



4.4 Future Year 2030 Trip Generation

The trip generation for the Future year 2030 scenario was based on the full build-out of the Project. The Technical Memorandum provided by AECOM, dated September 18, 2014, shown in Appendix E, was used to estimate the number of vehicular trips generated by the build-out of the Project for the Future Year 2030 scenario. The memorandum evaluated the current and future projected staffing level based on full-time equivalent (FTE) positions, which is a calculated unit of measurement that gauges the number of full-time and part-time employees at the Honouliuli WWTP based on collective work hours. It was estimated that the current staffing level at the Honouliuli WWTP is at 39 FTE positions, while the build-out of the Project will increase the staffing to an estimated 320 FTE positions. This results in an eight-fold increase to the number of employees at the Honouliuli WWTP. In order to determine the growth in traffic generated by this increase to 320 FTE, all existing traffic turning movements were increased linearly by a factor of 8. The Future Year 2030 Project Generated Traffic is shown below in Table 6.

Table 6: Future Year 2030 Project Generated Traffic

	FTE Positions	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Estimate Trips Accessing the WWTP in 2014							
Existing 2014 Traffic¹	39 FTE	20	28	48	33	43	76
New Proposed Trips Accessing the WWTP in 2030 Multiplier: 820 percent							
Future Year 2030 Traffic	320 FTE	164	230	394	271	353	624
Existing 2014 Traffic		(20)	(28)	(48)	(33)	(43)	(76)
TOTAL NEW TRIPS²		144	202	346	238	310	548

Notes:

1. Existing 2014 Traffic shows all entering/exiting traffic accessing the existing Honouliuli driveways determined by the traffic counts conducted for this TIAR.
2. Since the eight-fold multiplier includes existing 2014 traffic, the existing traffic was removed to determine the Total New Trips for Future Year 2030 scenario.

4.5 Trip Distribution/Assignment

Trip distribution is based on existing traffic flow patterns throughout the study area. Future Year 2030 Project trips were assigned to all existing driveways in addition to three (3) new accesses described in Section 4.3.



4.6 Future Year 2030 Analysis

Based on a LOS comparison between Future Year 2030 and Base Year 2030/Future Year 2021, the majority of individual movements projected to operate at LOS E/F for Base Year 2030/Future Year 2021 conditions will continue operating at similar levels of service for Future Year 2030 conditions during the AM and PM peak hours of traffic except for the following:

Geiger Road/Honouliuli Driveway 1

This intersection is forecast to operate similar to Base Year 2030 conditions with the exception of the southbound shared left/through/right movement which is projected to operate at LOS E during the PM peak hours of traffic. The southbound left-turn movement currently operates with only 10 vehicles and queues were not observed to extend beyond one vehicle long. An additional 35 left-turn vehicles generated by the Project should have minimal impacts to the queues along the southbound approach.

Geiger Road/Honouliuli Driveway 2

The southbound shared left/through/right movement is projected to operate at LOS E(F) during the AM(PM) peak hours of traffic, respectively. The southbound approach will continue to operate at a low 20 vehicle right-turn movement and 70 vehicle left-turn movement during the more critical PM peak hour. With an average of only 1 southbound left-turn vehicle arriving every minute, the increase in southbound traffic should have minimal impacts on southbound queues.

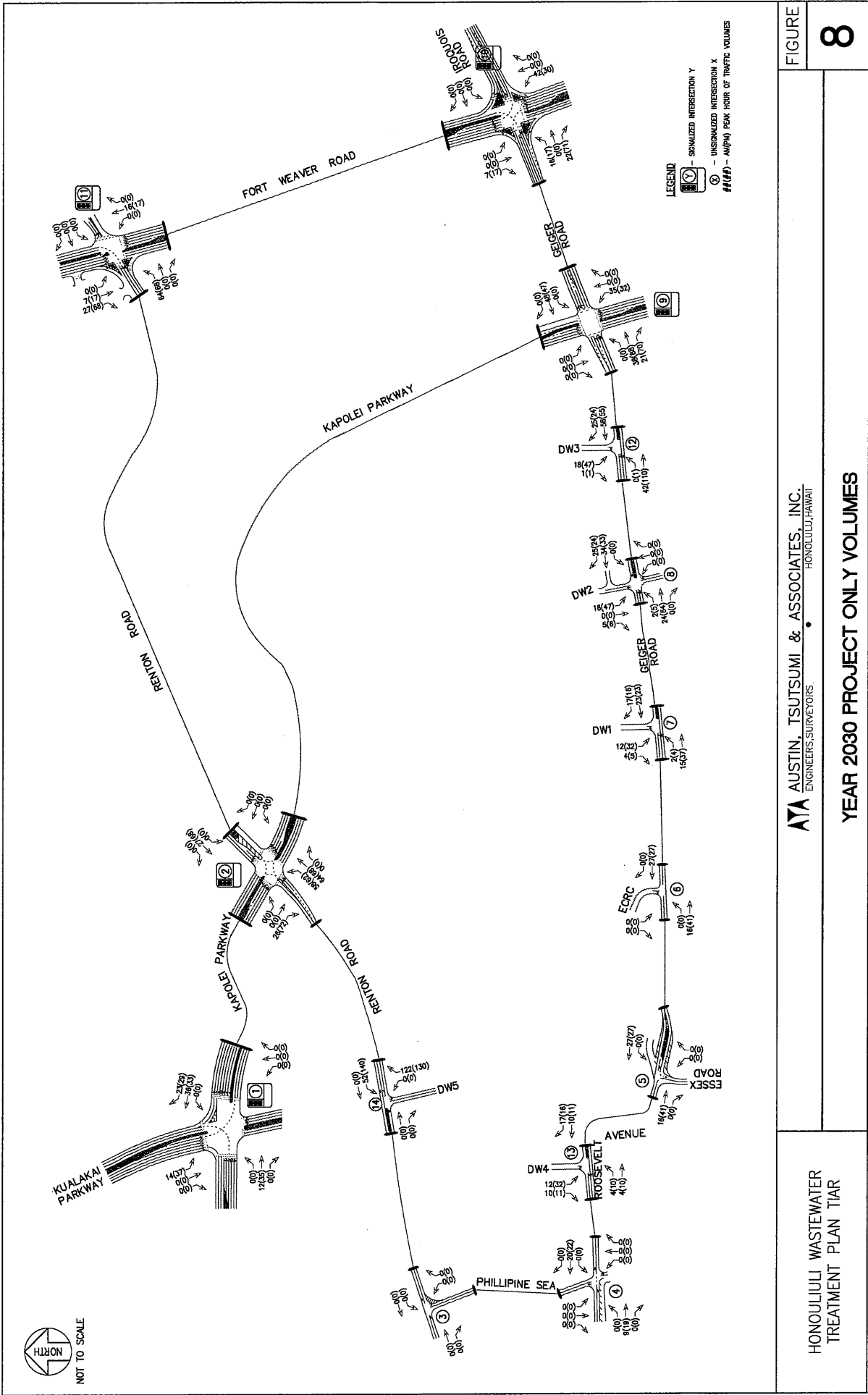
Geiger Road/Honouliuli Driveway 3

This new proposed access is forecast to operate at LOS D or better during the AM and PM peak hours of traffic with the exception of the southbound shared left/right-turn movement which is projected to operate at LOS F during the PM peak hour of traffic. The southbound left-turn movement will operate at a low 50 vehicles during the PM peak hour. With an average of less than 1 southbound left-turn vehicle arriving every minute, the movement should not experience heavy southbound queues.

Fort Weaver Road/Geiger Road/Iroquois Road & Fort Weaver Road/Renton Road

As discussed in Section 4.3, intersections along Fort Weaver Road through the Ewa region will continue to experience LOS F and over-capacity conditions at some movements. However, this is generally ascribed to requisite long traffic signal cycle lengths, split phase operation and generally long crosswalk lengths across Fort Weaver Road. Further widening of Fort Weaver Road is not prescribed by the ORTP 2035, and is generally considered infeasible due to insufficient ROW.

Figure 8 illustrates the Project Generated Traffic volumes for Year 2030. Figure 9 illustrates the forecast traffic volumes, lane configuration, and LOS for Future Year 2030 conditions. Table 7 summarizes the delay, v/c, and LOS at the study intersections for Base Year 2030 and Future Year 2030 conditions. The full LOS summary table is provided in Appendix C.



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ENGINEERS/SURVEYORS
HONOLULU, HAWAII

HONOLULU WASTEWATER
TREATMENT PLANT

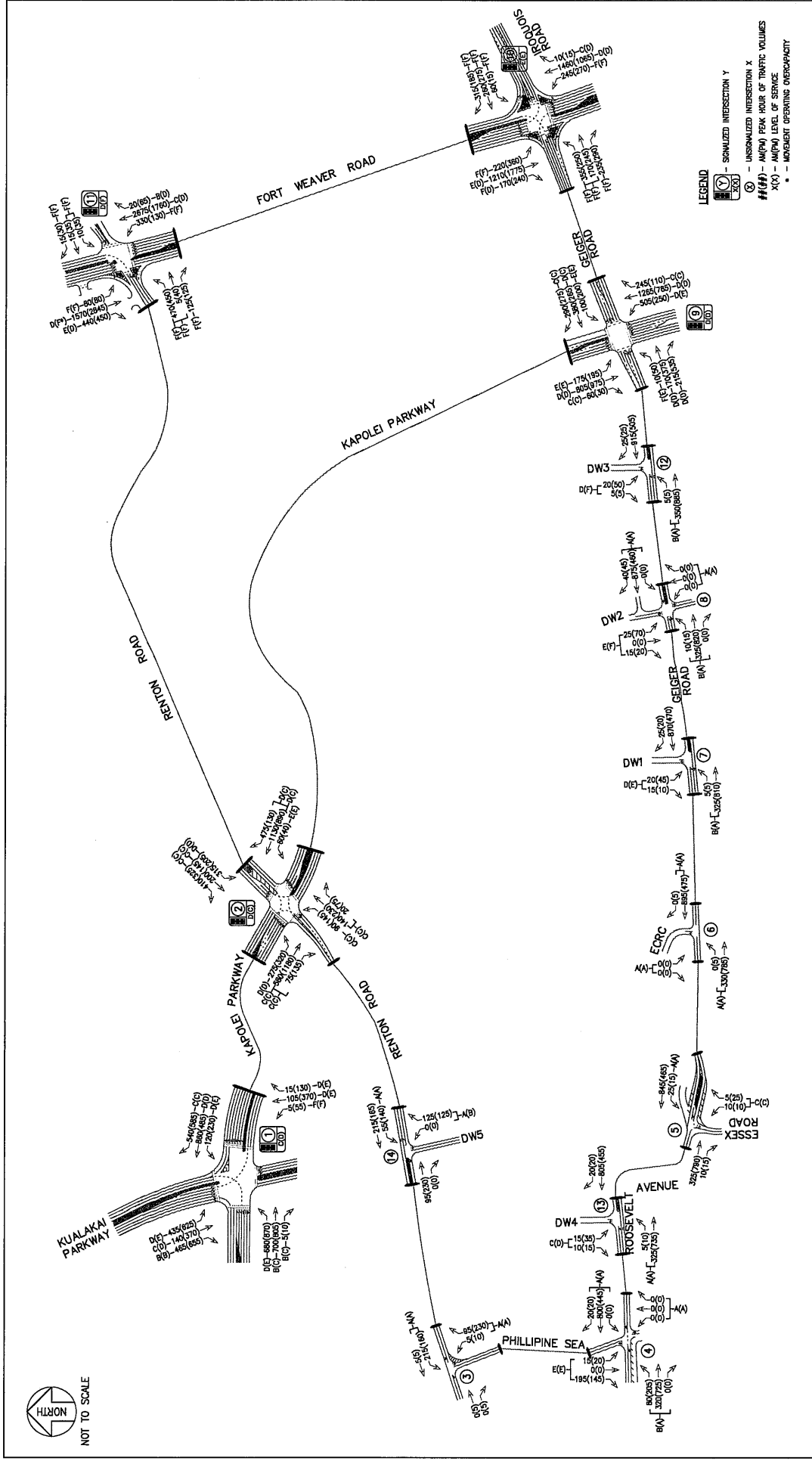


FIGURE 9

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HONOLULU WASTEWATER TREATMENT PLANT

FUTURE YEAR 2030 LANE CONFIGURATION, VOLUME, AND LOS

Table 7: Base Year 2030 (no mit), Base Year 2030 (with mit) and Future Year 2030 (no mit) Intersection Level of Service Summary

Intersection	BY 2030 (No Mit)						BY 2030 WITH MITIGATION						FY 2030 (No Mit)					
	AM			PM			AM			PM			AM			PM		
	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
1: Kapolei Pkwy & Kualakai Pkwy																		
EB LT	41.3	0.86	D	59.7	0.92	E							42.6	0.86	D	72.6	0.96	E
EB TH	18.1	0.32	B	31.5	0.40	C							18.4	0.32	B	33.5	0.43	C
EB RT	18.2	0.32	B	31.6	0.40	C							18.5	0.32	B	33.7	0.43	C
WB LT	50.5	0.63	D	70.7	0.80	E							51.7	0.63	D	72.7	0.81	E
WB TH	34.6	0.67	C	53.4	0.49	D							35.4	0.69	D	54.6	0.52	D
WB RT	22.0	0.48	C	34.1	0.50	C							22.1	0.49	C	33.7	0.51	C
NB LT	93.3	0.54	F	84.9	0.77	F							94.7	0.55	F	86.7	0.77	F
NB TH	44.8	0.33	D	65.3	0.77	E							45.9	0.34	D	65.7	0.74	E
NB TH/RT	44.7	0.34	D	65.3	0.78	E							45.9	0.34	D	65.5	0.74	E
SB LT	48.9	0.84	D	76.1	0.93	E							50.8	0.85	D	78.0	0.94	E
SB TH	30.6	0.17	C	40.6	0.37	D							31.0	0.17	C	40.1	0.36	D
SB RT	14.8	0.23	B	13.8	0.26	B							15.0	0.23	B	14.1	0.25	B
Overall	31.8	-	C	49.4	-	D							32.6	-	C	52.7	-	D
2: Kapolei Pkwy & Renton Rd																		
EB LT	37.1	0.11	D	31.5	0.23	C	31.3	0.10	C	24.4	0.20	C	34.1	0.28	C	27.9	0.36	C
EB TH/RT	30.7	0.17	C	31.0	0.45	C	26.0	0.16	C	24.0	0.40	C	26.4	0.26	C	24.5	0.46	C
WB LT	53.9	0.81	D	56.0	0.77	E	42.8	0.77	D	36.1	0.64	D	51.5	0.81	D	40.1	0.66	D
WB TH	32.5	0.31	C	27.6	0.15	C	27.5	0.30	C	21.4	0.13	C	27.1	0.32	C	21.7	0.22	C
WB RT	33.1	0.35	C	27.7	0.16	C	26.9	0.24	C	21.6	0.16	C	26.2	0.24	C	21.3	0.17	C
NB LT	73.5	0.77	E	73.9	0.78	E	65.3	0.77	E	67.0	0.78	E	68.9	0.77	E	71.4	0.78	E
NB TH	59.5	0.97	E	34.3	0.67	C	36.3	0.86	D	28.6	0.64	C	44.1	0.90	D	33.9	0.68	C
NB TH/RT	71.3	0.97	E	35.7	0.68	C	42.0	0.86	D	29.8	0.65	C	52.3	0.91	D	35.7	0.69	C
SB LT	65.0	0.90	E	66.4	0.92	E	50.8	0.78	D	43.1	0.77	D	54.4	0.79	D	48.0	0.79	D
SB TH	19.2	0.27	B	19.1	0.52	B	18.7	0.28	B	21.4	0.60	C	21.7	0.31	C	26.5	0.67	C
SB TH/RT	19.3	0.27	B	19.3	0.52	B	18.8	0.29	B	21.7	0.60	C	21.9	0.31	C	27.2	0.67	C
Overall	50.1	-	D	33.1	-	C	35.1	-	D	27.6	-	C	40.3	-	D	31.6	-	C
3: Phillipine Sea & Renton Rd																		
EB TH/RT	-	-	-	-	-	-							-	-	-	-	-	-
WB LT/TH	7.6	0.15	A	7.5	0.11	A							-	-	-	7.5	0.11	A
NB LT/RT	9.0	0.11	A	9.6	0.25	A							-	-	-	9.6	0.25	A
4: Phillipine Sea & Roosevelt Ave																		
EB LT/TH/RT	10.2	0.11	B	9.2	0.21	A							10.3	0.11	B	9.3	0.21	A
WB LT/TH/RT	0.0	-	A	0.0	-	A							0.0	-	A	0.0	-	A
NB LT/TH/RT	0.0	-	A	0.0	-	A							0.0	-	A	0.0	-	A
SB LT/TH/RT	43.8	0.74	E	41.9	0.67	E							48.1	0.77	E	49.0	0.72	E
5: Essex Rd & Roosevelt Ave/Gelger Rd																		
EB TH/RT	-	-	-	-	-	-							-	-	-	-	-	-
WB LT	8.0	0.02	A	9.6	0.02	A							8.1	0.02	A	9.8	0.02	A
WB TH	-	-	-	-	-	-							-	-	-	-	-	-
NB LT/RT	21.2	0.07	C	20.1	0.14	C							22.5	0.07	C	21.6	0.15	C
6: Gelger Rd & Ewa Refuse Convenience Center																		
EB LT/TH/RT	0.0	-	A	8.4	0.01	A							0.0	-	A	8.5	0.01	A
WB LT/TH/RT	0.0	-	A	0.0	-	A							0.0	-	A	0.0	-	A
NB LT/TH/RT	0.0	-	A	0.0	-	A							0.0	-	A	0.0	-	A
SB LT/TH/RT	0.0	-	A	0.0	-	A							0.0	-	A	0.0	-	A
7: Gelger Rd & Honouliuli Drwy 1																		
EB LT	-	-	-	-	-	-							10.1	0.01	B	8.5	0.01	A
EB LT/TH	0.0	-	A	0.0	-	A							-	-	-	-	-	-
WB TH/RT	-	-	-	-	-	-							-	-	-	-	-	-
SB LT/RT	21.7	0.09	C	22.4	0.07	C							25.7	0.18	D	36.1	0.34	E
8: Gelger Rd & Honouliuli Drwy 2																		
EB LT	-	-	-	-	-	-							10.3	0.02	B	8.6	0.02	A
EB LT/TH/RT	9.9	0.01	A	8.4	0.01	A							0.0	-	A	0.0	-	A
WB LT/TH/RT	0.0	-	A	0.0	-	A							0.0	-	A	0.0	-	A
NB LT/TH/RT	0.0	-	A	0.0	-	A							0.0	-	A	0.0	-	A
SB LT/TH/RT	21.6	0.07	C	27.3	0.19	D							35.2	0.27	E	85.8	0.74	F
9: Kapolei Pkwy & Gelger Rd																		
EB LT	99.4	0.62	F	77.6	0.77	E	83.7	0.60	F	74.6	0.77	E	86.5	0.60	F	78.4	0.77	E
EB TH	52.5	0.28	D	52.4	0.81	D	44.1	0.46	D	53.2	0.82	D	44.5	0.53	D	52.3	0.85	D
EB TH/RT	52.5	0.29	D	54.2	0.83	D	-	-	-	-	-	-	-	-	-	-	-	-
EB RT	-	-	-	-	-	-	40.5	0.09	D	48.3	0.70	D	39.9	0.10	D	54.6	0.86	D
WB LT	86.9	0.83	F	87.3	0.90	F	67.9	0.81	E	67.9	0.88	E	72.0	0.81	E	77.9	0.89	E
WB TH	68.2	0.89	E	35.4	0.41	D	50.0	0.85	D	34.7	0.42	C	54.1	0.87	D	32.7	0.43	C
WB RT	44.9	0.23	D	32.2	0.15	C	35.2	0.16	D	31.5	0.16	C	34.9	0.20	C	29.1	0.17	C
NB LT	97.9	1.03	F	73.4	0.89	D	53.2	0.86	D	59.4	0.77	E	49.7	0.85	D	66.2	0.82	E
NB TH	34.4	0.81	C	41.7	0.74	D	39.2	0.91	D	40.0	0.75	D	46.4	0.95	D	50.7	0.84	D
NB RT	21.6	0.23	C	30.2	0.06	C	21.1	0.24	C	28.9	0.05	C	23.1	0.24	C	34.1	0.05	C
SB LT	86.3	0.89	F	70.9	0.88	E	70.5	0.87	E	61.4	0.87	E	74.8	0.87	E	73.9	0.88	E
SB TH	46.2	0.78	D	61.6	0.96	E	30.5	0.66	C	37.9	0.80	D	35.7	0.72	D	54.4	0.92	D
SB RT	32.8	0.03	C	30.9	0.02	C	22.4	0.03	C	24.5	0.02	C	25.7	0.03	C	30.2	0.02	C
Overall	53.3	-	D	55.9	-	E	41.9	-	D	45.2	-	D	46.1	-	D	54.5	-	D

Note:

* = over-capacity, v/c > 1

Table 7: Base Year 2030 (no mit), Base Year 2030 (with mit) and Future Year 2030 (no mit) Intersection Level of Service Summary (continued)

Intersection	BY 2030 (No Mit)						BY 2030 WITH MITIGATION						FY 2030 (No Mit)					
	AM			PM			AM			PM			AM			PM		
	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
10: Ft Weaver Rd & Geiger Rd/Iroquois Rd																		
EB LT	108.7	0.73	F	103.8	0.67	F							110.7	0.76	F	97.0	0.61	F
EB LT/TH	101.9	0.71	F	99.8	0.67	F							101.9	0.72	F	94.3	0.62	F
EB RT	106.8	0.70	F	107.7	0.72	F							112.5	0.77	F	122.9	0.88	F
WB LT	84.0	0.20	F	81.4	0.05	F							84.3	0.20	F	85.3	0.06	F
WB TH	112.4	0.83	F	121.1	0.89	F							113.7	0.84	F	150.4	0.99	F
WB RT	85.1	0.28	F	83.7	0.19	F							85.4	0.28	F	87.7	0.20	F
NB LT	110.8	0.68	F	110.4	0.72	F							112.3	0.74	F	111.2	0.75	F
NB TH	44.8	0.62	D	46.8	0.50	D							45.1	0.63	D	46.8	0.50	D
NB RT	31.1	0.01	C	36.8	0.01	D							31.3	0.01	C	36.8	0.01	D
SB LT	97.7	0.73	F	125.8	0.81	F							98.0	0.73	F	125.1	0.81	F
SB TH	63.7	0.52	E	47.4	0.78	D							65.2	0.53	E	50.0	0.79	D
SB RT	130.3	0.13	F	38.8	0.22	D							133.7	0.14	F	41.2	0.25	D
Overall	74.6	0.69	E	69.5	0.80	E							76.4	0.71	E	73.4	0.85	E
11: Ft Weaver Rd & Renton Rd																		
EB LT	113.1	0.81	F	113.6	0.81	F							107.9	0.81	F	113.6	0.85	F
EB LT/TH	111.5	0.79	F	113.3	0.81	F							110.0	0.82	F	114.3	0.85	F
EB RT	87.5	0.22	F	87.2	0.22	F							82.7	0.20	F	83.2	0.21	F
WB LT/TH	119.6	0.46	F	122.3	0.66	F							119.6	0.46	F	122.3	0.66	F
WB RT	110.5	0.01	F	103.5	0.02	F							110.5	0.01	F	103.5	0.02	F
NB LT	126.8	0.90	F	98.8	0.75	F							139.8	0.95	F	99.4	0.75	F
NB TH	23.0	0.88	C	34.6	0.61	C							27.0	0.91	C	37.7	0.64	D
NB RT	15.5	0.02	B	40.8	0.06	D							17.3	0.02	B	44.1	0.06	D
SB LT	127.5	0.68	F	115.2	0.64	F							131.7	0.71	F	115.1	0.64	F
SB TH	48.5	0.69	D	86.0	1.06	F*							51.1	0.71	D	105.5	1.10	F*
SB RT	63.5	0.29	E	38.6	0.27	D							68.7	0.31	E	44.0	0.32	D
Overall	49.1	0.87	D	70.4	0.95	E							53.3	0.90	D	80.9	0.98	F
12: Geiger Rd & Honouliuli Drwy 3																		
EB LT													10.3	0.01	B	8.6	0.01	A
WB TH/RT													-	-	-	-	-	-
SB LT/RT													30.2	0.16	D	50.8	0.44	F
13: Roosevelt Ave & Honouliuli Drwy 4																		
EB LT													9.8	0.01	A	8.5	0.01	A
WB TH/RT													-	-	-	-	-	-
SB LT/RT													22.7	0.12	C	27.3	0.25	D
14: Honouliuli Drwy 5 & Renton Rd																		
EB LT													-	-	-	-	-	-
WB LT													7.5	0.04	A	8.1	0.12	A
WB TH													-	-	-	-	-	-
NB LT/RT													9.4	0.14	A	10.6	0.19	B

Note:
* = over-capacity, v/c > 1



5. CONCLUSION

The Honouliuli Wastewater Treatment Plant proposes to upgrade and expand the facility, which will include the potential relocation of non-process facilities currently located at the Sand Island Wastewater Treatment Plant to the Project site. This TIAR analyzed two benchmark years; Year 2021, which corresponds to the peak year of construction for the Project and Year 2030, which corresponds to the build-out of the Project.

