12	0.18	0.99	0.98	0.52
Control Delay	10.5	9.8	10.3	20.8	1.3	85.2	82.6	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.5	9.8	10.3	20.8	1.3	85.2	82.6	9.5
Queue Length 50th (ft)	60	3	55	5	0	66	64	0
Queue Length 95th (ft)	87	14	81	20	0	#178	#185	45
Internal Link Dist (ft)	1148		509				920	
Turn Bay Length (ft)		155		150	150	480		350
Base Capacity (vph)	1979	199	1983	172	302	229	226	366
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.11	0.43	0.12	0.18	0.99	0.98	0.52

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

11: I-5 SB Ramps & Katella Ave

10/05/2017



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1663	1016	300	2095	29	393	389	416	344	16
v/c Ratio	0.99	1.14	1.08	0.72	0.08	0.88	0.84	1.27	1.02	0.06
Control Delay	50.0	92.2	107.4	21.6	27.4	40.2	35.7	179.7	96.2	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	92.2	107.4	21.6	27.4	40.2	35.7	179.7	96.2	0.4
Queue Length 50th (ft)	339	-449	-101	262	13	135	124	-155	-107	0
Queue Length 95th (ft)	#455	#921	m#164	314	36	#323	#295	#247	#197	0
Internal Link Dist (ft)	812			868		2402			478	
Turn Bay Length (ft)			225				705	390		
Base Capacity (vph)	1675	895	278	2904	366	449	462	327	337	267
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	1.14	1.08	0.72	0.08	0.88	0.84	1.27	1.02	0.06

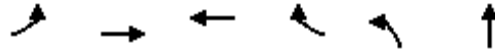
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues

12: I-5 NB Ramps & Katella Ave

10/05/2017



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	132	2684	1273	87	455	1735
v/c Ratio	0.62	1.05	0.73	0.20	0.81	1.18dr
Control Delay	44.2	53.2	30.8	6.1	35.2	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	53.2	30.8	6.1	35.2	25.1
Queue Length 50th (ft)	37	-489	201	0	262	247
Queue Length 95th (ft)	m37	m#486	246	38	#469	297
Internal Link Dist (ft)		868	1064			1268
Turn Bay Length (ft)	130			225	1000	
Base Capacity (vph)	218	2550	1735	426	581	2271
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.61	1.05	0.73	0.20	0.78	0.76

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Queues

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

10/05/2017



Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1035	26	848	11	79	213	212	151
v/c Ratio	0.52	0.15	0.43	0.06	0.26	0.93	0.94	0.45
Control Delay	11.0	11.0	10.2	19.8	2.7	70.8	72.2	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	11.0	10.2	19.8	2.7	70.8	72.2	8.8
Queue Length 50th (ft)	69	4	54	3	0	61	61	0
Queue Length 95th (ft)	100	17	80	14	5	#167	#176	37
Internal Link Dist (ft)	1111		501				1080	
Turn Bay Length (ft)		155		150	150	480		350
Base Capacity (vph)	1980	170	1983	172	302	229	226	338
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.15	0.43	0.06	0.26	0.93	0.94	0.45

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

11: I-5 SB Ramps & Katella Ave

10/05/2017



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1578	821	505	2974	57	202	204	374	238	37
v/c Ratio	1.19	1.14	0.90	0.99	0.22	0.52	0.50	0.77	0.48	0.11
Control Delay	123.9	101.3	41.5	32.4	34.5	10.9	9.8	47.8	37.8	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	123.9	101.3	41.5	32.4	34.5	10.9	9.8	47.8	37.8	0.7
Queue Length 50th (ft)	~412	~375	152	~389	29	3	0	105	64	0
Queue Length 95th (ft)	#505	#582	m118	m302	66	70	63	152	101	0
Internal Link Dist (ft)	812			868		2402			478	
Turn Bay Length (ft)			225					390		
Base Capacity (vph)	1328	720	568	3000	264	389	405	536	552	354
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.19	1.14	0.89	0.99	0.22	0.52	0.50	0.70	0.43	0.10

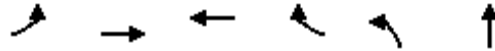
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues

12: I-5 NB Ramps & Katella Ave

10/05/2017



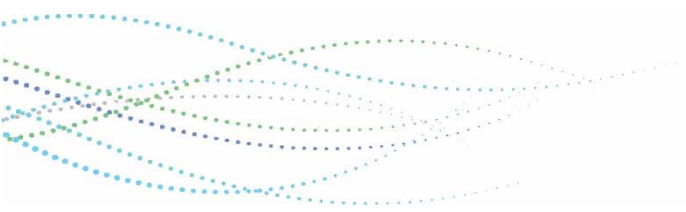
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	111	2241	2520	413	563	2297
v/c Ratio	0.64	0.91	1.46	0.97	0.97	0.97
Control Delay	46.5	33.1	236.5	63.0	57.0	38.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.5	33.1	236.5	63.0	57.0	38.3
Queue Length 50th (ft)	33	299	~616	230	372	381
Queue Length 95th (ft)	m36	m281	#699	#470	#646	#493
Internal Link Dist (ft)		868	1064			1230
Turn Bay Length (ft)	130			225	1000	
Base Capacity (vph)	174	2469	1729	425	581	2363
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.91	1.46	0.97	0.97	0.97

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

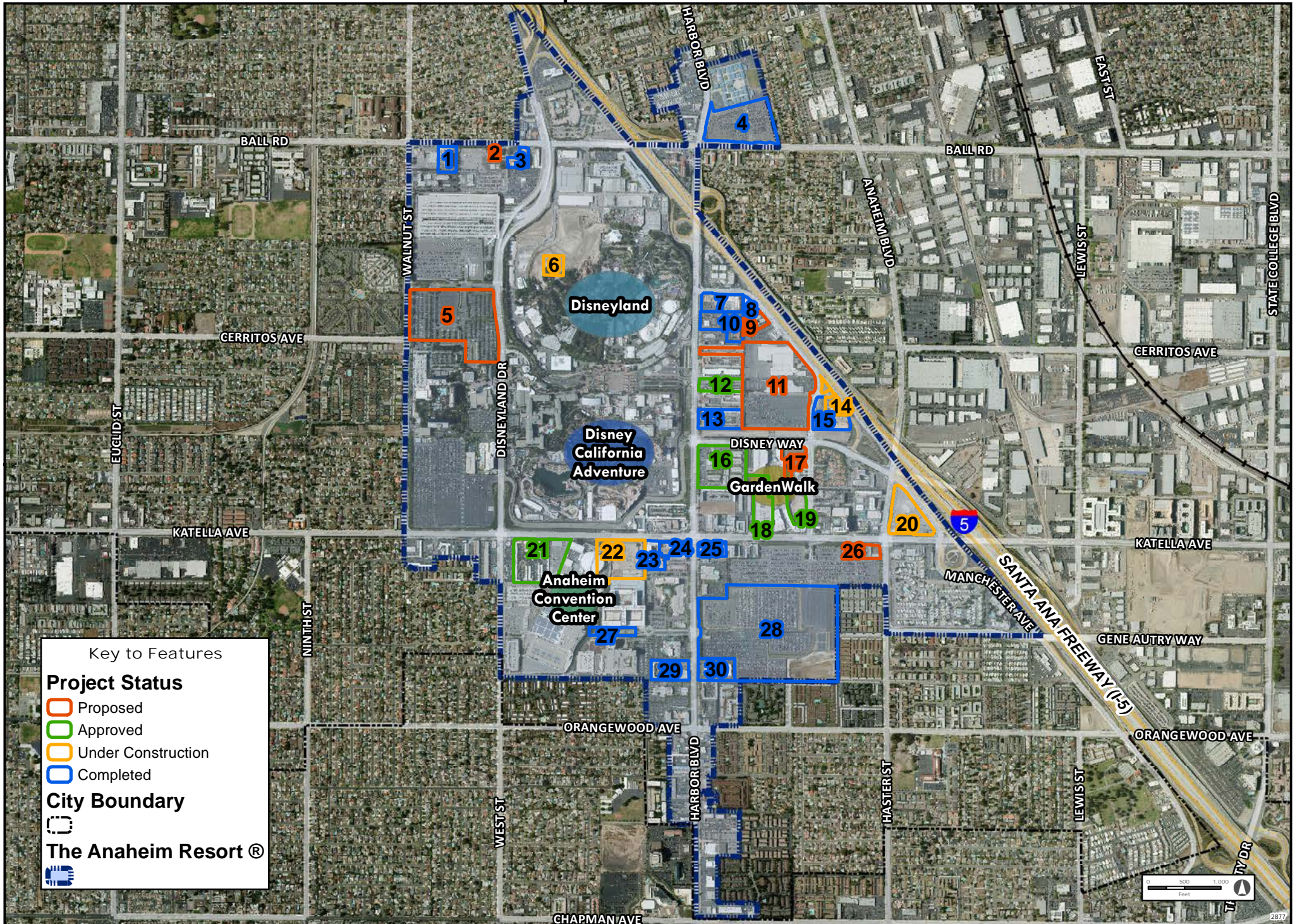


APPENDIX D – CUMULATIVE PROJECTS



The Anaheim Resort®: Development Status

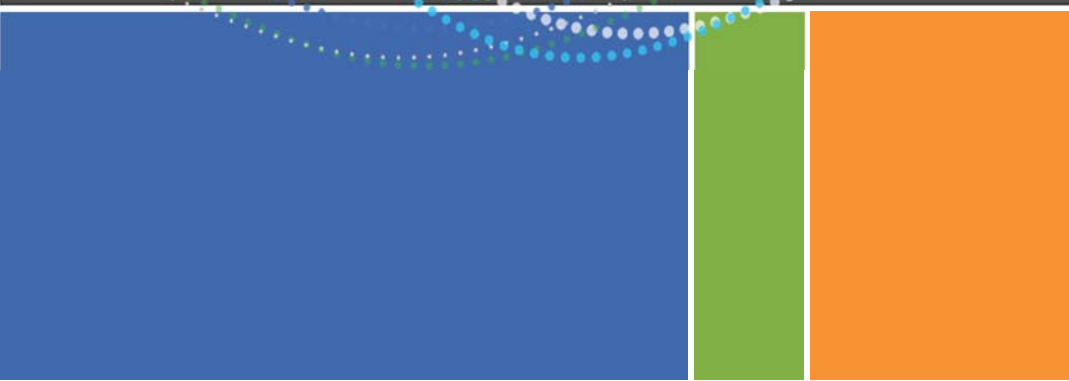
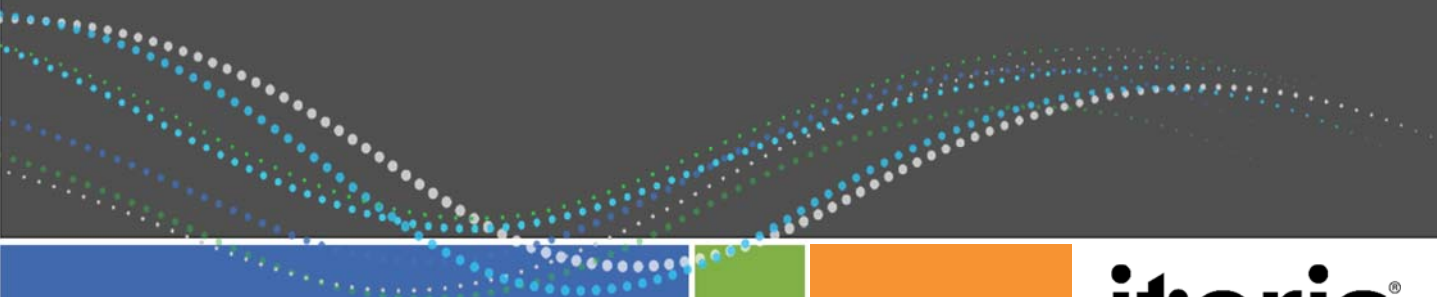
Updated 5/10/2017



NO.	PROJECT	DESCRIPTION	LOCATION	APN(s)	STATUS	ANTICIPATED OCCUPANCY
1	Springhill Suites Marriott	120-room hotel	1160 West Ball Road	129-281-11	Completed April 2014	--
2	Proposed Hotel	75-room hotel	1100 West Ball Road	129-291-06	Conceptual Development Review application submitted	--
3	Staybridge Suites	126-room hotel	1050 West Ball Road	082-112-09	Completed April 2017	--
4	Disney Harbor Cast Member Parking Lot	1,363-space employee parking lot	333 West Ball Road	251-042-08 251-042-09 251-042-10 251-042-11 251-042-16	Completed August 2015	--
5	Disney Luxury Hotel	700-room luxury hotel with two restaurants and retail.	1401 Disneyland Drive	129-301-08 129-311-02	Operating Covenant Agreement approved by City Council in July 2016; pending application of a Final Site Plan	2021
6	Disney Star Wars Themed Land	Approximate 14-acre land within the existing Disneyland theme park	1313 South Harbor Boulevard	082-110-70 082-110-71 082-110-74 082-190-19	Under Construction	2019
7	Courtyard by Marriott	221-room hotel	1415 South Manchester Avenue	082-170-56	Completed August 2015	--
8	Holiday Inn Express	96-room hotel	1411 South Manchester Avenue	082-170-57	Completed February 2016	--
9	Hilton Garden Inn/Home2 Suites by Hilton	210-room hotel with accessory retail space	1441 South Manchester Avenue	082-170-58	Conceptual Development Review application submitted	2020

10	Panera Bread	Restaurant with outdoor patio in conjunction with an existing hotel	1480 South Harbor Boulevard	082-170-55	Completed December 2015	--
11	Disneyland Resort Eastern Gateway	Parking structure, transportation hub, and bridge.	333 West Disney Way	082-211-04 082-211-01 082-211-02 082-211-19	Application submitted	--
12	Park Vue Inn	To demolish an 86 room hotel and 6,000 sq. ft. restaurant and construct a 180-room hotel, 10,654 sq. ft. restaurant/retail area	1570 South Harbor Boulevard	082-211-15 082-211-16	Approved by Planning Commission in December 2015	--
13	Grand Legacy at the Park	Hotel remodel, including addition of 13 rooms	1650 South Harbor Boulevard	082-211-08 082-211-09	Completed December 2016	--
14	Element Hotel	174-room hotel	200 West Alro Way	082-213-10 082-212-04	Approved by Planning Commission January 2016 - Under Construction	August 2018
15	Country Inn and Suites	174-room hotel	1640 South Clementine Street	082-213-08 082-213-09 082-213-11	Completed December 2016	--
16	Luxury Hotel	580-room hotel with meeting rooms, restaurants, retail and spa	1700 South Harbor Boulevard	082-271-09 082-271-10	Approved by City Council in July 2016	Early 2021
17	GardenWalk – Resort Hotel	400-room hotel	300 West Disney Way	082-251-01	Plans to be submitted no later than June 30, 2019, per terms of Economic Assistance and Development Agreement	--
18	GardenWalk – Westgate Timeshare	392-room timeshare hotel	500 West Disney Way	082-551-06	Approved by Planning Director in July 2014; in plan check	--
19	GardenWalk – JW Marriott	466-room hotel with meeting rooms, restaurant and spa	1775 South Clementine Street	082-551-02 082-551-03	Approved by Planning Commission in January 2016; in plan check	Early 2020

20	Cambria Suites	350-room hotel with 15,000 square feet of restaurant space	1721 South Manchester Avenue	082-230-72 082-230-73 082-230-77	Approved by Planning Commission November 2016 - Under Construction	Early 2019
21	The Anabella Hotel Redevelopment	634-room luxury hotel with meeting rooms, restaurants and retail	1030 West Katella Avenue	137-011-20	Approved by City Council in July 2016	Early 2020
22	Anaheim Convention Center Expansion	200,000 square foot expansion	800 West Katella Avenue	137-151-01 137-151-04	Approved by Planning Commission in September 2014 – Under Construction	Phase I (Parking Structure) – Completed October 2016 Phase II (Meeting Space) – September 2017
23	Residence Inn Marriott	294-room hotel	640 West Katella Avenue	137-161-15	Completed August 2016	--
24	Springhill Suites Marriott	172-room hotel, including CVS Pharmacy, Coffee Bean and Tea Leaf	1801 South Harbor Boulevard	137-161-16	Completed February 2015	--
25	Hyatt House	252-room hotel, including Walgreen's Pharmacy	1800 South Harbor Boulevard	137-171-35	Completed September 2016	--
26	Hampton Inn & Suites	178-room hotel	100 West Katella Avenue	137-311-16 137-311-18	Application submitted	Late 2018
27	Anaheim Convention Center Grand Plaza	100,000 square feet of outdoor programmable convention center space	Terminus of Convention Center Way	N/A - Public right-of-way	Completed in January 2013	--
28	Disney Toy Story Parking Lot Expansion	Expansion of a temporary parking lot	1900-2000 South Harbor Boulevard	137-181-15	Application submitted	--
29	Hyatt Place	178-room hotel	2035 South Harbor Boulevard	137-141-13 137-141-14	Completed in December 2014	--
30	Homewood Suites	215-room hotel	2010 South Harbor Boulevard	137-181-09	Completed in November 2015	--



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1700 Carnegie Avenue, Suite 100
Santa Ana, CA 92705

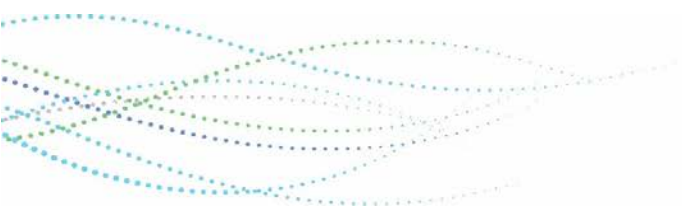
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APPENDIX B – CALTRANS COMMENTS



DEPARTMENT OF TRANSPORTATION**DISTRICT 12**

1750 EAST FOURTH STREET, SUITE 100

SANTA ANA, CA 92705

PHONE (657) 328-6267

FAX (657) 328-6510

TTY 711

www.dot.ca.gov*Making Conservation
a California Way of Life.*

February 1, 2018

Ms. Christine Saunders
City of Anaheim
200 Anaheim Boulevard, Suite 145
Anaheim, CA 92805

File: IGR/CEQA
SCH#: N/A
12-ORA-2017-00799
I-5 36.702

Dear Ms. Saunders,

Thank you for including the California Department of Transportation (Caltrans) in the Early Coordination for the proposed Anaheim Boulevard Bicycle Facility. The mission of Caltrans is to provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

The City of Anaheim is creating a bicycle facility along Anaheim Boulevard adjacent to the Radisson Hotel development area and is requesting feedback on the bicycle facility type. The project is located in the Anaheim Resort Area in the City of Anaheim and in proximity of Interstate 5 (I-5). Caltrans is a responsible agency and has the following comments:

Transportation Planning:

1. Caltrans Planning suggests that a Class II bicycle facility would be the most feasible alternative for this section of Anaheim Boulevard. This suggestion comes after considerable collaboration with Traffic Operations and Design, as well as to maintain consistency with the City's Bicycle Plan and existing facilities.

Traffic Operations:

2. Traffic Operations, Design, and Planning are currently evaluating alternatives for multi-modal improvements at I-5/Anaheim Boulevard. However, due to the volume of right-turn movements onto the onramp, Caltrans cannot recommend the removal of the free-right lane until alternatives are fully assessed.
3. There is a street sign that is partially blocking the sidewalk just north of the free-right lane. Relocating this sign from the sidewalk will enhance pedestrian mobility. Possible options include:
 - a. An overhead cantilever will move the sign to an appropriate height and the support structure will create limited obstruction.
 - b. Relocate the street sign into the dedication or into the landscaping portion of the development will remove the sidewalk obstruction.

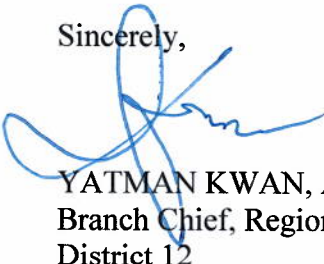
Please coordinate with Caltrans Planning about possible replacement options.

Design:

4. Since Class II bicycle lanes are on road facilities, Caltrans recommend the City to implement painted bicycle lanes. This will help enhance the visibility of bicyclists to vehicles and better define bicycle lane boundaries, which will prevent bicyclists from straying into vehicle lanes. If right-of-way permits, consider the inclusion of a horizontal barrier.
5. The Class II facility will be positioned adjacent to the sidewalk until the start of the free-right lane. The Class II will continue between the free-right lane and right-most through lane. The chevrons surrounding the refuge provides sufficient room for the bicycle lane to travel through the intersection. Please refer to the Manual on Uniform Traffic Control Devices (MUTCD) Section 9C for applicable lane markings:
<https://mutcd.fhwa.dot.gov/hdm/2009/part9/part9c.htm>
6. Installing bicycle and pedestrian signage before the free right-turn will direct vehicles to slow down and create a safer setting for bicyclists and pedestrians. Please refer to MUTCD Figure 9B for applicable bicycle and pedestrian signs:
<https://mutcd.fhwa.dot.gov/hdm/2009/part9/part9b.htm>
7. There is a tree located north of the proposed ingress/egress to the development that may obstruct the visibility of the oncoming bicyclists. Removal of this tree is recommended to increase visibility of bicyclists.
8. Ensure that all facilities adhere to all Americans with Disabilities Act standards and Highway Design Manual Guidelines.
9. Please refer to the attached draft diagram for design clarifications and suggestions.

Please continue to coordinate with Caltrans for any future developments that could potentially impact State transportation facilities. If you have any questions, please do not hesitate to contact Jude Miranda at (657) 328-6229 or Jude.Miranda@dot.ca.gov.