5.1 Existing Conditions

All study intersections operate at LOS D or better with adequate capacity except along Kapolei Parkway and Fort Weaver Road at its intersections with Renton Road and Geiger Road/Iroquois Road. Although some movements operated at LOS E conditions along Kapolei Parkway, no heavy queues were observed at its intersections with Kualakai Parkway, Renton Road and Geiger Road, with most vehicles typically clearing the intersection within one signal cycle.

Along Fort Weaver Road, the majority of movements at these intersections currently operate at LOS E/F conditions during the AM and PM peak hours of traffic mainly due to long delays as a result of requisite long cycle lengths (approximately 4 minutes long). These two intersections also provide split-phase signal operation on the side streets and long pedestrian crossing times across Fort Weaver Road, which contribute to the long delays. During the AM peak hour, the northbound traffic is generally heavier, while during the PM peak hour, traffic is heavier in the southbound direction. Further widening of Fort Weaver Road is not prescribed by the ORTP 2035, and is generally considered infeasible due to insufficient ROW. Therefore, no mitigation was recommended for any Base Year or Future Year scenarios.

5.2 Base Year WITHOUT Project Scenario

The year 2021 was selected as the base year to reflect the anticipated peak year of construction activity, which was assumed to occur during Phase 1 construction of the Honouliuli WWTP. The year 2030 was selected as the base year to reflect the anticipated build-out of the Honouliuli WWTP.

The Oahu Regional Transportation Plan 2035 (ORTP) model, which was prepared in 2011, serves as the basis for future traffic projections of future conditions throughout this TIAR. Calculated defacto growth rates ranging from 0.5-3.5 percent were used to generate Base Year 2021 and 2030 traffic projections. In addition to the defacto growth, the following developments were supplemented for additional traffic growth along the roadway network: University of Hawaii at West Oahu (UHWO), Ka Makana Alii Shopping Center, Ho'opili and East Kapolei developments. Upon build-out of the Ka Makana Alii Shopping Center, one of the proposed accesses is anticipated to be provided as a new south leg extension from the existing Kapolei Parkway/Kualakai Parkway intersection, ultimately providing a 4-legged intersection, described in further detail in Section 3.3. This improvement was assumed to be completed by Year 2021.

5.2.1 Base Year 2021 Analysis

Based on a LOS comparison between Base Year 2021 and existing conditions, the majority of individual movements that are projected to operate at LOS E/F for existing conditions will continue operating at similar levels of service for Base Year 2021 conditions during the AM and PM peak hours of traffic.



5.2.2 Base Year 2030 Analysis

Due to increased regional growth along the major thoroughfares, the Roosevelt Avenue/Phillipine Sea unsignalized intersection will operate at LOS E conditions along its southbound approach but should not experience heavy queuing due to its low volume.

Based on a LOS comparison between Base Year 2021 and Base Year 2030 conditions, the majority of individual movements that are projected to operate at LOS E/F for Base Year 2021 will continue operating at similar levels of service for Base Year 2030 conditions during the AM and PM peak hours of traffic except at the Kapolei Parkway/Geiger Road intersection and Kapolei Parkway/Renton Road intersection.

The Kapolei Parkway/Geiger Road intersection is anticipated to operate overall at LOS E during the PM peak hour. In addition, all turning movements are forecast to operate at LOS E/F conditions during the AM and PM peak hours of traffic, while the shared eastbound through/right-turn lane is anticipated to operate at LOS D during the PM peak hour due to a relatively high 190(465) vehicle right-turn movement. In order to improve the eastbound approach it is recommended that the shared through/right lane be restriped to an exclusive right-turn lane, while the northbound approach is recommended to be widened to provide two left-turn lanes.

The Kapolei Parkway/Renton Road intersection is forecast to operate with increased delays compared to Base Year 2021 as a result of growth from surrounding development and ambient growth. In order to mitigate the deficiencies of the intersection, dual southbound left-turn lanes were recommended to accommodate the relatively high 275(320) southbound left-turn vehicles during the AM(PM) peak hours. With the dual southbound left-turn lanes, all movements at the intersection are forecast to operate similar to Base Year 2021 conditions.

5.3 Future Year WITH Project Scenario

5.3.1 Future Year Trip Generation and Distribution

A Technical Memorandum provided by AECOM, dated September 18, 2014, shown in Appendix E, was used to estimate the number of vehicular trips generated by construction activity for the Future Year 2021 scenarios. Future year 2021 trip generation is the anticipated peak year of construction activity, and estimated to generate 185 construction workers arriving to the site during the AM peak hour and 185 construction workers exiting the site during the PM peak in addition to 8 total trips (4 entering and 4 exiting) generated by cement trucks during each of the AM and PM peak hours of traffic. The memorandum also estimated the number of vehicular trips generated by the build-out of the Project for the Future Year 2030 scenario and was based on a comparison of existing vs. projected 2030 Full-Time Equivalent (FTE) positions. Based on this comparison, it was estimated that existing traffic accessing the current site will increase eight-fold.

Trip distribution was generally based on existing traffic flow patterns throughout the study area. Future Year Project trips were assigned to all existing driveways in addition to three (3) new accesses described in Section 4.3.



5.3.2 Future Year 2021 Analysis

Based on a LOS comparison between Future Year 2021 and Base Year 2021, the majority of individual movements that are projected to operate at LOS E/F for Base Year 2021 conditions will continue operating at similar levels of service for Future Year 2021 conditions during the AM and PM peak hours of traffic.

Due to increased regional growth along the major thoroughfares and slight increase in exiting Project traffic, the Geiger Road/Honouliuli Driveway 2 intersection will operate at LOS E conditions along its southbound approach but should not experience heavy queuing due to its low volume. Although entering traffic volumes at the Project driveways are anticipated to operate with adequate LOS, based on guidance from the AASHTO Green Book, eastbound left-turn lanes are recommended along Geiger Road and Roosevelt Avenue at its intersection with Honouliuli Driveway 1, 2, 3 and 4 and a westbound left-turn lane is recommended at the Renton Road/Driveway 5 intersection.

5.3.3 Future Year 2030 Analysis

Due to increased regional growth along the major thoroughfares and slight increase in exiting Project traffic, various unsignalized intersection will operate at LOS E/F conditions along its exiting approach but should not experience heavy queuing due to its low volume.

Based on a LOS comparison between Future Year 2030 and Base Year 2030/Future Year 2021, the majority of individual movements projected to operate at LOS E/F for Base Year 2030/Future Year 2021 conditions will continue operating at similar levels of service for Future Year 2030 conditions during the AM and PM peak hours of traffic.



6. RECOMMENDATIONS

The following mitigation at the Kapolei Parkway/Kualakai Parkway intersection was triggered by the Ka Makana Alii Shopping Center and was assumed to be completed by the developer prior to the Base Year 2021 conditions. Ka Makana Alii has already broken ground on the shopping center and portions of the improvement are currently listed on the Statewide Transportation Improvement Program (STIP):

Kapolei Parkway/Kualakai Parkway

1. Northbound Approach
 - a. Provide a new approach that includes one left-turn lane, one through lane and one shared through/right-turn lane.
2. Southbound Approach
 - a. Provide two through lanes.
3. Eastbound Approach
 - a. Convert three through lanes to two through lanes and one shared through/right-turn lane.
4. Westbound Approach
 - a. Provide two new left-turn lanes.

The following roadway improvements are recommended for the Base Year 2030 and Future Year 2021 scenarios.

6.1 Base Year 2030 WITHOUT Project

Kapolei Parkway/Geiger Road Intersection

1. Eastbound Approach
 - a. Restripe and convert the shared through/right lane to an exclusive right-turn lane.
2. Northbound Approach
 - a. Widen to provide two left-turn lanes.

Kapolei Parkway/Renton Road Intersection

1. Southbound Approach
 - a. Widen to provide two left-turn lanes.

6.2 Future Year 2021 WITH Project

Geiger Road at its intersection with Honouliuli Driveway 1, 2 and 3

1. Eastbound Approach
 - a. Widen to provide a left-turn storage lane.
 - b. Provide for a minimum storage of at least 50 feet.



Roosevelt Avenue/Honouliuli Driveway 4 Intersection

1. Eastbound Approach
 - a. Widen to provide a left-turn storage lane.
 - b. Provide for a minimum storage of at least 50 feet.

Renton Road/Honouliuli Driveway 5 Intersection

1. Westbound Approach
 - a. Widen to provide a left-turn storage lane.
 - b. Provide for a minimum storage of at least 125 feet.



REFERENCES

1. Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012.
2. Julian Ng, Traffic Impact Analysis Report for East Kapolei II, November 2007.
3. Transportation Research Board, Highway Capacity Manual, 2010.
4. Parsons Brinckerhoff Quade & Douglas Inc., Traffic Study for University of Hawaii – West Oahu, October 2006.
5. PB Americas Inc., Traffic Evaluation for Ka Makana Alii, June 2011.

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CIVIL ENGINEERS • SURVEYORS

APPENDICES



AUSTIN, TSUTSUMI & ASSOCIATES, INC.
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APPENDIX A

Traffic Count Data

Austin Tsutsumi & Associates

501 Sumner Street, Suite 521
Honolulu, HI 96817-5031

Phone: (808) 533-3646 Fax: (808) 526-1267

File Name : AM_Essex Rd - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Class 1

Start Time	From North				GEIGER RD From East				ESSEX RD From South				GEIGER RD From West				Int. Total
	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	
06:00 AM	0	0	0	0	0	67	1	0	0	0	0	0	1	37	0	0	106
06:15 AM	0	0	0	0	0	97	3	0	0	0	0	0	4	48	0	0	152
06:30 AM	0	0	0	0	0	120	5	0	2	0	0	0	6	62	0	0	195
06:45 AM	0	0	0	0	0	112	7	0	3	0	0	0	2	68	0	0	192
Total	0	0	0	0	0	396	16	0	5	0	0	0	13	215	0	0	645
07:00 AM	0	0	0	0	0	112	5	0	0	0	2	0	0	57	0	0	176
07:15 AM	0	0	0	0	0	155	6	0	2	0	1	0	2	74	0	0	240
07:30 AM	0	0	0	0	0	153	5	0	2	0	2	0	1	71	0	0	234
07:45 AM	0	0	0	0	0	136	7	0	0	0	0	0	2	63	0	0	208
Total	0	0	0	0	0	556	23	0	4	0	5	0	5	265	0	0	858
Grand Total	0	0	0	0	0	952	39	0	9	0	5	0	18	480	0	0	1503
Apprch %	0	0	0	0	0	96.1	3.9	0	64.3	0	35.7	0	3.6	96.4	0	0	
Total %	0	0	0	0	0	63.3	2.6	0	0.6	0	0.3	0	1.2	31.9	0	0	

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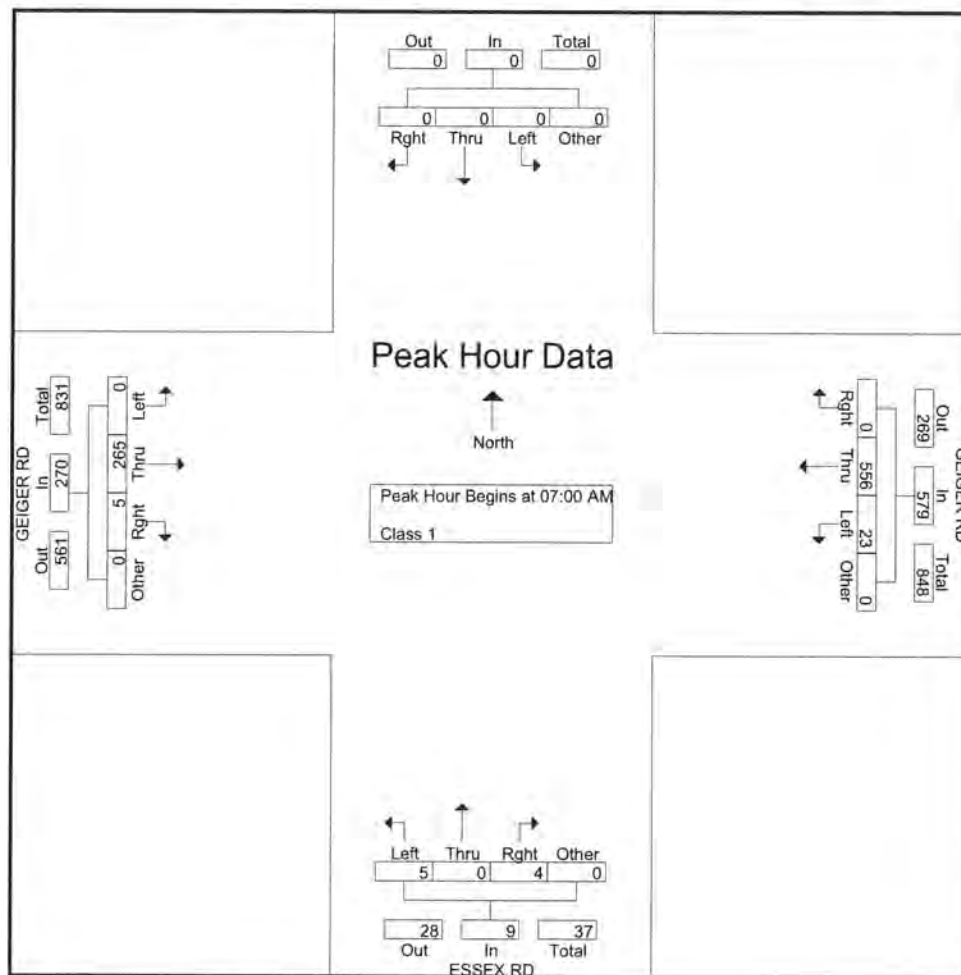
File Name : AM_Essex Rd - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	From North					GEIGER RD From East					ESSEX RD From South					GEIGER RD From West					
Start Time	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	112	5	0	117	0	0	2	0	2	0	57	0	0	57	176
07:15 AM	0	0	0	0	0	0	155	6	0	161	2	0	1	0	3	2	74	0	0	76	240
07:30 AM	0	0	0	0	0	0	153	5	0	158	2	0	2	0	4	1	71	0	0	72	234
07:45 AM	0	0	0	0	0	0	136	7	0	143	0	0	0	0	0	2	63	0	0	65	208
Total Volume	0	0	0	0	0	0	556	23	0	579	4	0	5	0	9	5	265	0	0	270	858
% App. Total	0	0	0	0	0	0	96	4	0		44.4	0	55.6	0		1.9	98.1	0	0		
PHF	.000	.000	.000	.000	.000	.000	.897	.821	.000	.899	.500	.000	.625	.000	.563	.625	.895	.000	.000	.888	.894



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Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Unshifted

Start Time	FT WEAVER RD From North					GEIGER RD From East				FT WEAVER RD From South					GEIGER RD From West				Int. Total
	Right	Thru	Left	U-Turns	Peds	Right	Thru	Left	Peds	Right	Thru	Left	U-Turns	Peds	Right	Thru	Left	Peds	
06:00 AM	28	97	31	0	0	63	43	2	1	1	364	11	2	5	11	12	62	2	735
06:15 AM	28	153	51	0	0	77	31	3	0	3	275	25	2	4	12	16	49	2	731
06:30 AM	38	196	39	0	0	65	36	5	1	0	343	9	0	9	13	29	58	3	844
06:45 AM	29	217	36	0	0	87	37	5	3	1	356	20	0	8	30	17	56	2	904
Total	123	663	157	0	0	292	147	15	5	5	1338	65	4	26	66	74	225	9	3214
07:00 AM	27	223	55	0	0	64	46	13	2	1	336	24	1	8	41	24	69	8	942
07:15 AM	26	219	43	1	0	74	68	22	1	3	276	30	1	18	49	42	59	7	939
07:30 AM	38	250	27	0	0	57	55	10	2	0	348	32	0	9	48	39	76	7	998
07:45 AM	29	183	35	1	0	71	53	5	4	0	388	60	1	6	18	24	55	5	938
Total	120	875	160	2	0	266	222	50	9	4	1348	146	3	41	156	129	259	27	3817
Grand Total	243	1538	317	2	0	558	369	65	14	9	2686	211	7	67	222	203	484	36	7031
Appreh %	11.6	73.2	15.1	0.1	0	55.5	36.7	6.5	1.4	0.3	90.1	7.1	0.2	2.2	23.5	21.5	51.2	3.8	
Total %	3.5	21.9	4.5	0	0	7.9	5.2	0.9	0.2	0.1	38.2	3	0.1	1	3.2	2.9	6.9	0.5	

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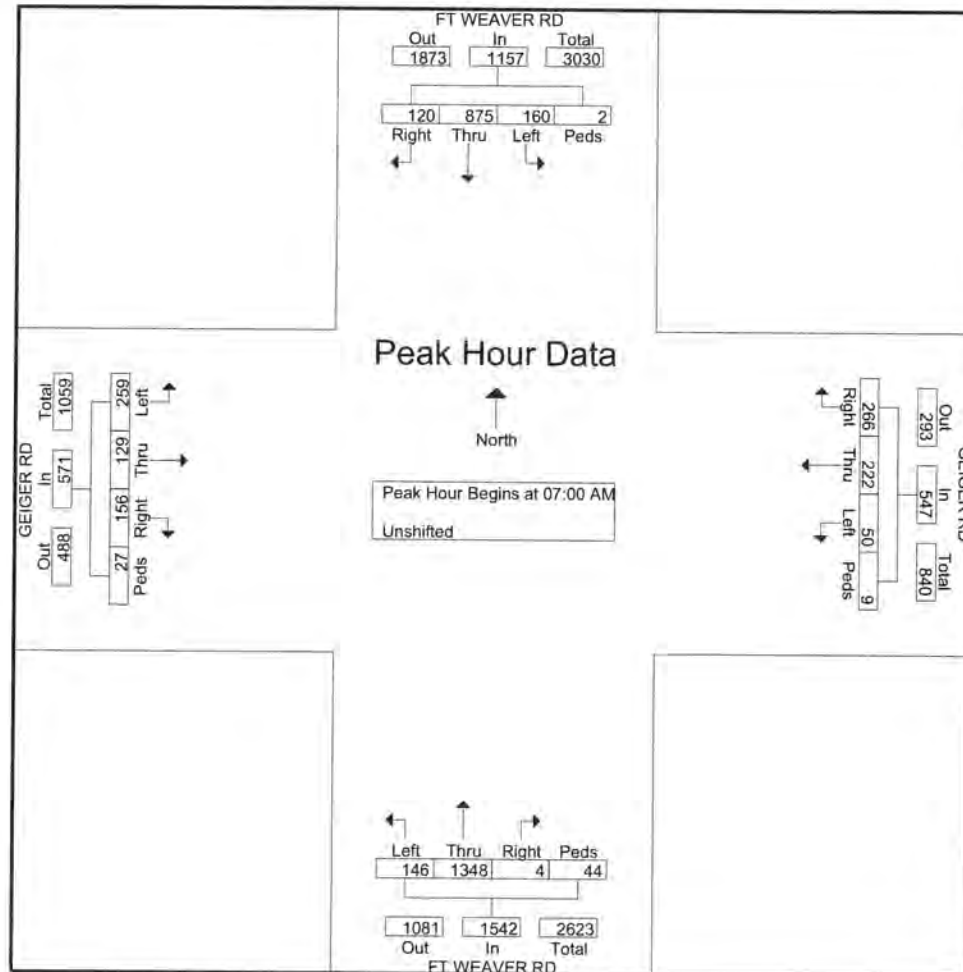
File Name : AM_Ft Weaver Rd - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	FT WEAVER RD From North						GEIGER RD From East					FT WEAVER RD From South						GEIGER RD From West						
Start Time	Right	Thru	Left	U-Turns	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	U-Turns	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total	
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																								
Peak Hour for Entire Intersection Begins at 07:00 AM																								
07:00 AM	27	223	55	0	0	305	64	46	13	2	125	1	336	24	1	8	370	41	24	69	8	142	942	
07:15 AM	26	219	43	1	0	289	74	68	22	1	165	3	276	30	1	18	328	49	42	59	7	157	939	
07:30 AM	38	250	27	0	0	315	57	55	10	2	124	0	348	32	0	9	389	48	39	76	7	170	998	
07:45 AM	29	183	35	1	0	248	71	53	5	4	133	0	388	60	1	6	455	18	24	55	5	102	938	
Total Volume	120	875	160	2	0	1157	266	222	50	9	547	4	1348	146	3	41	1542	156	129	259	27	571	3817	
% App. Total	10.4	75.6	13.8	0.2	0		48.6	40.6	9.1	1.6		0.3	87.4	9.5	0.2	2.7		27.3	22.6	45.4	4.7			
PHF	.789	.875	.727	.500	.000	.918	.899	.816	.568	.563	.829	.333	.869	.608	.750	.569	.847	.796	.768	.852	.844	.840	.956	



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Start Date : 9/3/2014

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Groups Printed- Unshifted

Start Time	FT WEAVER RD From North					RENTON RD From East				FT WEAVER RD From South					RENTON RD From West				Int. Total
	Right	Thru	Left	U-Turns	Peds	Right	Thru	Left	Peds	Right	Thru	Left	U-Turns	Peds	Right	Thru	Left	Peds	
06:00 AM	24	154	1	17	0	3	11	7	4	11	493	8	0	0	11	4	85	0	833
06:15 AM	46	271	0	14	0	4	4	6	19	3	820	12	0	1	7	1	94	0	1302
06:30 AM	53	313	0	18	0	2	1	0	7	4	795	21	0	0	8	4	105	0	1331
06:45 AM	65	293	2	16	0	0	1	4	10	5	758	27	0	0	14	2	107	0	1304
Total	188	1031	3	65	0	9	17	17	40	23	2866	68	0	1	40	11	391	0	4770
07:00 AM	68	280	0	12	0	2	3	2	8	5	713	45	0	0	18	1	106	0	1263
07:15 AM	71	394	0	15	0	1	4	0	12	5	699	40	0	0	18	0	84	0	1343
07:30 AM	49	239	3	16	0	3	3	2	11	3	563	54	0	0	37	3	105	0	1091
07:45 AM	47	263	2	19	0	4	2	0	9	2	675	58	1	0	37	1	96	0	1216
Total	235	1176	5	62	0	10	12	4	40	15	2650	197	1	0	110	5	391	0	4913
Grand Total	423	2207	8	127	0	19	29	21	80	38	5516	265	1	1	150	16	782	0	9683
Apprch %	15.3	79.8	0.3	4.6	0	12.8	19.5	14.1	53.7	0.7	94.8	4.6	0	0	15.8	1.7	82.5	0	
Total %	4.4	22.8	0.1	1.3	0	0.2	0.3	0.2	0.8	0.4	57	2.7	0	0	1.5	0.2	8.1	0	

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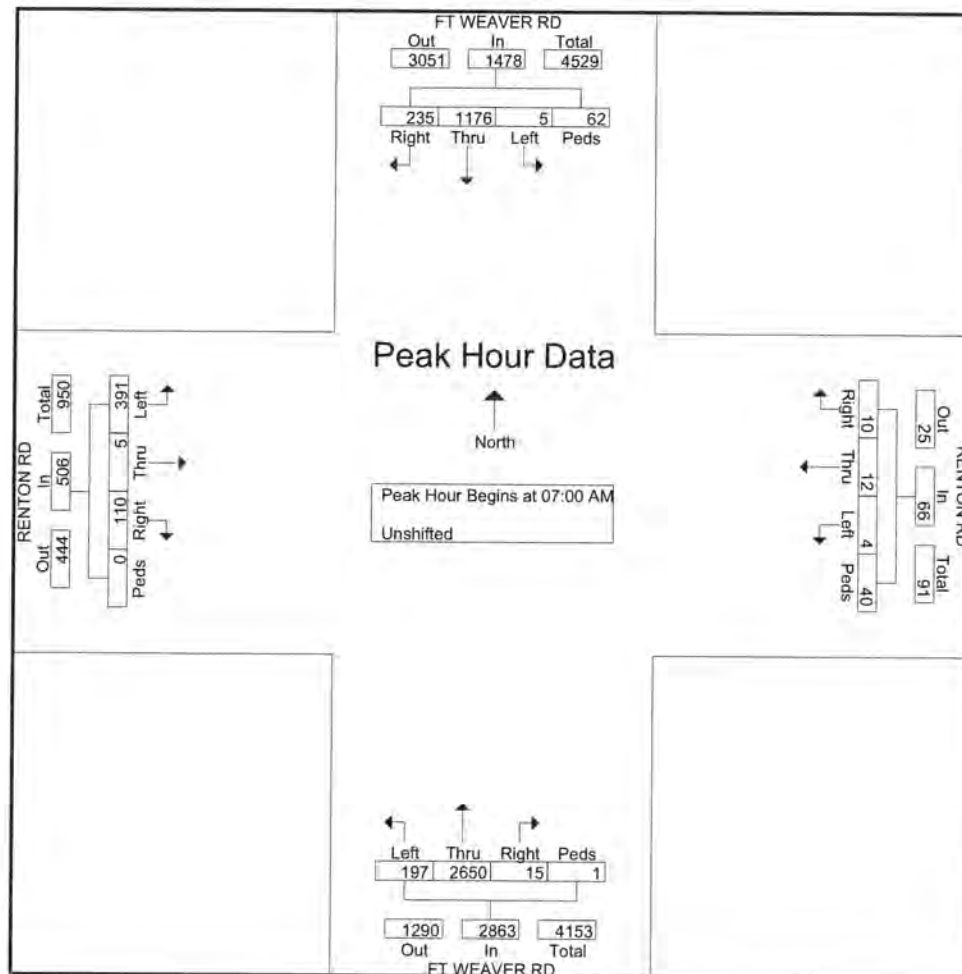
File Name : AM_Ft Weaver Rd - Renton Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	FT WEAVER RD From North						RENTON RD From East					FT WEAVER RD From South						RENTON RD From West					
Start Time	Right	Thru	Left	U-Turns	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	U-Turns	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																							
Peak Hour for Entire Intersection Begins at 07:00 AM																							
07:00 AM	68	280	0	12	0	360	2	3	2	8	15	5	713	45	0	0	763	18	1	106	0	125	1263
07:15 AM	71	394	0	15	0	480	1	4	0	12	17	5	699	40	0	0	744	18	0	84	0	102	1343
07:30 AM	49	239	3	16	0	307	3	3	2	11	19	3	563	54	0	0	620	37	3	105	0	145	1091
07:45 AM	47	263	2	19	0	331	4	2	0	9	15	2	675	58	1	0	736	37	1	96	0	134	1216
Total Volume	235	1176	5	62	0	1478	10	12	4	40	66	15	2650	197	1	0	2863	110	5	391	0	506	4913
% App. Total	15.9	79.6	0.3	4.2	0		15.2	18.2	6.1	60.6		0.5	92.6	6.9	0	0		21.7	1	77.3	0		
PHF	.827	.746	.417	.816	.000	.770	.625	.750	.500	.833	.868	.750	.929	.849	.250	.000	.938	.743	.417	.922	.000	.872	.915



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Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Unshifted

Start Time	KAPOLEI PKWY From North				GEIGER RD From East				KAPOLEI PKWY From South				GEIGER RD From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
06:00 AM	5	29	14	0	21	47	9	1	18	101	54	1	17	19	1	0	337
06:15 AM	8	62	17	0	32	41	12	8	14	98	63	0	30	13	4	1	403
06:30 AM	7	58	28	2	27	61	11	3	16	97	78	0	40	19	3	0	450
06:45 AM	9	83	25	6	28	55	9	3	24	126	79	0	55	30	3	2	537
Total	29	232	84	8	108	204	41	15	72	422	274	1	142	81	11	3	1727
07:00 AM	10	119	29	1	38	46	20	13	20	130	70	0	46	22	3	4	571
07:15 AM	10	146	44	3	44	55	23	22	31	184	94	0	44	34	2	9	745
07:30 AM	4	138	36	2	53	61	28	8	47	230	90	0	46	33	3	0	779
07:45 AM	18	98	37	0	60	48	17	5	41	173	82	3	31	21	0	2	636
Total	42	501	146	6	195	210	88	48	139	717	336	3	167	110	8	15	2731
Grand Total	71	733	230	14	303	414	129	63	211	1139	610	4	309	191	19	18	4458
Apprch %	6.8	69.9	21.9	1.3	33.3	45.5	14.2	6.9	10.7	58	31.1	0.2	57.5	35.6	3.5	3.4	
Total %	1.6	16.4	5.2	0.3	6.8	9.3	2.9	1.4	4.7	25.5	13.7	0.1	6.9	4.3	0.4	0.4	

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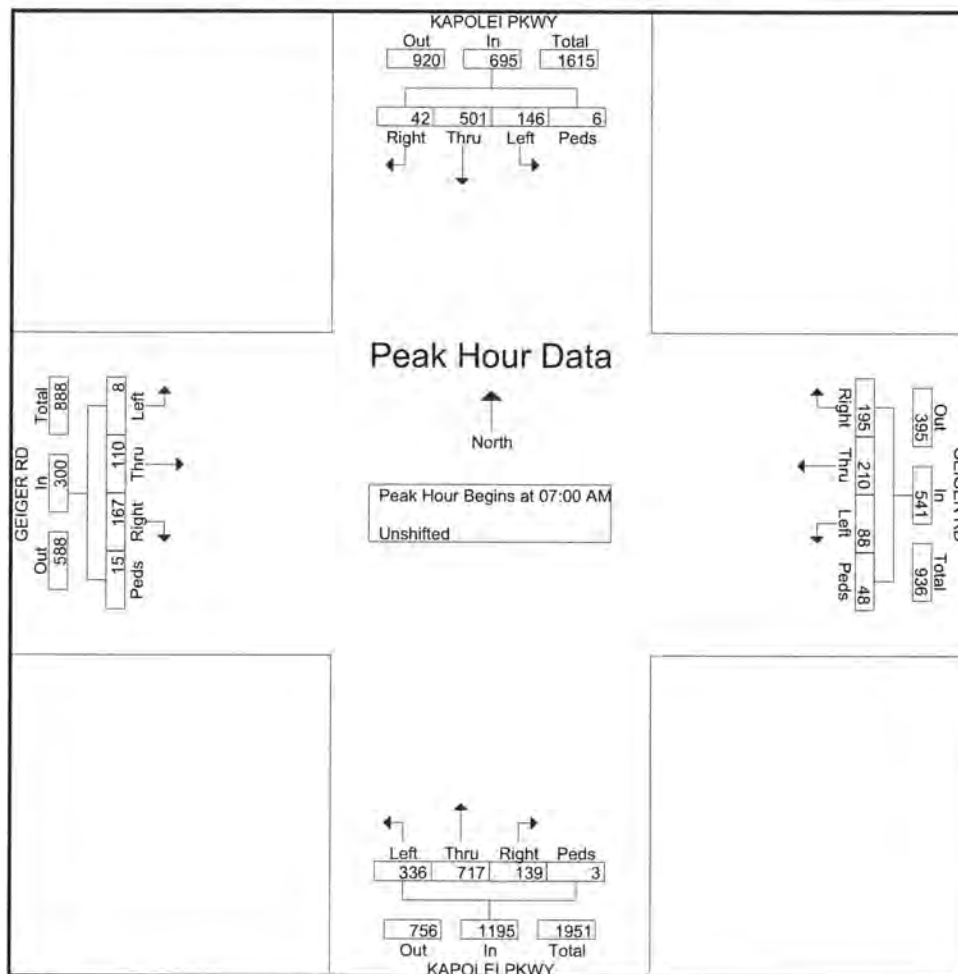
File Name : AM_Kapolei Pkwy - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	KAPOLEI PKWY From North					GEIGER RD From East					KAPOLEI PKWY From South					GEIGER RD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	10	119	29	1	159	38	46	20	13	117	20	130	70	0	220	46	22	3	4	75	571
07:15 AM	10	146	44	3	203	44	55	23	22	144	31	184	94	0	309	44	34	2	9	89	745
07:30 AM	4	138	36	2	180	53	61	28	8	150	47	230	90	0	367	46	33	3	0	82	779
07:45 AM	18	98	37	0	153	60	48	17	5	130	41	173	82	3	299	31	21	0	2	54	636
Total Volume	42	501	146	6	695	195	210	88	48	541	139	717	336	3	1195	167	110	8	15	300	2731
% App. Total	6	72.1	21	0.9		36	38.8	16.3	8.9		11.6	60	28.1	0.3		55.7	36.7	2.7	5		
PHF	.583	.858	.830	.500	.856	.813	.861	.786	.545	.902	.739	.779	.894	.250	.814	.908	.809	.667	.417	.843	.876



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File Name : AM_Kualakai Pkwy - Kapolei Pkwy

Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Unshifted

	KUALAKAI PKWY From North				KAPOLEI PKWY From East				KUALAKAI PKWY From South				KAPOLEI PKWY From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
06:00 AM	16	0	17	0	58	46	0	0	0	0	0	0	0	43	97	0	277
06:15 AM	22	0	27	0	62	59	0	0	0	0	0	0	0	64	79	0	313
06:30 AM	28	0	37	2	72	61	0	0	0	0	0	0	0	69	96	0	365
06:45 AM	37	0	44	0	50	80	0	1	0	0	0	0	0	62	82	0	356
Total	103	0	125	2	242	246	0	1	0	0	0	0	0	238	354	0	1311
07:00 AM	42	0	33	2	58	107	0	0	0	0	0	0	0	76	94	0	412
07:15 AM	53	0	54	1	77	144	0	1	0	0	0	0	0	94	66	0	490
07:30 AM	65	0	46	1	96	195	0	3	0	0	0	0	0	90	83	0	579
07:45 AM	48	0	37	1	129	158	0	0	0	0	0	0	0	104	90	0	567
Total	208	0	170	5	360	604	0	4	0	0	0	0	0	364	333	0	2048
Grand Total	311	0	295	7	602	850	0	5	0	0	0	0	0	602	687	0	3359
Apprch %	50.7	0	48.1	1.1	41.3	58.3	0	0.3	0	0	0	0	0	46.7	53.3	0	
Total %	9.3	0	8.8	0.2	17.9	25.3	0	0.1	0	0	0	0	0	17.9	20.5	0	

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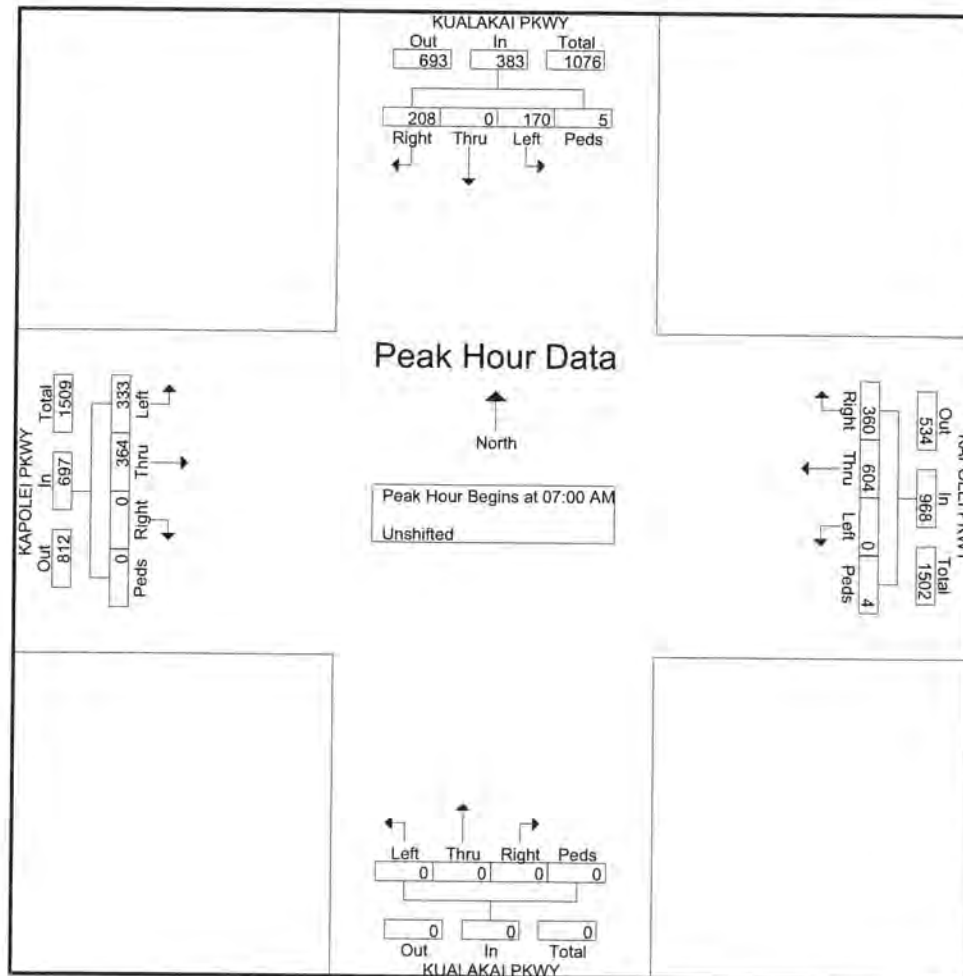
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Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	KUALAKAI PKWY From North					KAPOLEI PKWY From East					KUALAKAI PKWY From South					KAPOLEI PKWY From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	42	0	33	2	77	58	107	0	0	165	0	0	0	0	0	0	76	94	0	170	412
07:15 AM	53	0	54	1	108	77	144	0	1	222	0	0	0	0	0	0	94	66	0	160	490
07:30 AM	65	0	46	1	112	96	195	0	3	294	0	0	0	0	0	0	90	83	0	173	579
07:45 AM	48	0	37	1	86	129	158	0	0	287	0	0	0	0	0	0	104	90	0	194	567
Total Volume	208	0	170	5	383	360	604	0	4	968	0	0	0	0	0	0	364	333	0	697	2048
% App. Total	54.3	0	44.4	1.3		37.2	62.4	0	0.4		0	0	0	0		0	52.2	47.8	0		
PHF	.800	.000	.787	.625	.855	.698	.774	.000	.333	.823	.000	.000	.000	.000	.000	.000	.875	.886	.000	.898	.884



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File Name : AM_Phillipine Sea - Renton Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Class 1

Start Time	PHILLIPINE SEA From North				RENTON RD From East				PHILLIPINE SEA From South				RENTON RD From West				Int. Total
	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	
06:00 AM	0	0	0	0	0	1	44	0	20	0	0	0	0	0	0	0	65
06:15 AM	0	0	0	0	0	0	36	0	20	0	0	0	0	0	0	0	56
06:30 AM	0	0	0	0	0	0	44	0	20	0	0	0	1	0	0	0	65
06:45 AM	0	0	0	0	0	0	61	0	19	0	1	0	0	0	0	0	81
Total	0	0	0	0	0	1	185	0	79	0	1	0	1	0	0	0	267
07:00 AM	0	0	0	0	0	0	51	0	20	0	0	0	0	0	0	0	71
07:15 AM	0	0	0	0	0	0	42	0	21	0	1	0	0	0	0	0	64
07:30 AM	0	0	0	0	0	0	46	0	21	0	0	0	0	0	0	0	67
07:45 AM	0	0	0	0	0	1	42	0	18	0	1	0	0	0	0	0	62
Total	0	0	0	0	0	1	181	0	80	0	2	0	0	0	0	0	264
Grand Total	0	0	0	0	0	2	366	0	159	0	3	0	1	0	0	0	531
Apprch %	0	0	0	0	0	0.5	99.5	0	98.1	0	1.9	0	100	0	0	0	
Total %	0	0	0	0	0	0.4	68.9	0	29.9	0	0.6	0	0.2	0	0	0	

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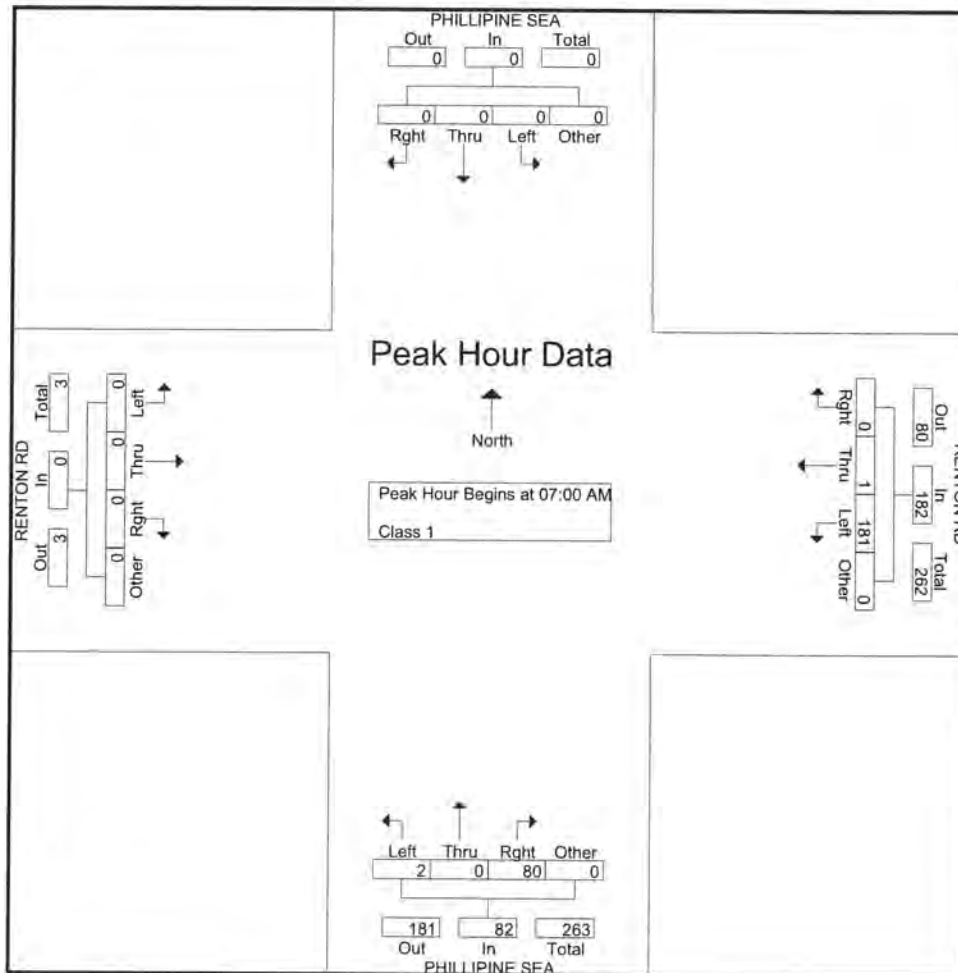
File Name : AM_Phillipine Sea - Renton Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	PHILLIPINE SEA From North					RENTON RD From East					PHILLIPINE SEA From South					RENTON RD From West					
Start Time	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	In/L. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	0	51	0	51	20	0	0	0	20	0	0	0	0	0	71
07:15 AM	0	0	0	0	0	0	0	42	0	42	21	0	1	0	22	0	0	0	0	0	64
07:30 AM	0	0	0	0	0	0	0	46	0	46	21	0	0	0	21	0	0	0	0	0	67
07:45 AM	0	0	0	0	0	0	1	42	0	43	18	0	1	0	19	0	0	0	0	0	62
Total Volume	0	0	0	0	0	0	1	181	0	182	80	0	2	0	82	0	0	0	0	0	264
% App. Total	0	0	0	0		0	0.5	99.5	0		97.6	0	2.4	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.887	.000	.892	.952	.000	.500	.000	.932	.000	.000	.000	.000	.000	.930



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File Name : AM_Phillipine Sea - Roosevelt Ave

Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Class 1

Start Time	PHILLIPINE SEA From North				ROOSEVELT AVE From East				PHILLIPINE SEA From South				ROOSEVELT AVE From West				Int. Total
	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	
06:00 AM	44	0	1	0	0	73	0	0	0	0	0	0	0	37	20	0	175
06:15 AM	30	0	4	0	0	78	0	0	0	0	0	0	0	49	15	0	176
06:30 AM	42	0	7	0	1	123	0	0	0	0	0	0	0	68	17	0	258
06:45 AM	55	0	3	0	2	108	0	0	0	0	0	0	0	67	18	0	253
Total	171	0	15	0	3	382	0	0	0	0	0	0	0	221	70	0	862
07:00 AM	48	0	2	0	2	100	0	0	0	0	0	0	0	55	16	0	223
07:15 AM	39	0	3	0	3	155	0	0	0	0	0	0	0	80	15	0	295
07:30 AM	40	0	4	0	4	141	0	0	0	0	0	0	0	65	17	0	271
07:45 AM	39	0	2	0	5	134	0	0	0	0	0	0	0	67	16	0	263
Total	166	0	11	0	14	530	0	0	0	0	0	0	0	267	64	0	1052
Grand Total	337	0	26	0	17	912	0	0	0	0	0	0	0	488	134	0	1914
Apprch %	92.8	0	7.2	0	1.8	98.2	0	0	0	0	0	0	0	78.5	21.5	0	
Total %	17.6	0	1.4	0	0.9	47.6	0	0	0	0	0	0	0	25.5	7	0	

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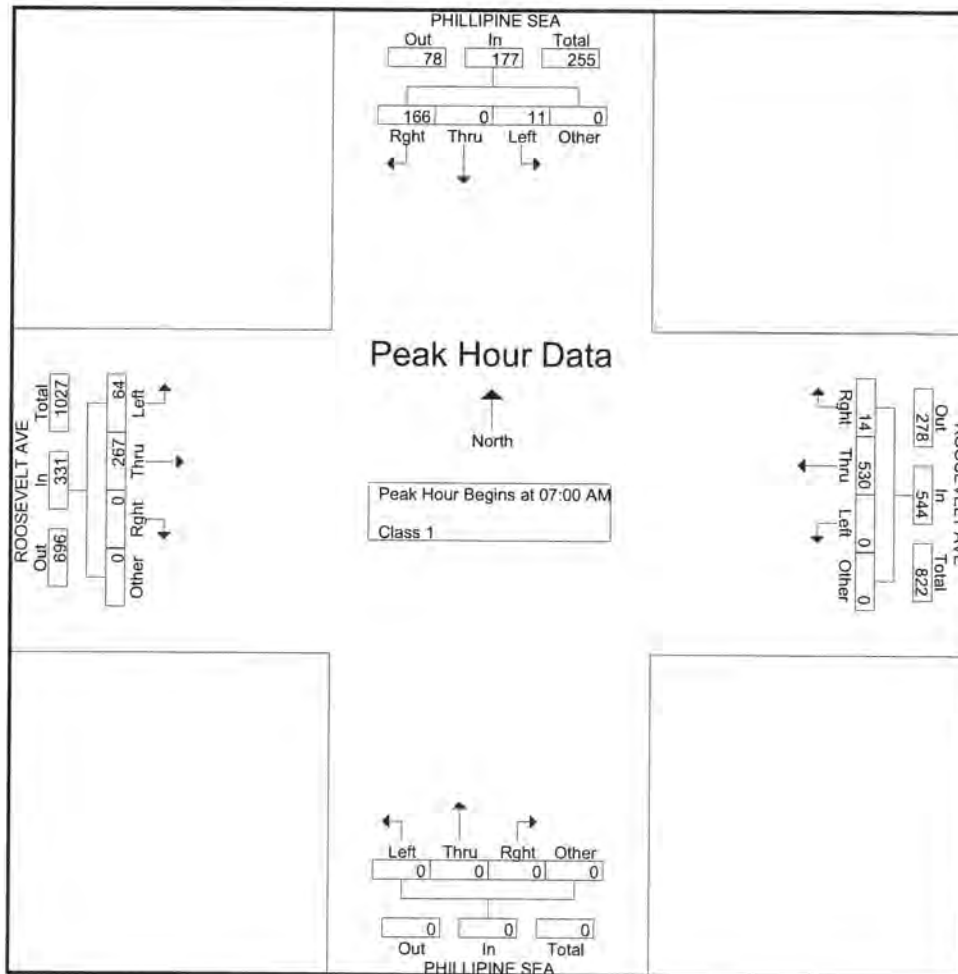
File Name : AM_Phillipine Sea - Roosevelt Ave