Sincerely,



YATMAN KWAN, AICP
Branch Chief, Regional-IGR-Transit Planning
District 12

Christine Saunders

From: Jesse Emory <Jesse@gbdarchitects.com>
Sent: Wednesday, January 24, 2018 6:07 AM
To: Christine Saunders
Cc: Kathy Nguyen
Subject: FW: 1601 S Anaheim Boulevard Hotel Development - City of Anaheim Questions for Caltrans

Christine, Kathy,

Please see our Civil Engineers correspondence with Cal Trans.

Thank You,

Jesse

JESSE EMORY, AIA

Senior Associate, LEED AP BD+C

GBD Architects Incorporated
1120 NW Couch St., Suite 300 Portland, OR 97209
Tel. (503) 224-9656 Dir. (503) 548-2346 www.gbdarchitects.com

From: Jose Hernandez [mailto:jose.hernandez@kpff.com]
Sent: Friday, January 19, 2018 8:18 AM
To: Jesse Emory <Jesse@gbdarchitects.com>
Cc: Michael Marcus <MichaelM@gbdarchitects.com>
Subject: FW: 1601 S Anaheim Boulevard Hotel Development - City of Anaheim Questions for Caltrans

Good morning Jesse,

Below are the responses we received from Caltrans back in September of 2017 regarding our inquiries relative to potential improvements to the existing on-ramp. Can you please forward to the appropriate parties?

Thank you,



José Hernández, P.E., QSD/QSP

Associate

☎ 562.437.9100
400 OceanGate, Suite 500
Long Beach, CA 90802

From: Omar, Bridget B@DOT [mailto:bridget.omar@dot.ca.gov]
Sent: Thursday, September 28, 2017 1:13 PM

To: Casey Rasile

Subject: FW: 1601 S Anaheim Boulevard Hotel Development - City of Anaheim Questions for Caltrans

Good Afternoon Mr. Rasile,

Here are the information I received in response to your inquiry below:

- I am not aware of any plans to widen the ramp at this time.
- From the e-mail below the project is located at 1601 S. Anaheim Blvd at the northeast quadrant of the I-5 at Anaheim Blvd intersection. I am currently in the process of reviewing a Traffic Impact Study (TIS) submitted by the City of Anaheim (through our IGR Unit #: 12ORA-2017-00699) for a project (330 room Radisson hotel) at this location. If the project from the email below differs (I don't think it does) from what I am reviewing then a TIS would be required.
- I am not aware of any plans to widen the ramp at this time.
- I am the Transportation Planner handling Radisson Hotel. Regarding Questions 1: Planning-IGR has already met with the consultants and the scope of work is currently under review. There are no foreseeable improvements or expansion of Caltrans facilities in proximity to the project at this time.

Thank you,

Bridget Omar

Office of Public Information - DISTRICT 12

Phone: 657.328.6020

Bridget.Omar@dot.ca.gov



Please let us know how we're doing! Our survey is only 1 question.

<https://www.surveymonkey.com/r/RNBZG55>

From: Casey Rasile [<mailto:casey.rasile@kpff.com>]

Sent: Wednesday, September 20, 2017 9:47 AM

To: Omar, Bridget B@DOT <bridget.omar@dot.ca.gov>

Cc: Jose Hernandez <jose.hernandez@kpff.com>

Subject: 1601 S Anaheim Boulevard Hotel Development - City of Anaheim Questions for Caltrans

Good morning Bridget,

The City of Anaheim is looking for answers to the 2 questions below. Could you please direct these questions to the appropriate Caltrans staff, and provide the answers to me? Thank you very much for your assistance. A sketch is attached for reference. Have a wonderful day,

Question #1:

The City of Anaheim seems to believe Caltrans may have plans to widen the northbound onramp at I-5 at post mile 36.3 (at Anaheim Boulevard) in the near future. Does Caltrans plan to improve this onramp?

Question #2:

We are designing a hotel development immediately northeast of the aforementioned onramp, on the other side of the Caltrans right of way (beside I-5 northbound onramp near post mile 36.3, at Anaheim Boulevard). The City of Anaheim would like to know if Caltrans requires a traffic study due to this development beside the Caltrans onramp. Will Caltrans require a traffic study due to this proposed hotel development?

Thanks again,



Casey Rasile, P.E.

Professional Engineer

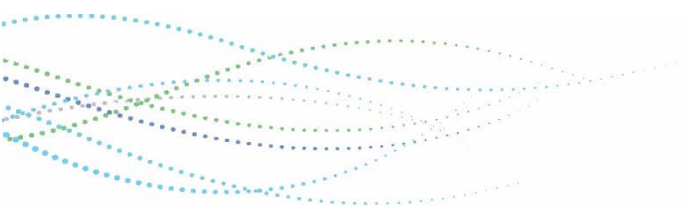
☎ 562.437.9100 ✉ 562.437.9200

400 Oceangate, Ste 500

Long Beach, CA 90802

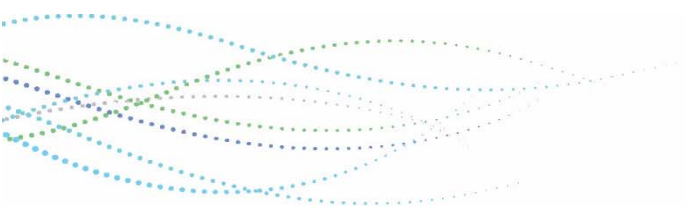


APPENDIX C – ICU ANALYSIS WORKSHEETS





EXISTING PLUS PROJECT



PROJECT:		Radisson Hotel						
SCENARIO:		Existing Plus Project						
INTERSECTION:		152 Harbor Boulevard/Ball Road						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	572	0.17 *	3,400	557	0.16 *	
NBT	3.0	5,100	621	0.12	5,100	936	0.18	
NBR	1.0	1,700	287	0.17	1,700	269	0.16	
SBL	2.0	3,400	115	0.03	3,400	93	0.03	
SBT	3.0	5,100	877	0.17 *	5,100	695	0.14 *	
SBR	1.0	1,700	358	0.21	1,700	272	0.16	
EBL	2.0	3,400	180	0.05	3,400	313	0.09 *	
EBT	3.0	5,100	830	0.16 *	5,100	730	0.14	
EBR	1.0	1,700	280	0.16	1,700	476	0.28	
WBL	2.0	3,400	168	0.05 *	3,400	218	0.06	
WBT	4.0	6,800	854	0.14	6,800	1,381	0.22 *	
WBR			81			84		
		N/S Movements		0.34			0.30	
		E/W Movements		0.21			0.31	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.60		0.66		
LEVEL OF SERVICE (LOS)				A		B		

PROJECT:		Radisson Hotel						
SCENARIO:		Existing Plus Project						
INTERSECTION:		158 Harbor Boulevard/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	138	0.04 *	3,400	179	0.05	
NBT	3.0	5,100	544	0.11	5,100	803	0.16 *	
NBR	1.0	1,700	232	0.14	1,700	156	0.09	
SBL	2.0	3,400	71	0.02	3,400	83	0.02 *	
SBT	3.0	5,100	628	0.12 *	5,100	609	0.12	
SBR	1.0	1,700	117	0.07	1,700	153	0.09	
EBL	2.0	3,400	181	0.05	3,400	215	0.06 *	
EBT	3.0	5,100	996	0.20 *	5,100	868	0.17	
EBR	1.0	1,700	141	0.08	1,700	116	0.07	
WBL	2.0	3,400	240	0.07 *	3,400	321	0.09	
WBT	3.0	5,100	654	0.13	5,100	1,331	0.26 *	
WBR	1.0	1,700	88	0.05	1,700	103	0.06	
		N/S Movements		0.16			0.18	
		E/W Movements		0.27			0.32	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.48		0.56		
LEVEL OF SERVICE (LOS)				A		A		

PROJECT:		Radisson Hotel						
SCENARIO:		Existing Plus Project						
INTERSECTION:		174 Clementine Street/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.0	1,700	21	0.01 *	1,700	100	0.06	
NBT	1.0	1,700	50	0.03	1,700	148	0.09 *	
NBR	1.0	1,700	78	0.05	1,700	280	0.16 *	
SBL	1.0	1,700	33	0.02	1,700	81	0.05 *	
SBT	1.0	1,700	209	0.12 *	1,700	120	0.07	
SBR	1.0	1,700	55	0.03	1,700	140	0.08	
EBL	2.0	3,400	100	0.03	3,400	134	0.04 *	
EBT	3.0	5,100	1,075	0.21 *	5,100	902	0.18	
EBR	1.0	1,700	131	0.08	1,700	66	0.04	
WBL	2.0	3,400	251	0.07 *	3,400	129	0.04	
WBT	3.0	5,100	875	0.18	5,100	1,522	0.32 *	
WBR			62			96		
		N/S Movements		0.14			0.13	
		E/W Movements		0.28			0.36	
		Rt. Turn Component		0.00			0.04	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.47		0.58		
LEVEL OF SERVICE (LOS)				A		A		

PROJECT:		Radisson Hotel					
SCENARIO:		Existing Plus Project					
INTERSECTION:		196 I-5 Southbound Off-ramp/Disney Way					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.0	1,700	5	0.00	1,700	8	0.00
NBT			0	0.00 *		0	0.00 *
NBR	1.0	1,700	40	0.02 *	1,700	53	0.03 *
SBL	1.3	2,210	251	0.11 *	2,210	242	0.11 *
SBT	0.3	510	15	0.03	510	14	0.03
SBR	1.3	2,210	175	0.08 *	2,210	142	0.06 *
EBL			0	*		0	
EBT	3.0	5,100	171	0.04	5,100	347	0.07 *
EBR			17			18	
WBL	1.0	1,700	19	0.01	1,700	15	0.01 *
WBT	3.0	5,100	364	0.07 *	5,100	278	0.05
WBR			0			0	
		N/S Movements		0.11			0.11
		E/W Movements		0.07			0.08
		Rt. Turn Component		0.06			0.06
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.30		0.30	
LEVEL OF SERVICE (LOS)				A		A	

PROJECT:		Radisson Hotel						
SCENARIO:		Existing Plus Project						
INTERSECTION:		191 Anaheim Boulevard/Ball Road						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	112	0.03 *	3,400	215	0.06	
NBT	2.0	3,400	474	0.14	3,400	1,000	0.29 *	
NBR	1.0	1,700	151	0.09	1,700	115	0.07	
SBL	2.0	3,400	214	0.06	3,400	104	0.03 *	
SBT	3.0	5,100	909	0.18 *	5,100	854	0.17	
SBR	1.0	1,700	136	0.08	1,700	142	0.08	
EBL	1.0	1,700	127	0.07	1,700	163	0.10 *	
EBT	3.0	5,100	982	0.22 *	5,100	794	0.18	
EBR			142			119		
WBL	1.0	1,700	148	0.09 *	1,700	201	0.12	
WBT	3.0	5,100	741	0.15	5,100	1,266	0.25 *	
WBR	1.0	1,700	59	0.03	1,700	211	0.12	
		N/S Movements		0.21			0.32	
		E/W Movements		0.31			0.34	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.57		0.72		
LEVEL OF SERVICE (LOS)				A		C		

PROJECT:		Radisson Hotel						
SCENARIO:		Existing Plus Project						
INTERSECTION:		193 Anaheim Boulevard/Cerritos Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.0	1,700	103	0.06 *	1,700	95	0.06 *	
NBT	3.0	5,100	725	0.14	5,100	1,196	0.23	
NBR	1.0	1,700	382	0.22	1,700	249	0.15	
SBL	1.0	1,700	200	0.12	1,700	76	0.04	
SBT	3.0	5,100	1,044	0.22 *	5,100	1,131	0.23 *	
SBR			53			19		
EBL	1.0	1,700	15	0.01	1,700	25	0.01	
EBT	1.0	1,700	10	0.02 *	1,700	27	0.06 *	
EBR			29			70		
WBL	1.0	1,700	197	0.12 *	1,700	512	0.30 *	
WBT	1.0	1,700	22	0.01	1,700	31	0.02	
WBR	1.0	1,700	63	0.04	1,700	212	0.12 *	
		N/S Movements		0.28			0.28	
		E/W Movements		0.14			0.36	
		Rt. Turn Component		0.00			0.06	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.46		0.75		
LEVEL OF SERVICE (LOS)				A		C		

PROJECT:		Radisson Hotel						
SCENARIO:		Existing Plus Project						
INTERSECTION:		194 Anaheim Boulevard/Anaheim Way/I-5 Northbound Ramp						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	180	0.05 *	3,400	327	0.10 *	
NBT	3.0	5,100	844	0.17	5,100	894	0.18	
NBR			0			0		
SBL			0			0		
SBT	3.0	5,100	1,173	0.23 *	5,100	1,349	0.26 *	
SBR	1.0	1,700	137	0.08	1,700	386	0.23	
EBL			0			0	*	
EBT			0	0.00 *		0	0.00	
EBR			0			0		
WBL	0.5	850	21	0.02 *	850	51	0.06	
WBT	1.0	1,700	21	0.01	1,700	717	0.42 *	
WBR	1.5	2,550	417	0.16 *	2,550	631	0.25	
		N/S Movements		0.28			0.36	
		E/W Movements		0.02			0.42	
		Rt. Turn Component		0.15			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.51		0.83		
LEVEL OF SERVICE (LOS)				A		D		

PROJECT:		Radisson Hotel					
SCENARIO:		Existing Plus Project					
INTERSECTION:		195 Anaheim Boulevard/Disney Way					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.0	1,700	29	0.02	1,700	25	0.01
NBT	3.0	5,100	671	0.13 *	5,100	895	0.18 *
NBR			5			4	
SBL	2.0	3,400	510	0.15 *	3,400	586	0.17 *
SBT	3.0	5,100	530	0.13	5,100	795	0.17
SBR			108			72	
EBL	2.0	3,400	284	0.08 *	3,400	283	0.08 *
EBT	4.0	6,800	102	0.03	6,800	191	0.06
EBR			94			183	
WBL			0			0	
WBT	3.0	5,100	252	0.05 *	5,100	205	0.04 *
WBR			0			0	
		N/S Movements		0.28			0.35
		E/W Movements		0.13			0.12
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.47		0.52	
LEVEL OF SERVICE (LOS)				A		A	

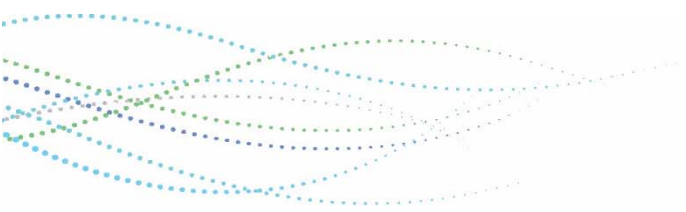
PROJECT:		Radisson Hotel						
SCENARIO:		Existing Plus Project						
INTERSECTION:		197 Anaheim Boulevard/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	153	0.05	3,400	178	0.05 *	
NBT	3.0	5,100	585	0.11 *	5,100	795	0.16	
NBR	1.0	1,700	120	0.07	1,700	122	0.07	
SBL	2.0	3,400	91	0.03 *	3,400	84	0.02	
SBT	3.0	5,100	433	0.08	5,100	669	0.13 *	
SBR	1.0	1,700	137	0.08	1,700	156	0.09	
EBL	2.0	3,400	147	0.04 *	3,400	179	0.05 *	
EBT	4.0	6,800	982	0.16	6,800	976	0.16	
EBR			77			120		
WBL	2.0	3,400	81	0.02	3,400	161	0.05	
WBT	3.0	5,100	870	0.17 *	5,100	1,339	0.26 *	
WBR	1.0	1,700	6	0.00	1,700	29	0.02	
		N/S Movements		0.14			0.18	
		E/W Movements		0.21			0.32	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.41		0.55		
LEVEL OF SERVICE (LOS)				A		A		

PROJECT:		Radisson Hotel						
SCENARIO:		Existing Plus Project						
INTERSECTION:		210 I-5 Southbound Ramps/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.5	1,700	27	0.02 *	1,700	35	0.02 *	
NBT			0	0.00		0	0.00	
NBR	1.5	3,400	520	0.15 *	3,400	294	0.09	
SBL	2.0	3,400	26	0.01	3,400	61	0.02	
SBT	2.0	3,400	75	0.02 *	3,400	57	0.02 *	
SBR	1.0	1,700	1	0.00	1,700	1	0.00	
EBL			0			0		
EBT	3.0	5,100	833	0.16 *	5,100	717	0.14 *	
EBR	1.0	1,700	432	0.25 *	1,700	463	0.27 *	
WBL	2.0	3,400	188	0.06 *	3,400	421	0.12 *	
WBT	4.0	6,800	913	0.13	6,800	1,537	0.23	
WBR			0			0		
		N/S Movements		0.04			0.04	
		E/W Movements		0.22			0.26	
		Rt. Turn Component		0.17			0.11	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.48		0.46		
LEVEL OF SERVICE (LOS)				A		A		

PROJECT:		Radisson Hotel						
SCENARIO:		Existing Plus Project						
INTERSECTION:		211 I-5 Northbound Ramps/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.5	2,550	380	0.15 *	2,550	654	0.26 *	
NBT	3.5	5,950	434	0.12	5,950	1,288	0.23	
NBR			304			68		
SBL			0			0		
SBT			0	0.00 *		0	0.00 *	
SBR			0			0		
EBL	2.0	3,400	65	0.02	3,400	78	0.02 *	
EBT	4.0	6,800	1,317	0.19 *	6,800	1,002	0.15	
EBR			0			0		
WBL			0	*		0		
WBT	3.5	5,950	949	0.16	5,950	1,807	0.30 *	
WBR	1.5	2,550	87	0.03	2,550	121	0.05	
		N/S Movements		0.15			0.26	
		E/W Movements		0.19			0.33	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.39		0.63		
LEVEL OF SERVICE (LOS)				A		B		



OPENING YEAR 2019 WITH PROJECT



PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019 With Project						
INTERSECTION:		152 Harbor Boulevard/Ball Road						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	583	0.17 *	3,400	568	0.17 *	
NBT	3.0	5,100	674	0.13	5,100	986	0.19	
NBR	1.0	1,700	293	0.17	1,700	285	0.17	
SBL	2.0	3,400	117	0.03	3,400	95	0.03	
SBT	3.0	5,100	916	0.18 *	5,100	723	0.14 *	
SBR	1.0	1,700	365	0.21	1,700	277	0.16	
EBL	2.0	3,400	185	0.05	3,400	320	0.09 *	
EBT	3.0	5,100	847	0.17 *	5,100	745	0.15	
EBR	1.0	1,700	286	0.17	1,700	487	0.29	
WBL	2.0	3,400	171	0.05 *	3,400	222	0.07	
WBT	4.0	6,800	871	0.14	6,800	1,409	0.22 *	
WBR			83			86		
		N/S Movements		0.35			0.31	
		E/W Movements		0.22			0.31	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.62		0.67		
LEVEL OF SERVICE (LOS)				B		B		

PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019 With Project						
INTERSECTION:		158 Harbor Boulevard/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	141	0.04 *	3,400	183	0.05	
NBT	3.0	5,100	570	0.11	5,100	834	0.16 *	
NBR	1.0	1,700	287	0.17	1,700	185	0.11	
SBL	2.0	3,400	103	0.03	3,400	108	0.03 *	
SBT	3.0	5,100	653	0.13 *	5,100	633	0.12	
SBR	1.0	1,700	126	0.07	1,700	165	0.10	
EBL	2.0	3,400	198	0.06	3,400	233	0.07 *	
EBT	3.0	5,100	1,067	0.21 *	5,100	981	0.19	
EBR	1.0	1,700	150	0.09	1,700	123	0.07	
WBL	2.0	3,400	266	0.08 *	3,400	350	0.10	
WBT	3.0	5,100	731	0.14	5,100	1,392	0.27 *	
WBR	1.0	1,700	127	0.07	1,700	150	0.09	
		N/S Movements		0.17			0.20	
		E/W Movements		0.29			0.34	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.51		0.59		
LEVEL OF SERVICE (LOS)				A		A		

PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019 With Project						
INTERSECTION:		174 Clementine Street/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.0	1,700	21	0.01 *	1,700	102	0.06	
NBT	1.0	1,700	51	0.03	1,700	151	0.09 *	
NBR	1.0	1,700	80	0.05	1,700	286	0.17 *	
SBL	1.0	1,700	51	0.03	1,700	93	0.05 *	
SBT	1.0	1,700	213	0.13 *	1,700	122	0.07	
SBR	1.0	1,700	82	0.05	1,700	167	0.10	
EBL	2.0	3,400	162	0.05	3,400	184	0.05 *	
EBT	3.0	5,100	1,144	0.22 *	5,100	994	0.19	
EBR	1.0	1,700	134	0.08	1,700	67	0.04	
WBL	2.0	3,400	256	0.08 *	3,400	132	0.04	
WBT	3.0	5,100	987	0.22	5,100	1,635	0.35 *	
WBR			145			151		
		N/S Movements		0.14			0.14	
		E/W Movements		0.30			0.40	
		Rt. Turn Component		0.00			0.04	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.49		0.64		
LEVEL OF SERVICE (LOS)				A		B		