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	PHILLIPINE SEA From North					ROOSEVELT AVE From East					PHILLIPINE SEA From South					ROOSEVELT AVE From West					
Start Time	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	48	0	2	0	50	2	100	0	0	102	0	0	0	0	0	0	55	16	0	71	223
07:15 AM	39	0	3	0	42	3	155	0	0	158	0	0	0	0	0	0	80	15	0	95	295
07:30 AM	40	0	4	0	44	4	141	0	0	145	0	0	0	0	0	0	65	17	0	82	271
07:45 AM	39	0	2	0	41	5	134	0	0	139	0	0	0	0	0	0	67	16	0	83	263
Total Volume	166	0	11	0	177	14	530	0	0	544	0	0	0	0	0	0	267	64	0	331	1052
% App. Total	93.8	0	6.2	0		2.6	97.4	0	0		0	0	0	0		0	80.7	19.3	0		
PHF	.865	.000	.688	.000	.885	.700	.855	.000	.000	.861	.000	.000	.000	.000	.000	.000	.834	.941	.000	.871	.892



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File Name : AM_Renton Rd - Kapolei Pkwy

Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Unshifted

Start Time	RENTON RD From North				KAPOLEI PKWY From East				RENTON RD From South				KAPOLEI PKWY From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
06:00 AM	26	20	9	1	17	74	9	0	1	14	6	1	7	30	18	0	233
06:15 AM	22	20	19	2	35	103	8	1	5	12	3	0	11	56	29	0	326
06:30 AM	32	22	21	1	29	88	9	0	3	12	8	1	19	50	35	0	330
06:45 AM	33	29	36	4	51	95	7	0	5	18	3	0	22	50	29	0	382
Total	113	91	85	8	132	360	33	1	14	56	20	2	59	186	111	0	1271
07:00 AM	47	24	61	3	57	129	18	2	4	14	5	2	16	55	47	1	485
07:15 AM	57	22	85	1	109	168	9	1	3	17	9	0	10	76	55	1	623
07:30 AM	104	30	83	0	118	240	11	1	4	20	3	1	9	82	62	0	768
07:45 AM	82	32	59	2	66	168	5	0	5	10	7	0	7	76	49	0	568
Total	290	108	288	6	350	705	43	4	16	61	24	3	42	289	213	2	2444
Grand Total	403	199	373	14	482	1065	76	5	30	117	44	5	101	475	324	2	3715
Apprch %	40.7	20.1	37.7	1.4	29.6	65.4	4.7	0.3	15.3	59.7	22.4	2.6	11.2	52.7	35.9	0.2	
Total %	10.8	5.4	10	0.4	13	28.7	2	0.1	0.8	3.1	1.2	0.1	2.7	12.8	8.7	0.1	

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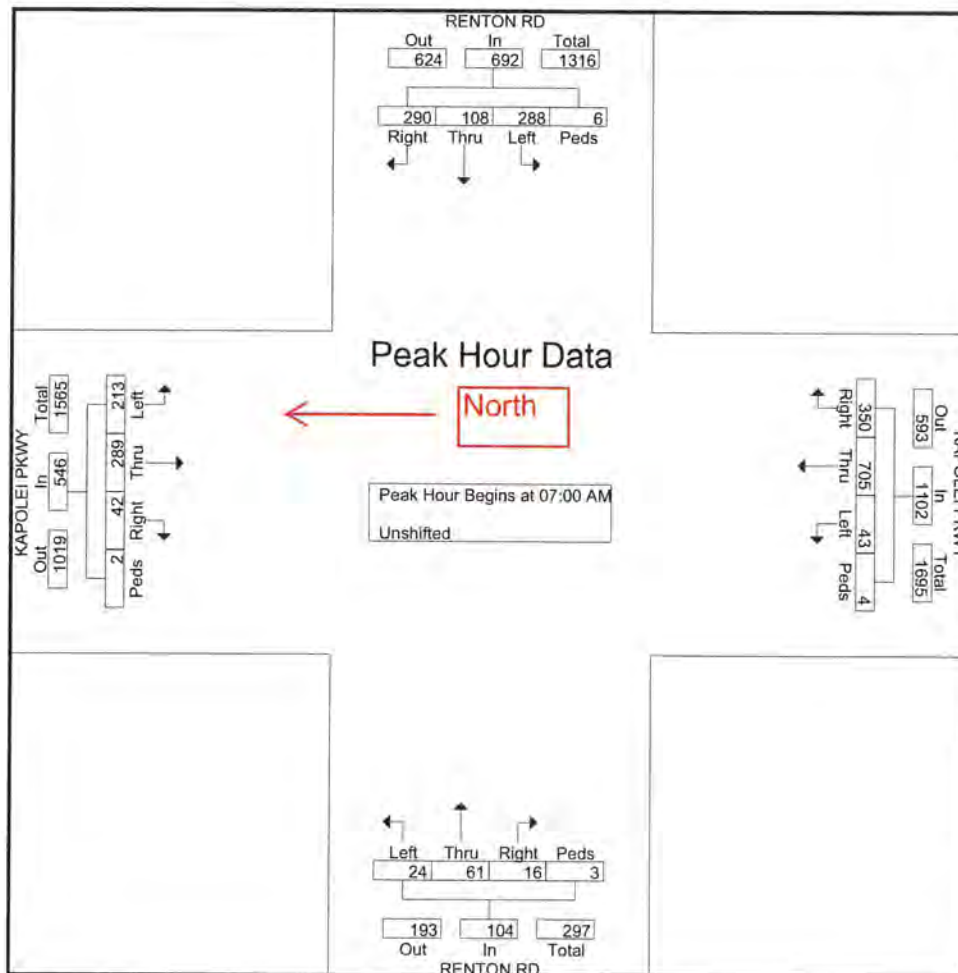
File Name : AM_Renton Rd - Kapolei Pkwy

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	RENTON RD From North					KAPOLEI PKWY From East					RENTON RD From South					KAPOLEI PKWY From West					
Start Time	Right	Thru	Left	Peds	App Total	Right	Thru	Left	Peds	App Total	Right	Thru	Left	Peds	App Total	Right	Thru	Left	Peds	App Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	47	24	61	3	135	57	129	18	2	206	4	14	5	2	25	16	55	47	1	119	485
07:15 AM	57	22	85	1	165	109	168	9	1	287	3	17	9	0	29	10	76	55	1	142	623
07:30 AM	104	30	83	0	217	118	240	11	1	370	4	20	3	1	28	9	82	62	0	153	768
07:45 AM	82	32	59	2	175	66	168	5	0	239	5	10	7	0	22	7	76	49	0	132	568
Total Volume	290	108	288	6	692	350	705	43	4	1102	16	61	24	3	104	42	289	213	2	546	2444
% App. Total	41.9	15.6	41.6	0.9		31.8	64	3.9	0.4		15.4	58.7	23.1	2.9		7.7	52.9	39	0.4		
PHF	.697	.844	.847	.500	.797	.742	.734	.597	.500	.745	.800	.763	.667	.375	.897	.656	.881	.859	.500	.892	.796



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File Name : AM_WWTP Dwy #1 - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Class 1

Start Time	WWTP DWY #1 From North				GEIGER RD From East				From South				GEIGER RD From West				Int. Total
	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	
06:00 AM	0	0	0	0	0	79	10	0	0	0	1	0	0	35	0	0	125
06:15 AM	0	0	0	0	0	98	18	0	2	0	0	0	1	48	0	0	167
06:30 AM	0	0	0	0	0	142	5	0	8	0	1	0	3	52	0	0	211
06:45 AM	0	0	0	0	0	141	3	0	19	0	0	0	0	73	0	0	236
Total	0	0	0	0	0	460	36	0	29	0	2	0	4	208	0	0	739
07:00 AM	0	0	0	0	0	120	1	0	6	0	2	0	0	57	0	0	186
07:15 AM	0	0	0	0	0	160	4	0	3	0	1	0	1	77	0	0	246
07:30 AM	0	0	0	0	0	160	2	0	4	0	0	0	0	75	0	0	241
07:45 AM	0	0	0	0	0	152	1	0	2	0	0	0	0	62	0	0	217
Total	0	0	0	0	0	592	8	0	15	0	3	0	1	271	0	0	890
Grand Total	0	0	0	0	0	1052	44	0	44	0	5	0	5	479	0	0	1629
Apprch %	0	0	0	0	0	96	4	0	89.8	0	10.2	0	1	99	0	0	
Total %	0	0	0	0	0	64.6	2.7	0	2.7	0	0.3	0	0.3	29.4	0	0	

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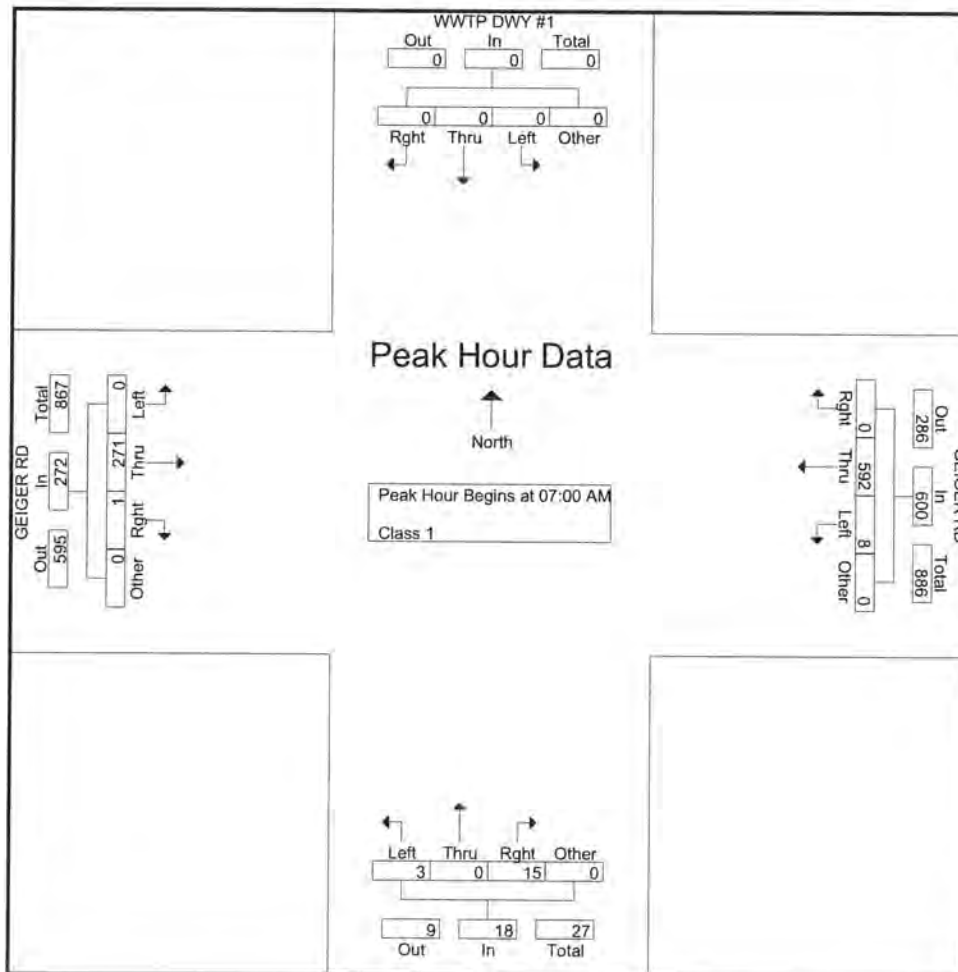
File Name : AM_WWTP Dwy #1 - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	WWTP DWY #1 From North					GEIGER RD From East					From South					GEIGER RD From West					
Start Time	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	120	1	0	121	6	0	2	0	8	0	57	0	0	57	186
07:15 AM	0	0	0	0	0	0	160	4	0	164	3	0	1	0	4	1	77	0	0	78	246
07:30 AM	0	0	0	0	0	0	160	2	0	162	4	0	0	0	4	0	75	0	0	75	241
07:45 AM	0	0	0	0	0	0	152	1	0	153	2	0	0	0	2	0	62	0	0	62	217
Total Volume	0	0	0	0	0	0	592	8	0	600	15	0	3	0	18	1	271	0	0	272	890
% App. Total	0	0	0	0	0	0	98.7	1.3	0		83.3	0	16.7	0		0.4	99.6	0	0		
PHF	.000	.000	.000	.000	.000	.000	.925	.500	.000	.915	.625	.000	.375	.000	.563	.250	.880	.000	.000	.872	.904



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File Name : AM_WWTP Dwy #2 - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Class 1

Start Time	WWTP DWY #2 From North				GEIGER RD From East				From South				GEIGER RD From West				Int. Total
	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	
06:00 AM	0	0	1	0	1	69	0	0	0	0	0	0	0	35	1	0	107
06:15 AM	0	0	1	0	6	99	0	0	0	0	0	0	0	48	2	0	156
06:30 AM	1	0	0	0	15	124	0	0	0	0	0	0	0	53	3	0	196
06:45 AM	0	0	2	0	12	123	0	0	0	0	0	0	0	71	6	0	214
Total	1	0	4	0	34	415	0	0	0	0	0	0	0	207	12	0	673
07:00 AM	2	0	1	0	0	120	0	0	0	0	0	0	0	56	0	0	179
07:15 AM	3	0	2	0	0	155	0	0	0	0	0	0	0	77	0	0	237
07:30 AM	2	0	1	0	1	161	0	0	0	0	0	0	0	75	0	0	240
07:45 AM	3	0	2	0	3	143	0	0	0	0	0	0	0	60	0	0	211
Total	10	0	6	0	4	579	0	0	0	0	0	0	0	268	0	0	867
Grand Total	11	0	10	0	38	994	0	0	0	0	0	0	0	475	12	0	1540
Apprch %	52.4	0	47.6	0	3.7	96.3	0	0	0	0	0	0	0	97.5	2.5	0	
Total %	0.7	0	0.6	0	2.5	64.5	0	0	0	0	0	0	0	30.8	0.8	0	

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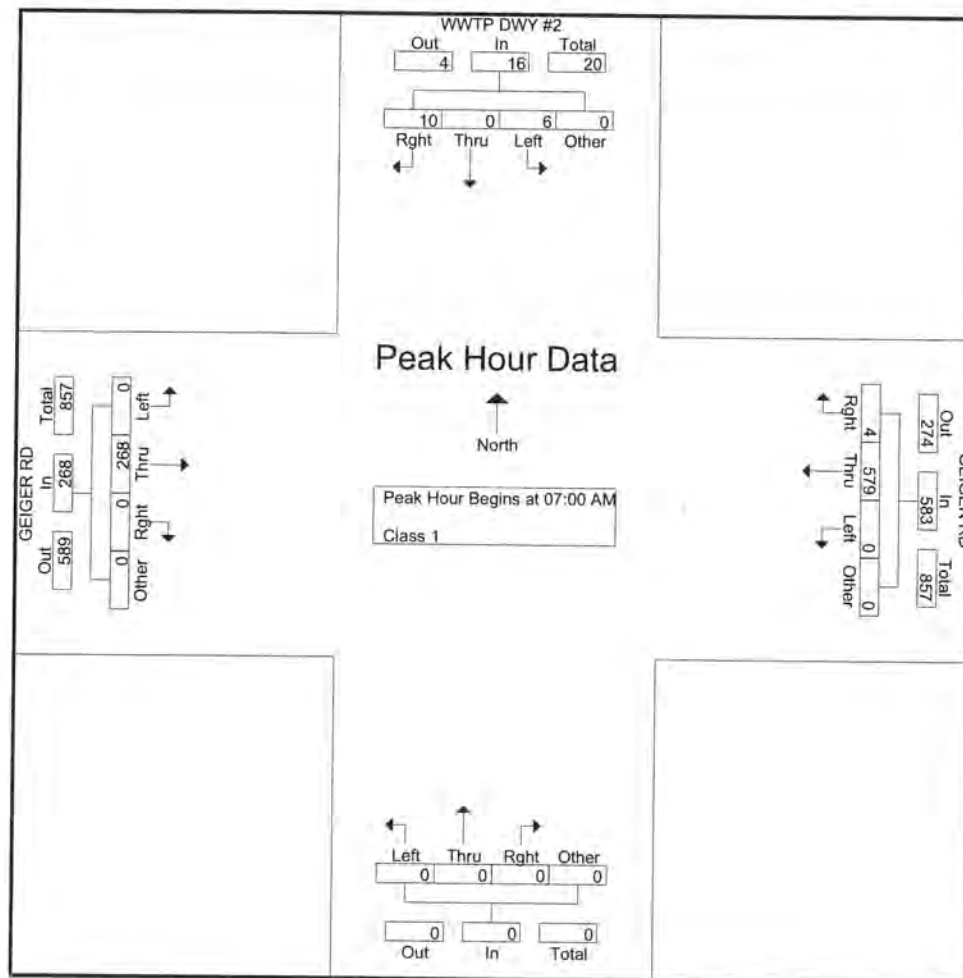
File Name : AM_WWTP Dwy #2 - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	WWTP DWY #2 From North					GEIGER RD From East					From South					GEIGER RD From West					
Start Time	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	2	0	1	0	3	0	120	0	0	120	0	0	0	0	0	0	56	0	0	56	179
07:15 AM	3	0	2	0	5	0	155	0	0	155	0	0	0	0	0	0	77	0	0	77	237
07:30 AM	2	0	1	0	3	1	161	0	0	162	0	0	0	0	0	0	75	0	0	75	240
07:45 AM	3	0	2	0	5	3	143	0	0	146	0	0	0	0	0	0	60	0	0	60	211
Total Volume	10	0	6	0	16	4	579	0	0	583	0	0	0	0	0	0	268	0	0	268	867
% App. Total	62.5	0	37.5	0		0.7	99.3	0	0		0	0	0	0	0	0	100	0	0		
PHF	.833	.000	.750	.000	.800	.333	.899	.000	.000	.900	.000	.000	.000	.000	.000	.000	.870	.000	.000	.870	.903



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File Name : AM_WWTP Dwy #3 - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Class 1

Start Time	WWTP DWY #3 From North				GEIGER RD From East				From South				GEIGER RD From West				Int. Total
	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	
06:00 AM	0	0	0	0	0	70	0	0	0	0	0	0	0	36	0	0	106
06:15 AM	0	0	0	0	0	99	0	0	0	0	0	0	0	50	0	0	149
06:30 AM	0	0	0	0	0	126	0	0	0	0	0	0	0	61	0	0	187
06:45 AM	0	0	0	0	0	120	0	0	0	0	0	0	0	73	1	0	194
Total	0	0	0	0	0	415	0	0	0	0	0	0	0	220	1	0	636
07:00 AM	0	0	0	0	1	118	0	0	0	0	0	0	0	57	0	0	176
07:15 AM	2	0	1	0	2	159	0	0	0	0	0	0	0	75	0	0	239
07:30 AM	1	0	2	0	4	158	0	0	0	0	0	0	0	73	0	0	238
07:45 AM	4	0	2	0	6	140	0	0	0	0	0	0	0	56	3	0	211
Total	7	0	5	0	13	575	0	0	0	0	0	0	0	261	3	0	864
Grand Total	7	0	5	0	13	990	0	0	0	0	0	0	0	481	4	0	1500
Apprch %	58.3	0	41.7	0	1.3	98.7	0	0	0	0	0	0	0	99.2	0.8	0	
Total %	0.5	0	0.3	0	0.9	66	0	0	0	0	0	0	0	32.1	0.3	0	

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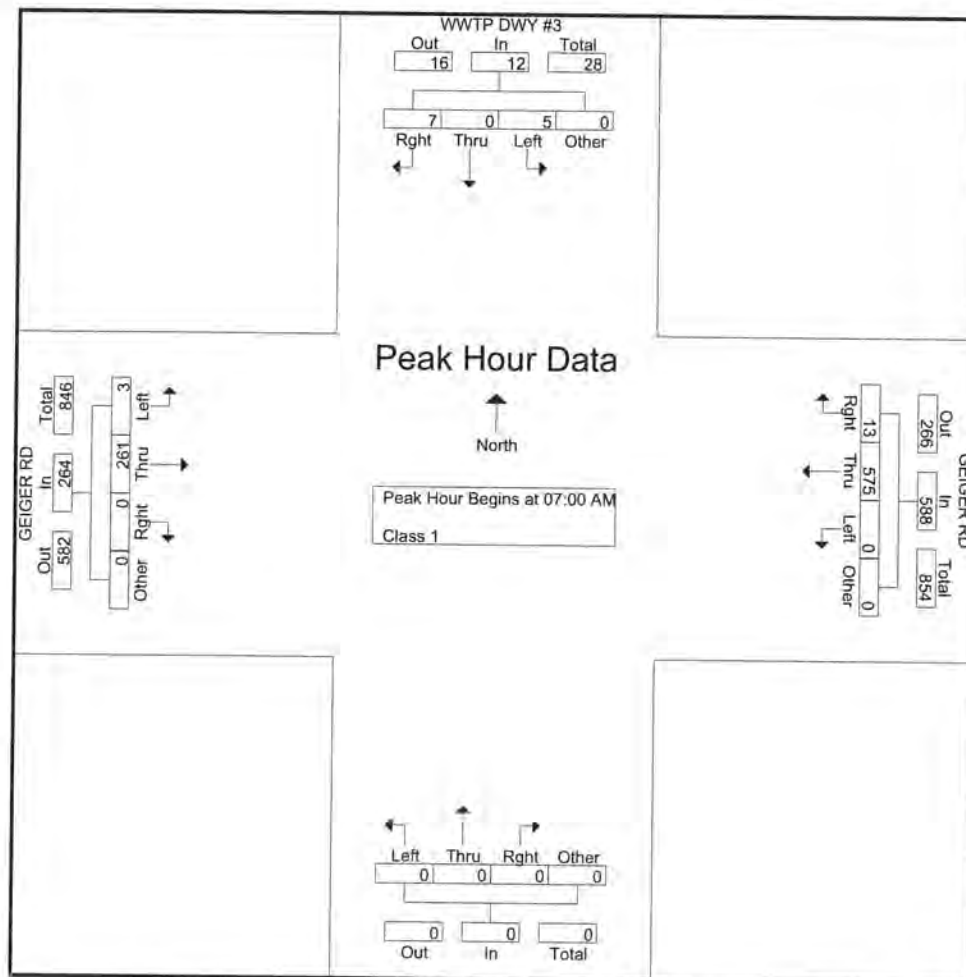
File Name : AM_WWTP Dwy #3 - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	WWTP DWY #3 From North					GEIGER RD From East					From South					GEIGER RD From West					
Start Time	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Int. Total
Peak Hour Analysis From 06:45 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	1	118	0	0	119	0	0	0	0	0	0	57	0	0	57	176
07:15 AM	2	0	1	0	3	2	159	0	0	161	0	0	0	0	0	0	75	0	0	75	239
07:30 AM	1	0	2	0	3	4	158	0	0	162	0	0	0	0	0	0	73	0	0	73	238
07:45 AM	4	0	2	0	6	6	140	0	0	146	0	0	0	0	0	0	56	3	0	59	211
Total Volume	7	0	5	0	12	13	575	0	0	588	0	0	0	0	0	0	261	3	0	264	864
% App. Total	58.3	0	41.7	0		2.2	97.8	0	0		0	0	0	0		0	98.9	1.1	0		
PHF	.438	.000	.625	.000	.500	.542	.904	.000	.000	.907	.000	.000	.000	.000	.000	.000	.870	.250	.000	.880	.904



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File Name : PM_Essex Rd - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Class 1

Start Time	From North				GEIGER RD From East				ESSEX RD From South				GEIGER RD From West				Int. Total
	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	
03:30 PM	0	0	0	0	0	98	2	0	0	0	2	0	2	133	0	0	237
03:45 PM	0	0	0	0	0	72	2	0	4	0	1	0	8	140	0	0	227
Total	0	0	0	0	0	170	4	0	4	0	3	0	10	273	0	0	464
04:00 PM	0	0	0	0	0	93	3	0	4	0	2	0	2	158	0	0	262
04:15 PM	0	0	0	0	0	89	3	0	3	0	2	0	4	153	0	0	254
04:30 PM	0	0	0	0	0	93	4	0	9	0	2	0	4	147	0	0	259
04:45 PM	0	0	0	0	0	70	1	0	3	0	3	0	3	166	0	0	246
Total	0	0	0	0	0	345	11	0	19	0	9	0	13	624	0	0	1021
05:00 PM	0	0	0	0	0	71	4	0	5	0	4	0	4	162	0	0	250
05:15 PM	0	0	0	0	0	67	6	0	7	0	3	0	5	136	0	0	224
Grand Total	0	0	0	0	0	653	25	0	35	0	19	0	32	1195	0	0	1959
Apprch %	0	0	0	0	0	96.3	3.7	0	64.8	0	35.2	0	2.6	97.4	0	0	
Total %	0	0	0	0	0	33.3	1.3	0	1.8	0	1	0	1.6	61	0	0	

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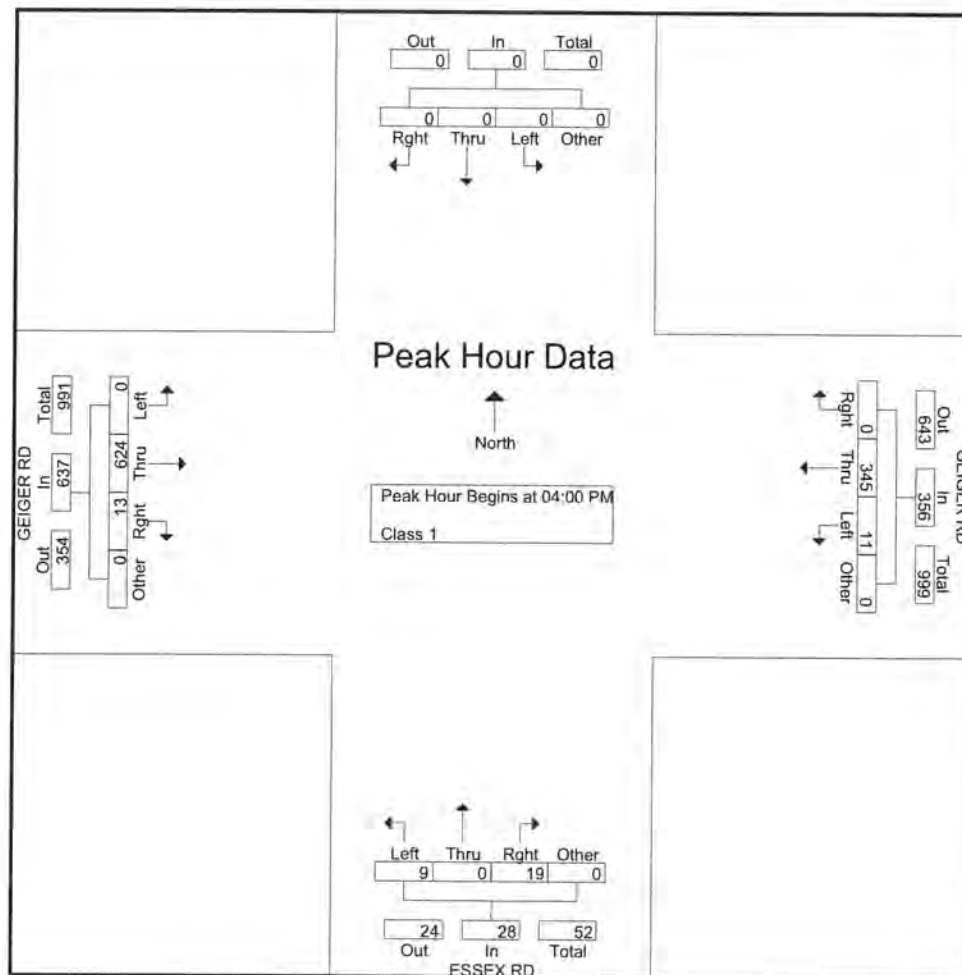
File Name : PM_Essex Rd - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	From North					GEIGER RD From East					ESSEX RD From South					GEIGER RD From West					
Start Time	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	0	0	93	3	0	96	4	0	2	0	6	2	158	0	0	160	262
04:15 PM	0	0	0	0	0	0	89	3	0	92	3	0	2	0	5	4	153	0	0	157	254
04:30 PM	0	0	0	0	0	0	93	4	0	97	9	0	2	0	11	4	147	0	0	151	259
04:45 PM	0	0	0	0	0	0	70	1	0	71	3	0	3	0	6	3	166	0	0	169	246
Total Volume	0	0	0	0	0	0	345	11	0	356	19	0	9	0	28	13	624	0	0	637	1021
% App. Total	0	0	0	0	0	0	96.9	3.1	0		67.9	0	32.1	0		2	98	0	0		
PHF	.000	.000	.000	.000	.000	.000	.927	.688	.000	.918	.528	.000	.750	.000	.636	.813	.940	.000	.000	.942	.974



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File Name : PM_Ft Weaver Rd - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Unshifted

Start Time	FT WEAVER RD From North					GEIGER RD From East				FT WEAVER RD From South				GEIGER RD From West				Int. Total
	Right	Thru	Left	U-Turns	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
03:30 PM	68	399	89	1	0	33	34	2	0	1	266	48	5	34	30	40	7	1057
03:45 PM	53	314	84	0	0	27	33	6	0	3	266	30	20	35	59	52	11	993
Total	121	713	173	1	0	60	67	8	0	4	532	78	25	69	89	92	18	2050
04:00 PM	37	332	77	0	0	37	53	0	0	4	197	30	14	23	54	59	6	923
04:15 PM	43	345	59	0	0	28	38	1	0	1	222	34	15	44	44	50	15	939
04:30 PM	59	399	107	0	0	28	44	5	0	2	200	37	7	47	37	47	4	1023
04:45 PM	68	417	98	0	0	29	47	4	0	3	198	34	11	39	71	42	7	1068
Total	207	1493	341	0	0	122	182	10	0	10	817	135	47	153	206	198	32	3953
05:00 PM	53	356	109	0	0	28	41	6	0	1	181	39	14	48	83	53	2	1014
05:15 PM	79	376	83	0	0	27	31	6	0	2	222	25	12	32	43	46	11	995
Grand Total	460	2938	706	1	0	237	321	30	0	17	1752	277	98	302	421	389	63	8012
Appreh %	11.2	71.6	17.2	0	0	40.3	54.6	5.1	0	0.8	81.7	12.9	4.6	25.7	35.8	33.1	5.4	
Total %	5.7	36.7	8.8	0	0	3	4	0.4	0	0.2	21.9	3.5	1.2	3.8	5.3	4.9	0.8	

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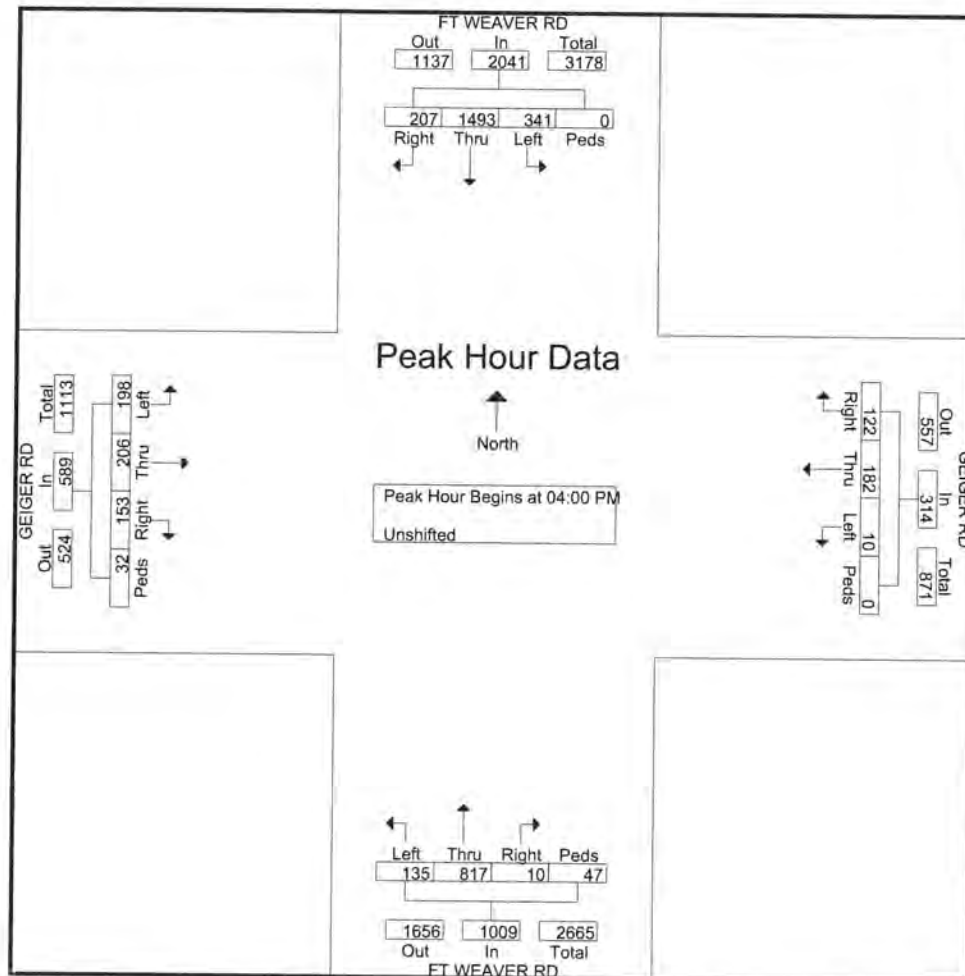
File Name : PM_Ft Weaver Rd - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	FT WEAVER RD From North						GEIGER RD From East					FT WEAVER RD From South					GEIGER RD From West					
Start Time	Right	Thru	Left	U-Turns	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:00 PM																						
04:00 PM	37	332	77	0	0	446	37	53	0	0	90	4	197	30	14	245	23	54	59	6	142	923
04:15 PM	43	345	59	0	0	447	28	38	1	0	67	1	222	34	15	272	44	44	50	15	153	939
04:30 PM	59	399	107	0	0	565	28	44	5	0	77	2	200	37	7	246	47	37	47	4	135	1023
04:45 PM	68	417	98	0	0	583	29	47	4	0	80	3	198	34	11	246	39	71	42	7	159	1068
Total Volume	207	1493	341	0	0	2041	122	182	10	0	314	10	817	135	47	1009	153	206	198	32	589	3953
% App. Total	10.1	73.2	16.7				38.9							13.4					33.6			
PHF	.761	.895	.797	.000	.000	.875	.824	.858	.500	.000	.872	.625	.920	.912	.783	.927	.814	.725	.839	.533	.926	.925



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File Name : PM_Ft Weaver Rd - Renton Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Unshifted

Start Time	FT WEAVER RD From North					RENTON RD From East				FT WEAVER RD From South					RENTON RD From West				Int. Total
	Right	Thru	Left	U-Turns	Peds	Right	Thru	Left	Peds	Right	Thru	Left	U-Turns	Peds	Right	Thru	Left	Peds	
03:30 PM	56	704	0	4	0	3	1	2	5	5	453	23	0	2	27	0	78	2	1365
03:45 PM	88	604	8	7	0	3	1	2	1	13	404	36	1	6	32	4	111	0	1321
Total	144	1308	8	11	0	6	2	4	6	18	857	59	1	8	59	4	189	2	2686
04:00 PM	83	565	11	9	0	4	7	9	19	21	398	33	1	14	23	12	99	1	1309
04:15 PM	71	582	10	4	0	8	10	13	5	18	330	31	1	6	24	11	100	0	1224
04:30 PM	68	733	8	11	0	8	8	8	4	10	380	25	0	7	24	7	75	3	1379
04:45 PM	76	748	8	7	0	2	3	4	3	5	302	24	0	5	26	6	81	1	1301
Total	298	2628	37	31	0	22	28	34	31	54	1410	113	2	32	97	36	355	5	5213
05:00 PM	57	660	4	8	0	8	3	2	13	14	359	32	0	1	27	5	65	0	1258
05:15 PM	70	674	10	6	0	3	3	2	12	9	320	18	2	9	18	5	79	5	1245
Grand Total	569	5270	59	56	0	39	36	42	62	95	2946	222	5	50	201	50	688	12	10402
Apprch %	9.6	88.5	1	0.9	0	21.8	20.1	23.5	34.6	2.9	88.8	6.7	0.2	1.5	21.1	5.3	72.3	1.3	
Total %	5.5	50.7	0.6	0.5	0	0.4	0.3	0.4	0.6	0.9	28.3	2.1	0	0.5	1.9	0.5	6.6	0.1	

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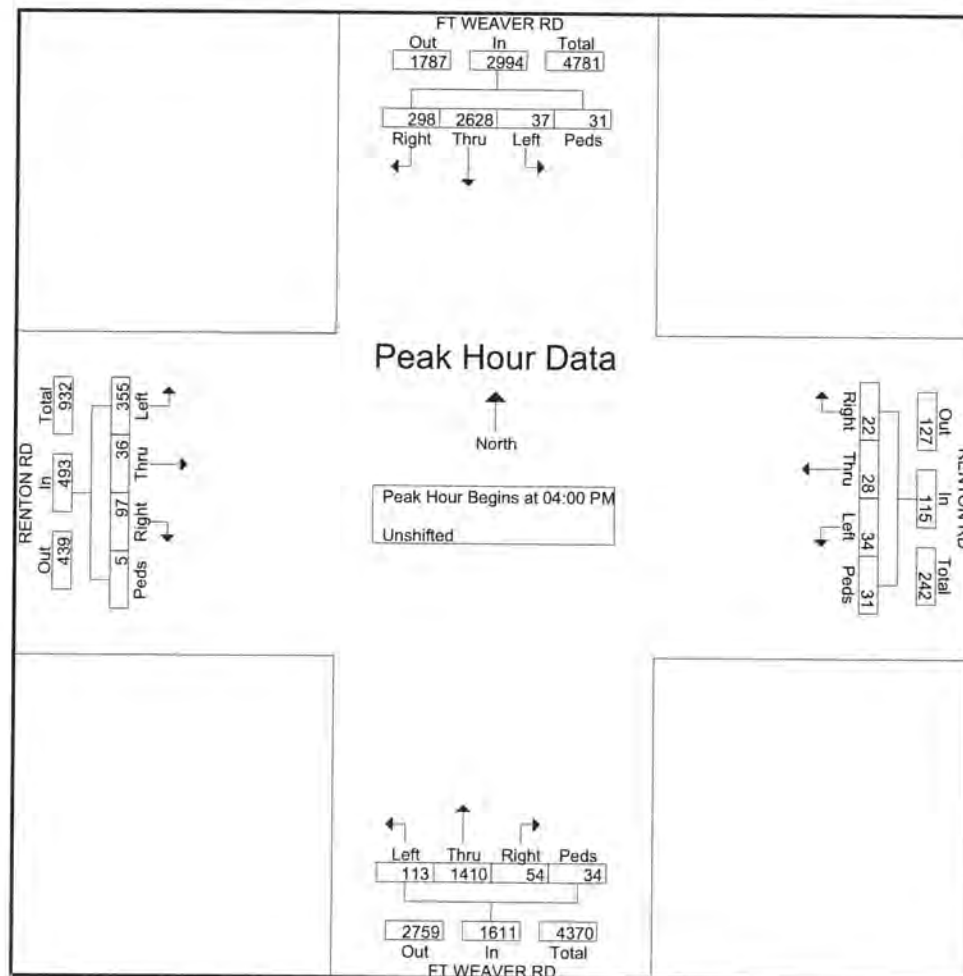
File Name : PM_Ft Weaver Rd - Renton Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	FT WEAVER RD From North						RENTON RD From East					FT WEAVER RD From South						RENTON RD From West						
Start Time	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total	
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																								
Peak Hour for Entire Intersection Begins at 04:00 PM																								
04:00 PM	83	565	11	9	0	668	4	7	9	19	39	21	398	33	1	14	467	23	12	99	1	135	1309	
04:15 PM	71	582	10	4	0	667	8	10	13	5	36	18	330	31	1	6	386	24	11	100	0	135	1224	
04:30 PM	68	733	8	11	0	820	8	8	8	4	28	10	380	25	0	7	422	24	7	75	3	109	1379	
04:45 PM	76	748	8	7	0	839	2	3	4	3	12	5	302	24	0	5	336	26	6	81	1	114	1301	
Total Volume	298	2628	37	31	0	2994	22	28	34	31	115	54	1410	113	2	32	1611	97	36	355	5	493	5213	
% App. Total	10	87.8	1.2	1	0		19.1	24.3	29.6	27		3.4	87.5	7	0.1	2		19.7	7.3	72	1			
PHF	.898	.878	.841	.705	.000	.892	.688	.700	.654	.408	.737	.643	.886	.856	.500	.571	.862	.933	.750	.888	.417	.913	.945	



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File Name : PM_Kapolei Pkwy - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Unshifted

Start Time	KAPOLEI PKWY From North					GEIGER RD From East				KAPOLEI PKWY From South				GEIGER RD From West				Int. Total
	Right	Thru	Left	U-Turns	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
03:30 PM	5	125	29	1	2	67	37	46	3	28	127	56	1	77	52	9	2	667
03:45 PM	8	108	24	0	1	60	24	26	7	13	111	42	0	97	64	10	4	599
Total	13	233	53	1	3	127	61	72	10	41	238	98	1	174	116	19	6	1266
04:00 PM	5	115	36	0	4	57	43	24	5	22	90	51	0	101	55	10	3	621
04:15 PM	9	122	38	0	0	59	26	24	4	26	121	57	1	91	45	11	5	639
04:30 PM	5	133	33	1	0	56	40	29	5	20	82	50	0	101	73	14	1	643
04:45 PM	6	122	45	0	2	60	33	44	4	24	76	38	0	102	55	10	2	623
Total	25	492	152	1	6	232	142	121	18	92	369	196	1	395	228	45	11	2526
05:00 PM	10	137	49	0	1	51	25	47	3	14	83	39	3	111	73	10	0	656
05:15 PM	3	137	35	0	0	57	26	36	5	22	90	45	4	81	50	10	3	604
Grand Total	51	999	289	2	10	467	254	276	36	169	780	378	9	761	467	84	20	5052
Apprch %	3.8	73.9	21.4	0.1	0.7	45.2	24.6	26.7	3.5	12.6	58.4	28.3	0.7	57.1	35.1	6.3	1.5	
Total %	1	19.8	5.7	0	0.2	9.2	5	5.5	0.7	3.3	15.4	7.5	0.2	15.1	9.2	1.7	0.4	

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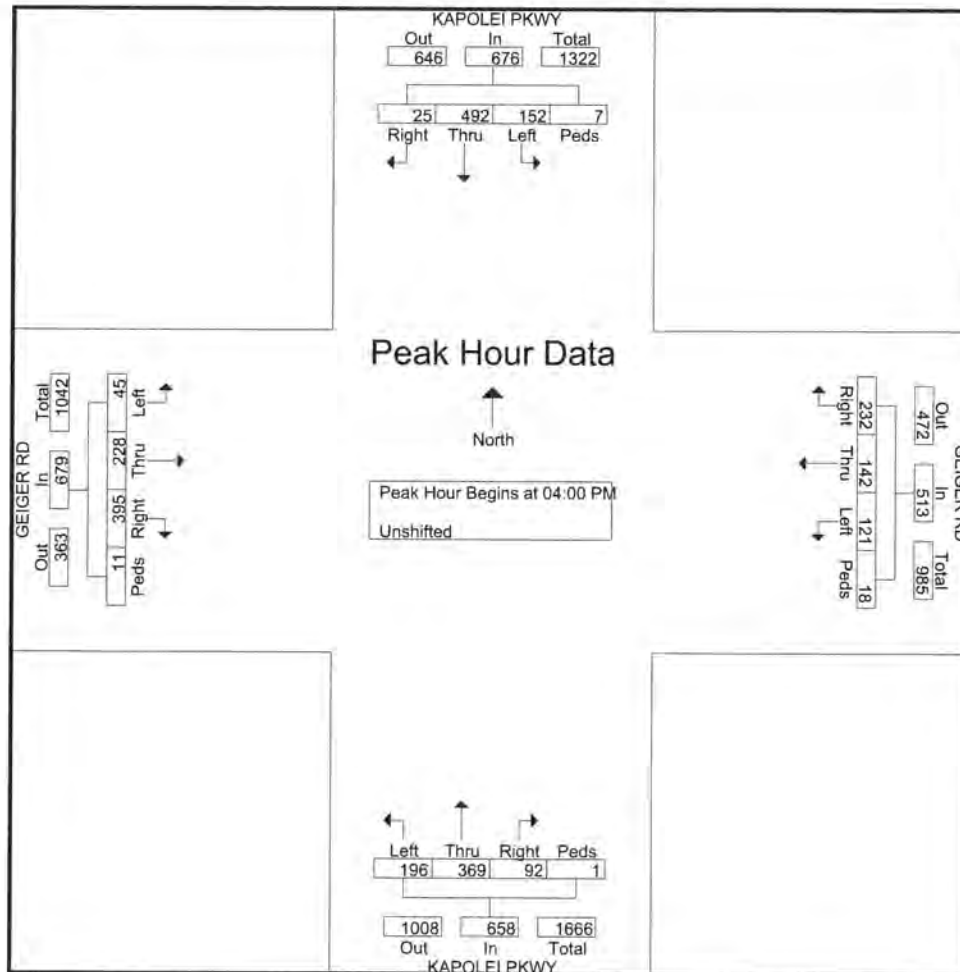
File Name : PM_Kapolei Pkwy - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	KAPOLEI PKWY From North						GEIGER RD From East					KAPOLEI PKWY From South					GEIGER RD From West					
Start Time	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:00 PM																						
04:00 PM	5	115	36	0	4	160	57	43	24	5	129	22	90	51	0	163	101	55	10	3	169	621
04:15 PM	9	122	38	0	0	169	59	26	24	4	113	26	121	57	1	205	91	45	11	5	152	639
04:30 PM	5	133	33	1	0	172	56	40	29	5	130	20	82	50	0	152	101	73	14	1	189	643
04:45 PM	6	122	45	0	2	175	60	33	44	4	141	24	76	38	0	138	102	55	10	2	169	623
Total Volume	25	492	152	1	6	676	232	142	121	18	513	92	369	196	1	658	395	228	45	11	679	2526
% App. Total	3.7	72.8	22.5	0.1	0.9		45.2	27.7	23.6	3.5		14	56.1	29.8	0.2		58.2	33.6	6.6	1.6		
PHF	.694	.925	.844	.250	.375	.966	.967	.826	.688	.900	.910	.885	.762	.860	.250	.802	.968	.781	.804	.550	.898	.982



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File Name : PM_Kualakai Pkwy - Kapolei Pkwy

Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Unshifted

Start Time	KUALAKAI PKWY From North				KAPOLEI PKWY From East				KUALAKAI PKWY From South				KAPOLEI PKWY From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
03:30 PM	69	0	83	0	51	91	0	0	0	0	0	0	0	114	59	0	467
03:45 PM	91	0	67	0	70	104	0	0	0	0	0	0	0	101	63	0	496
Total	160	0	150	0	121	195	0	0	0	0	0	0	0	215	122	0	963
04:00 PM	92	0	83	0	70	93	0	1	0	0	0	0	0	102	55	4	500
04:15 PM	67	0	108	1	58	84	0	1	0	0	0	0	0	86	38	0	443
04:30 PM	90	0	92	0	64	89	0	0	0	0	0	0	0	114	68	0	517
04:45 PM	85	0	94	0	61	90	0	2	0	0	0	0	0	140	57	0	529
Total	334	0	377	1	253	356	0	4	0	0	0	0	0	442	218	4	1989
05:00 PM	81	0	106	3	49	83	0	2	0	0	0	0	0	128	54	0	506
05:15 PM	83	0	105	1	56	64	0	0	0	0	0	0	0	77	41	0	427
Grand Total	658	0	738	5	479	698	0	6	0	0	0	0	0	862	435	4	3885
Apprch %	47	0	52.7	0.4	40.5	59	0	0.5	0	0	0	0	0	66.3	33.4	0.3	
Total %	16.9	0	19	0.1	12.3	18	0	0.2	0	0	0	0	0	22.2	11.2	0.1	