PROJECT:		Radisson Hotel					
SCENARIO:		Opening Year 2019 With Project					
INTERSECTION:		196 I-5 Southbound Off-ramp/Disney Way					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.0	1,700	5	0.00	1,700	8	0.00
NBT			0	0.00 *		0	0.00 *
NBR	1.0	1,700	41	0.02 *	1,700	54	0.03 *
SBL	1.3	2,210	306	0.14 *	2,210	271	0.12 *
SBT	0.3	510	17	0.03	510	16	0.03
SBR	1.3	2,210	198	0.09 *	2,210	158	0.07 *
EBL			0	*		0	
EBT	3.0	5,100	240	0.05	5,100	444	0.09 *
EBR			17			18	
WBL	1.0	1,700	19	0.01	1,700	15	0.01 *
WBT	3.0	5,100	384	0.08 *	5,100	303	0.06
WBR			0			0	
		N/S Movements		0.14			0.12
		E/W Movements		0.08			0.10
		Rt. Turn Component		0.07			0.06
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.33		0.34	
LEVEL OF SERVICE (LOS)				A		A	

PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019 With Project						
INTERSECTION:		191 Anaheim Boulevard/Ball Road						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	114	0.03 *	3,400	219	0.06	
NBT	2.0	3,400	488	0.14	3,400	1,028	0.30 *	
NBR	1.0	1,700	154	0.09	1,700	123	0.07	
SBL	2.0	3,400	218	0.06	3,400	106	0.03 *	
SBT	3.0	5,100	941	0.18 *	5,100	885	0.17	
SBR	1.0	1,700	139	0.08	1,700	145	0.09	
EBL	1.0	1,700	130	0.08	1,700	166	0.10 *	
EBT	3.0	5,100	1,002	0.22 *	5,100	810	0.18	
EBR			145			121		
WBL	1.0	1,700	151	0.09 *	1,700	205	0.12	
WBT	3.0	5,100	756	0.15	5,100	1,291	0.25 *	
WBR	1.0	1,700	60	0.04	1,700	215	0.13	
		N/S Movements		0.22			0.33	
		E/W Movements		0.31			0.35	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.58		0.73		
LEVEL OF SERVICE (LOS)				A		C		

PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019 With Project						
INTERSECTION:		193 Anaheim Boulevard/Cerritos Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.0	1,700	105	0.06 *	1,700	96	0.06 *	
NBT	3.0	5,100	744	0.15	5,100	1,235	0.24	
NBR	1.0	1,700	390	0.23	1,700	254	0.15	
SBL	1.0	1,700	204	0.12	1,700	78	0.05	
SBT	3.0	5,100	1,092	0.22 *	5,100	1,168	0.23 *	
SBR			54			19		
EBL	1.0	1,700	15	0.01	1,700	26	0.02	
EBT	1.0	1,700	10	0.02 *	1,700	28	0.06 *	
EBR			30			71		
WBL	1.0	1,700	201	0.12 *	1,700	522	0.31 *	
WBT	1.0	1,700	22	0.01	1,700	32	0.02	
WBR	1.0	1,700	64	0.04	1,700	216	0.13 *	
		N/S Movements		0.29			0.29	
		E/W Movements		0.14			0.37	
		Rt. Turn Component		0.00			0.06	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.48		0.77		
LEVEL OF SERVICE (LOS)				A		C		

PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019 With Project						
INTERSECTION:		194 Anaheim Boulevard/Anaheim Way/I-5 Northbound Ramp						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	201	0.06 *	3,400	357	0.11 *	
NBT	3.0	5,100	804	0.16	5,100	889	0.17	
NBR			0			0		
SBL			0			0		
SBT	3.0	5,100	1,176	0.23 *	5,100	1,443	0.28 *	
SBR	1.0	1,700	140	0.08	1,700	394	0.23	
EBL			0			0	*	
EBT			0	0.00 *		0	0.00	
EBR			0			0		
WBL	0.5	850	21	0.02 *	850	52	0.06	
WBT	1.0	1,700	21	0.01	1,700	731	0.43 *	
WBR	1.5	2,550	425	0.17 *	2,550	644	0.25	
		N/S Movements		0.29			0.39	
		E/W Movements		0.02			0.43	
		Rt. Turn Component		0.15			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.52		0.87		
LEVEL OF SERVICE (LOS)				A		D		

PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019 With Project						
INTERSECTION:		195 Anaheim Boulevard/Disney Way						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.0	1,700	51	0.03	1,700	35	0.02	
NBT	3.0	5,100	698	0.14 *	5,100	944	0.19 *	
NBR			5			4		
SBL	2.0	3,400	533	0.16 *	3,400	597	0.18 *	
SBT	3.0	5,100	543	0.13	5,100	815	0.18	
SBR			121			83		
EBL	2.0	3,400	298	0.09 *	3,400	295	0.09 *	
EBT	4.0	6,800	188	0.04	6,800	299	0.07	
EBR			98			190		
WBL			0			0		
WBT	3.0	5,100	257	0.05 *	5,100	209	0.04 *	
WBR			0			0		
		N/S Movements		0.29			0.36	
		E/W Movements		0.14			0.13	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.48		0.54		
LEVEL OF SERVICE (LOS)				A		A		

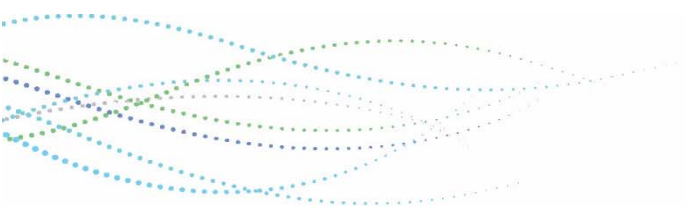
PROJECT:		Radisson Hotel					
SCENARIO:		Opening Year 2019 With Project					
INTERSECTION:		197 Anaheim Boulevard/Katella Avenue					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	2.0	3,400	171	0.05	3,400	196	0.06 *
NBT	3.0	5,100	612	0.12 *	5,100	813	0.16
NBR	1.0	1,700	122	0.07	1,700	124	0.07
SBL	2.0	3,400	96	0.03 *	3,400	90	0.03
SBT	3.0	5,100	444	0.09	5,100	683	0.13 *
SBR	1.0	1,700	140	0.08	1,700	159	0.09
EBL	2.0	3,400	183	0.05 *	3,400	245	0.07 *
EBT	4.0	6,800	1,033	0.16	6,800	1,025	0.17
EBR			79			122	
WBL	2.0	3,400	87	0.03	3,400	179	0.05
WBT	3.0	5,100	1,045	0.20 *	5,100	1,484	0.29 *
WBR	1.0	1,700	21	0.01	1,700	41	0.02
		N/S Movements		0.15			0.19
		E/W Movements		0.26			0.36
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.46		0.60	
LEVEL OF SERVICE (LOS)				A		A	

PROJECT:		Radisson Hotel						
SCENARIO:		Opening Year 2019 With Project						
INTERSECTION:		210 I-5 Southbound Ramps/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.5	1,700	28	0.02 *	1,700	36	0.02 *	
NBT			0	0.00		0	0.00	
NBR	1.5	3,400	530	0.16 *	3,400	300	0.09	
SBL	2.0	3,400	36	0.01	3,400	80	0.02	
SBT	2.0	3,400	85	0.03 *	3,400	83	0.02 *	
SBR	1.0	1,700	1	0.00	1,700	1	0.00	
EBL			0			0		
EBT	3.0	5,100	865	0.17 *	5,100	746	0.15 *	
EBR	1.0	1,700	455	0.27 *	1,700	483	0.28 *	
WBL	2.0	3,400	192	0.06 *	3,400	429	0.13 *	
WBT	4.0	6,800	1,106	0.16	6,800	1,706	0.25	
WBR			0			0		
		N/S Movements		0.04			0.05	
		E/W Movements		0.23			0.27	
		Rt. Turn Component		0.18			0.12	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.50		0.48		
LEVEL OF SERVICE (LOS)				A		A		

PROJECT:		Radisson Hotel					
SCENARIO:		Opening Year 2019 With Project					
INTERSECTION:		211 I-5 Northbound Ramps/Katella Avenue					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.5	2,550	542	0.21 *	2,550	790	0.31 *
NBT	3.5	5,950	443	0.13	5,950	1,314	0.23
NBR			310			69	
SBL			0			0	
SBT			0	0.00 *		0	0.00 *
SBR			0			0	
EBL	2.0	3,400	83	0.02	3,400	99	0.03 *
EBT	4.0	6,800	1,352	0.20 *	6,800	1,040	0.15
EBR			0			0	
WBL			0	*		0	
WBT	3.5	5,950	988	0.17	5,950	1,859	0.31 *
WBR	1.5	2,550	89	0.03	2,550	123	0.05
		N/S Movements		0.21			0.31
		E/W Movements		0.20			0.34
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.46		0.70	
LEVEL OF SERVICE (LOS)				A		B	



GENERAL PLAN BUILD OUT WITH PROJECT



PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out With Project					
INTERSECTION:		152	Harbor Boulevard/Ball Road				
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	2.0	3,400	583	0.17 *	3,400	983	0.29 *
NBT	3.0	5,100	805	0.16	5,100	1,535	0.30
NBR	1.0	1,700	300	0.18	1,700	360	0.21
SBL	2.0	3,400	186	0.05	3,400	136	0.04
SBT	3.0	5,100	1,555	0.30 *	5,100	930	0.18 *
SBR	1.0	1,700	395	0.23	1,700	325	0.19
EBL	2.0	3,400	190	0.06	3,400	320	0.09 *
EBT	3.0	5,100	1,123	0.22 *	5,100	1,002	0.20
EBR	1.0	1,700	570	0.34	1,700	580	0.34
WBL	2.0	3,400	180	0.05 *	3,400	230	0.07
WBT	4.0	6,800	875	0.14	6,800	1,410	0.22 *
WBR			85			90	
		N/S Movements		0.48			0.47
		E/W Movements		0.27			0.31
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.80		0.84	
LEVEL OF SERVICE (LOS)				C		D	

PROJECT:		Radisson Hotel						
SCENARIO:		General Plan Build Out With Project						
INTERSECTION:		158 Harbor Boulevard/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	150	0.04 *	3,400	430	0.13 *	
NBT	3.0	5,100	570	0.11	5,100	840	0.16	
NBR	1.0	1,700	292	0.17	1,700	256	0.15	
SBL	2.0	3,400	110	0.03	3,400	110	0.03	
SBT	3.0	5,100	785	0.15 *	5,100	640	0.13 *	
SBR	1.0	1,700	140	0.08	1,700	270	0.16	
EBL	2.0	3,400	200	0.06	3,400	240	0.07 *	
EBT	4.0	6,800	1,382	0.28 *	6,800	1,343	0.26	
EBR			490			425		
WBL	2.0	3,400	271	0.08 *	3,400	350	0.10	
WBT	4.0	6,800	963	0.16	6,800	2,072	0.33 *	
WBR			155			150		
		N/S Movements		0.20			0.25	
		E/W Movements		0.36			0.40	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.60		0.70		
LEVEL OF SERVICE (LOS)				A		B		

PROJECT:		Radisson Hotel						
SCENARIO:		General Plan Build Out With Project						
INTERSECTION:		174 Clementine Street/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.0	1,700	50	0.03 *	1,700	110	0.06 *	
NBT	1.0	1,700	105	0.06	1,700	170	0.10	
NBR	1.0	1,700	175	0.10	1,700	436	0.26 *	
SBL	1.0	1,700	85	0.05	1,700	100	0.06	
SBT	1.0	1,700	225	0.13 *	1,700	250	0.15 *	
SBR	1.0	1,700	90	0.05	1,700	170	0.10	
EBL	2.0	3,400	170	0.05	3,400	190	0.06 *	
EBT	4.0	6,800	1,225	0.20 *	6,800	1,394	0.22	
EBR			140			70		
WBL	2.0	3,400	375	0.11 *	3,400	240	0.07	
WBT	4.0	6,800	1,329	0.22	6,800	2,128	0.34 *	
WBR			150			160		
		N/S Movements		0.16			0.21	
		E/W Movements		0.31			0.39	
		Rt. Turn Component		0.00			0.09	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.52		0.74		
LEVEL OF SERVICE (LOS)				A		C		

PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out With Project					
INTERSECTION:		196 I-5 Southbound Off-ramp/Disney Way					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.0	1,700	20	0.01	1,700	10	0.01
NBT			0	0.00 *		0	0.00 *
NBR	1.0	1,700	50	0.03 *	1,700	75	0.04 *
SBL	1.3	2,261	390	0.17 *	2,261	363	0.16 *
SBT	0.3	578	15	0.03	578	20	0.03
SBR	1.3	2,261	200	0.09 *	2,261	160	0.07 *
EBL			0			0	
EBT	3.0	5,100	860	0.17 *	5,100	961	0.19 *
EBR			20			20	
WBL	1.0	1,700	20	0.01 *	1,700	25	0.01 *
WBT	3.0	5,100	816	0.16	5,100	805	0.16
WBR			0			0	
		N/S Movements		0.17			0.16
		E/W Movements		0.18			0.21
		Rt. Turn Component		0.08			0.07
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.49		0.48	
LEVEL OF SERVICE (LOS)				A		A	

PROJECT:		Radisson Hotel						
SCENARIO:		General Plan Build Out With Project						
INTERSECTION:		191 Anaheim Boulevard/Ball Road						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	2.0	3,400	120	0.04 *	3,400	315	0.09	
NBT	3.0	5,100	624	0.12	5,100	1,704	0.33 *	
NBR	1.0	1,700	160	0.09	1,700	175	0.10	
SBL	2.0	3,400	530	0.16	3,400	200	0.06 *	
SBT	3.0	5,100	1,766	0.35 *	5,100	935	0.18	
SBR	1.0	1,700	345	0.20	1,700	160	0.09	
EBL	2.0	3,400	150	0.04	3,400	260	0.08 *	
EBT	3.0	5,100	1,100	0.22 *	5,100	900	0.18	
EBR	1.0	1,700	320	0.19	1,700	138	0.08	
WBL	2.0	3,400	160	0.05 *	3,400	205	0.06	
WBT	3.0	5,100	760	0.15	5,100	1,300	0.25 *	
WBR	1.0	1,700	60	0.04	1,700	300	0.18	
		N/S Movements		0.38			0.39	
		E/W Movements		0.26			0.33	
		Rt. Turn Component		0.00			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.69		0.77		
LEVEL OF SERVICE (LOS)				B		C		

PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out With Project					
INTERSECTION:		193 Anaheim Boulevard/Cerritos Avenue					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	2.0	3,400	108	0.03	3,400	103	0.03
NBT	3.0	5,100	749	0.15 *	5,100	1,929	0.38 *
NBR	1.0	1,700	550	0.32 *	1,700	579	0.34
SBL	2.0	3,400	765	0.23 *	3,400	200	0.06 *
SBT	3.0	5,100	1,621	0.33	5,100	1,168	0.23
SBR			60			30	
EBL	1.0	1,700	20	0.01	1,700	30	0.02
EBT	1.0	1,700	10	0.02 *	1,700	30	0.07 *
EBR			30			95	
WBL	2.0	3,400	370	0.11 *	3,400	636	0.19 *
WBT	0.5	850	30	0.04	850	45	0.05
WBR	1.5	2,550	115	0.05	2,550	425	0.17 *
		N/S Movements		0.37			0.44
		E/W Movements		0.13			0.26
		Rt. Turn Component		0.07			0.05
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.62		0.80	
LEVEL OF SERVICE (LOS)				B		C	

PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out With Project					
INTERSECTION:		194 Anaheim Boulevard/Anaheim Way/I-5 Northbound Ramp					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	2.0	3,400	205	0.06 *	3,400	360	0.11 *
NBT	3.0	5,100	1,066	0.21	5,100	1,473	0.29
NBR			0			0	
SBL			0			0	
SBT	4.0	6,800	1,944	0.29 *	6,800	1,554	0.23 *
SBR	1.0	1,700	148	0.09	1,700	397	0.23 *
EBL			0			0	*
EBT			0	0.00 *		0	0.00
EBR			0			0	
WBL	0.5	850	30	0.04 *	850	80	0.09
WBT	1.0	1,700	30	0.02	1,700	740	0.44 *
WBR	1.5	2,550	431	0.17 *	2,550	935	0.37
		N/S Movements		0.35			0.33
		E/W Movements		0.04			0.44
		Rt. Turn Component		0.15			0.01
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.58		0.82	
LEVEL OF SERVICE (LOS)				A		D	

PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out With Project					
INTERSECTION:		195 Anaheim Boulevard/Disney Way					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.0	1,700	65	0.04	1,700	160	0.09
NBT	3.0	5,100	957	0.19 *	5,100	1,281	0.25 *
NBR			10			5	
SBL	2.0	3,400	600	0.18 *	3,400	606	0.18 *
SBT	3.0	5,100	1,123	0.27	5,100	873	0.20
SBR			251			155	
EBL	2.0	3,400	305	0.09 *	3,400	545	0.16 *
EBT	4.0	6,800	745	0.15	6,800	660	0.13
EBR			245			195	
WBL			0			0	
WBT	3.0	5,100	485	0.10 *	5,100	525	0.10 *
WBR			0			0	
		N/S Movements		0.37			0.43
		E/W Movements		0.18			0.26
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.60		0.74	
LEVEL OF SERVICE (LOS)				A		C	

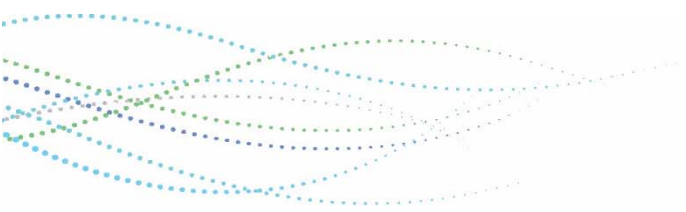
PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out With Project					
INTERSECTION:		197 Anaheim Boulevard/Katella Avenue					
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	2.0	3,400	180	0.05	3,400	200	0.06
NBT	3.0	5,100	616	0.12 *	5,100	1,030	0.20 *
NBR	1.0	1,700	130	0.08	1,700	540	0.32
SBL	2.0	3,400	275	0.08 *	3,400	90	0.03 *
SBT	3.0	5,100	449	0.09	5,100	825	0.16
SBR	1.0	1,700	214	0.13	1,700	163	0.10
EBL	2.0	3,400	210	0.06 *	3,400	290	0.09 *
EBT	4.0	6,800	1,255	0.20	6,800	1,355	0.22
EBR			80			130	
WBL	2.0	3,400	85	0.03	3,400	640	0.19
WBT	4.0	6,800	1,455	0.22 *	6,800	2,225	0.34 *
WBR			30			70	
		N/S Movements		0.20			0.23
		E/W Movements		0.28			0.42
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.53		0.70	
LEVEL OF SERVICE (LOS)				A		B	

PROJECT:		Radisson Hotel						
SCENARIO:		General Plan Build Out With Project						
INTERSECTION:		210 I-5 Southbound Ramps/Katella Avenue						
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C	
			VOLUME	V/C	CAPACITY	VOLUME		
NBL	1.5	1,700	30	0.02	1,700	60	0.04	
NBT			0	0.00 *		0	0.00 *	
NBR	1.5	3,400	740	0.22 *	3,400	380	0.11	
SBL	2.0	3,400	395	0.12 *	3,400	355	0.10 *	
SBT	2.0	3,400	326	0.10	3,400	223	0.07	
SBR	1.0	1,700	15	0.01	1,700	35	0.02	
EBL			0			0	*	
EBT	4.0	6,800	1,580	0.23 *	6,800	1,495	0.22	
EBR	2.0	3,400	965	0.28 *	3,400	780	0.23	
WBL	2.0	3,400	285	0.08 *	3,400	480	0.14	
WBT	4.0	6,800	1,990	0.29	6,800	2,825	0.42 *	
WBR			0			0		
		N/S Movements		0.12			0.10	
		E/W Movements		0.32			0.42	
		Rt. Turn Component		0.17			0.00	
		Yellow Clearance		0.05			0.05	
TOTAL CAPACITY UTILIZATION				0.65		0.57		
LEVEL OF SERVICE (LOS)				B		A		

PROJECT:		Radisson Hotel					
SCENARIO:		General Plan Build Out With Project					
INTERSECTION:		211		I-5 Northbound Ramps/Katella Avenue			
MOVEMENT	LANES	CAPACITY	AM PEAK HOUR		PM PEAK HOUR		V/C
			VOLUME	V/C	CAPACITY	VOLUME	
NBL	1.5	2,550	865	0.34 *	2,550	1,070	0.42 *
NBT	3.5	5,950	554	0.20	5,950	1,330	0.28
NBR			660			310	
SBL			0			0	
SBT			0	0.00 *		0	0.00 *
SBR			0			0	
EBL	2.0	3,400	125	0.04	3,400	105	0.03 *
EBT	4.0	6,800	2,550	0.38 *	6,800	2,125	0.31
EBR			0			0	
WBL			0	*		0	
WBT	4.5	7,650	1,200	0.16	7,650	2,350	0.31 *
WBR	1.5	2,550	92	0.04	2,550	433	0.17
		N/S Movements		0.34			0.42
		E/W Movements		0.38			0.34
		Rt. Turn Component		0.00			0.00
		Yellow Clearance		0.05			0.05
TOTAL CAPACITY UTILIZATION				0.76		0.81	
LEVEL OF SERVICE (LOS)				C		D	