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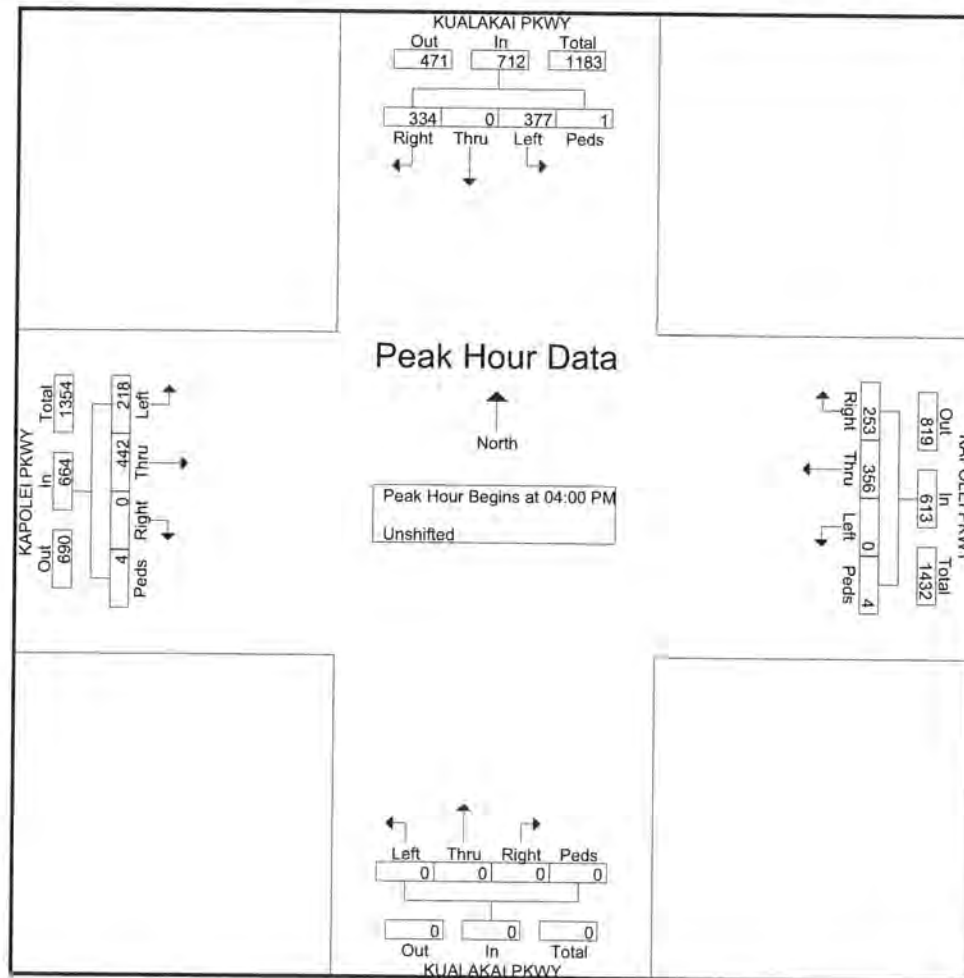
File Name : PM_Kualakai Pkwy - Kapolei Pkwy

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	KUALAKAI PKWY From North					KAPOLEI PKWY From East					KUALAKAI PKWY From South					KAPOLEI PKWY From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	92	0	83	0	175	70	93	0	1	164	0	0	0	0	0	0	102	55	4	161	500
04:15 PM	67	0	108	1	176	58	84	0	1	143	0	0	0	0	0	0	86	38	0	124	443
04:30 PM	90	0	92	0	182	64	89	0	0	153	0	0	0	0	0	0	114	68	0	182	517
04:45 PM	85	0	94	0	179	61	90	0	2	153	0	0	0	0	0	0	140	57	0	197	529
Total Volume	334	0	377	1	712	253	356	0	4	613	0	0	0	0	0	0	442	218	4	664	1989
% App. Total	46.9	0	52.9	0.1		41.3	58.1	0	0.7		0	0	0	0	0	0	66.6	32.8	0.6		
PHF	.908	.000	.873	.250	.978	.904	.957	.000	.500	.934	.000	.000	.000	.000	.000	.000	.789	.801	.250	.843	.940



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File Name : PM_Phillipine Sea - Renton Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Class 1

Start Time	PHILLIPINE SEA From North				RENTON RD From East				PHILLIPINE SEA From South				RENTON RD From West				Int. Total
	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	
03:30 PM	0	0	0	0	0	2	31	0	35	0	1	0	1	2	0	0	72
03:45 PM	0	0	0	0	0	0	30	0	50	0	1	0	0	1	0	0	82
Total	0	0	0	0	0	2	61	0	85	0	2	0	1	3	0	0	154
04:00 PM	0	0	0	0	0	2	29	0	53	0	1	0	0	1	0	0	86
04:15 PM	0	0	0	0	0	0	40	0	44	0	0	0	0	0	0	0	84
04:30 PM	0	0	0	0	0	0	42	0	47	0	3	0	3	1	0	0	96
04:45 PM	0	0	0	0	0	0	24	0	49	0	2	0	0	0	0	0	75
Total	0	0	0	0	0	2	135	0	193	0	6	0	3	2	0	0	341
05:00 PM	0	0	0	0	0	0	24	0	47	0	0	0	0	2	0	0	73
05:15 PM	0	0	0	0	0	1	34	0	48	0	0	0	2	0	0	0	85
Grand Total	0	0	0	0	0	5	254	0	373	0	8	0	6	7	0	0	653
Apprch %	0	0	0	0	0	1.9	98.1	0	97.9	0	2.1	0	46.2	53.8	0	0	
Total %	0	0	0	0	0	0.8	38.9	0	57.1	0	1.2	0	0.9	1.1	0	0	

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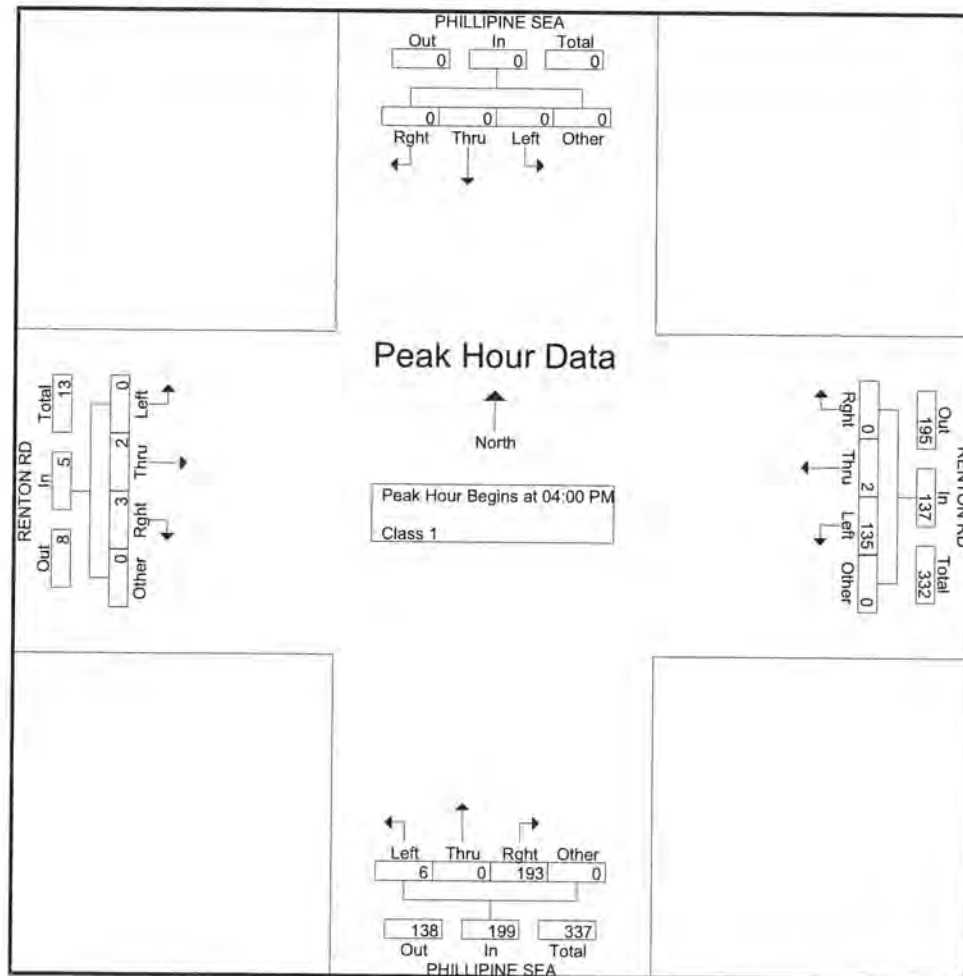
File Name : PM_Phillipine Sea - Renton Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	PHILLIPINE SEA From North					RENTON RD From East					PHILLIPINE SEA From South					RENTON RD From West					
Start Time	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	0	0	2	29	0	31	53	0	1	0	54	0	1	0	0	1	86
04:15 PM	0	0	0	0	0	0	0	40	0	40	44	0	0	0	44	0	0	0	0	0	84
04:30 PM	0	0	0	0	0	0	0	42	0	42	47	0	3	0	50	3	1	0	0	4	96
04:45 PM	0	0	0	0	0	0	0	24	0	24	49	0	2	0	51	0	0	0	0	0	75
Total Volume	0	0	0	0	0	0	2	135	0	137	193	0	6	0	199	3	2	0	0	5	341
% App. Total	0	0	0	0	0	0	1.5	98.5	0		97	0	3	0		60	40	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.804	.000	.815	.910	.000	.500	.000	.921	.250	.500	.000	.000	.313	.888



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Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Class 1

Start Time	PHILLIPINE SEA From North				ROOSEVELT AVE From East				PHILLIPINE SEA From South				ROOSEVELT AVE From West				Int. Total
	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	
03:30 PM	27	1	8	0	3	91	0	0	0	0	0	0	0	134	36	0	300
03:45 PM	25	0	4	0	3	75	0	0	0	0	0	0	1	143	49	0	300
Total	52	1	12	0	6	166	0	0	0	0	0	0	1	277	85	0	600
04:00 PM	25	0	0	0	3	85	0	0	0	0	0	0	0	137	44	0	294
04:15 PM	37	0	5	0	6	86	0	0	0	0	0	0	0	149	43	0	326
04:30 PM	38	0	5	0	5	91	0	0	0	0	0	0	0	136	41	0	316
04:45 PM	23	0	4	0	3	69	0	0	0	0	0	0	0	161	44	0	304
Total	123	0	14	0	17	331	0	0	0	0	0	0	0	583	172	0	1240
05:00 PM	17	0	4	0	5	69	0	0	0	0	0	0	0	161	44	0	300
05:15 PM	33	0	5	0	2	72	0	0	0	0	0	0	0	132	45	0	289
Grand Total	225	1	35	0	30	638	0	0	0	0	0	0	1	1153	346	0	2429
Apprch %	86.2	0.4	13.4	0	4.5	95.5	0	0	0	0	0	0	0.1	76.9	23.1	0	
Total %	9.3	0	1.4	0	1.2	26.3	0	0	0	0	0	0	0	47.5	14.2	0	

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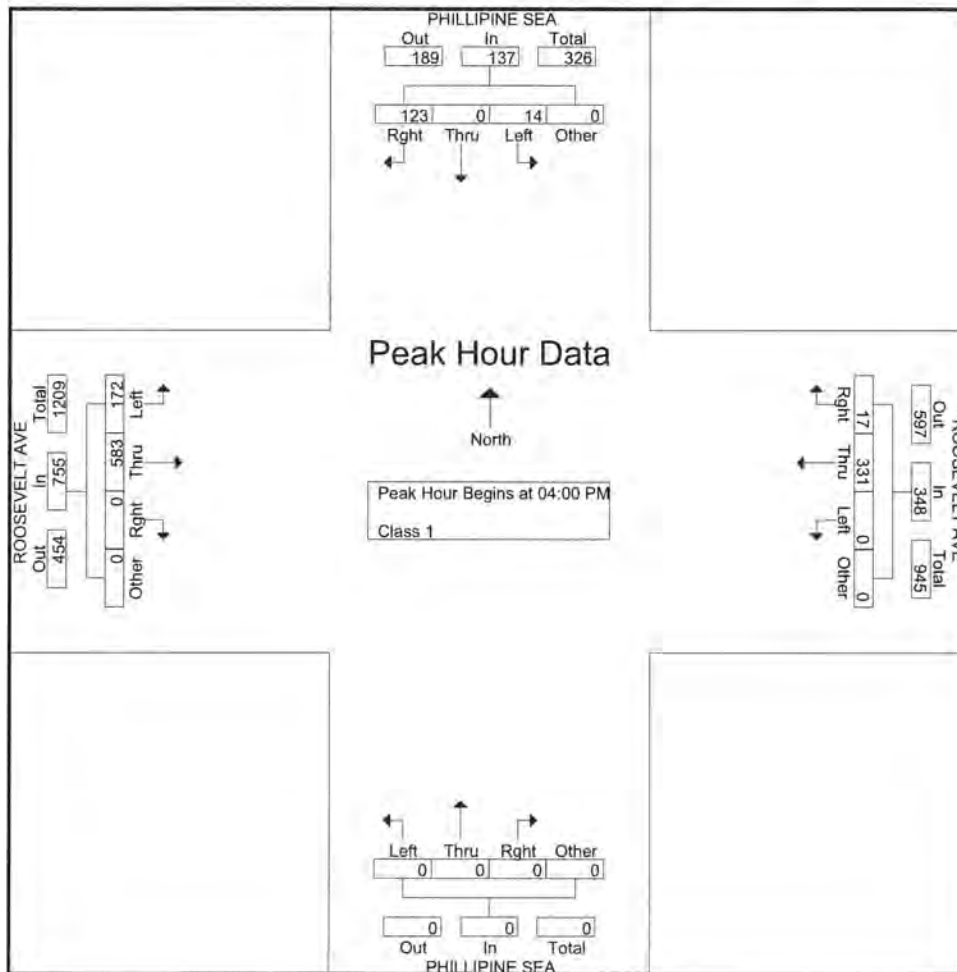
File Name : PM_Phillipine Sea - Roosevelt Ave

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	PHILLIPINE SEA From North					ROOSEVELT AVE From East					PHILLIPINE SEA From South					ROOSEVELT AVE From West					
Start Time	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	25	0	0	0	25	3	85	0	0	88	0	0	0	0	0	0	137	44	0	181	294
04:15 PM	37	0	5	0	42	6	86	0	0	92	0	0	0	0	0	0	149	43	0	192	326
04:30 PM	38	0	5	0	43	5	91	0	0	96	0	0	0	0	0	0	136	41	0	177	316
04:45 PM	23	0	4	0	27	3	69	0	0	72	0	0	0	0	0	0	161	44	0	205	304
Total Volume	123	0	14	0	137	17	331	0	0	348	0	0	0	0	0	0	583	172	0	755	1240
% App. Total	89.8	0	10.2	0		4.9	95.1	0	0		0	0	0	0		0	77.2	22.8	0		
PHF	.809	.000	.700	.000	.797	.708	.909	.000	.000	.906	.000	.000	.000	.000	.000	.000	.905	.977	.000	.921	.951



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File Name : PM_Renton Rd - Kapolei Pkwy

Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Unshifted

	RENTON RD From North				KAPOLEI PKWY From East				RENTON RD From South				KAPOLEI PKWY From West					
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	U-Turns	Peds	Int. Total
03:30 PM	35	16	43	1	41	121	4	0	10	19	11	1	12	141	34	0	0	489
03:45 PM	36	15	41	0	44	108	2	0	11	28	12	0	13	126	38	0	0	474
Total	71	31	84	1	85	229	6	0	21	47	23	1	25	267	72	0	0	963
04:00 PM	51	16	45	3	25	101	12	0	12	30	18	0	8	125	47	0	0	493
04:15 PM	36	20	37	2	28	98	9	0	13	22	14	0	13	136	38	0	0	466
04:30 PM	46	16	39	0	22	97	6	0	12	28	9	0	14	153	48	0	0	490
04:45 PM	33	10	37	5	35	86	5	1	19	19	16	4	13	171	51	1	0	506
Total	166	62	158	10	110	382	32	1	56	99	57	4	48	585	184	1	0	1955
05:00 PM	37	15	35	1	22	87	4	1	11	24	11	0	12	187	33	0	0	480
05:15 PM	41	24	36	1	30	91	9	0	10	35	10	0	12	136	29	1	0	465
Grand Total	315	132	313	13	247	789	51	2	98	205	101	5	97	1175	318	2	0	3863
Apprch %	40.8	17.1	40.5	1.7	22.7	72.5	4.7	0.2	24	50.1	24.7	1.2	6.1	73.8	20	0.1	0	
Total %	8.2	3.4	8.1	0.3	6.4	20.4	1.3	0.1	2.5	5.3	2.6	0.1	2.5	30.4	8.2	0.1	0	

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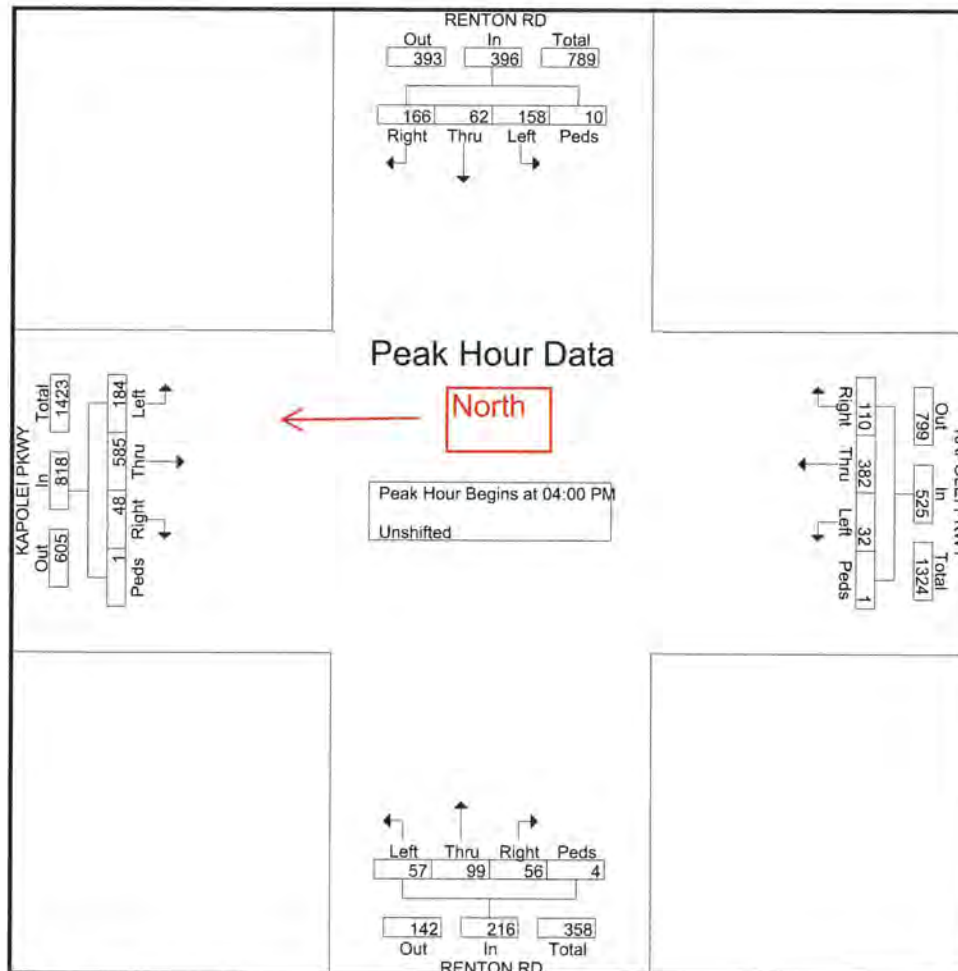
File Name : PM_Renton Rd - Kapolei Pkwy

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	RENTON RD From North					KAPOLEI PKWY From East					RENTON RD From South					KAPOLEI PKWY From West						
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:00 PM																						
04:00 PM	51	16	45	3	115	25	101	12	0	138	12	30	18	0	60	8	125	47	0	0	180	493
04:15 PM	36	20	37	2	95	28	98	9	0	135	13	22	14	0	49	13	136	38	0	0	187	466
04:30 PM	46	16	39	0	101	22	97	6	0	125	12	28	9	0	49	14	153	48	0	0	215	490
04:45 PM	33	10	37	5	85	35	86	5	1	127	19	19	16	4	58	13	171	51	1	0	236	506
Total Volume	166	62	158	10	396	110	382	32	1	525	56	99	57	4	216	48	585	184	1	0	818	1955
% App. Total	41.9	15.7	39.9	2.5		21	72.8	6.1	0.2		25.9	45.8	26.4	1.9		5.9	71.5	22.5	0.1	0		
PHF	.814	.775	.878	.500	.861	.786	.946	.667	.250	.951	.737	.825	.792	.250	.900	.857	.855	.902	.250	.000	.867	.966



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File Name : PM_WWTP Dwy #1 - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Class 1

Start Time	WWTP DWY #1 From North				GEIGER RD From East				From South				GEIGER RD From West				Int. Total
	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	
03:30 PM	0	0	0	0	0	101	3	0	3	0	1	0	1	129	0	0	238
03:45 PM	1	0	0	0	0	96	5	0	5	0	0	0	0	137	0	0	244
Total	1	0	0	0	0	197	8	0	8	0	1	0	1	266	0	0	482
04:00 PM	0	0	0	0	0	71	1	0	2	0	0	0	0	138	0	0	212
04:15 PM	0	0	0	0	0	95	0	0	0	0	0	0	0	165	0	0	260
04:30 PM	0	0	0	0	0	93	0	0	0	0	0	0	0	156	0	0	249
04:45 PM	0	0	0	0	1	93	0	0	0	0	0	0	0	158	1	0	253
Total	0	0	0	0	1	352	1	0	2	0	0	0	0	617	1	0	974
05:00 PM	2	0	0	0	1	69	0	0	0	0	0	0	0	169	0	0	241
05:15 PM	1	0	0	0	0	75	0	0	1	0	0	0	0	167	0	0	244
Grand Total	4	0	0	0	2	693	9	0	11	0	1	0	1	1219	1	0	1941
Apprch %	100	0	0	0	0.3	98.4	1.3	0	91.7	0	8.3	0	0.1	99.8	0.1	0	
Total %	0.2	0	0	0	0.1	35.7	0.5	0	0.6	0	0.1	0	0.1	62.8	0.1	0	

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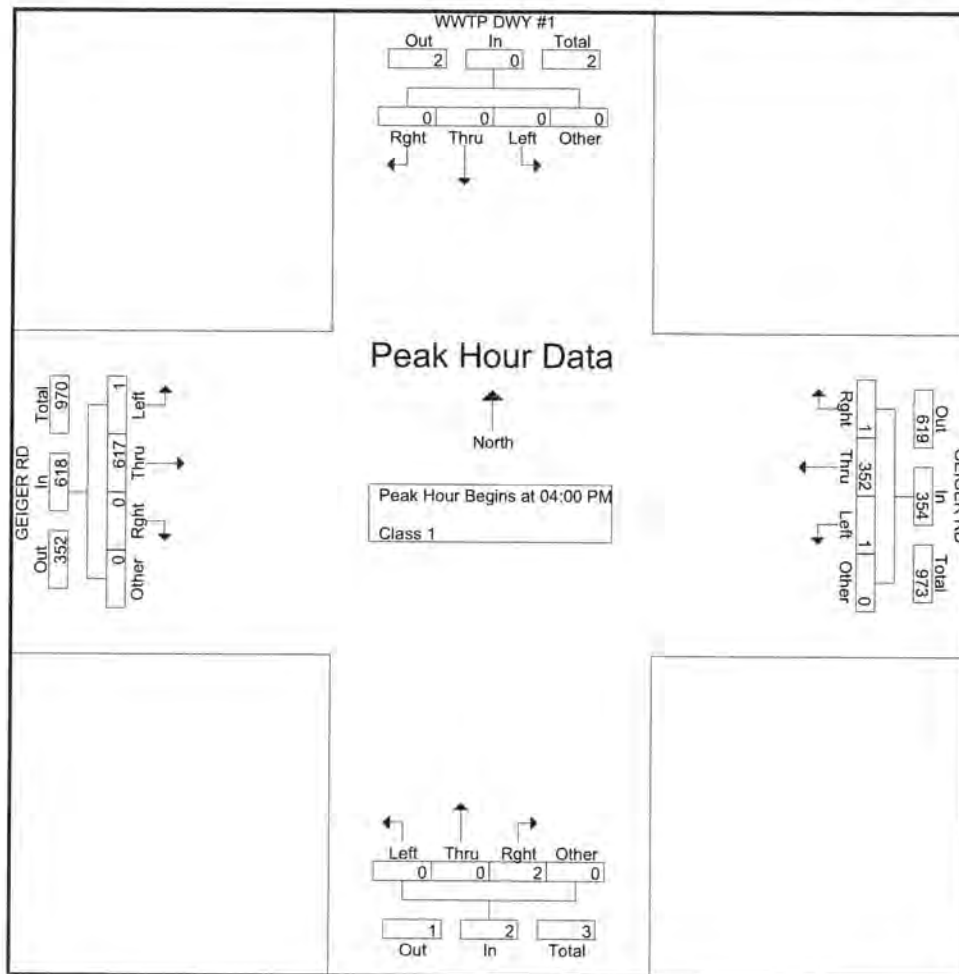
File Name : PM_WWTP Dwy #1 - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	WWTP DWY #1 From North					GEIGER RD From East					From South					GEIGER RD From West					
Start Time	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	0	0	71	1	0	72	2	0	0	0	2	0	138	0	0	138	212
04:15 PM	0	0	0	0	0	0	95	0	0	95	0	0	0	0	0	0	165	0	0	165	260
04:30 PM	0	0	0	0	0	0	93	0	0	93	0	0	0	0	0	0	156	0	0	156	249
04:45 PM	0	0	0	0	0	1	93	0	0	94	0	0	0	0	0	0	158	1	0	159	253
Total Volume	0	0	0	0	0	1	352	1	0	354	2	0	0	0	2	0	617	1	0	618	974
% App. Total	0	0	0	0	0	0.3	99.4	0.3	0		100	0	0	0		0	99.8	0.2	0		
PHF	.000	.000	.000	.000	.000	.250	.926	.250	.000	.932	.250	.000	.000	.000	.250	.000	.935	.250	.000	.936	.937