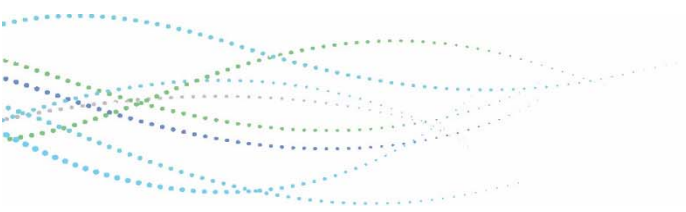


APPENDIX D – HCM ANALYSIS WORKSHEETS
































EXISTING PLUS PROJECT



HCM 2010 Signalized Intersection Summary
 4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  					  	  	
Traffic Volume (veh/h)	0	171	17	19	364	0	5	0	40	251	15	175
Future Volume (veh/h)	0	171	17	19	364	0	5	0	40	251	15	175
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.97		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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	0	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	197	20	21	400	0	6	0	47	342	0	133
Adj No. of Lanes	0	3	0	1	3	0	1	0	1	2	0	1
Peak Hour Factor	0.87	0.87	0.87	0.91	0.91	0.91	0.86	0.86	0.86	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1819	179	607	1975	0	0	0	0	482	0	215
Arrive On Green	0.00	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	0	4428	421	1143	4794	0		0		3238	0	1445
Grp Volume(v), veh/h	0	141	76	21	400	0		0.0		342	0	133
Grp Sat Flow(s),veh/h/ln	0	1547	1601	1143	1547	0				1619	0	1445
Q Serve(g_s), s	0.0	1.3	1.3	0.5	2.5	0.0				4.7	0.0	4.1
Cycle Q Clear(g_c), s	0.0	1.3	1.3	1.9	2.5	0.0				4.7	0.0	4.1
Prop In Lane	0.00		0.26	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1317	681	607	1975	0				482	0	215
V/C Ratio(X)	0.00	0.11	0.11	0.03	0.20	0.00				0.71	0.00	0.62
Avail Cap(c_a), veh/h	0	1317	681	607	1975	0				482	0	215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.78	0.78	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.1	8.1	8.7	8.5	0.0				19.0	0.0	18.7
Incr Delay (d2), s/veh	0.0	0.2	0.3	0.1	0.2	0.0				8.5	0.0	12.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.7	0.2	1.1	0.0				2.7	0.0	2.3
LnGrp Delay(d),s/veh	0.0	8.3	8.5	8.8	8.7	0.0				27.6	0.0	31.4
LnGrp LOS		A	A	A	A					C		C
Approach Vol, veh/h		217			421							475
Approach Delay, s/veh		8.4			8.7							28.6
Approach LOS		A			A							C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.0				25.0		12.1				
Change Period (Y+Rc), s		5.0				5.0		5.1				
Max Green Setting (Gmax), s		20.0				20.0		7.0				
Max Q Clear Time (g_c+I1), s		4.5				3.3		6.7				
Green Ext Time (p_c), s		4.6				4.8		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				17.1								
HCM 2010 LOS				B								
Notes												

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑↑	↑↑↑	
Traffic Vol, veh/h	0	42	0	1182	1268	49
Future Vol, veh/h	0	42	0	1182	1268	49
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, %	0	0	0	0	0	0
Mvmt Flow	0	44	0	1244	1335	52



















Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	693	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	335	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %			-
Mov Cap-1 Maneuver	-	335	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.4	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	335	-	-
HCM Lane V/C Ratio	-	0.132	-	-
HCM Control Delay (s)	-	17.4	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.5	-	-

HCM 2010 Signalized Intersection Summary
 8: Anaheim Blvd & Anaheim Way





















02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	21	21	417	180	844	0	0	1173	137
Future Volume (veh/h)	0	0	0	21	21	417	180	844	0	0	1173	137
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1700	1700	1700	1700	1700	0	0	1700	1700
Adj Flow Rate, veh/h				24	24	474	200	938	0	0	1303	0
Adj No. of Lanes				0	2	1	2	3	0	0	3	1
Peak Hour Factor				0.88	0.88	0.88	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				288	879	501	1029	2642	0	0	928	289
Arrive On Green				0.35	0.35	0.35	0.33	0.57	0.00	0.00	0.20	0.00
Sat Flow, veh/h				829	2529	1443	3141	4794	0	0	4794	1445
Grp Volume(v), veh/h				48	0	474	200	938	0	0	1303	0
Grp Sat Flow(s),veh/h/ln				1659	1700	1443	1570	1547	0	0	1547	1445
Q Serve(g_s), s				2.3	0.0	38.3	5.5	13.1	0.0	0.0	24.0	0.0
Cycle Q Clear(g_c), s				2.3	0.0	38.3	5.5	13.1	0.0	0.0	24.0	0.0
Prop In Lane				0.50		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				576	591	501	1029	2642	0	0	928	289
V/C Ratio(X)				0.08	0.00	0.95	0.19	0.36	0.00	0.00	1.40	0.00
Avail Cap(c_a), veh/h				733	751	637	1029	2642	0	0	928	289
HCM Platoon Ratio				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	0.72	0.72	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				26.3	0.0	38.0	29.0	14.0	0.0	0.0	48.0	0.0
Incr Delay (d2), s/veh				0.0	0.0	19.2	0.0	0.3	0.0	0.0	188.2	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
%ile BackOfQ(50%),veh/ln				1.1	0.0	17.9	2.4	5.6	0.0	0.0	26.4	0.0
LnGrp Delay(d),s/veh				26.3	0.0	57.2	29.0	14.2	0.0	0.0	236.2	0.0
LnGrp LOS				C		E	C	B			F	
Approach Vol, veh/h					522			1138			1303	
Approach Delay, s/veh					54.4			16.8			236.2	
Approach LOS					D			B			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		73.3			44.3	29.0		46.7				
Change Period (Y+Rc), s		5.0			5.0	* 5		5.0				
Max Green Setting (Gmax), s		57.0			28.8	* 24		53.0				
Max Q Clear Time (g_c+I1), s		15.1			7.5	26.0		40.3				
Green Ext Time (p_c), s		11.1			8.8	0.0		1.0				
Intersection Summary												
HCM 2010 Ctrl Delay					119.9							
HCM 2010 LOS					F							
Notes												

HCM 2010 Signalized Intersection Summary













9: Anaheim Blvd & Manchester Ave/Manchester Ave/I-5 SB On

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	284	102	94	0	252	1	29	671	5	510	530	108
Future Volume (veh/h)	284	102	94	0	252	1	29	671	5	510	530	108
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.98	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1700	1700	1700	0	1700	1700	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	326	117	108	0	360	1	30	699	5	580	602	123
Adj No. of Lanes	2	4	0	0	3	0	1	3	0	2	3	0
Peak Hour Factor	0.87	0.87	0.87	0.70	0.70	0.70	0.96	0.96	0.96	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	388	1249	409	0	563	2	65	1881	13	512	2023	406
Arrive On Green	0.12	0.28	0.28	0.00	0.12	0.12	0.04	0.40	0.40	0.16	0.52	0.52
Sat Flow, veh/h	3141	4386	1436	0	4931	13	1619	4753	34	3141	3863	775
Grp Volume(v), veh/h	326	117	108	0	233	128	30	455	249	580	480	245
Grp Sat Flow(s),veh/h/ln	1570	1462	1436	0	1547	1697	1619	1547	1693	1570	1547	1544
Q Serve(g_s), s	9.8	1.9	5.6	0.0	7.0	7.0	1.8	10.1	10.1	15.8	8.5	8.7
Cycle Q Clear(g_c), s	9.8	1.9	5.6	0.0	7.0	7.0	1.8	10.1	10.1	15.8	8.5	8.7
Prop In Lane	1.00		1.00	0.00		0.01	1.00		0.02	1.00		0.50
Lane Grp Cap(c), veh/h	388	1249	409	0	364	200	65	1224	670	512	1621	809
V/C Ratio(X)	0.84	0.09	0.26	0.00	0.64	0.64	0.46	0.37	0.37	1.13	0.30	0.30
Avail Cap(c_a), veh/h	447	1944	637	0	797	437	172	1224	670	512	1621	809
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)	0.94	0.94	0.94	0.00	1.00	1.00	1.00	1.00	1.00	0.72	0.72	0.72
Uniform Delay (d), s/veh	41.6	25.5	26.8	0.0	40.8	40.8	45.5	20.8	20.8	40.6	13.0	13.1
Incr Delay (d2), s/veh	10.1	0.0	0.3	0.0	0.7	1.3	3.8	0.9	1.6	76.9	0.3	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	4.8	0.8	2.3	0.0	3.0	3.3	0.9	4.4	5.0	12.3	3.7	3.8
LnGrp Delay(d),s/veh	51.7	25.5	27.2	0.0	41.5	42.1	49.3	21.6	22.3	117.5	13.4	13.8
LnGrp LOS	D	C	C		D	D	D	C	C	F	B	B
Approach Vol, veh/h		551			361			734			1305	
Approach Delay, s/veh		41.3			41.7			23.0			59.7	
Approach LOS		D			D			C			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.0	43.4		32.6	8.6	55.8	16.2	16.4				
Change Period (Y+Rc), s	* 5.2	5.0		5.0	* 4.7	5.0	* 4.2	5.0				
Max Green Setting (Gmax), s	* 16	20.0		43.0	* 10	29.0	* 14	25.0				
Max Q Clear Time (g_c+I1), s	17.8	12.1		7.6	3.8	10.7	11.8	9.0				
Green Ext Time (p_c), s	0.0	5.8		2.9	0.0	11.1	0.1	2.5				
Intersection Summary												
HCM 2010 Ctrl Delay			45.0									
HCM 2010 LOS			D									
Notes												



















HCM 2010 Signalized Intersection Summary
 11: I-5 SB Ramps & Katella Ave

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗	↘	↑↑↑		↖	↕	↗	↘	↑↑	↗
Traffic Volume (veh/h)	0	833	432	188	913	0	27	0	520	26	75	1
Future Volume (veh/h)	0	833	432	188	913	0	27	0	520	26	75	1
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.98
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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	947	491	200	971	0	20	0	589	32	94	1
Adj No. of Lanes	0	3	1	2	4	0	1	0	2	2	2	1
Peak Hour Factor	0.88	0.88	0.88	0.94	0.94	0.94	0.90	0.90	0.90	0.80	0.80	0.80
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	2170	905	277	3524	0	279	0	497	205	211	92
Arrive On Green	0.00	0.47	0.47	0.18	1.00	0.00	0.17	0.00	0.17	0.07	0.07	0.07
Sat Flow, veh/h	0	4794	1403	3141	6086	0	1619	0	2885	3141	3230	1417
Grp Volume(v), veh/h	0	947	491	200	971	0	20	0	589	32	94	1
Grp Sat Flow(s),veh/h/ln	0	1547	1403	1570	1462	0	1619	0	1442	1570	1615	1417
Q Serve(g_s), s	0.0	12.3	17.5	5.4	0.0	0.0	0.9	0.0	15.5	0.9	2.5	0.1
Cycle Q Clear(g_c), s	0.0	12.3	17.5	5.4	0.0	0.0	0.9	0.0	15.5	0.9	2.5	0.1
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	2170	905	277	3524	0	279	0	497	205	211	92
V/C Ratio(X)	0.00	0.44	0.54	0.72	0.28	0.00	0.07	0.00	1.19	0.16	0.45	0.01
Avail Cap(c_a), veh/h	0	2170	905	551	3524	0	279	0	497	537	553	242
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.88	0.88	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	16.0	9.0	36.0	0.0	0.0	31.2	0.0	37.2	39.7	40.5	39.3
Incr Delay (d2), s/veh	0.0	0.6	2.3	1.2	0.2	0.0	0.5	0.0	102.3	0.1	0.6	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	5.4	10.5	2.4	0.0	0.0	0.5	0.0	13.2	0.4	1.1	0.0
LnGrp Delay(d),s/veh	0.0	16.7	11.3	37.2	0.2	0.0	31.7	0.0	139.6	39.9	41.0	39.4
LnGrp LOS		B	B	D	A		C		F	D	D	D
Approach Vol, veh/h		1438			1171			609			127	
Approach Delay, s/veh		14.8			6.5			136.0			40.7	
Approach LOS		B			A			F			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	12.1	47.4		20.0		59.5		10.5				
Change Period (Y+Rc), s	* 4.2	5.3		4.5		5.3		4.6				
Max Green Setting (Gmax), s	* 16	24.7		15.5		44.7		15.4				
Max Q Clear Time (g_c+I1), s	7.4	19.5		17.5		2.0		4.5				
Green Ext Time (p_c), s	0.2	4.9		0.0		31.5		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay			35.0									
HCM 2010 LOS			C									
Notes												













HCM 2010 Signalized Intersection Summary
 12: I-5 NB Ramps & Katella Ave

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	1317	0	0	949	87	380	434	304	0	0	0
Future Volume (veh/h)	65	1317	0	0	949	87	380	434	304	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	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			
Adj Sat Flow, veh/h/ln	1700	1700	0	0	1700	1700	1700	1700	1700			
Adj Flow Rate, veh/h	73	1480	0	0	1043	96	254	742	345			
Adj No. of Lanes	2	4	0	0	4	1	1	4	0			
Peak Hour Factor	0.89	0.89	0.89	0.91	0.91	0.91	0.88	0.88	0.88			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	174	3300	0	0	3104	650	490	1542	437			
Arrive On Green	0.11	1.00	0.00	0.00	0.46	0.46	0.30	0.30	0.30			
Sat Flow, veh/h	3141	6086	0	0	6800	1424	1619	5100	1445			
Grp Volume(v), veh/h	73	1480	0	0	1043	96	254	742	345			
Grp Sat Flow(s),veh/h/ln	1570	1462	0	0	1700	1424	1619	1700	1445			
Q Serve(g_s), s	1.9	0.0	0.0	0.0	8.9	3.5	11.7	10.7	19.7			
Cycle Q Clear(g_c), s	1.9	0.0	0.0	0.0	8.9	3.5	11.7	10.7	19.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	174	3300	0	0	3104	650	490	1542	437			
V/C Ratio(X)	0.42	0.45	0.00	0.00	0.34	0.15	0.52	0.48	0.79			
Avail Cap(c_a), veh/h	429	3300	0	0	3104	650	720	2267	642			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.87	0.87	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	38.6	0.0	0.0	0.0	15.7	14.3	26.0	25.6	28.8			
Incr Delay (d2), s/veh	0.5	0.4	0.0	0.0	0.3	0.5	0.5	0.1	2.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.8	0.1	0.0	0.0	4.2	1.5	5.3	5.0	8.2			
LnGrp Delay(d),s/veh	39.2	0.4	0.0	0.0	16.0	14.7	26.4	25.8	31.5			
LnGrp LOS	D	A			B	B	C	C	C			
Approach Vol, veh/h		1553			1139			1341				
Approach Delay, s/veh		2.2			15.9			27.4				
Approach LOS		A			B			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		56.8			9.7	47.1		33.2				
Change Period (Y+Rc), s		6.0			* 4.7	6.0		6.0				
Max Green Setting (Gmax), s		38.0			* 12	21.0		40.0				
Max Q Clear Time (g_c+I1), s		2.0			3.9	10.9		21.7				
Green Ext Time (p_c), s		30.6			0.1	9.6		5.5				
Intersection Summary												
HCM 2010 Ctrl Delay				14.4								
HCM 2010 LOS				B								
Notes												

HCM 2010 Signalized Intersection Summary
 4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑		↑		↑	↑	↔	↑
Traffic Volume (veh/h)	0	347	18	15	278	0	8	0	53	242	14	142
Future Volume (veh/h)	0	347	18	15	278	0	8	0	53	242	14	142
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	0.99		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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	0	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	386	20	17	323	0	9	0	59	307	0	104
Adj No. of Lanes	0	3	0	1	3	0	1	0	1	2	0	1
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1920	98	520	1975	0	0	0	0	482	0	215
Arrive On Green	0.00	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	0	4666	231	989	4794	0		0		3238	0	1445
Grp Volume(v), veh/h	0	263	143	17	323	0		0.0		307	0	104
Grp Sat Flow(s),veh/h/ln	0	1547	1650	989	1547	0				1619	0	1445
Q Serve(g_s), s	0.0	2.5	2.6	0.5	2.0	0.0				4.2	0.0	3.1
Cycle Q Clear(g_c), s	0.0	2.5	2.6	3.1	2.0	0.0				4.2	0.0	3.1
Prop In Lane	0.00		0.14	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1317	702	520	1975	0				482	0	215
V/C Ratio(X)	0.00	0.20	0.20	0.03	0.16	0.00				0.64	0.00	0.48
Avail Cap(c_a), veh/h	0	1317	702	520	1975	0				482	0	215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.88	0.88	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.5	8.5	9.5	8.3	0.0				18.8	0.0	18.3
Incr Delay (d2), s/veh	0.0	0.3	0.7	0.1	0.2	0.0				6.3	0.0	7.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.1	1.3	0.2	0.9	0.0				2.3	0.0	1.7
LnGrp Delay(d),s/veh	0.0	8.8	9.1	9.6	8.5	0.0				25.1	0.0	25.9
LnGrp LOS		A	A	A	A					C		C
Approach Vol, veh/h		406			340							411
Approach Delay, s/veh		8.9			8.5							25.3
Approach LOS		A			A							C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.0				25.0		12.1				
Change Period (Y+Rc), s		5.0				5.0		5.1				
Max Green Setting (Gmax), s		20.0				20.0		7.0				
Max Q Clear Time (g_c+I1), s		5.1				4.6		6.2				
Green Ext Time (p_c), s		5.3				5.4		0.1				
Intersection Summary												
HCM 2010 Ctrl Delay				14.6								
HCM 2010 LOS				B								
Notes												

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑↑	↑↑↑	
Traffic Vol, veh/h	0	36	0	1517	1699	42
Future Vol, veh/h	0	36	0	1517	1699	42
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, %	0	0	0	0	0	0
Mvmt Flow	0	38	0	1597	1788	44



















Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	916	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	239	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %			-
Mov Cap-1 Maneuver	-	239	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	- 239	-	-
HCM Lane V/C Ratio	- 0.159	-	-
HCM Control Delay (s)	- 22.9	-	-
HCM Lane LOS	- C	-	-
HCM 95th %tile Q(veh)	- 0.6	-	-

HCM 2010 Signalized Intersection Summary
8: Anaheim Blvd & Anaheim Way






























02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	51	717	631	327	894	0	0	1349	386
Future Volume (veh/h)	0	0	0	51	717	631	327	894	0	0	1349	386
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1700	1700	1700	1700	1700	0	0	1700	1700
Adj Flow Rate, veh/h				59	953	654	355	972	0	0	1435	0
Adj No. of Lanes				0	2	1	2	3	0	0	3	1
Peak Hour Factor				0.86	0.86	0.86	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				83	1414	638	411	2204	0	0	1434	447
Arrive On Green				0.44	0.44	0.44	0.13	0.47	0.00	0.00	0.31	0.00
Sat Flow, veh/h				188	3202	1445	3141	4794	0	0	4794	1445
Grp Volume(v), veh/h				529	483	654	355	972	0	0	1435	0
Grp Sat Flow(s),veh/h/ln				1691	1700	1445	1570	1547	0	0	1547	1445
Q Serve(g_s), s				30.5	26.6	53.0	13.3	16.7	0.0	0.0	37.1	0.0
Cycle Q Clear(g_c), s				30.5	26.6	53.0	13.3	16.7	0.0	0.0	37.1	0.0
Prop In Lane				0.11		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				747	751	638	411	2204	0	0	1434	447
V/C Ratio(X)				0.71	0.64	1.02	0.86	0.44	0.00	0.00	1.00	0.00
Avail Cap(c_a), veh/h				747	751	638	597	2204	0	0	1434	447
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.57	0.57	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				27.2	26.1	33.5	51.1	20.9	0.0	0.0	41.5	0.0
Incr Delay (d2), s/veh				2.8	1.6	42.1	3.8	0.4	0.0	0.0	23.9	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
%ile BackOfQ(50%),veh/ln				14.8	12.8	28.6	6.0	7.2	0.0	0.0	19.0	0.0
LnGrp Delay(d),s/veh				30.0	27.7	75.6	54.9	21.3	0.0	0.0	65.4	0.0
LnGrp LOS				C	C	F	D	C			F	
Approach Vol, veh/h					1666			1327			1435	
Approach Delay, s/veh					47.2			30.3			65.4	
Approach LOS					D			C			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		62.0			19.9	42.1		58.0				
Change Period (Y+Rc), s		5.0			* 4.2	5.0		5.0				
Max Green Setting (Gmax), s		57.0			* 23	30.0		53.0				
Max Q Clear Time (g_c+I1), s		18.7			15.3	39.1		55.0				
Green Ext Time (p_c), s		30.7			0.4	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				48.0								
HCM 2010 LOS				D								
Notes												

HCM 2010 Signalized Intersection Summary













9: Anaheim Blvd & Manchester Ave/Manchester Ave/I-5 SB On

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			  		 	  	
Traffic Volume (veh/h)	283	191	183	0	205	6	25	895	4	586	795	72
Future Volume (veh/h)	283	191	183	0	205	6	25	895	4	586	795	72
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1700	1700	1700	0	1700	1700	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	325	220	210	0	244	7	26	923	4	592	803	73
Adj No. of Lanes	2	4	0	0	3	0	1	3	0	2	3	0
Peak Hour Factor	0.87	0.87	0.87	0.84	0.84	0.84	0.97	0.97	0.97	0.99	0.99	0.99
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	387	1196	388	0	492	14	59	1945	8	512	2333	211
Arrive On Green	0.12	0.27	0.27	0.00	0.11	0.11	0.04	0.41	0.41	0.16	0.54	0.54
Sat Flow, veh/h	3141	4386	1425	0	4789	132	1619	4769	21	3141	4325	391
Grp Volume(v), veh/h	325	220	210	0	162	89	26	599	328	592	573	303
Grp Sat Flow(s),veh/h/ln	1570	1462	1425	0	1547	1674	1619	1547	1696	1570	1547	1622
Q Serve(g_s), s	9.8	3.7	12.2	0.0	4.8	4.9	1.5	13.8	13.8	15.8	10.2	10.2
Cycle Q Clear(g_c), s	9.8	3.7	12.2	0.0	4.8	4.9	1.5	13.8	13.8	15.8	10.2	10.2
Prop In Lane	1.00		1.00	0.00		0.08	1.00		0.01	1.00		0.24
Lane Grp Cap(c), veh/h	387	1196	388	0	328	178	59	1262	692	512	1669	875
V/C Ratio(X)	0.84	0.18	0.54	0.00	0.49	0.50	0.44	0.47	0.47	1.16	0.34	0.35
Avail Cap(c_a), veh/h	447	1944	632	0	797	432	172	1262	692	512	1669	875
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)	0.96	0.96	0.96	0.00	1.00	1.00	1.00	1.00	1.00	0.13	0.13	0.13
Uniform Delay (d), s/veh	41.6	27.0	30.1	0.0	40.9	40.9	45.8	21.1	21.1	40.6	12.6	12.6
Incr Delay (d2), s/veh	10.2	0.1	1.1	0.0	0.4	0.8	3.8	1.3	2.3	74.0	0.1	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	4.8	1.5	4.9	0.0	2.1	2.3	0.7	6.1	6.9	12.1	4.3	4.6
LnGrp Delay(d),s/veh	51.8	27.1	31.2	0.0	41.3	41.7	49.6	22.4	23.4	114.6	12.7	12.8
LnGrp LOS	D	C	C		D	D	D	C	C	F	B	B
Approach Vol, veh/h		755			251			953			1468	
Approach Delay, s/veh		38.9			41.5			23.5			53.8	
Approach LOS		D			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.0	44.6		31.4	8.2	57.3	16.2	15.3				
Change Period (Y+Rc), s	* 5.2	5.0		5.0	* 4.7	5.0	* 4.2	5.0				
Max Green Setting (Gmax), s	* 16	20.0		43.0	* 10	29.0	* 14	25.0				
Max Q Clear Time (g_c+I1), s	17.8	15.8		14.2	3.5	12.2	11.8	6.9				
Green Ext Time (p_c), s	0.0	3.7		3.8	0.0	12.5	0.1	3.4				
Intersection Summary												
HCM 2010 Ctrl Delay			41.2									
HCM 2010 LOS			D									
Notes												



















HCM 2010 Signalized Intersection Summary
 11: I-5 SB Ramps & Katella Ave

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗	↘	↑↑↑		↖	↔	↗	↘	↑↑	↗
Traffic Volume (veh/h)	0	717	463	421	1537	0	35	0	294	61	57	1
Future Volume (veh/h)	0	717	463	421	1537	0	35	0	294	61	57	1
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.98
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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	806	520	501	1830	0	27	0	352	75	70	1
Adj No. of Lanes	0	3	1	2	4	0	1	0	2	2	2	1
Peak Hour Factor	0.89	0.89	0.89	0.84	0.84	0.84	0.87	0.87	0.87	0.81	0.81	0.81
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1764	784	549	3518	0	279	0	497	208	214	94
Arrive On Green	0.00	0.38	0.38	0.35	1.00	0.00	0.17	0.00	0.17	0.07	0.07	0.07
Sat Flow, veh/h	0	4794	1409	3141	6086	0	1619	0	2885	3141	3230	1417
Grp Volume(v), veh/h	0	806	520	501	1830	0	27	0	352	75	70	1
Grp Sat Flow(s),veh/h/ln	0	1547	1409	1570	1462	0	1619	0	1442	1570	1615	1417
Q Serve(g_s), s	0.0	11.7	23.6	13.7	0.0	0.0	1.3	0.0	10.4	2.1	1.9	0.1
Cycle Q Clear(g_c), s	0.0	11.7	23.6	13.7	0.0	0.0	1.3	0.0	10.4	2.1	1.9	0.1
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	1764	784	549	3518	0	279	0	497	208	214	94
V/C Ratio(X)	0.00	0.46	0.66	0.91	0.52	0.00	0.10	0.00	0.71	0.36	0.33	0.01
Avail Cap(c_a), veh/h	0	1764	784	551	3518	0	279	0	497	537	553	242
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.09	0.09	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	20.9	14.3	28.6	0.0	0.0	31.4	0.0	35.1	40.2	40.1	39.3
Incr Delay (d2), s/veh	0.0	0.9	4.4	2.4	0.0	0.0	0.7	0.0	8.3	0.4	0.3	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	5.1	13.5	6.0	0.0	0.0	0.6	0.0	4.7	0.9	0.8	0.0
LnGrp Delay(d),s/veh	0.0	21.8	18.7	31.0	0.0	0.0	32.0	0.0	43.4	40.6	40.4	39.3
LnGrp LOS		C	B	C	A		C		D	D	D	D
Approach Vol, veh/h		1326			2331			379			146	
Approach Delay, s/veh		20.6			6.7			42.6			40.5	
Approach LOS		C			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	19.9	39.5		20.0		59.4		10.6				
Change Period (Y+Rc), s	* 4.2	5.3		4.5		5.3		4.6				
Max Green Setting (Gmax), s	* 16	24.7		15.5		44.7		15.4				
Max Q Clear Time (g_c+I1), s	15.7	25.6		12.4		2.0		4.1				
Green Ext Time (p_c), s	0.0	0.0		0.3		38.7		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay				15.5								
HCM 2010 LOS				B								
Notes												

HCM 2010 Signalized Intersection Summary
 12: I-5 NB Ramps & Katella Ave

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	1002	0	0	1807	121	654	1288	68	0	0	0
Future Volume (veh/h)	78	1002	0	0	1807	121	654	1288	68	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1700	1700	0	0	1700	1700	1700	1700	1700			
Adj Flow Rate, veh/h	82	1055	0	0	2126	142	437	1784	74			
Adj No. of Lanes	2	4	0	0	4	1	1	4	0			
Peak Hour Factor	0.95	0.95	0.95	0.85	0.85	0.85	0.92	0.92	0.92			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	174	2910	0	0	2651	555	597	2391	99			
Arrive On Green	0.11	1.00	0.00	0.00	0.39	0.39	0.37	0.37	0.37			
Sat Flow, veh/h	3141	6086	0	0	6800	1424	1619	6479	269			
Grp Volume(v), veh/h	82	1055	0	0	2126	142	437	1404	454			
Grp Sat Flow(s),veh/h/ln	1570	1462	0	0	1700	1424	1619	1700	1648			
Q Serve(g_s), s	2.2	0.1	0.0	0.0	25.0	6.1	21.0	21.6	21.6			
Cycle Q Clear(g_c), s	2.2	0.1	0.0	0.0	25.0	6.1	21.0	21.6	21.6			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.16			
Lane Grp Cap(c), veh/h	174	2910	0	0	2651	555	597	1882	608			
V/C Ratio(X)	0.47	0.36	0.00	0.00	0.80	0.26	0.73	0.75	0.75			
Avail Cap(c_a), veh/h	429	2910	0	0	2651	555	720	2267	732			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.88	0.88	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	38.8	0.1	0.0	0.0	24.4	18.6	24.5	24.7	24.7			
Incr Delay (d2), s/veh	0.6	0.3	0.0	0.0	2.7	1.1	2.5	0.9	2.8			
Initial Q Delay(d3),s/veh	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	0.1	0.0	0.0	12.2	2.5	9.8	10.3	10.3			
LnGrp Delay(d),s/veh	39.4	0.4	0.0	0.0	27.0	19.7	27.0	25.6	27.5			
LnGrp LOS	D	A			C	B	C	C	C			
Approach Vol, veh/h		1137			2268			2295				
Approach Delay, s/veh		3.2			26.6			26.3				
Approach LOS		A			C			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		50.8			9.7	41.1		39.2				
Change Period (Y+Rc), s		6.0			* 4.7	6.0		6.0				
Max Green Setting (Gmax), s		38.0			* 12	21.0		40.0				
Max Q Clear Time (g_c+I1), s		2.1			4.2	27.0		23.6				
Green Ext Time (p_c), s		34.1			0.1	0.0		9.5				
Intersection Summary												
HCM 2010 Ctrl Delay				21.8								
HCM 2010 LOS				C								
Notes												

Queues

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

02/13/2018



Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	217	21	400	6	47	166	166	152
v/c Ratio	0.11	0.05	0.20	0.03	0.16	0.72	0.69	0.45
Control Delay	7.5	8.3	8.7	19.4	1.1	41.4	34.7	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.5	8.3	8.7	19.4	1.1	41.4	34.7	8.9
Queue Length 50th (ft)	10	3	23	2	0	46	39	0
Queue Length 95th (ft)	20	12	38	9	0	#126	#121	38
Internal Link Dist (ft)	1148		509				920	
Turn Bay Length (ft)		155		150	150	480		350
Base Capacity (vph)	1955	427	1983	172	302	229	240	338
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.05	0.20	0.03	0.16	0.72	0.69	0.45

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

11: I-5 SB Ramps & Katella Ave

02/13/2018



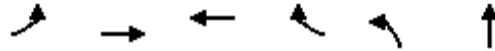
Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	947	491	200	971	27	292	289	33	94	1
v/c Ratio	0.45	0.47	0.56	0.27	0.10	0.63	0.61	0.13	0.36	0.00
Control Delay	19.2	3.5	43.7	8.3	32.7	11.1	10.3	39.0	42.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.2	3.5	43.7	8.3	32.7	11.1	10.3	39.0	42.8	0.0
Queue Length 50th (ft)	136	19	60	63	13	1	0	9	27	0
Queue Length 95th (ft)	188	63	95	113	38	83	75	20	44	0
Internal Link Dist (ft)	812			868		2402			478	
Turn Bay Length (ft)			225				705	390		
Base Capacity (vph)	2086	1040	550	3572	264	466	475	536	552	354
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.47	0.36	0.27	0.10	0.63	0.61	0.06	0.17	0.00

Intersection Summary

Queues

12: I-5 NB Ramps & Katella Ave

02/13/2018



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	73	1480	1053	86	259	1011
v/c Ratio	0.32	0.45	0.42	0.15	0.66	0.64
Control Delay	49.1	9.6	18.8	5.0	34.7	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.1	9.6	18.8	5.0	34.7	28.4
Queue Length 50th (ft)	22	72	120	0	160	154
Queue Length 95th (ft)	m42	136	193	35	214	154
Internal Link Dist (ft)		868	1064			1268
Turn Bay Length (ft)	130			225	1000	
Base Capacity (vph)	428	3302	2536	580	581	2308
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.45	0.42	0.15	0.45	0.44

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

02/13/2018



Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	406	17	323	9	59	145	144	130
v/c Ratio	0.21	0.05	0.16	0.05	0.20	0.63	0.63	0.38
Control Delay	8.3	8.3	8.5	19.6	1.4	34.7	32.5	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	8.3	8.5	19.6	1.4	34.7	32.5	6.9
Queue Length 50th (ft)	22	3	18	2	0	40	37	0
Queue Length 95th (ft)	36	10	29	12	0	#108	#108	29
Internal Link Dist (ft)	1111		501				1080	
Turn Bay Length (ft)		155		150	150	480		350
Base Capacity (vph)	1977	364	1983	172	302	229	230	338
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.05	0.16	0.05	0.20	0.63	0.63	0.38

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

11: I-5 SB Ramps & Katella Ave

02/13/2018



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	806	520	501	1830	36	170	172	75	70	1
v/c Ratio	0.49	0.57	0.74	0.51	0.14	0.47	0.46	0.31	0.28	0.00
Control Delay	25.6	7.6	35.1	18.0	33.2	10.6	9.7	42.5	41.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	7.6	35.1	18.0	33.2	10.6	9.7	42.5	41.9	0.0
Queue Length 50th (ft)	135	53	154	223	18	2	0	21	20	0
Queue Length 95th (ft)	187	150	m139	m204	45	57	51	37	36	0
Internal Link Dist (ft)	812			868		2402			478	
Turn Bay Length (ft)			225					390		
Base Capacity (vph)	1636	914	680	3594	264	364	378	536	552	354
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.57	0.74	0.51	0.14	0.47	0.46	0.14	0.13	0.00

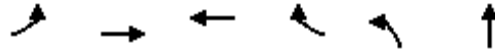
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

12: I-5 NB Ramps & Katella Ave

02/13/2018



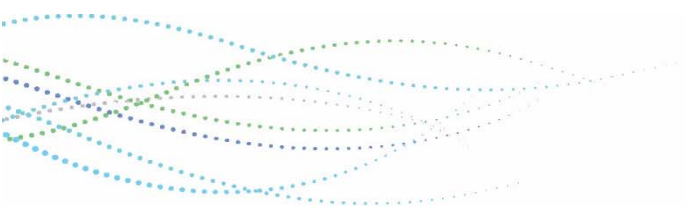
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	82	1055	2140	128	427	1758
v/c Ratio	0.35	0.41	1.16	0.28	0.77	0.76
Control Delay	51.1	16.9	110.8	9.8	32.4	24.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	16.9	110.8	9.8	32.4	24.1
Queue Length 50th (ft)	25	65	~494	12	239	243
Queue Length 95th (ft)	50	150	#551	59	391	291
Internal Link Dist (ft)		868	1064			1230
Turn Bay Length (ft)	130			225	1000	
Base Capacity (vph)	428	2577	1839	453	581	2418
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.41	1.16	0.28	0.73	0.73

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



































OPENING YEAR 2019 WITH PROJECT



HCM 2010 Signalized Intersection Summary
 4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  				  	  	  	  
Traffic Volume (veh/h)	0	240	17	19	384	0	5	0	41	306	17	198
Future Volume (veh/h)	0	240	17	19	384	0	5	0	41	306	17	198
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.97		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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	0	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	276	20	21	422	0	6	0	48	411	0	152
Adj No. of Lanes	0	3	0	1	3	0	1	0	1	2	0	1
Peak Hour Factor	0.87	0.87	0.87	0.91	0.91	0.91	0.86	0.86	0.86	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1875	133	566	1975	0	0	0	0	482	0	215
Arrive On Green	0.00	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	0	4560	313	1068	4794	0		0		3238	0	1445
Grp Volume(v), veh/h	0	192	104	21	422	0		0.0		411	0	152
Grp Sat Flow(s),veh/h/ln	0	1547	1627	1068	1547	0				1619	0	1445
Q Serve(g_s), s	0.0	1.8	1.8	0.6	2.7	0.0				5.8	0.0	4.7
Cycle Q Clear(g_c), s	0.0	1.8	1.8	2.4	2.7	0.0				5.8	0.0	4.7
Prop In Lane	0.00		0.19	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1317	692	566	1975	0				482	0	215
V/C Ratio(X)	0.00	0.15	0.15	0.04	0.21	0.00				0.85	0.00	0.71
Avail Cap(c_a), veh/h	0	1317	692	566	1975	0				482	0	215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.72	0.72	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.3	8.3	9.0	8.5	0.0				19.5	0.0	19.0
Incr Delay (d2), s/veh	0.0	0.2	0.5	0.1	0.2	0.0				17.1	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
%ile BackOfQ(50%),veh/ln	0.0	0.8	0.9	0.2	1.2	0.0				3.7	0.0	2.9
LnGrp Delay(d),s/veh	0.0	8.5	8.7	9.1	8.7	0.0				36.6	0.0	36.8
LnGrp LOS		A	A	A	A					D		D
Approach Vol, veh/h		296			443							563
Approach Delay, s/veh		8.6			8.7							36.7
Approach LOS		A			A							D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.0				25.0		12.1				
Change Period (Y+Rc), s		5.0				5.0		5.1				
Max Green Setting (Gmax), s		20.0				20.0		7.0				
Max Q Clear Time (g_c+I1), s		4.7				3.8		7.8				
Green Ext Time (p_c), s		5.3				5.5		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				20.8								
HCM 2010 LOS				C								
Notes												

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑↑	↑↑↑	
Traffic Vol, veh/h	0	42	0	1211	1274	49
Future Vol, veh/h	0	42	0	1211	1274	49
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, %	0	0	0	0	0	0
Mvmt Flow	0	44	0	1275	1341	52



















Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	696	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	333	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %			-
Mov Cap-1 Maneuver	-	333	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	- 333	-	-
HCM Lane V/C Ratio	- 0.133	-	-
HCM Control Delay (s)	- 17.5	-	-
HCM Lane LOS	- C	-	-
HCM 95th %tile Q(veh)	- 0.5	-	-

HCM 2010 Signalized Intersection Summary
 8: Anaheim Blvd & Anaheim Way





















02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	21	21	425	201	804	0	0	1176	140
Future Volume (veh/h)	0	0	0	21	21	425	201	804	0	0	1176	140
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1700	1700	1700	1700	1700	0	0	1700	1700
Adj Flow Rate, veh/h				24	24	483	223	893	0	0	1307	0
Adj No. of Lanes				0	2	1	2	3	0	0	3	1
Peak Hour Factor				0.88	0.88	0.88	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				293	894	510	280	2614	0	0	2038	635
Arrive On Green				0.35	0.35	0.35	0.09	0.56	0.00	0.00	0.44	0.00
Sat Flow, veh/h				829	2529	1443	3141	4794	0	0	4794	1445
Grp Volume(v), veh/h				48	0	483	223	893	0	0	1307	0
Grp Sat Flow(s),veh/h/ln				1659	1700	1443	1570	1547	0	0	1547	1445
Q Serve(g_s), s				2.3	0.0	39.1	8.4	12.5	0.0	0.0	26.4	0.0
Cycle Q Clear(g_c), s				2.3	0.0	39.1	8.4	12.5	0.0	0.0	26.4	0.0
Prop In Lane				0.50		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				586	601	510	280	2614	0	0	2038	635
V/C Ratio(X)				0.08	0.00	0.95	0.80	0.34	0.00	0.00	0.64	0.00
Avail Cap(c_a), veh/h				733	751	637	754	2614	0	0	2038	635
HCM Platoon Ratio				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	0.77	0.77	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				25.8	0.0	37.7	53.6	14.2	0.0	0.0	26.3	0.0
Incr Delay (d2), s/veh				0.0	0.0	19.8	1.5	0.3	0.0	0.0	1.6	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
%ile BackOfQ(50%),veh/ln				1.1	0.0	18.4	3.7	5.4	0.0	0.0	11.5	0.0
LnGrp Delay(d),s/veh				25.9	0.0	57.5	55.1	14.4	0.0	0.0	27.8	0.0
LnGrp LOS				C		E	E	B			C	
Approach Vol, veh/h					531			1116			1307	
Approach Delay, s/veh					54.7			22.6			27.8	
Approach LOS					D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		72.6			14.9	57.7		47.4				
Change Period (Y+Rc), s		5.0			* 4.2	5.0		5.0				
Max Green Setting (Gmax), s		57.0			* 29	24.0		53.0				
Max Q Clear Time (g_c+I1), s		14.5			10.4	28.4		41.1				
Green Ext Time (p_c), s		30.7			0.4	0.0		1.0				
Intersection Summary												
HCM 2010 Ctrl Delay				30.7								
HCM 2010 LOS				C								
Notes												

HCM 2010 Signalized Intersection Summary













9: Anaheim Blvd & Manchester Ave/Manchester Ave/I-5 SB On

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	298	188	98	0	257	1	51	698	5	533	543	121
Future Volume (veh/h)	298	188	98	0	257	1	51	698	5	533	543	121
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1700	1700	1700	0	1700	1700	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	343	216	113	0	367	1	53	727	5	606	617	138
Adj No. of Lanes	2	4	0	0	3	0	1	3	0	2	3	0
Peak Hour Factor	0.87	0.87	0.87	0.70	0.70	0.70	0.96	0.96	0.96	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	410	1224	401	0	503	1	89	1650	11	682	1952	428
Arrive On Green	0.13	0.28	0.28	0.00	0.11	0.11	0.05	0.35	0.35	0.22	0.51	0.51
Sat Flow, veh/h	3141	4386	1436	0	4931	13	1619	4755	33	3141	3794	833
Grp Volume(v), veh/h	343	216	113	0	238	130	53	473	259	606	501	254
Grp Sat Flow(s),veh/h/ln	1570	1462	1436	0	1547	1697	1619	1547	1693	1570	1547	1532
Q Serve(g_s), s	10.3	3.6	6.0	0.0	7.2	7.2	3.1	11.4	11.4	18.2	9.1	9.4
Cycle Q Clear(g_c), s	10.3	3.6	6.0	0.0	7.2	7.2	3.1	11.4	11.4	18.2	9.1	9.4
Prop In Lane	1.00		1.00	0.00		0.01	1.00		0.02	1.00		0.54
Lane Grp Cap(c), veh/h	410	1224	401	0	326	179	89	1074	588	682	1592	788
V/C Ratio(X)	0.84	0.18	0.28	0.00	0.73	0.73	0.60	0.44	0.44	0.89	0.31	0.32
Avail Cap(c_a), veh/h	557	1510	494	0	383	210	129	1074	588	881	1592	788
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)	0.92	0.92	0.92	0.00	1.00	1.00	1.00	1.00	1.00	0.86	0.86	0.86
Uniform Delay (d), s/veh	41.2	26.5	27.4	0.0	42.1	42.1	44.8	24.4	24.4	36.8	13.6	13.7
Incr Delay (d2), s/veh	5.6	0.1	0.3	0.0	4.3	7.7	4.7	1.3	2.4	7.1	0.4	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	1.5	2.4	0.0	3.3	3.8	1.5	5.1	5.7	8.5	4.0	4.2
LnGrp Delay(d),s/veh	46.8	26.6	27.7	0.0	46.4	49.8	49.5	25.7	26.8	43.9	14.1	14.6
LnGrp LOS	D	C	C		D	D	D	C	C	D	B	B
Approach Vol, veh/h		672			368			785			1361	
Approach Delay, s/veh		37.1			47.6			27.7			27.5	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.3	38.7		32.1	10.0	54.9	16.9	15.2				
Change Period (Y+Rc), s	* 5.2	5.0		5.0	* 4.7	5.0	* 4.2	5.0				
Max Green Setting (Gmax), s	* 27	21.2		33.4	* 7.7	41.2	* 17	12.0				
Max Q Clear Time (g_c+I1), s	20.2	13.4		8.0	5.1	11.4	12.3	9.2				
Green Ext Time (p_c), s	0.9	5.8		3.5	0.0	15.5	0.3	1.0				
Intersection Summary												
HCM 2010 Ctrl Delay			31.9									
HCM 2010 LOS			C									
Notes												




















HCM 2010 Signalized Intersection Summary
 11: I-5 SB Ramps & Katella Ave

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑↑		↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	0	865	455	192	1106	0	28	0	530	36	85	1
Future Volume (veh/h)	0	865	455	192	1106	0	28	0	530	36	85	1
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.98
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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	983	517	204	1177	0	21	0	600	45	106	1
Adj No. of Lanes	0	3	1	2	4	0	1	0	2	2	2	1
Peak Hour Factor	0.88	0.88	0.88	0.94	0.94	0.94	0.90	0.90	0.90	0.80	0.80	0.80
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	2164	903	277	3516	0	279	0	497	209	215	94
Arrive On Green	0.00	0.47	0.47	0.18	1.00	0.00	0.17	0.00	0.17	0.07	0.07	0.07
Sat Flow, veh/h	0	4794	1403	3141	6086	0	1619	0	2885	3141	3230	1417
Grp Volume(v), veh/h	0	983	517	204	1177	0	21	0	600	45	106	1
Grp Sat Flow(s),veh/h/ln	0	1547	1403	1570	1462	0	1619	0	1442	1570	1615	1417
Q Serve(g_s), s	0.0	12.9	19.0	5.5	0.0	0.0	1.0	0.0	15.5	1.2	2.9	0.1
Cycle Q Clear(g_c), s	0.0	12.9	19.0	5.5	0.0	0.0	1.0	0.0	15.5	1.2	2.9	0.1
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	2164	903	277	3516	0	279	0	497	209	215	94
V/C Ratio(X)	0.00	0.45	0.57	0.74	0.33	0.00	0.08	0.00	1.21	0.22	0.49	0.01
Avail Cap(c_a), veh/h	0	2164	903	551	3516	0	279	0	497	537	553	242
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.84	0.84	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	16.3	9.3	36.1	0.0	0.0	31.2	0.0	37.2	39.8	40.5	39.2
Incr Delay (d2), s/veh	0.0	0.7	2.6	1.2	0.2	0.0	0.5	0.0	111.1	0.2	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	5.6	11.4	2.4	0.1	0.0	0.5	0.0	13.8	0.5	1.3	0.0
LnGrp Delay(d),s/veh	0.0	17.0	11.9	37.3	0.2	0.0	31.8	0.0	148.4	40.0	41.2	39.3
LnGrp LOS		B	B	D	A		C		F	D	D	D
Approach Vol, veh/h		1500			1381			621			152	
Approach Delay, s/veh		15.2			5.7			144.4			40.8	
Approach LOS		B			A			F			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	12.2	47.3		20.0		59.4		10.6				
Change Period (Y+Rc), s	* 4.2	5.3		4.5		5.3		4.6				
Max Green Setting (Gmax), s	* 16	24.7		15.5		44.7		15.4				
Max Q Clear Time (g_c+I1), s	7.5	21.0		17.5		2.0		4.9				
Green Ext Time (p_c), s	0.2	3.6		0.0		34.6		0.3				
Intersection Summary												
HCM 2010 Ctrl Delay				34.6								
HCM 2010 LOS				C								
Notes												




























HCM 2010 Signalized Intersection Summary
 12: I-5 NB Ramps & Katella Ave

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	1352	0	0	988	89	542	443	310	0	0	0
Future Volume (veh/h)	83	1352	0	0	988	89	542	443	310	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	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			
Adj Sat Flow, veh/h/ln	1700	1700	0	0	1700	1700	1700	1700	1700			
Adj Flow Rate, veh/h	93	1519	0	0	1086	98	294	954	352			
Adj No. of Lanes	2	4	0	0	4	1	1	4	0			
Peak Hour Factor	0.89	0.89	0.89	0.91	0.91	0.91	0.88	0.88	0.88			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	174	3210	0	0	3000	628	514	1620	459			
Arrive On Green	0.11	1.00	0.00	0.00	0.44	0.44	0.32	0.32	0.32			
Sat Flow, veh/h	3141	6086	0	0	6800	1424	1619	5100	1445			
Grp Volume(v), veh/h	93	1519	0	0	1086	98	294	954	352			
Grp Sat Flow(s),veh/h/ln	1570	1462	0	0	1700	1424	1619	1700	1445			
Q Serve(g_s), s	2.5	0.0	0.0	0.0	9.6	3.7	13.6	14.1	19.8			
Cycle Q Clear(g_c), s	2.5	0.0	0.0	0.0	9.6	3.7	13.6	14.1	19.8			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	174	3210	0	0	3000	628	514	1620	459			
V/C Ratio(X)	0.53	0.47	0.00	0.00	0.36	0.16	0.57	0.59	0.77			
Avail Cap(c_a), veh/h	429	3210	0	0	3000	628	720	2267	642			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.86	0.86	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	38.9	0.0	0.0	0.0	16.7	15.1	25.6	25.8	27.7			
Incr Delay (d2), s/veh	0.8	0.4	0.0	0.0	0.3	0.5	0.5	0.2	2.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.1	0.1	0.0	0.0	4.5	1.5	6.1	6.7	8.1			
LnGrp Delay(d),s/veh	39.7	0.4	0.0	0.0	17.1	15.6	26.1	26.0	30.2			
LnGrp LOS	D	A			B	B	C	C	C			
Approach Vol, veh/h		1612			1184			1600				
Approach Delay, s/veh		2.7			16.9			26.9				
Approach LOS		A			B			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		55.4			9.7	45.7		34.6				
Change Period (Y+Rc), s		6.0			* 4.7	6.0		6.0				
Max Green Setting (Gmax), s		38.0			* 12	21.0		40.0				
Max Q Clear Time (g_c+I1), s		2.0			4.5	11.6		21.8				
Green Ext Time (p_c), s		31.1			0.1	9.0		6.8				
Intersection Summary												
HCM 2010 Ctrl Delay			15.4									
HCM 2010 LOS			B									
Notes												

HCM 2010 Signalized Intersection Summary
 4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  					  	  	
Traffic Volume (veh/h)	0	444	18	15	303	0	8	0	54	271	16	158
Future Volume (veh/h)	0	444	18	15	303	0	8	0	54	271	16	158
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	0	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	493	20	17	352	0	9	0	60	343	0	116
Adj No. of Lanes	0	3	0	1	3	0	1	0	1	2	0	1
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.90	0.90	0.90	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1945	78	472	1975	0	0	0	0	482	0	215
Arrive On Green	0.00	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	0	4723	184	897	4794	0		0		3238	0	1445
Grp Volume(v), veh/h	0	333	180	17	352	0		0.0		343	0	116
Grp Sat Flow(s),veh/h/ln	0	1547	1660	897	1547	0				1619	0	1445
Q Serve(g_s), s	0.0	3.3	3.3	0.6	2.2	0.0				4.7	0.0	3.5
Cycle Q Clear(g_c), s	0.0	3.3	3.3	3.9	2.2	0.0				4.7	0.0	3.5
Prop In Lane	0.00		0.11	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1317	707	472	1975	0				482	0	215
V/C Ratio(X)	0.00	0.25	0.26	0.04	0.18	0.00				0.71	0.00	0.54
Avail Cap(c_a), veh/h	0	1317	707	472	1975	0				482	0	215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.87	0.87	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.7	8.7	9.9	8.4	0.0				19.0	0.0	18.5
Incr Delay (d2), s/veh	0.0	0.5	0.9	0.1	0.2	0.0				8.6	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
%ile BackOfQ(50%),veh/ln	0.0	1.5	1.7	0.2	1.0	0.0				2.7	0.0	1.9
LnGrp Delay(d),s/veh	0.0	9.2	9.6	10.1	8.6	0.0				27.7	0.0	27.9
LnGrp LOS		A	A	B	A					C		C
Approach Vol, veh/h		513			369							459
Approach Delay, s/veh		9.3			8.6							27.7
Approach LOS		A			A							C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.0				25.0		12.1				
Change Period (Y+Rc), s		5.0				5.0		5.1				
Max Green Setting (Gmax), s		20.0				20.0		7.0				
Max Q Clear Time (g_c+I1), s		5.9				5.3		6.7				
Green Ext Time (p_c), s		6.1				6.2		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				15.4								
HCM 2010 LOS				B								
Notes												

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑↑	↑↑↑	
Traffic Vol, veh/h	0	36	0	1562	1801	42
Future Vol, veh/h	0	36	0	1562	1801	42
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, %	0	0	0	0	0	0
Mvmt Flow	0	38	0	1644	1896	44

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	970	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	220	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %			-
Mov Cap-1 Maneuver	-	220	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-



















Approach	EB	NB	SB
HCM Control Delay, s	24.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	-	220	-
HCM Lane V/C Ratio	-	0.172	-
HCM Control Delay (s)	-	24.7	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	0.6	-

HCM 2010 Signalized Intersection Summary

8: Anaheim Blvd & Anaheim Way






























02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	52	731	644	357	889	0	0	1443	394
Future Volume (veh/h)	0	0	0	52	731	644	357	889	0	0	1443	394
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1700	1700	1700	1700	1700	0	0	1700	1700
Adj Flow Rate, veh/h				60	971	668	388	966	0	0	1535	0
Adj No. of Lanes				0	2	1	2	3	0	0	3	1
Peak Hour Factor				0.86	0.86	0.86	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				82	1388	626	895	3295	0	0	1779	554
Arrive On Green				0.43	0.43	0.43	0.28	0.71	0.00	0.00	0.38	0.00
Sat Flow, veh/h				188	3202	1445	3141	4794	0	0	4794	1445
Grp Volume(v), veh/h				539	492	668	388	966	0	0	1535	0
Grp Sat Flow(s),veh/h/ln				1691	1700	1445	1570	1547	0	0	1547	1445
Q Serve(g_s), s				31.8	27.7	52.0	12.1	9.1	0.0	0.0	36.6	0.0
Cycle Q Clear(g_c), s				31.8	27.7	52.0	12.1	9.1	0.0	0.0	36.6	0.0
Prop In Lane				0.11		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				733	737	626	895	3295	0	0	1779	554
V/C Ratio(X)				0.74	0.67	1.07	0.43	0.29	0.00	0.00	0.86	0.00
Avail Cap(c_a), veh/h				733	737	626	895	3295	0	0	1779	554
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.67	0.67	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				28.3	27.1	34.0	35.0	6.4	0.0	0.0	34.1	0.0
Incr Delay (d2), s/veh				3.5	2.0	55.1	0.1	0.2	0.0	0.0	5.8	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
%ile BackOfQ(50%),veh/ln				15.5	13.4	30.3	5.2	3.9	0.0	0.0	16.6	0.0
LnGrp Delay(d),s/veh				31.8	29.1	89.1	35.1	6.5	0.0	0.0	39.9	0.0
LnGrp LOS				C	C	F	D	A			D	
Approach Vol, veh/h					1699			1354			1535	
Approach Delay, s/veh					53.6			14.7			39.9	
Approach LOS					D			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		91.0			40.0	51.0		57.0				
Change Period (Y+Rc), s		5.0			5.0	* 5		5.0				
Max Green Setting (Gmax), s		58.0			7.8	* 46		52.0				
Max Q Clear Time (g_c+I1), s		11.1			14.1	38.6		54.0				
Green Ext Time (p_c), s		12.3			0.0	6.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				37.5								
HCM 2010 LOS				D								
Notes												

HCM 2010 Signalized Intersection Summary













9: Anaheim Blvd & Manchester Ave/Manchester Ave/I-5 SB On

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			  		 	  	
Traffic Volume (veh/h)	295	299	190	0	209	6	35	944	4	597	815	83
Future Volume (veh/h)	295	299	190	0	209	6	35	944	4	597	815	83
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1700	1700	1700	0	1700	1700	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	339	344	218	0	249	7	36	973	4	603	823	84
Adj No. of Lanes	2	4	0	0	3	0	1	3	0	2	3	0
Peak Hour Factor	0.87	0.87	0.87	0.84	0.84	0.84	0.97	0.97	0.97	0.99	0.99	0.99
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	406	1209	393	0	478	13	73	1689	7	671	2257	229
Arrive On Green	0.13	0.28	0.28	0.00	0.10	0.10	0.04	0.35	0.35	0.21	0.53	0.53
Sat Flow, veh/h	3141	4386	1425	0	4792	130	1619	4770	20	3141	4274	434
Grp Volume(v), veh/h	339	344	218	0	165	91	36	631	346	603	595	312
Grp Sat Flow(s),veh/h/ln	1570	1462	1425	0	1547	1675	1619	1547	1696	1570	1547	1614
Q Serve(g_s), s	10.2	6.0	12.7	0.0	4.9	5.0	2.1	16.1	16.1	18.1	10.9	11.0
Cycle Q Clear(g_c), s	10.2	6.0	12.7	0.0	4.9	5.0	2.1	16.1	16.1	18.1	10.9	11.0
Prop In Lane	1.00		1.00	0.00		0.08	1.00		0.01	1.00		0.27
Lane Grp Cap(c), veh/h	406	1209	393	0	319	173	73	1095	600	671	1634	852
V/C Ratio(X)	0.84	0.28	0.56	0.00	0.52	0.52	0.50	0.58	0.58	0.90	0.36	0.37
Avail Cap(c_a), veh/h	557	1492	485	0	370	200	117	1095	600	771	1634	852
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)	0.94	0.94	0.94	0.00	1.00	1.00	1.00	1.00	1.00	0.45	0.45	0.45
Uniform Delay (d), s/veh	41.2	27.6	30.0	0.0	41.2	41.2	45.3	25.4	25.4	37.1	13.4	13.4
Incr Delay (d2), s/veh	5.5	0.1	1.2	0.0	0.5	0.9	3.9	2.2	4.0	5.8	0.3	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	4.7	2.4	5.1	0.0	2.1	2.3	1.0	7.2	8.2	8.4	4.7	5.0
LnGrp Delay(d),s/veh	46.8	27.7	31.2	0.0	41.7	42.2	49.1	27.6	29.4	42.9	13.7	13.9
LnGrp LOS	D	C	C		D	D	D	C	C	D	B	B
Approach Vol, veh/h		901			256			1013			1510	
Approach Delay, s/veh		35.7			41.9			29.0			25.4	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.9	39.3		31.7	9.0	56.2	16.7	15.0				
Change Period (Y+Rc), s	* 5.2	5.0		5.0	* 4.7	5.0	* 4.2	5.0				
Max Green Setting (Gmax), s	* 24	25.0		33.0	* 7	42.3	* 17	11.6				
Max Q Clear Time (g_c+I1), s	20.1	18.1		14.7	4.1	13.0	12.2	7.0				
Green Ext Time (p_c), s	0.6	6.0		4.3	0.0	19.6	0.3	1.9				
Intersection Summary												
HCM 2010 Ctrl Delay			30.1									
HCM 2010 LOS			C									
Notes												



















HCM 2010 Signalized Intersection Summary
 11: I-5 SB Ramps & Katella Ave

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑↑		↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	0	746	483	429	1706	0	36	0	300	80	83	1
Future Volume (veh/h)	0	746	483	429	1706	0	36	0	300	80	83	1
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.98
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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	838	543	511	2031	0	27	0	360	99	102	1
Adj No. of Lanes	0	3	1	2	4	0	1	0	2	2	2	1
Peak Hour Factor	0.89	0.89	0.89	0.84	0.84	0.84	0.87	0.87	0.87	0.81	0.81	0.81
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1754	781	551	3510	0	279	0	497	212	218	96
Arrive On Green	0.00	0.38	0.38	0.35	1.00	0.00	0.17	0.00	0.17	0.07	0.07	0.07
Sat Flow, veh/h	0	4794	1409	3141	6086	0	1619	0	2885	3141	3230	1417
Grp Volume(v), veh/h	0	838	543	511	2031	0	27	0	360	99	102	1
Grp Sat Flow(s),veh/h/ln	0	1547	1409	1570	1462	0	1619	0	1442	1570	1615	1417
Q Serve(g_s), s	0.0	12.3	25.4	14.1	0.0	0.0	1.3	0.0	10.6	2.7	2.7	0.1
Cycle Q Clear(g_c), s	0.0	12.3	25.4	14.1	0.0	0.0	1.3	0.0	10.6	2.7	2.7	0.1
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	1754	781	551	3510	0	279	0	497	212	218	96
V/C Ratio(X)	0.00	0.48	0.70	0.93	0.58	0.00	0.10	0.00	0.72	0.47	0.47	0.01
Avail Cap(c_a), veh/h	0	1754	781	551	3510	0	279	0	497	537	553	242
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.09	0.09	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	21.2	14.8	28.6	0.0	0.0	31.4	0.0	35.2	40.4	40.4	39.2
Incr Delay (d2), s/veh	0.0	0.9	5.1	3.0	0.1	0.0	0.7	0.0	8.9	0.6	0.6	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	5.4	14.5	6.2	0.0	0.0	0.6	0.0	4.8	1.2	1.2	0.0
LnGrp Delay(d),s/veh	0.0	22.2	19.9	31.6	0.1	0.0	32.0	0.0	44.1	41.0	41.0	39.2
LnGrp LOS		C	B	C	A		C		D	D	D	D
Approach Vol, veh/h		1381			2542			387			202	
Approach Delay, s/veh		21.3			6.4			43.3			41.0	
Approach LOS		C			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	20.0	39.3		20.0		59.3		10.7				
Change Period (Y+Rc), s	* 4.2	5.3		4.5		5.3		4.6				
Max Green Setting (Gmax), s	* 16	24.7		15.5		44.7		15.4				
Max Q Clear Time (g_c+I1), s	16.1	27.4		12.6		2.0		4.7				
Green Ext Time (p_c), s	0.0	0.0		0.3		40.1		0.4				
Intersection Summary												
HCM 2010 Ctrl Delay				15.7								
HCM 2010 LOS				B								
Notes												

HCM 2010 Signalized Intersection Summary
 12: I-5 NB Ramps & Katella Ave

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	1040	0	0	1859	123	790	1314	69	0	0	0
Future Volume (veh/h)	99	1040	0	0	1859	123	790	1314	69	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1700	1700	0	0	1700	1700	1700	1700	1700			
Adj Flow Rate, veh/h	104	1095	0	0	2187	145	472	1969	75			
Adj No. of Lanes	2	4	0	0	4	1	1	4	0			
Peak Hour Factor	0.95	0.95	0.95	0.85	0.85	0.85	0.92	0.92	0.92			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	174	2773	0	0	2492	522	635	2553	97			
Arrive On Green	0.11	0.95	0.00	0.00	0.37	0.37	0.39	0.39	0.39			
Sat Flow, veh/h	3141	6086	0	0	6800	1423	1619	6504	248			
Grp Volume(v), veh/h	104	1095	0	0	2187	145	472	1544	500			
Grp Sat Flow(s),veh/h/ln	1570	1462	0	0	1700	1423	1619	1700	1652			
Q Serve(g_s), s	2.8	1.4	0.0	0.0	27.0	6.5	22.5	23.7	23.7			
Cycle Q Clear(g_c), s	2.8	1.4	0.0	0.0	27.0	6.5	22.5	23.7	23.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.15			
Lane Grp Cap(c), veh/h	174	2773	0	0	2492	522	635	2001	648			
V/C Ratio(X)	0.60	0.39	0.00	0.00	0.88	0.28	0.74	0.77	0.77			
Avail Cap(c_a), veh/h	429	2773	0	0	2492	522	720	2267	734			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.83	0.83	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	39.0	1.3	0.0	0.0	26.6	20.1	23.4	23.8	23.8			
Incr Delay (d2), s/veh	1.0	0.4	0.0	0.0	4.8	1.3	3.1	1.3	3.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.2	0.5	0.0	0.0	13.4	2.7	10.5	11.4	11.5			
LnGrp Delay(d),s/veh	40.1	1.6	0.0	0.0	31.4	21.4	26.6	25.1	27.8			
LnGrp LOS	D	A			C	C	C	C	C			
Approach Vol, veh/h		1199			2332			2516				
Approach Delay, s/veh		4.9			30.8			25.9				
Approach LOS		A			C			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		48.7			9.7	39.0		41.3				
Change Period (Y+Rc), s		6.0			* 4.7	6.0		6.0				
Max Green Setting (Gmax), s		38.0			* 12	21.0		40.0				
Max Q Clear Time (g_c+I1), s		3.4			4.8	29.0		25.7				
Green Ext Time (p_c), s		33.2			0.1	0.0		9.5				
Intersection Summary												
HCM 2010 Ctrl Delay			23.6									
HCM 2010 LOS			C									
Notes												

Queues

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

02/13/2018



Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	296	21	422	6	48	198	196	179
v/c Ratio	0.15	0.05	0.21	0.03	0.16	0.86	0.83	0.50
Control Delay	7.9	8.4	8.8	19.4	1.1	58.7	51.2	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	8.4	8.8	19.4	1.1	58.7	51.2	9.4
Queue Length 50th (ft)	15	3	24	2	0	55	50	0
Queue Length 95th (ft)	26	12	39	9	0	#154	#153	43
Internal Link Dist (ft)	1148		509				920	
Turn Bay Length (ft)		155		150	150	480		350
Base Capacity (vph)	1966	397	1983	172	302	229	235	357
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.05	0.21	0.03	0.16	0.86	0.83	0.50

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

11: I-5 SB Ramps & Katella Ave

02/13/2018



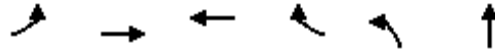
Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	983	517	204	1177	28	298	294	45	106	1
v/c Ratio	0.48	0.50	0.56	0.33	0.11	0.63	0.61	0.17	0.39	0.00
Control Delay	19.8	4.5	39.7	10.7	32.7	11.2	10.4	39.2	43.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	4.5	39.7	10.7	32.7	11.2	10.4	39.2	43.1	0.0
Queue Length 50th (ft)	144	30	59	85	14	1	0	12	30	0
Queue Length 95th (ft)	199	91	95	181	40	84	76	25	48	0
Internal Link Dist (ft)	812			868		2402			478	
Turn Bay Length (ft)				225					705	390
Base Capacity (vph)	2066	1025	550	3554	264	471	479	536	552	354
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.50	0.37	0.33	0.11	0.63	0.61	0.08	0.19	0.00

Intersection Summary

Queues

12: I-5 NB Ramps & Katella Ave

02/13/2018



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	93	1519	1096	88	308	1163
v/c Ratio	0.38	0.49	0.48	0.17	0.69	0.65
Control Delay	51.6	11.5	22.4	6.1	33.0	26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	11.5	22.4	6.1	33.0	26.2
Queue Length 50th (ft)	27	86	140	0	186	171
Queue Length 95th (ft)	m51	153	217	40	243	168
Internal Link Dist (ft)		868	1064			1268
Turn Bay Length (ft)	130			225	1000	
Base Capacity (vph)	428	3069	2285	532	581	2311
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.49	0.48	0.17	0.53	0.50

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

02/13/2018



Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	513	17	352	9	60	162	162	144
v/c Ratio	0.26	0.05	0.18	0.05	0.20	0.71	0.70	0.43
Control Delay	8.8	8.5	8.6	19.6	1.5	40.0	38.0	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	8.5	8.6	19.6	1.5	40.0	38.0	8.2
Queue Length 50th (ft)	29	3	20	2	0	45	42	0
Queue Length 95th (ft)	46	10	31	12	0	#123	#126	34
Internal Link Dist (ft)	1111		501				1080	
Turn Bay Length (ft)		155		150	150	480		350
Base Capacity (vph)	1977	327	1983	172	302	229	230	338
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.05	0.18	0.05	0.20	0.71	0.70	0.43

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

11: I-5 SB Ramps & Katella Ave

02/13/2018



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	838	543	511	2031	37	173	176	99	102	1
v/c Ratio	0.56	0.64	0.75	0.59	0.14	0.47	0.46	0.38	0.38	0.00
Control Delay	27.8	11.5	35.0	20.3	33.2	10.6	9.7	43.1	42.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	11.5	35.0	20.3	33.2	10.6	9.7	43.1	42.9	0.0
Queue Length 50th (ft)	144	94	153	259	18	2	0	28	29	0
Queue Length 95th (ft)	195	209	m134	m227	46	57	52	46	48	0
Internal Link Dist (ft)	812			868		2402			478	
Turn Bay Length (ft)			225					390		
Base Capacity (vph)	1488	845	682	3421	264	366	382	536	552	354
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.64	0.75	0.59	0.14	0.47	0.46	0.18	0.18	0.00

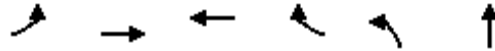
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

12: I-5 NB Ramps & Katella Ave

02/13/2018



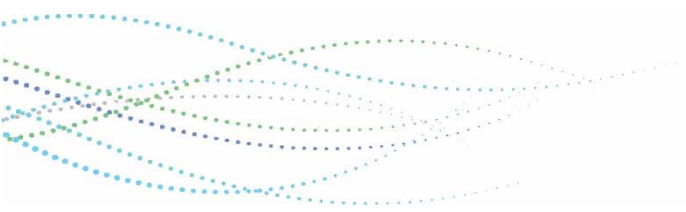
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	104	1095	2202	130	464	1898
v/c Ratio	0.41	0.44	1.26	0.30	0.81	0.80
Control Delay	51.0	18.5	152.4	10.4	35.3	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.0	18.5	152.4	10.4	35.3	24.9
Queue Length 50th (ft)	32	79	~525	14	271	274
Queue Length 95th (ft)	m59	159	#584	62	#483	325
Internal Link Dist (ft)		868	1064			1230
Turn Bay Length (ft)	130			225	1000	
Base Capacity (vph)	428	2512	1745	434	581	2413
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.44	1.26	0.30	0.80	0.79

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.















GENERAL PLAN BUILD OUT WITH PROJECT



HCM 2010 Signalized Intersection Summary
 4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑		↑		↑	↑	↔	↑
Traffic Volume (veh/h)	0	860	20	20	816	0	20	0	50	390	15	200
Future Volume (veh/h)	0	860	20	20	816	0	20	0	50	390	15	200
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	0	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	905	21	21	859	0	21	0	53	483	0	146
Adj No. of Lanes	0	3	0	1	3	0	1	0	1	2	0	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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1983	46	327	1975	0	0	0	0	482	0	215
Arrive On Green	0.00	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	0	4814	108	607	4794	0		0		3238	0	1445
Grp Volume(v), veh/h	0	600	326	21	859	0		0.0		483	0	146
Grp Sat Flow(s),veh/h/ln	0	1547	1675	607	1547	0				1619	0	1445
Q Serve(g_s), s	0.0	6.5	6.5	1.2	6.1	0.0				7.0	0.0	4.5
Cycle Q Clear(g_c), s	0.0	6.5	6.5	7.7	6.1	0.0				7.0	0.0	4.5
Prop In Lane	0.00		0.06	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1317	713	327	1975	0				482	0	215
V/C Ratio(X)	0.00	0.46	0.46	0.06	0.43	0.00				1.00	0.00	0.68
Avail Cap(c_a), veh/h	0	1317	713	327	1975	0				482	0	215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.61	0.61	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	9.6	9.6	12.4	9.5	0.0				20.0	0.0	18.9
Incr Delay (d2), s/veh	0.0	1.1	2.1	0.2	0.4	0.0				41.4	0.0	15.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.0	3.4	0.2	2.6	0.0				5.9	0.0	2.7
LnGrp Delay(d),s/veh	0.0	10.8	11.7	12.6	9.9	0.0				61.4	0.0	34.8
LnGrp LOS		B	B	B	A					F		C
Approach Vol, veh/h		926			880						629	
Approach Delay, s/veh		11.1			10.0						55.2	
Approach LOS		B			B						E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.0				25.0		12.1				
Change Period (Y+Rc), s		5.0				5.0		5.1				
Max Green Setting (Gmax), s		20.0				20.0		7.0				
Max Q Clear Time (g_c+I1), s		9.7				8.5		9.0				
Green Ext Time (p_c), s		8.4				9.2		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				22.1								
HCM 2010 LOS				C								
Notes												

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑↑	↑↑↑	
Traffic Vol, veh/h	0	42	0	1379	2050	49
Future Vol, veh/h	0	42	0	1379	2050	49
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, %	0	0	0	0	0	0
Mvmt Flow	0	44	0	1452	2158	52

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	1105	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.1	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.9	-
Pot Cap-1 Maneuver	0	179	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %			-
Mov Cap-1 Maneuver	-	179	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-



















Approach	EB	NB	SB
HCM Control Delay, s	31.6	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	-	179	-
HCM Lane V/C Ratio	-	0.247	-
HCM Control Delay (s)	-	31.6	-
HCM Lane LOS	-	D	-
HCM 95th %tile Q(veh)	-	0.9	-

HCM 2010 Signalized Intersection Summary

8: Anaheim Blvd & Anaheim Way





















02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	30	30	431	205	1066	0	0	1944	148
Future Volume (veh/h)	0	0	0	30	30	431	205	1066	0	0	1944	148
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1700	1700	1700	1700	1700	0	0	1700	1700
Adj Flow Rate, veh/h				32	32	454	216	1122	0	0	2046	0
Adj No. of Lanes				0	2	1	2	3	0	0	3	1
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				277	846	483	273	2702	0	0	2136	665
Arrive On Green				0.33	0.33	0.33	0.09	0.58	0.00	0.00	0.46	0.00
Sat Flow, veh/h				829	2529	1442	3141	4794	0	0	4794	1445
Grp Volume(v), veh/h				64	0	454	216	1122	0	0	2046	0
Grp Sat Flow(s),veh/h/ln				1659	1700	1442	1570	1547	0	0	1547	1445
Q Serve(g_s), s				3.2	0.0	36.7	8.1	16.0	0.0	0.0	51.1	0.0
Cycle Q Clear(g_c), s				3.2	0.0	36.7	8.1	16.0	0.0	0.0	51.1	0.0
Prop In Lane				0.50		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				555	569	483	273	2702	0	0	2136	665
V/C Ratio(X)				0.12	0.00	0.94	0.79	0.42	0.00	0.00	0.96	0.00
Avail Cap(c_a), veh/h				733	751	637	754	2702	0	0	2136	665
HCM Platoon Ratio				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	0.56	0.56	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				27.6	0.0	38.8	53.7	13.8	0.0	0.0	31.3	0.0
Incr Delay (d2), s/veh				0.0	0.0	17.6	1.1	0.3	0.0	0.0	11.8	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
%ile BackOfQ(50%),veh/ln				1.5	0.0	17.0	3.6	6.8	0.0	0.0	24.1	0.0
LnGrp Delay(d),s/veh				27.7	0.0	56.3	54.8	14.1	0.0	0.0	43.1	0.0
LnGrp LOS				C		E	D	B			D	
Approach Vol, veh/h					518			1338			2046	
Approach Delay, s/veh					52.8			20.7			43.1	
Approach LOS					D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		74.9			14.6	60.2		45.1				
Change Period (Y+Rc), s		5.0			* 4.2	5.0		5.0				
Max Green Setting (Gmax), s		57.0			* 29	24.0		53.0				
Max Q Clear Time (g_c+I1), s		18.0			10.1	53.1		38.7				
Green Ext Time (p_c), s		36.5			0.3	0.0		1.1				
Intersection Summary												
HCM 2010 Ctrl Delay				36.7								
HCM 2010 LOS				D								
Notes												

HCM 2010 Signalized Intersection Summary

9: Anaheim Blvd & Manchester Ave/Manchester Ave/I-5 SB On

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	305	745	245	0	485	0	65	957	10	600	1123	251
Future Volume (veh/h)	305	745	245	0	485	0	65	957	10	600	1123	251
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.97	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1700	1700	1700	0	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	321	784	258	0	511	0	68	1007	11	632	1182	264
Adj No. of Lanes	2	4	0	0	3	0	1	3	0	2	3	0
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	382	1400	446	0	705	0	98	1441	16	697	1780	398
Arrive On Green	0.12	0.32	0.32	0.00	0.15	0.00	0.06	0.30	0.30	0.22	0.47	0.47
Sat Flow, veh/h	3141	4421	1408	0	4947	0	1619	4732	52	3141	3779	844
Grp Volume(v), veh/h	321	778	264	0	511	0	68	658	360	632	968	478
Grp Sat Flow(s),veh/h/ln	1570	1462	1442	0	1547	0	1619	1547	1689	1570	1547	1529
Q Serve(g_s), s	9.7	14.3	14.9	0.0	10.2	0.0	4.0	18.2	18.2	19.0	23.4	23.4
Cycle Q Clear(g_c), s	9.7	14.3	14.9	0.0	10.2	0.0	4.0	18.2	18.2	19.0	23.4	23.4
Prop In Lane	1.00		0.98	0.00		0.00	1.00		0.03	1.00		0.55
Lane Grp Cap(c), veh/h	382	1389	457	0	705	0	98	942	514	697	1457	720
V/C Ratio(X)	0.84	0.56	0.58	0.00	0.73	0.00	0.69	0.70	0.70	0.91	0.66	0.66
Avail Cap(c_a), veh/h	424	1492	491	0	751	0	122	942	514	771	1457	720
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)	0.81	0.81	0.81	0.00	1.00	0.00	1.00	1.00	1.00	0.53	0.53	0.53
Uniform Delay (d), s/veh	41.7	27.5	27.7	0.0	39.2	0.0	44.7	29.8	29.8	36.8	19.7	19.7
Incr Delay (d2), s/veh	9.8	0.3	1.2	0.0	2.7	0.0	10.0	4.3	7.7	7.6	1.3	2.6
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	4.7	5.8	6.0	0.0	4.5	0.0	2.1	8.3	9.6	9.0	10.2	10.3
LnGrp Delay(d),s/veh	51.5	27.9	28.9	0.0	41.9	0.0	54.6	34.1	37.5	44.3	21.0	22.3
LnGrp LOS	D	C	C		D		D	C	D	D	C	C
Approach Vol, veh/h		1363			511			1086			2078	
Approach Delay, s/veh		33.6			41.9			36.5			28.4	
Approach LOS		C			D			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.7	34.5		35.7	10.6	50.7	16.0	19.7				
Change Period (Y+Rc), s	* 5.2	5.0		5.0	* 4.7	5.0	* 4.2	5.0				
Max Green Setting (Gmax), s	* 24	25.0		33.0	* 7.3	42.0	* 13	15.7				
Max Q Clear Time (g_c+I1), s	21.0	20.2		16.9	6.0	25.4	11.7	12.2				
Green Ext Time (p_c), s	0.5	4.5		8.2	0.0	14.9	0.1	2.5				
Intersection Summary												
HCM 2010 Ctrl Delay				32.9								
HCM 2010 LOS				C								
Notes												



















HCM 2010 Signalized Intersection Summary
 11: I-5 SB Ramps & Katella Ave

02/13/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑↑		↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	0	1580	965	285	1990	0	30	0	740	395	326	15
Future Volume (veh/h)	0	1580	965	285	1990	0	30	0	740	395	326	15
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.98
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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	1663	1016	300	2095	0	21	0	790	416	343	16
Adj No. of Lanes	0	3	1	2	4	0	1	0	2	2	2	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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1676	850	279	2905	0	387	0	690	328	337	148
Arrive On Green	0.00	0.36	0.36	0.18	0.99	0.00	0.24	0.00	0.24	0.10	0.10	0.10
Sat Flow, veh/h	0	4794	1399	3141	6086	0	1619	0	2886	3141	3230	1421
Grp Volume(v), veh/h	0	1663	1016	300	2095	0	21	0	790	416	343	16
Grp Sat Flow(s),veh/h/ln	0	1547	1399	1570	1462	0	1619	0	1443	1570	1615	1421
Q Serve(g_s), s	0.0	32.1	32.5	8.0	0.8	0.0	0.9	0.0	21.5	9.4	9.4	0.9
Cycle Q Clear(g_c), s	0.0	32.1	32.5	8.0	0.8	0.0	0.9	0.0	21.5	9.4	9.4	0.9
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	1676	850	279	2905	0	387	0	690	328	337	148
V/C Ratio(X)	0.00	0.99	1.19	1.07	0.72	0.00	0.05	0.00	1.15	1.27	1.02	0.11
Avail Cap(c_a), veh/h	0	1676	850	279	2905	0	387	0	690	328	337	148
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.57	0.57	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	28.6	13.7	37.0	0.2	0.0	26.4	0.0	34.3	40.3	40.3	36.5
Incr Delay (d2), s/veh	0.0	20.2	99.1	62.3	0.9	0.0	0.3	0.0	82.0	142.6	53.3	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	0.1	0.0
%ile BackOfQ(50%),veh/ln	0.0	16.8	44.4	5.8	0.3	0.0	0.4	0.0	16.4	10.6	6.7	0.4
LnGrp Delay(d),s/veh	0.0	48.9	112.8	99.3	1.1	0.0	26.7	0.0	116.2	182.9	93.7	36.6
LnGrp LOS		D	F	F	A		C		F	F	F	D
Approach Vol, veh/h		2679			2395			811			775	
Approach Delay, s/veh		73.1			13.4			113.9			140.4	
Approach LOS		E			B			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	12.2	37.8		26.0		50.0		14.0				
Change Period (Y+Rc), s	* 4.2	5.3		4.5		5.3		4.6				
Max Green Setting (Gmax), s	* 8	32.5		21.5		39.7		9.4				
Max Q Clear Time (g_c+I1), s	10.0	34.5		23.5		2.8		11.4				
Green Ext Time (p_c), s	0.0	0.0		0.0		36.7		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			64.4									
HCM 2010 LOS			E									
Notes												


























HCM 2010 Signalized Intersection Summary
 12: I-5 NB Ramps & Katella Ave

03/08/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	2550	0	0	1200	92	865	554	660	0	0	0
Future Volume (veh/h)	125	2550	0	0	1200	92	865	554	660	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	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			
Adj Sat Flow, veh/h/ln	1700	1700	0	0	1700	1700	1700	1700	1700			
Adj Flow Rate, veh/h	132	2684	0	0	1263	97	1114	299	695			
Adj No. of Lanes	2	4	0	0	4	1	2	3	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	196	2469	0	0	2091	438	1439	1511	642			
Arrive On Green	0.12	0.84	0.00	0.00	0.31	0.31	0.44	0.44	0.44			
Sat Flow, veh/h	3141	6086	0	0	6800	1423	3238	3400	1445			
Grp Volume(v), veh/h	132	2684	0	0	1263	97	1114	299	695			
Grp Sat Flow(s),veh/h/ln	1570	1462	0	0	1700	1423	1619	1700	1445			
Q Serve(g_s), s	3.6	38.0	0.0	0.0	14.2	4.6	26.2	4.8	40.0			
Cycle Q Clear(g_c), s	3.6	38.0	0.0	0.0	14.2	4.6	26.2	4.8	40.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	196	2469	0	0	2091	438	1439	1511	642			
V/C Ratio(X)	0.67	1.09	0.00	0.00	0.60	0.22	0.77	0.20	1.08			
Avail Cap(c_a), veh/h	213	2469	0	0	2091	438	1439	1511	642			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	38.5	7.0	0.0	0.0	26.5	23.2	21.2	15.2	25.0			
Incr Delay (d2), s/veh	0.5	40.0	0.0	0.0	1.3	1.2	2.5	0.0	59.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.6	20.2	0.0	0.0	6.9	1.9	12.1	2.2	26.5			
LnGrp Delay(d),s/veh	39.0	47.0	0.0	0.0	27.8	24.3	23.7	15.3	84.8			
LnGrp LOS	D	F			C	C	C	B	F			
Approach Vol, veh/h		2816			1360			2108				
Approach Delay, s/veh		46.6			27.6			42.6				
Approach LOS		D			C			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		44.0			10.3	33.7		46.0				
Change Period (Y+Rc), s		6.0			* 4.7	6.0		6.0				
Max Green Setting (Gmax), s		38.0			* 6.1	27.2		40.0				
Max Q Clear Time (g_c+I1), s		40.0			5.6	16.2		42.0				
Green Ext Time (p_c), s		0.0			0.0	10.9		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				41.1								
HCM 2010 LOS				D								
Notes												

HCM 2010 Signalized Intersection Summary
 4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	0	961	20	25	805	0	10	0	75	363	20	160
Future Volume (veh/h)	0	961	20	25	805	0	10	0	75	363	20	160
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	0	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	1012	21	26	847	0	11	0	79	443	0	119
Adj No. of Lanes	0	3	0	1	3	0	1	0	1	2	0	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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1990	41	301	1975	0	0	0	0	482	0	215
Arrive On Green	0.00	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	0	4829	97	554	4794	0		0		3238	0	1445
Grp Volume(v), veh/h	0	669	364	26	847	0		0.0		443	0	119
Grp Sat Flow(s),veh/h/ln	0	1547	1679	554	1547	0				1619	0	1445
Q Serve(g_s), s	0.0	7.5	7.5	1.7	6.0	0.0				6.3	0.0	3.6
Cycle Q Clear(g_c), s	0.0	7.5	7.5	9.2	6.0	0.0				6.3	0.0	3.6
Prop In Lane	0.00		0.06	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1317	715	301	1975	0				482	0	215
V/C Ratio(X)	0.00	0.51	0.51	0.09	0.43	0.00				0.92	0.00	0.55
Avail Cap(c_a), veh/h	0	1317	715	301	1975	0				482	0	215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.11	0.11	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	9.9	9.9	13.3	9.5	0.0				19.7	0.0	18.5
Incr Delay (d2), s/veh	0.0	1.4	2.6	0.1	0.1	0.0				25.0	0.0	9.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.4	3.9	0.3	2.5	0.0				4.5	0.0	2.0
LnGrp Delay(d),s/veh	0.0	11.3	12.5	13.3	9.6	0.0				44.7	0.0	28.4
LnGrp LOS		B	B	B	A					D		C
Approach Vol, veh/h		1033			873							562
Approach Delay, s/veh		11.7			9.7							41.3
Approach LOS		B			A							D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.0				25.0		12.1				
Change Period (Y+Rc), s		5.0				5.0		5.1				
Max Green Setting (Gmax), s		20.0				20.0		7.0				
Max Q Clear Time (g_c+I1), s		11.2				9.5		8.3				
Green Ext Time (p_c), s		7.5				8.8		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				17.7								
HCM 2010 LOS				B								
Notes												

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑↑	↑↑↑	
Traffic Vol, veh/h	0	36	0	2588	1915	42
Future Vol, veh/h	0	36	0	2588	1915	42
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, %	0	0	0	0	0	0
Mvmt Flow	0	38	0	2724	2016	44



















Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 1030	-	0 - 0
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	- 7.1	-	- - -
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	- 3.9	-	- - -
Pot Cap-1 Maneuver	0 201	0	- - -
Stage 1	0 -	0	- - -
Stage 2	0 -	0	- - -
Platoon blocked, %			- - -
Mov Cap-1 Maneuver	- 201	-	- - -
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	NB	SB
HCM Control Delay, s	27	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	- 201	-	-
HCM Lane V/C Ratio	- 0.189	-	-
HCM Control Delay (s)	- 27	-	-
HCM Lane LOS	- D	-	-
HCM 95th %tile Q(veh)	- 0.7	-	-

HCM 2010 Signalized Intersection Summary
8: Anaheim Blvd & Anaheim Way





















02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	80	740	935	360	1473	0	0	1554	397
Future Volume (veh/h)	0	0	0	80	740	935	360	1473	0	0	1554	397
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				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
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1700	1700	1700	1700	1700	0	0	1700	1700
Adj Flow Rate, veh/h				84	779	984	379	1551	0	0	1636	0
Adj No. of Lanes				0	2	1	2	3	0	0	3	1
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	0	0	0	0	0	0	0	0
Cap, veh/h				136	1331	626	895	3295	0	0	1779	554
Arrive On Green				0.43	0.43	0.43	0.28	0.71	0.00	0.00	0.38	0.00
Sat Flow, veh/h				313	3071	1445	3141	4794	0	0	4794	1445
Grp Volume(v), veh/h				451	412	984	379	1551	0	0	1636	0
Grp Sat Flow(s),veh/h/ln				1684	1700	1445	1570	1547	0	0	1547	1445
Q Serve(g_s), s				24.9	21.7	52.0	11.8	17.5	0.0	0.0	40.3	0.0
Cycle Q Clear(g_c), s				24.9	21.7	52.0	11.8	17.5	0.0	0.0	40.3	0.0
Prop In Lane				0.19		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				730	737	626	895	3295	0	0	1779	554
V/C Ratio(X)				0.62	0.56	1.57	0.42	0.47	0.00	0.00	0.92	0.00
Avail Cap(c_a), veh/h				730	737	626	895	3295	0	0	1779	554
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.11	0.11	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				26.3	25.4	34.0	34.9	7.6	0.0	0.0	35.2	0.0
Incr Delay (d2), s/veh				1.3	0.7	264.8	0.0	0.1	0.0	0.0	9.2	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
%ile BackOfQ(50%),veh/ln				11.8	10.3	66.8	5.1	7.3	0.0	0.0	18.6	0.0
LnGrp Delay(d),s/veh				27.6	26.1	298.8	34.9	7.6	0.0	0.0	44.5	0.0
LnGrp LOS				C	C	F	C	A			D	
Approach Vol, veh/h					1847			1930			1636	
Approach Delay, s/veh					171.8			13.0			44.5	
Approach LOS					F			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		91.0			40.0	51.0		57.0				
Change Period (Y+Rc), s		5.0			5.0	* 5		5.0				
Max Green Setting (Gmax), s		58.0			7.8	* 46		52.0				
Max Q Clear Time (g_c+I1), s		19.5			13.8	42.3		54.0				
Green Ext Time (p_c), s		21.8			0.0	3.2		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay					76.7							
HCM 2010 LOS					E							
Notes												

HCM 2010 Signalized Intersection Summary













9: Anaheim Blvd & Manchester Ave/Manchester Ave/I-5 SB On

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	545	660	195	0	525	10	160	1281	5	606	873	155
Future Volume (veh/h)	545	660	195	0	525	10	160	1281	5	606	873	155
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1700	1700	1700	0	1700	1700	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	574	695	205	0	553	11	168	1348	5	638	919	163
Adj No. of Lanes	2	4	0	0	3	0	1	3	0	2	3	0
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	583	1557	441	0	531	11	198	1402	5	651	1518	268
Arrive On Green	0.19	0.34	0.34	0.00	0.11	0.11	0.12	0.29	0.29	0.21	0.38	0.38
Sat Flow, veh/h	3141	4550	1288	0	4836	93	1619	4773	18	3141	3954	698
Grp Volume(v), veh/h	574	669	231	0	365	199	168	874	479	638	718	364
Grp Sat Flow(s),veh/h/ln	1570	1462	1452	0	1547	1682	1619	1547	1696	1570	1547	1559
Q Serve(g_s), s	17.7	11.5	12.1	0.0	11.0	11.0	9.9	27.0	27.0	19.6	18.1	18.2
Cycle Q Clear(g_c), s	17.7	11.5	12.1	0.0	11.0	11.0	9.9	27.0	27.0	19.6	18.1	18.2
Prop In Lane	1.00		0.89	0.00		0.06	1.00		0.01	1.00		0.45
Lane Grp Cap(c), veh/h	583	1501	497	0	351	191	198	909	498	651	1188	599
V/C Ratio(X)	0.98	0.45	0.47	0.00	1.04	1.04	0.85	0.96	0.96	0.98	0.60	0.61
Avail Cap(c_a), veh/h	583	1501	497	0	351	191	275	909	498	651	1188	599
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.80	0.00	1.00	1.00	1.00	1.00	1.00	0.27	0.27	0.27
Uniform Delay (d), s/veh	39.4	24.8	25.0	0.0	43.0	43.0	41.7	33.7	33.7	38.3	24.0	24.0
Incr Delay (d2), s/veh	29.4	0.2	0.5	0.0	58.8	77.2	14.5	21.8	31.8	14.0	0.6	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.0	4.7	4.9	0.0	7.5	9.2	5.2	14.3	17.0	9.8	7.8	8.0
LnGrp Delay(d),s/veh	68.7	24.9	25.5	0.0	101.8	120.3	56.2	55.5	65.5	52.3	24.6	25.3
LnGrp LOS	E	C	C		F	F	E	E	E	D	C	C
Approach Vol, veh/h		1474			564			1521			1720	
Approach Delay, s/veh		42.1			108.3			58.7			35.0	
Approach LOS		D			F			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.3	33.5		38.2	16.6	42.2	22.2	16.0				
Change Period (Y+Rc), s	* 5.2	5.0		5.0	* 4.7	5.0	* 4.2	5.0				
Max Green Setting (Gmax), s	* 20	28.5		33.2	* 17	32.6	* 18	11.0				
Max Q Clear Time (g_c+I1), s	21.6	29.0		14.1	11.9	20.2	19.7	13.0				
Green Ext Time (p_c), s	0.0	0.0		8.0	0.1	11.3	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			51.7									
HCM 2010 LOS			D									
Notes												



















HCM 2010 Signalized Intersection Summary
 11: I-5 SB Ramps & Katella Ave

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑↑		↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	0	1495	780	480	2825	0	60	0	380	355	223	35
Future Volume (veh/h)	0	1495	780	480	2825	0	60	0	380	355	223	35
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		0.98
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
Adj Sat Flow, veh/h/ln	0	1700	1700	1700	1700	0	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	0	1574	821	505	2974	0	42	0	422	374	235	37
Adj No. of Lanes	0	3	1	2	4	0	1	0	2	2	2	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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	1395	672	551	3057	0	279	0	497	456	468	206
Arrive On Green	0.00	0.30	0.30	0.35	1.00	0.00	0.17	0.00	0.17	0.15	0.15	0.15
Sat Flow, veh/h	0	4794	1407	3141	6086	0	1619	0	2885	3141	3230	1423
Grp Volume(v), veh/h	0	1574	821	505	2974	0	42	0	422	374	235	37
Grp Sat Flow(s),veh/h/ln	0	1547	1407	1570	1462	0	1619	0	1442	1570	1615	1423
Q Serve(g_s), s	0.0	27.0	27.0	13.8	0.0	0.0	2.0	0.0	12.8	10.4	6.0	2.1
Cycle Q Clear(g_c), s	0.0	27.0	27.0	13.8	0.0	0.0	2.0	0.0	12.8	10.4	6.0	2.1
Prop In Lane	0.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	1395	672	551	3057	0	279	0	497	456	468	206
V/C Ratio(X)	0.00	1.13	1.22	0.92	0.97	0.00	0.15	0.00	0.85	0.82	0.50	0.18
Avail Cap(c_a), veh/h	0	1395	672	551	3057	0	279	0	497	537	553	243
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.09	0.09	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	31.5	19.6	28.6	0.0	0.0	31.7	0.0	36.1	37.3	35.5	33.8
Incr Delay (d2), s/veh	0.0	67.5	113.1	2.5	1.7	0.0	1.1	0.0	16.4	7.3	0.3	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	0.0	20.2	37.7	6.1	0.4	0.0	1.0	0.0	6.2	5.0	2.7	0.8
LnGrp Delay(d),s/veh	0.0	99.0	132.8	31.1	1.7	0.0	32.8	0.0	52.6	44.7	35.8	33.9
LnGrp LOS		F	F	C	A		C		D	D	D	C
Approach Vol, veh/h		2395			3479			464			646	
Approach Delay, s/veh		110.6			5.9			50.8			40.8	
Approach LOS		F			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s		20.0	32.3		20.0		52.3		17.7			
Change Period (Y+Rc), s		* 4.2	5.3		4.5		5.3		4.6			
Max Green Setting (Gmax), s		* 16	24.7		15.5		44.7		15.4			
Max Q Clear Time (g_c+I1), s		15.8	29.0		14.8		2.0		12.4			
Green Ext Time (p_c), s		0.0	0.0		0.1		42.6		0.6			
Intersection Summary												
HCM 2010 Ctrl Delay				48.0								
HCM 2010 LOS				D								
Notes												

HCM 2010 Signalized Intersection Summary
 12: I-5 NB Ramps & Katella Ave

02/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	2125	0	0	2350	433	1070	1330	310	0	0	0
Future Volume (veh/h)	105	2125	0	0	2350	433	1070	1330	310	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1700	1700	0	0	1700	1700	1700	1700	1700			
Adj Flow Rate, veh/h	111	2237	0	0	2474	456	570	2178	326			
Adj No. of Lanes	2	4	0	0	4	1	1	4	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	174	2525	0	0	2203	461	704	2512	373			
Arrive On Green	0.11	0.86	0.00	0.00	0.32	0.32	0.43	0.43	0.43			
Sat Flow, veh/h	3141	6086	0	0	6800	1423	1619	5776	858			
Grp Volume(v), veh/h	111	2237	0	0	2474	456	570	1921	583			
Grp Sat Flow(s),veh/h/ln	1570	1462	0	0	1700	1423	1619	1700	1534			
Q Serve(g_s), s	3.0	20.0	0.0	0.0	29.2	28.7	27.6	30.7	31.1			
Cycle Q Clear(g_c), s	3.0	20.0	0.0	0.0	29.2	28.7	27.6	30.7	31.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.56			
Lane Grp Cap(c), veh/h	174	2525	0	0	2203	461	704	2218	667			
V/C Ratio(X)	0.64	0.89	0.00	0.00	1.12	0.99	0.81	0.87	0.87			
Avail Cap(c_a), veh/h	174	2525	0	0	2203	461	720	2267	682			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	39.1	4.9	0.0	0.0	30.4	30.3	22.2	23.1	23.2			
Incr Delay (d2), s/veh	0.5	0.5	0.0	0.0	61.9	39.3	6.4	3.6	11.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.3	6.9	0.0	0.0	23.1	16.3	13.6	15.2	15.2			
LnGrp Delay(d),s/veh	39.7	5.3	0.0	0.0	92.4	69.6	28.6	26.7	34.7			
LnGrp LOS	D	A			F	E	C	C	C			
Approach Vol, veh/h		2348			2930			3074				
Approach Delay, s/veh		7.0			88.8			28.5				
Approach LOS		A			F			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		44.9			9.7	35.2		45.1				
Change Period (Y+Rc), s		6.0			* 4.7	6.0		6.0				
Max Green Setting (Gmax), s		38.0			* 5	28.3		40.0				
Max Q Clear Time (g_c+I1), s		22.0			5.0	31.2		33.1				
Green Ext Time (p_c), s		16.0			0.0	0.0		6.0				
Intersection Summary												
HCM 2010 Ctrl Delay			43.6									
HCM 2010 LOS			D									
Notes												

Queues

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

02/13/2018



Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	926	21	859	21	53	226	222	190
v/c Ratio	0.47	0.11	0.43	0.12	0.18	0.99	0.98	0.52
Control Delay	10.5	9.8	10.3	20.8	1.3	84.0	82.6	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.5	9.8	10.3	20.8	1.3	84.0	82.6	9.5
Queue Length 50th (ft)	60	3	55	5	0	65	64	0
Queue Length 95th (ft)	87	14	81	20	0	#177	#185	45
Internal Link Dist (ft)	1148		509				920	
Turn Bay Length (ft)		155		150	150	480		350
Base Capacity (vph)	1979	199	1983	172	302	229	226	366
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.11	0.43	0.12	0.18	0.99	0.98	0.52

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

11: I-5 SB Ramps & Katella Ave

02/13/2018



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1663	1016	300	2095	29	393	389	416	343	16
v/c Ratio	0.99	1.14	1.08	0.72	0.08	0.88	0.84	1.27	1.02	0.06
Control Delay	50.0	92.2	120.2	17.1	27.4	40.2	35.7	179.7	95.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	92.2	120.2	17.1	27.4	40.2	35.7	179.7	95.4	0.4
Queue Length 50th (ft)	339	-449	-102	147	13	135	124	-155	-106	0
Queue Length 95th (ft)	#455	#921	m#169	188	36	#323	#295	#247	#196	0
Internal Link Dist (ft)	812			868		2402			478	
Turn Bay Length (ft)			225				705	390		
Base Capacity (vph)	1675	895	278	2904	366	449	462	327	337	267
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	1.14	1.08	0.72	0.08	0.88	0.84	1.27	1.02	0.06

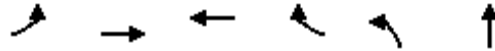
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues

12: I-5 NB Ramps & Katella Ave

03/08/2018



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	132	2684	1273	87	455	1734
v/c Ratio	0.62	1.05	0.73	0.20	0.81	1.18dr
Control Delay	45.0	52.5	30.8	6.1	35.2	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.0	52.5	30.8	6.1	35.2	25.1
Queue Length 50th (ft)	37	-489	201	0	262	247
Queue Length 95th (ft)	m38	m#486	246	38	#469	297
Internal Link Dist (ft)		868	1064			1268
Turn Bay Length (ft)	130			225	1000	
Base Capacity (vph)	218	2550	1735	426	581	2271
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.61	1.05	0.73	0.20	0.78	0.76

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Queues

4: Zeyn St/I-5 SB Off Ramp & Disney Way/Manchester Ave

02/13/2018



Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1033	26	847	11	79	210	210	151
v/c Ratio	0.52	0.15	0.43	0.06	0.26	0.92	0.93	0.45
Control Delay	11.0	11.0	10.2	19.8	2.7	68.1	70.3	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	11.0	10.2	19.8	2.7	68.1	70.3	8.8
Queue Length 50th (ft)	69	4	54	3	0	60	60	0
Queue Length 95th (ft)	100	17	80	14	5	#164	#174	37
Internal Link Dist (ft)	1111		501				1080	
Turn Bay Length (ft)		155		150	150	480		350
Base Capacity (vph)	1980	171	1983	172	302	229	226	338
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.15	0.43	0.06	0.26	0.92	0.93	0.45

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

11: I-5 SB Ramps & Katella Ave

02/13/2018



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1574	821	505	2974	57	202	204	374	235	37
v/c Ratio	1.19	1.14	0.90	0.99	0.22	0.52	0.50	0.77	0.47	0.11
Control Delay	122.6	100.6	41.5	32.4	34.5	10.9	9.8	47.8	37.6	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	122.6	100.6	41.5	32.4	34.5	10.9	9.8	47.8	37.6	0.7
Queue Length 50th (ft)	~410	~374	152	~389	29	3	0	105	63	0
Queue Length 95th (ft)	#504	#579	m118	m302	66	70	63	152	100	0
Internal Link Dist (ft)	812			868		2402			478	
Turn Bay Length (ft)			225					390		
Base Capacity (vph)	1328	721	568	3000	264	389	405	536	552	354
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.19	1.14	0.89	0.99	0.22	0.52	0.50	0.70	0.43	0.10

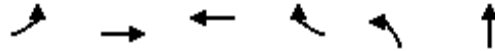
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues

12: I-5 NB Ramps & Katella Ave

02/13/2018



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	111	2237	2520	410	563	2289
v/c Ratio	0.64	0.91	1.46	0.96	0.97	0.97
Control Delay	46.5	33.1	236.5	61.4	57.0	37.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.5	33.1	236.5	61.4	57.0	37.7
Queue Length 50th (ft)	33	298	~616	227	372	379
Queue Length 95th (ft)	m36	m281	#699	#465	#646	#490
Internal Link Dist (ft)		868	1064			1230
Turn Bay Length (ft)	130			225	1000	
Base Capacity (vph)	174	2469	1729	425	581	2363
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.91	1.46	0.96	0.97	0.97

Intersection Summary

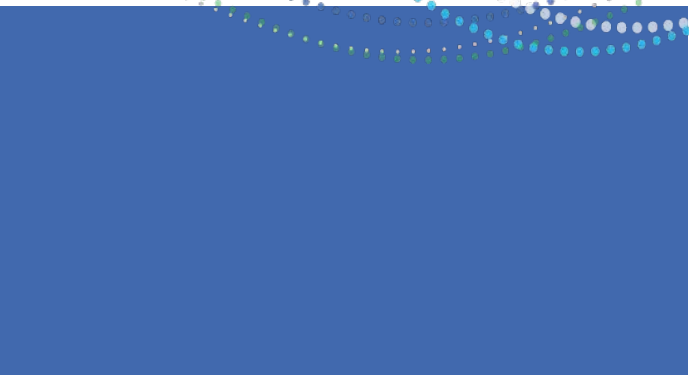
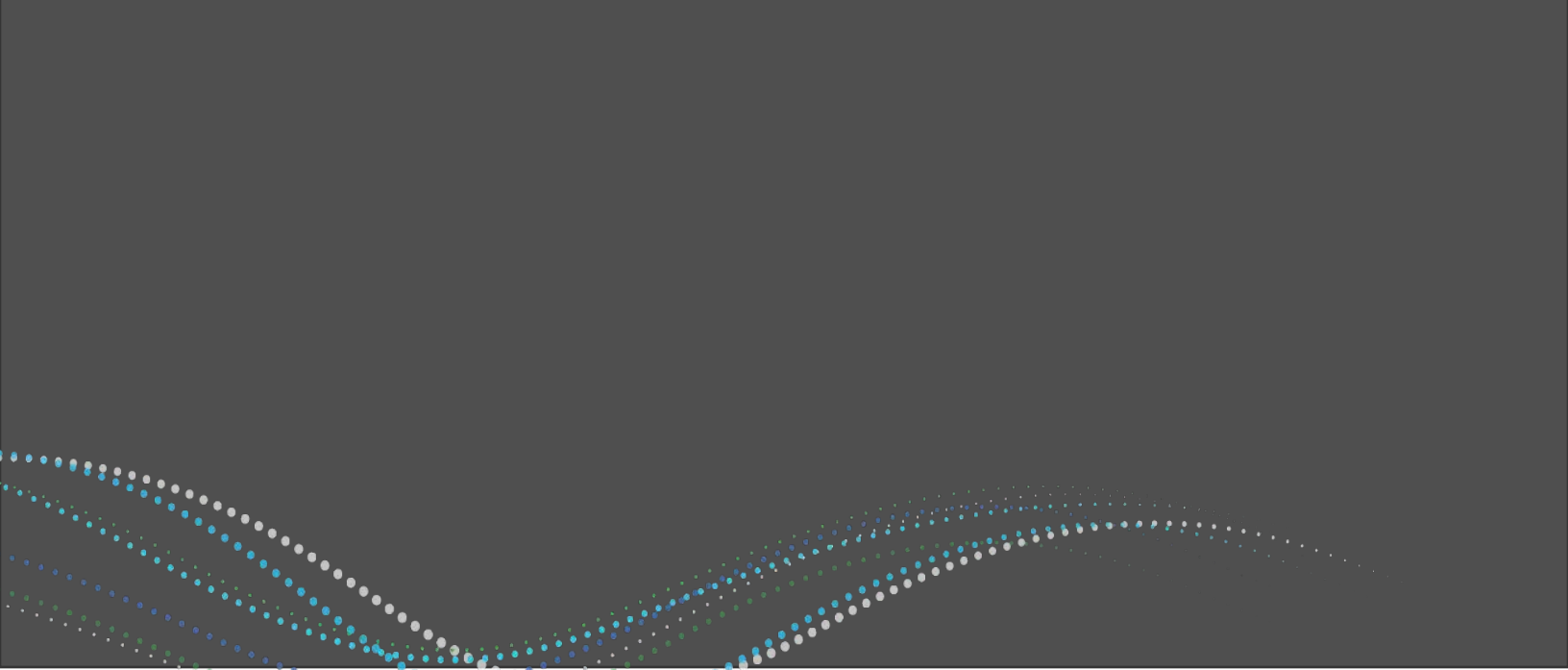
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



iteris[®]

1700 Carnegie Avenue, Suite 100
Santa Ana, CA 92705

iteris.com

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