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File Name : PM_WWTP Dwy #2 - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Class 1

Start Time	WWTP DWY #2 From North				GEIGER RD From East				From South				GEIGER RD From West				Int. Total
	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	
03:30 PM	0	0	6	0	0	94	0	0	0	0	0	0	0	132	0	0	232
03:45 PM	1	0	0	0	0	75	0	0	0	0	0	0	0	139	2	0	217
Total	1	0	6	0	0	169	0	0	0	0	0	0	0	271	2	0	449
04:00 PM	0	0	6	0	1	96	0	0	0	0	0	0	0	161	0	0	264
04:15 PM	1	0	2	0	1	94	0	0	0	0	0	0	0	157	0	0	255
04:30 PM	1	0	2	0	0	91	0	0	0	0	0	0	0	158	0	0	252
04:45 PM	0	0	0	0	0	73	0	0	0	0	0	0	0	168	0	0	241
Total	2	0	10	0	2	354	0	0	0	0	0	0	0	644	0	0	1012
05:00 PM	0	0	2	0	0	78	0	0	0	0	0	0	0	170	1	0	251
05:15 PM	2	0	0	0	0	71	0	0	0	0	0	0	0	145	1	0	219
Grand Total	5	0	18	0	2	672	0	0	0	0	0	0	0	1230	4	0	1931
Apprch %	21.7	0	78.3	0	0.3	99.7	0	0	0	0	0	0	0	99.7	0.3	0	
Total %	0.3	0	0.9	0	0.1	34.8	0	0	0	0	0	0	0	63.7	0.2	0	

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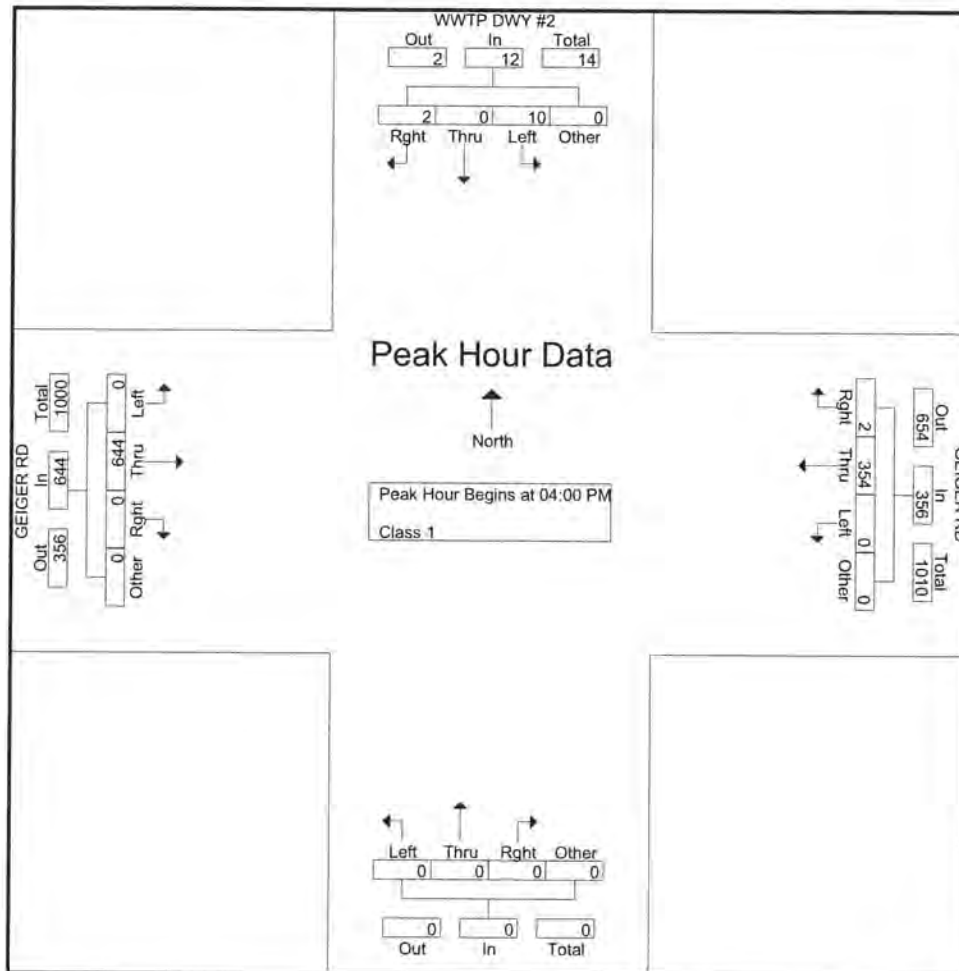
File Name : PM_WWTP Dwy #2 - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	WWTP DWY #2 From North					GEIGER RD From East					From South					GEIGER RD From West					
Start Time	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	6	0	6	1	96	0	0	97	0	0	0	0	0	0	161	0	0	161	264
04:15 PM	1	0	2	0	3	1	94	0	0	95	0	0	0	0	0	0	157	0	0	157	255
04:30 PM	1	0	2	0	3	0	91	0	0	91	0	0	0	0	0	0	158	0	0	158	252
04:45 PM	0	0	0	0	0	0	73	0	0	73	0	0	0	0	0	0	168	0	0	168	241
Total Volume	2	0	10	0	12	2	354	0	0	356	0	0	0	0	0	0	644	0	0	644	1012
% App. Total	16.7	0	83.3	0		0.6	99.4	0	0		0	0	0	0		0	100	0	0		
PHF	.500	.000	.417	.000	.500	.500	.922	.000	.000	.918	.000	.000	.000	.000	.000	.000	.958	.000	.000	.958	.958



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File Name : PM_WWTP Dwy #3 - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 1

Groups Printed- Class 1

Start Time	WWTP DWY #3 From North				GEIGER RD From East				From South				GEIGER RD From West				Int. Total
	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	
03:30 PM	7	0	10	0	4	93	0	0	0	0	0	0	0	125	7	0	246
03:45 PM	6	0	1	0	5	70	0	0	0	0	0	0	0	137	3	0	222
Total	13	0	11	0	9	163	0	0	0	0	0	0	0	262	10	0	468
04:00 PM	3	0	3	0	5	91	0	0	0	0	0	0	0	159	1	0	262
04:15 PM	2	0	4	0	4	87	0	0	0	0	0	0	0	151	2	0	250
04:30 PM	5	0	6	0	5	89	0	0	0	0	0	0	0	154	4	0	263
04:45 PM	2	0	6	0	5	69	0	0	0	0	0	0	0	164	3	0	249
Total	12	0	19	0	19	336	0	0	0	0	0	0	0	628	10	0	1024
05:00 PM	4	0	3	0	4	71	0	0	0	0	0	0	0	168	1	0	251
05:15 PM	1	0	3	0	4	71	0	0	0	0	0	0	0	143	3	0	225
Grand Total	30	0	36	0	36	641	0	0	0	0	0	0	0	1201	24	0	1968
Apprch %	45.5	0	54.5	0	5.3	94.7	0	0	0	0	0	0	0	98	2	0	
Total %	1.5	0	1.8	0	1.8	32.6	0	0	0	0	0	0	0	61	1.2	0	

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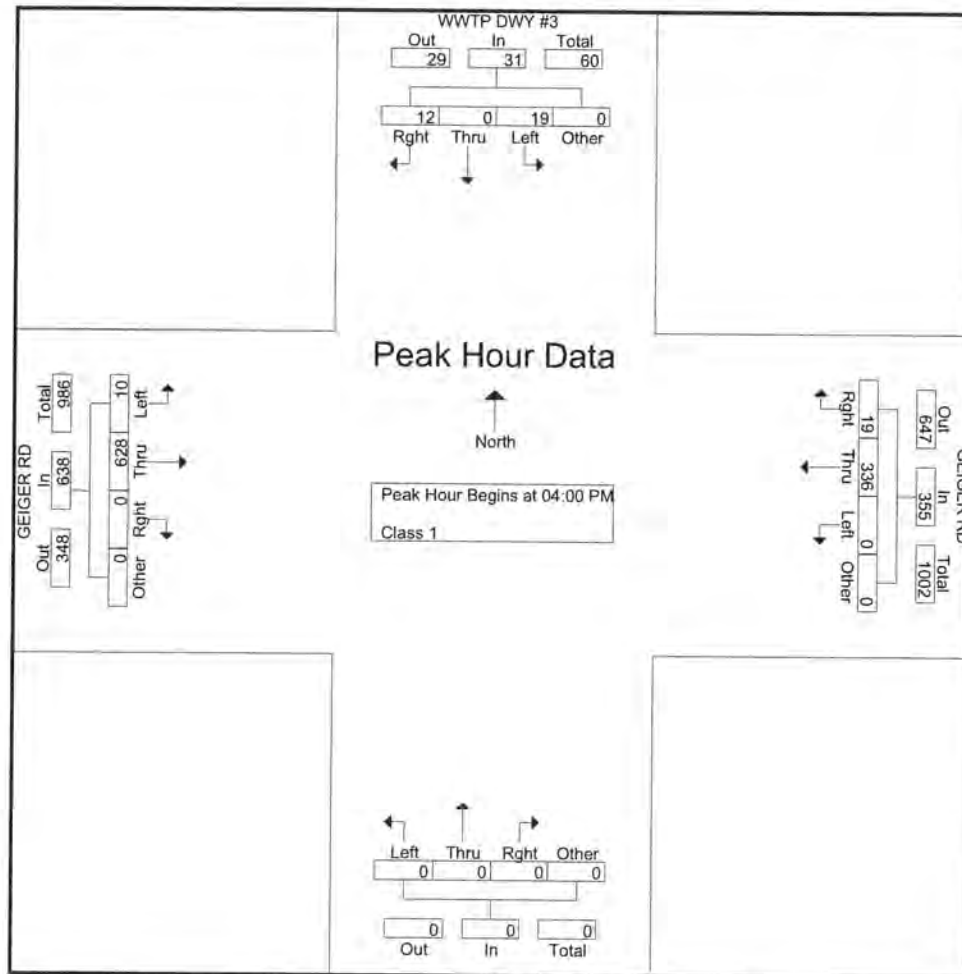
File Name : PM_WWTP Dwy #3 - Geiger Rd

Site Code : 00000000

Start Date : 9/3/2014

Page No : 2

	WWTP DWY #3 From North					GEIGER RD From East					From South					GEIGER RD From West					
Start Time	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	3	0	3	0	6	5	91	0	0	96	0	0	0	0	0	0	159	1	0	160	262
04:15 PM	2	0	4	0	6	4	87	0	0	91	0	0	0	0	0	0	151	2	0	153	250
04:30 PM	5	0	6	0	11	5	89	0	0	94	0	0	0	0	0	0	154	4	0	158	263
04:45 PM	2	0	6	0	8	5	69	0	0	74	0	0	0	0	0	0	164	3	0	167	249
Total Volume	12	0	19	0	31	19	336	0	0	355	0	0	0	0	0	0	628	10	0	638	1024
% App. Total	38.7	0	61.3	0		5.4	94.6	0	0		0	0	0	0		0	98.4	1.6	0		
PHF	.600	.000	.792	.000	.705	.950	.923	.000	.000	.924	.000	.000	.000	.000	.000	.000	.957	.625	.000	.955	.973





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APPENDIX B

Level of Service Criteria

APPENDIX B – LEVEL OF SERVICE (LOS) CRITERIA

VEHICULAR LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS (HCM 2010)

Level of service for vehicles at signalized intersections is directly related to delay values and is assigned on that basis. Level of Service is a measure of the acceptability of delay values to motorists at a given intersection. The criteria are given in the table below.

Level-of Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (sec./veh.)
A	< 10.0
B	>10.0 and ≤ 20.0
C	>20.0 and ≤ 35.0
D	>35.0 and ≤ 55.0
E	>55.0 and ≤ 80.0
F	> 80.0

Delay is a complex measure, and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group or approach in question.

VEHICULAR LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM 2010)

The level of service criteria for vehicles at unsignalized intersections is defined as the average control delay, in seconds per vehicle.

LOS delay threshold values are lower for two-way stop-controlled (TWSC) and all-way stop-controlled (AWSC) intersections than those of signalized intersections. This is because more vehicles pass through signalized intersections, and therefore, drivers expect and tolerate greater delays. While the criteria for level of service for TWSC and AWSC intersections are the same, procedures to calculate the average total delay may differ.

Level of Service Criteria for Two-Way Stop-Controlled Intersections

Level of Service	Average Control Delay (sec/veh)
A	≤ 10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	> 50



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APPENDIX C

Full Level of Service Table

scale C1: Existing, Base Year 2021 (no mt), Future Year 2030 (no mt), Base Year 2030 (with mt), Base Year 2030 (no mt), Future Year 2030 (no mt) Intersection Level of Service Summary

[illegible]

Model C1: Existing Base Year 2021 (no mt), Future Year 2021 (no mt), Base Year 2030 (no mt), Base Year 2030 (with mt) and Future Year 2030 (no mt) Intervention Level of Service Summary (continued)

[illegible]



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APPENDIX D

Level of Service Calculations

HCM 2010 Signalized Intersection Summary

1: Kapolei Pkwy & Kualakai Pkwy






















10/24/2014

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	333	364	604	360	170	208		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	362	396	657	391	185	226		
Adj No. of Lanes	2	3	3	2	2	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	550	3242	1842	1376	453	812		
Arrive On Green	0.16	0.64	0.36	0.36	0.13	0.13		
Sat Flow, veh/h	3442	5253	5253	2787	3442	2787		
Grp Volume(v), veh/h	362	396	657	391	185	226		
Grp Sat Flow(s),veh/h/ln	1721	1695	1695	1393	1721	1393		
Q Serve(g_s), s	5.1	1.6	4.9	4.3	2.6	3.3		
Cycle Q Clear(g_c), s	5.1	1.6	4.9	4.3	2.6	3.3		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	550	3242	1842	1376	453	812		
V/C Ratio(X)	0.66	0.12	0.36	0.28	0.41	0.28		
Avail Cap(c_a), veh/h	1788	7925	4696	2940	2781	2697		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	20.5	3.7	12.1	7.7	20.7	14.2		
Incr Delay (d2), s/veh	1.3	0.0	0.1	0.1	0.6	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.5	0.7	2.3	2.1	1.2	2.8		
LnGrp Delay(d),s/veh	21.8	3.7	12.3	7.9	21.3	14.4		
LnGrp LOS	C	A	B	A	C	B		
Approach Vol, veh/h		758	1048		411			
Approach Delay, s/veh		12.4	10.6		17.5			
Approach LOS		B	B		B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		39.1		12.8	14.3	24.8		
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		
Max Green Setting (Gmax), s		81.0		42.0	27.0	48.0		
Max Q Clear Time (g_c+I1), s		3.6		5.3	7.1	6.9		
Green Ext Time (p_c), s		12.8		1.6	1.2	11.9		
Intersection Summary								
HCM 2010 Ctrl Delay			12.5					
HCM 2010 LOS			B					
Notes								
User approved changes to right turn type.								

HCM 2010 Signalized Intersection Summary

2: Kapolei Pkwy & Renton Rd

10/24/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	24	61	16	288	108	290	43	705	350	213	289	42
Number	3	8	18	7	4	14	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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	26	66	12	313	117	82	47	766	300	232	314	32
Adj No. of Lanes	1	1	0	1	1	1	1	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	376	460	84	431	559	475	61	1267	492	274	2216	222
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.03	0.35	0.35	0.15	0.47	0.47
Sat Flow, veh/h	1179	1535	279	1316	1863	1583	1774	3606	1400	1774	4700	470
Grp Volume(v), veh/h	26	0	78	313	117	82	47	720	346	232	225	121
Grp Sat Flow(s), veh/h/ln	1179	0	1814	1316	1863	1583	1774	1695	1616	1774	1695	1780
Q Serve(g_s), s	1.6	0.0	2.9	21.2	4.3	3.5	2.4	16.2	16.4	11.8	3.5	3.6
Cycle Q Clear(g_c), s	5.9	0.0	2.9	24.1	4.3	3.5	2.4	16.2	16.4	11.8	3.5	3.6
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.87	1.00		0.26
Lane Grp Cap(c), veh/h	376	0	544	431	559	475	61	1191	568	274	1599	839
V/C Ratio(X)	0.07	0.00	0.14	0.73	0.21	0.17	0.77	0.60	0.61	0.85	0.14	0.14
Avail Cap(c_a), veh/h	455	0	665	519	683	581	555	2889	1377	555	2889	1516
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	0.0	23.7	32.5	24.2	24.0	44.4	24.8	24.8	38.1	13.9	13.9
Incr Delay (d2), s/veh	0.1	0.0	0.1	4.1	0.2	0.2	18.5	0.5	1.1	7.1	0.0	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	0.5	0.0	1.5	8.1	2.3	1.6	1.5	7.7	7.5	6.3	1.6	1.8
LnGrp Delay(d),s/veh	26.5	0.0	23.9	36.6	24.4	24.1	62.9	25.3	25.9	45.2	13.9	14.0
LnGrp LOS	C		C	D	C	C	E	C	C	D	B	B
Approach Vol, veh/h		104			512			1113			578	
Approach Delay, s/veh		24.5			31.8			27.0			26.5	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.3	38.6		33.8	9.2	49.7		33.8				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	29.0	79.0		34.0	29.0	79.0		34.0				
Max Q Clear Time (g_c+I1), s	13.8	18.4		26.1	4.4	5.6		7.9				
Green Ext Time (p_c), s	0.6	14.2		1.7	0.1	14.4		2.7				
Intersection Summary												
HCM 2010 Ctrl Delay			27.9									
HCM 2010 LOS			C									

HCM 2010 TWSC
3: Phillipine Sea & Renton Rd

10/13/2014

Intersection						
Int Delay, s/veh	7.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	1	1	181	1	2	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	1	197	1	2	87
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2	0	397	2
Stage 1	-	-	-	-	2	-
Stage 2	-	-	-	-	395	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1620	-	608	1082
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	681	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1620	-	534	1082
Mov Cap-2 Maneuver	-	-	-	-	534	-
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	598	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		7.5		8.7	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	1056	-	-	1620	-	
HCM Lane V/C Ratio	0.084	-	-	0.121	-	
HCM Control Delay (s)	8.7	-	-	7.5	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.3	-	-	0.4	-	

HCM 2010 TWSC
4: Phillipine Sea & Roosevelt Ave

10/13/2014

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	64	267	0	0	530	14	0	0	0	11	0	166
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	70	290	0	0	576	15	0	0	0	12	0	180
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	591	0	0	290	0	0	1103	1020	290	1013	1013	584
Stage 1	-	-	-	-	-	-	429	429	-	584	584	-
Stage 2	-	-	-	-	-	-	674	591	-	429	429	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	985	-	-	1272	-	-	189	237	749	217	239	512
Stage 1	-	-	-	-	-	-	604	584	-	498	498	-
Stage 2	-	-	-	-	-	-	444	494	-	604	584	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	985	-	-	1272	-	-	114	217	749	203	219	512
Mov Cap-2 Maneuver	-	-	-	-	-	-	114	217	-	203	219	-
Stage 1	-	-	-	-	-	-	553	534	-	456	498	-
Stage 2	-	-	-	-	-	-	288	494	-	553	534	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.7			0			0			18		
HCM LOS							A			C		

HCM 2010 TWSC
5: Essex Rd & Roosevelt Ave/Geiger Rd

10/13/2014

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	265	5	23	556	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	288	5	25	604	5	4
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	293	0	945	291
Stage 1	-	-	-	-	291	-
Stage 2	-	-	-	-	654	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1269	-	291	748
Stage 1	-	-	-	-	759	-
Stage 2	-	-	-	-	517	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1269	-	285	748
Mov Cap-2 Maneuver	-	-	-	-	285	-
Stage 1	-	-	-	-	759	-
Stage 2	-	-	-	-	507	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.3		14.4	
HCM LOS					B	

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	393	-	-	1269	-
HCM Lane V/C Ratio	0.025	-	-	0.02	-
HCM Control Delay (s)	14.4	-	-	7.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

HCM 2010 TWSC
6: Geiger Rd & Ewa Refuse Convenience Center

10/13/2014

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	271	1	8	592	0	3	0	15	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	295	1	9	643	0	3	0	16	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	643	0	0	296	0	0	956	956	295	964	957	643
Stage 1	-	-	-	-	-	-	295	295	-	661	661	-
Stage 2	-	-	-	-	-	-	661	661	-	303	296	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	942	-	-	1265	-	-	238	258	744	235	258	473
Stage 1	-	-	-	-	-	-	713	669	-	452	460	-
Stage 2	-	-	-	-	-	-	452	460	-	706	668	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	942	-	-	1265	-	-	236	255	744	228	255	473
Mov Cap-2 Maneuver	-	-	-	-	-	-	236	255	-	228	255	-
Stage 1	-	-	-	-	-	-	713	669	-	452	455	-
Stage 2	-	-	-	-	-	-	447	455	-	691	668	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	11.8	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	548	942	-	-	1265	-	-	-
HCM Lane V/C Ratio	0.036	-	-	-	0.007	-	-	-
HCM Control Delay (s)	11.8	0	-	-	7.9	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Intersection							
Int Delay, s/veh	0.3						
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Vol, veh/h	0	268	579	4	6	10	
Conflicting Peds, #/hr	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Stop	Stop	
RT Channelized	-	None	-	None	-	None	
Storage Length	-	-	-	-	0	-	
Veh in Median Storage, #	-	0	0	-	0	-	
Grade, %	-	0	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	
Mvmt Flow	0	291	629	4	7	11	
Major/Minor	Major1		Major2		Minor2		
Conflicting Flow All	634	0	-	0	923	632	
Stage 1	-	-	-	-	632	-	
Stage 2	-	-	-	-	291	-	
Critical Hdwy	4.12	-	-	-	6.42	6.22	
Critical Hdwy Stg 1	-	-	-	-	5.42	-	
Critical Hdwy Stg 2	-	-	-	-	5.42	-	
Follow-up Hdwy	2.218	-	-	-	3.518	3.318	
Pot Cap-1 Maneuver	949	-	-	-	299	480	
Stage 1	-	-	-	-	530	-	
Stage 2	-	-	-	-	759	-	
Platoon blocked, %	-	-	-	-	-	-	
Mov Cap-1 Maneuver	949	-	-	-	299	480	
Mov Cap-2 Maneuver	-	-	-	-	299	-	
Stage 1	-	-	-	-	530	-	
Stage 2	-	-	-	-	759	-	
Approach	EB		WB		SB		
HCM Control Delay, s	0		0		14.6		
HCM LOS					B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	949	-	-	-	391		
HCM Lane V/C Ratio	-	-	-	-	0.044		
HCM Control Delay (s)	0	-	-	-	14.6		
HCM Lane LOS	A	-	-	-	B		
HCM 95th %tile Q(veh)	0	-	-	-	0.1		

HCM 2010 TWSC
8: Geiger Rd & Honouliuli Drwy 2

10/13/2014

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	261	0	0	575	13	0	0	0	5	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	284	0	0	625	14	0	0	0	5	0	8
























Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	639	0	0	284	0	0	926	929	284	922	922	632
Stage 1	-	-	-	-	-	-	290	290	-	632	632	-
Stage 2	-	-	-	-	-	-	636	639	-	290	290	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	945	-	-	1278	-	-	249	268	755	251	270	480
Stage 1	-	-	-	-	-	-	718	672	-	468	474	-
Stage 2	-	-	-	-	-	-	466	470	-	718	672	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	945	-	-	1278	-	-	244	267	755	250	269	480
Mov Cap-2 Maneuver	-	-	-	-	-	-	244	267	-	250	269	-
Stage 1	-	-	-	-	-	-	715	669	-	466	474	-
Stage 2	-	-	-	-	-	-	459	470	-	715	669	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	0	15.8
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	945	-	-	1278	-	-	347
HCM Lane V/C Ratio	-	0.003	-	-	-	-	-	0.038
HCM Control Delay (s)	0	8.8	0	-	0	-	-	15.8
HCM Lane LOS	A	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.1

























HCM 2010 Signalized Intersection Summary 9: Kapolei Pkwy & Geiger Rd

10/27/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	110	167	88	210	195	336	717	139	146	501	42
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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	9	120	14	96	228	39	365	779	64	159	545	7
Adj No. of Lanes	1	2	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	16	342	39	125	314	267	416	1476	661	202	1048	469
Arrive On Green	0.01	0.11	0.11	0.07	0.17	0.17	0.23	0.42	0.42	0.11	0.30	0.30
Sat Flow, veh/h	1774	3199	368	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	9	66	68	96	228	39	365	779	64	159	545	7
Grp Sat Flow(s),veh/h/ln	1774	1770	1798	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.4	2.8	2.9	4.4	9.5	1.7	16.3	13.5	2.0	7.2	10.5	0.3
Cycle Q Clear(g_c), s	0.4	2.8	2.9	4.4	9.5	1.7	16.3	13.5	2.0	7.2	10.5	0.3
Prop In Lane	1.00		0.20	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	16	189	192	125	314	267	416	1476	661	202	1048	469
V/C Ratio(X)	0.56	0.35	0.36	0.77	0.73	0.15	0.88	0.53	0.10	0.79	0.52	0.01
Avail Cap(c_a), veh/h	410	839	853	410	883	751	733	1894	847	733	1894	847
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	34.1	34.1	37.6	32.4	29.2	30.3	17.9	14.6	35.5	24.1	20.5
Incr Delay (d2), s/veh	27.3	1.1	1.1	9.4	3.2	0.2	6.0	0.3	0.1	6.7	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	0.3	1.4	1.5	2.5	5.2	0.8	8.7	6.7	0.9	3.9	5.2	0.1
LnGrp Delay(d),s/veh	67.8	35.2	35.2	46.9	35.6	29.4	36.3	18.2	14.6	42.2	24.5	20.5
LnGrp LOS	E	D	D	D	D	C	D	B	B	D	C	C
Approach Vol, veh/h	143		363				1208				711	
Approach Delay, s/veh	37.2		38.0				23.5				28.4	
Approach LOS	D		D				C				C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.3	40.3	11.8	14.8	25.3	30.3	6.7	19.8				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	34.0	44.0	19.0	39.0	34.0	44.0	19.0	39.0				
Max Q Clear Time (g_c+I1), s	9.2	15.5	6.4	4.9	18.3	12.5	2.4	11.5				
Green Ext Time (p_c), s	0.4	11.4	0.2	2.4	1.0	11.8	0.0	2.3				
Intersection Summary												
HCM 2010 Ctrl Delay			27.9									
HCM 2010 LOS			C									

HCM Signalized Intersection Capacity Analysis 10: Ft Weaver Rd & Geiger Rd/Iroquois Rd
























10/15/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	259	129	156	50	222	266	149	1348	4	162	875	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	4.0	6.0
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	0.88	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3307	1583	1770	1863	2787	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3307	1583	1770	1863	2787	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	282	140	170	54	241	289	162	1465	4	176	951	130
RTOR Reduction (vph)	0	0	86	0	0	199	0	0	2	0	0	58
Lane Group Flow (vph)	141	281	84	54	241	91	162	1465	2	176	951	72
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases			3			4			2			6
Actuated Green, G (s)	30.5	30.5	30.5	39.5	39.5	39.5	16.7	127.4	127.4	17.6	128.3	128.3
Effective Green, g (s)	32.5	32.5	32.5	41.5	41.5	41.5	18.7	130.4	128.4	19.6	131.3	129.3
Actuated g/C Ratio	0.14	0.14	0.14	0.17	0.17	0.17	0.08	0.54	0.54	0.08	0.55	0.54
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	218	447	214	306	322	481	267	2762	846	280	2781	852
v/s Ratio Prot	c0.09	0.08		0.03	c0.13		0.05	c0.29		c0.05	0.19	
v/s Ratio Perm			0.05			0.03			0.00			0.05
v/c Ratio	0.65	0.63	0.39	0.18	0.75	0.19	0.61	0.53	0.00	0.63	0.34	0.08
Uniform Delay, d1	98.3	98.0	94.7	84.7	94.3	84.8	107.1	35.2	26.0	106.7	30.3	26.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.68	1.65	5.28
Incremental Delay, d2	8.7	3.9	2.5	0.6	10.9	0.4	3.9	0.7	0.0	3.9	0.3	0.2
Delay (s)	107.0	101.9	97.2	85.3	105.2	85.2	111.0	35.9	26.0	77.0	50.1	141.5
Level of Service	F	F	F	F	F	F	F	D	C	E	D	F
Approach Delay (s)		101.8			93.5			43.3			63.3	
Approach LOS		F			F			D			E	
Intersection Summary												
HCM 2000 Control Delay			65.2				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			240.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			64.0%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Ft Weaver Rd & Renton Rd













10/15/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	391	5	110	4	12	10	198	2650	15	67	1176	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		6.0	4.0	6.0	5.0	6.0	4.0	5.0	7.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.91		1.00	1.00	1.00	1.00	0.83	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1681	1687	1434		1841	1583	1770	5085	1311	1770	5085	1536
Flt Permitted	0.95	0.95	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1681	1687	1434		1841	1583	1770	5085	1311	1770	5085	1536
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	425	5	120	4	13	11	215	2880	16	73	1278	255
RTOR Reduction (vph)	0	0	84	0	0	11	0	0	6	0	0	113
Lane Group Flow (vph)	217	213	36	0	17	0	215	2880	10	73	1278	142
Confl. Peds. (#/hr)			43						31			2
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3			2			6
Actuated Green, G (s)	39.3	39.3	39.3		6.6	6.6	36.2	154.9	154.9	15.2	133.9	133.9
Effective Green, g (s)	39.3	39.3	39.3		6.6	8.6	36.2	156.9	155.9	17.2	135.9	133.9
Actuated g/C Ratio	0.16	0.16	0.16		0.03	0.04	0.15	0.65	0.65	0.07	0.57	0.56
Clearance Time (s)	5.0	5.0	5.0		6.0	6.0	6.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	4.0	4.0	4.0		3.0	3.0	5.0	6.0	6.0	3.0	6.0	6.0
Lane Grp Cap (vph)	275	276	234		50	56	266	3324	851	126	2879	856
v/s Ratio Prot	c0.13	0.13			c0.01		c0.12	c0.57		0.04	0.25	
v/s Ratio Perm			0.03			0.00			0.01			0.09
v/c Ratio	0.79	0.77	0.16		0.34	0.01	0.81	0.87	0.01	0.58	0.44	0.17
Uniform Delay, d1	96.4	96.1	86.1		114.6	111.6	98.5	33.2	14.9	107.9	30.2	25.8
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.14	0.61	1.00	1.09	1.02	1.76
Incremental Delay, d2	14.7	13.2	0.4		4.0	0.1	8.4	1.4	0.0	6.0	0.5	0.4
Delay (s)	111.0	109.3	86.5		118.6	111.6	120.7	21.8	14.9	123.1	31.3	45.8
Level of Service	F	F	F		F	F	F	C	B	F	C	D
Approach Delay (s)		105.0			115.9			28.6			37.7	
Approach LOS		F			F			C			D	
Intersection Summary												
HCM 2000 Control Delay			39.8				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			240.0				Sum of lost time (s)		22.0			
Intersection Capacity Utilization			94.7%				ICU Level of Service		F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 2010 Signalized Intersection Summary

1: Kapolei Pkwy & Kualakai Pkwy

10/24/2014






















								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	218	442	356	253	377	334		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	237	480	387	275	410	363		
Adj No. of Lanes	2	3	3	2	2	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	368	2677	1480	1415	746	902		
Arrive On Green	0.11	0.53	0.29	0.29	0.22	0.22		
Sat Flow, veh/h	3442	5253	5253	2787	3442	2787		
Grp Volume(v), veh/h	237	480	387	275	410	363		
Grp Sat Flow(s),veh/h/ln	1721	1695	1695	1393	1721	1393		
Q Serve(g_s), s	3.1	2.3	2.7	2.5	4.9	4.7		
Cycle Q Clear(g_c), s	3.1	2.3	2.7	2.5	4.9	4.7		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	368	2677	1480	1415	746	902		
V/C Ratio(X)	0.64	0.18	0.26	0.19	0.55	0.40		
Avail Cap(c_a), veh/h	516	6639	5224	3467	3094	2803		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	20.0	5.8	12.7	6.3	16.3	12.3		
Incr Delay (d2), s/veh	1.9	0.0	0.1	0.1	0.6	0.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.5	1.1	1.3	1.4	2.4	3.9		
LnGrp Delay(d),s/veh	21.9	5.8	12.8	6.3	16.9	12.6		
LnGrp LOS	C	A	B	A	B	B		
Approach Vol, veh/h		717	662		773			
Approach Delay, s/veh		11.1	10.1		14.9			
Approach LOS		B	B		B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		30.6		16.1	11.0	19.6		
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		
Max Green Setting (Gmax), s		61.0		42.0	7.0	48.0		
Max Q Clear Time (g_c+I1), s		4.3		6.9	5.1	4.7		
Green Ext Time (p_c), s		9.1		3.2	0.2	8.9		
Intersection Summary								
HCM 2010 Ctrl Delay			12.2					
HCM 2010 LOS			B					

Notes

User approved changes to right turn type.

HCM 2010 Signalized Intersection Summary 2: Kapolei Pkwy & Renton Rd

10/24/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	57	99	56	158	62	166	32	382	110	184	585	48
Number	3	8	18	7	4	14	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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	62	108	40	172	67	32	35	415	66	200	636	44
Adj No. of Lanes	1	1	0	1	1	1	1	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	437	348	129	375	500	425	53	1207	188	258	1883	129
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.03	0.27	0.27	0.15	0.39	0.39
Sat Flow, veh/h	1291	1297	481	1235	1863	1583	1774	4441	690	1774	4860	334
Grp Volume(v), veh/h	62	0	148	172	67	32	35	315	166	200	442	238
Grp Sat Flow(s),veh/h/ln	1291	0	1778	1235	1863	1583	1774	1695	1741	1774	1695	1804
Q Serve(g_s), s	2.2	0.0	3.8	7.4	1.6	0.9	1.1	4.3	4.4	6.2	5.3	5.3
Cycle Q Clear(g_c), s	3.8	0.0	3.8	11.2	1.6	0.9	1.1	4.3	4.4	6.2	5.3	5.3
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.40	1.00		0.19
Lane Grp Cap(c), veh/h	437	0	477	375	500	425	53	921	473	258	1314	699
V/C Ratio(X)	0.14	0.00	0.31	0.46	0.13	0.08	0.66	0.34	0.35	0.77	0.34	0.34
Avail Cap(c_a), veh/h	857	0	1055	777	1106	940	743	2308	1185	743	2308	1228
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	0.0	16.7	21.2	15.9	15.6	27.5	16.7	16.8	23.6	12.4	12.4
Incr Delay (d2), s/veh	0.1	0.0	0.4	0.9	0.1	0.1	13.2	0.2	0.4	4.9	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	1.9	2.6	0.8	0.4	0.7	2.0	2.2	3.4	2.5	2.7
LnGrp Delay(d),s/veh	17.5	0.0	17.1	22.1	16.0	15.7	40.7	17.0	17.2	28.5	12.5	12.7
LnGrp LOS	B		B	C	B	B	D	B	B	C	B	B
Approach Vol, veh/h	210		271				516			880		
Approach Delay, s/veh	17.2		19.8				18.7			16.2		
Approach LOS	B		B				B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2			4	5	6	8				
Phs Duration (G+Y+Rc), s	14.3	21.6			21.4	7.7	28.2	21.4				
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	24.0	39.0			34.0	24.0	39.0	34.0				
Max Q Clear Time (g_c+I1), s	8.2	6.4			13.2	3.1	7.3	5.8				
Green Ext Time (p_c), s	0.5	9.2			2.2	0.1	9.1	2.3				
Intersection Summary												
HCM 2010 Ctrl Delay			17.5									
HCM 2010 LOS			B									

HCM 2010 TWSC
3: Phillipine Sea & Renton Rd

10/13/2014

Intersection

Int Delay, s/veh 8.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	2	3	135	2	6	193
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	3	147	2	7	210

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	5	0	300	4
Stage 1	-	-	-	-	4	-
Stage 2	-	-	-	-	296	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1616	-	691	1080
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	755	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1616	-	628	1080
Mov Cap-2 Maneuver	-	-	-	-	628	-
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	686	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.3	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1057	-	-	1616	-
HCM Lane V/C Ratio	0.205	-	-	0.091	-
HCM Control Delay (s)	9.3	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0.3	-

HCM 2010 TWSC
4: Phillipine Sea & Roosevelt Ave

10/13/2014

Intersection

Int Delay, s/veh 3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	172	583	0	0	331	17	0	0	0	14	0	123
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	187	634	0	0	360	18	0	0	0	15	0	134

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	378	0	0	634	0	0	1444	1386	634	1377	1377	369
Stage 1	-	-	-	-	-	-	1008	1008	-	369	369	-
Stage 2	-	-	-	-	-	-	436	378	-	1008	1008	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1180	-	-	949	-	-	110	143	479	122	145	677
Stage 1	-	-	-	-	-	-	290	318	-	651	621	-
Stage 2	-	-	-	-	-	-	599	615	-	290	318	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1180	-	-	949	-	-	72	108	479	99	109	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	72	108	-	99	109	-
Stage 1	-	-	-	-	-	-	219	240	-	492	621	-
Stage 2	-	-	-	-	-	-	481	615	-	219	240	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	0	0	18
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1180	-	-	949	-	-	424
HCM Lane V/C Ratio	-	0.158	-	-	-	-	-	0.351
HCM Control Delay (s)	0	8.6	0	-	0	-	-	18
HCM Lane LOS	A	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0.6	-	-	0	-	-	1.6

HCM 2010 TWSC
5: Essex Rd & Roosevelt Ave/Geiger Rd

10/13/2014

Intersection

Int Delay, s/veh 0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	624	13	11	345	9	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	678	14	12	375	10	21

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	692
Stage 1	-	-	685
Stage 2	-	-	399
Critical Hdwy	-	4.12	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	-	2.218	3.518
Pot Cap-1 Maneuver	-	903	240
Stage 1	-	-	500
Stage 2	-	-	678
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	903	237
Mov Cap-2 Maneuver	-	-	237
Stage 1	-	-	500
Stage 2	-	-	669

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	16.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	348	-	-	903	-
HCM Lane V/C Ratio	0.087	-	-	0.013	-
HCM Control Delay (s)	16.3	-	-	9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection

Int Delay, s/veh 0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	617	0	1	352	1	0	0	2	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	671	0	1	383	1	0	0	2	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	384	0	0	671	0	0	1058	1059	671	1059	1058	383
Stage 1	-	-	-	-	-	-	673	673	-	385	385	-
Stage 2	-	-	-	-	-	-	385	386	-	674	673	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1174	-	-	919	-	-	203	224	456	202	225	664
Stage 1	-	-	-	-	-	-	445	454	-	638	611	-
Stage 2	-	-	-	-	-	-	638	610	-	444	454	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1174	-	-	919	-	-	203	224	456	201	225	664
Mov Cap-2 Maneuver	-	-	-	-	-	-	203	224	-	201	225	-
Stage 1	-	-	-	-	-	-	445	454	-	637	610	-
Stage 2	-	-	-	-	-	-	637	609	-	441	454	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	12.9	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	456	1174	-	-	919	-	-	-
HCM Lane V/C Ratio	0.005	0.001	-	-	0.001	-	-	-
HCM Control Delay (s)	12.9	8.1	0	-	8.9	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

HCM 2010 TWSC
7: Geiger Rd & Honouliuli Drwy 1

10/13/2014

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	644	354	2	10	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	700	385	2	11	2

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	387	0	1086
Stage 1	-	-	386
Stage 2	-	-	700
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1171	-	239
Stage 1	-	-	687
Stage 2	-	-	493
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1171	-	239
Mov Cap-2 Maneuver	-	-	239
Stage 1	-	-	687
Stage 2	-	-	493

Approach	EB	WB	SB
HCM Control Delay, s	0	0	19.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1171	-	-	-	267
HCM Lane V/C Ratio	-	-	-	-	0.049
HCM Control Delay (s)	0	-	-	-	19.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

HCM 2010 TWSC
8: Geiger Rd & Honouliuli Drwy 2

10/13/2014

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	628	0	0	336	19	0	0	0	19	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	683	0	0	365	21	0	0	0	21	0	13



























Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	386	0	0	683	0	0	1086	1090	683	1080	1080	376
Stage 1	-	-	-	-	-	-	704	704	-	376	376	-
Stage 2	-	-	-	-	-	-	382	386	-	704	704	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1172	-	-	910	-	-	194	215	449	196	218	670
Stage 1	-	-	-	-	-	-	428	440	-	645	616	-
Stage 2	-	-	-	-	-	-	640	610	-	428	440	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1172	-	-	910	-	-	188	212	449	194	215	670
Mov Cap-2 Maneuver	-	-	-	-	-	-	188	212	-	194	215	-
Stage 1	-	-	-	-	-	-	422	433	-	635	616	-
Stage 2	-	-	-	-	-	-	628	610	-	422	433	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	0	20.4
HCM LOS	A	A	A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1172	-	-	910	-	-	268
HCM Lane V/C Ratio	-	0.009	-	-	-	-	-	0.126
HCM Control Delay (s)	0	8.1	0	-	0	-	-	20.4
HCM Lane LOS	A	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.4

HCM 2010 Signalized Intersection Summary 9: Kapolei Pkwy & Geiger Rd

10/27/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Volume (veh/h)	45	228	395	121	142	232	196	369	92	153	492	25
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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	49	248	191	132	154	59	213	401	18	166	535	4
Adj No. of Lanes	1	2	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	391	290	169	487	414	261	986	441	210	884	396
Arrive On Green	0.04	0.20	0.20	0.10	0.26	0.26	0.15	0.28	0.28	0.12	0.25	0.25
Sat Flow, veh/h	1774	1940	1438	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	49	225	214	132	154	59	213	401	18	166	535	4
Grp Sat Flow(s),veh/h/ln	1774	1770	1609	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	2.1	9.1	9.6	5.7	5.2	2.2	9.1	7.2	0.7	7.1	10.5	0.1
Cycle Q Clear(g_c), s	2.1	9.1	9.6	5.7	5.2	2.2	9.1	7.2	0.7	7.1	10.5	0.1
Prop In Lane	1.00		0.89	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	63	356	324	169	487	414	261	986	441	210	884	396
V/C Ratio(X)	0.78	0.63	0.66	0.78	0.32	0.14	0.81	0.41	0.04	0.79	0.60	0.01
Avail Cap(c_a), veh/h	430	993	902	430	1045	888	656	1760	787	656	1760	787
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.5	28.7	28.8	34.7	23.3	22.2	32.4	23.0	20.6	33.6	26.0	22.1
Incr Delay (d2), s/veh	18.8	1.9	2.3	7.5	0.4	0.2	6.1	0.3	0.0	6.5	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	1.4	4.6	4.5	3.1	2.7	1.0	4.9	3.5	0.3	3.9	5.2	0.1
LnGrp Delay(d),s/veh	56.4	30.5	31.1	42.2	23.7	22.4	38.5	23.3	20.7	40.1	26.7	22.1
LnGrp LOS	E	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h	488			345			632			705		
Approach Delay, s/veh	33.4			30.5			28.3			29.8		
Approach LOS	C			C			C			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.3	27.9	13.5	21.8	17.6	25.6	8.8	26.5				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	29.0	39.0	19.0	44.0	29.0	39.0	19.0	44.0				
Max Q Clear Time (g_c+I1), s	9.1	9.2	7.7	11.6	11.1	12.5	4.1	7.2				
Green Ext Time (p_c), s	0.4	7.4	0.2	4.2	0.5	7.1	0.1	4.3				
Intersection Summary												
HCM 2010 Ctrl Delay	30.3											
HCM 2010 LOS	C											

HCM Signalized Intersection Capacity Analysis 10: Ft Weaver Rd & Geiger Rd/Iroquois Rd

10/15/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	198	206	153	10	182	122	135	817	10	341	1493	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	4.0	6.0
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	0.88	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3349	1583	1770	1863	2787	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3349	1583	1770	1863	2787	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	215	224	166	11	198	133	147	888	11	371	1623	225
RTOR Reduction (vph)	0	0	63	0	0	111	0	0	5	0	0	65
Lane Group Flow (vph)	142	297	103	11	198	22	147	888	6	371	1623	160
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases			3			4			2			6
Actuated Green, G (s)	30.8	30.8	30.8	30.7	30.7	30.7	15.6	122.9	122.9	30.6	137.9	137.9
Effective Green, g (s)	32.8	32.8	32.8	32.7	32.7	32.7	17.6	125.9	123.9	32.6	140.9	138.9
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.14	0.14	0.07	0.52	0.52	0.14	0.59	0.58
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	220	457	216	241	253	379	251	2667	817	466	2985	916
v/s Ratio Prot	0.09	c0.09		0.01	c0.11		0.04	0.17		c0.11	c0.32	
v/s Ratio Perm			0.07			0.01			0.00			0.10
v/c Ratio	0.65	0.65	0.48	0.05	0.78	0.06	0.59	0.33	0.01	0.80	0.54	0.17
Uniform Delay, d1	98.1	98.2	95.7	90.1	100.2	90.2	107.7	32.9	28.2	100.5	30.1	23.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	0.95	1.35
Incremental Delay, d2	8.6	4.3	3.4	0.2	16.6	0.1	3.5	0.3	0.0	9.0	0.7	0.4
Delay (s)	106.7	102.5	99.1	90.3	116.8	90.4	111.1	33.2	28.2	119.0	29.3	32.3
Level of Service	F	F	F	F	F	F	F	C	C	F	C	C
Approach Delay (s)		102.5			105.7			44.1			44.6	
Approach LOS		F			F			D			D	
Intersection Summary												
HCM 2000 Control Delay			57.8				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			240.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			66.0%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis 11: Ft Weaver Rd & Renton Rd























10/15/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	355	36	97	34	28	22	115	1410	54	68	2628	298
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		6.0	4.0	6.0	5.0	6.0	4.0	5.0	7.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.91		1.00	1.00	1.00	1.00	0.83	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1681	1700	1434		1813	1583	1770	5085	1311	1770	5085	1536
Flt Permitted	0.95	0.96	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1681	1700	1434		1813	1583	1770	5085	1311	1770	5085	1536
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	386	39	105	37	30	24	125	1533	59	74	2857	324
RTOR Reduction (vph)	0	0	84	0	0	22	0	0	22	0	0	136
Lane Group Flow (vph)	212	213	21	0	67	2	125	1533	37	74	2857	188
Confl. Peds. (#/hr)			43						31			2
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3			2			6
Actuated Green, G (s)	38.3	38.3	38.3		14.2	14.2	24.2	148.4	148.4	15.1	139.3	139.3
Effective Green, g (s)	38.3	38.3	38.3		14.2	16.2	24.2	150.4	149.4	17.1	141.3	139.3
Actuated g/C Ratio	0.16	0.16	0.16		0.06	0.07	0.10	0.63	0.62	0.07	0.59	0.58
Clearance Time (s)	5.0	5.0	5.0		6.0	6.0	6.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	4.0	4.0	4.0		3.0	3.0	5.0	6.0	6.0	3.0	6.0	6.0
Lane Grp Cap (vph)	268	271	228		107	106	178	3186	816	126	2993	891
v/s Ratio Prot	c0.13	0.13			c0.04		c0.07	0.30		0.04	c0.56	
v/s Ratio Perm			0.01			0.00			0.03			0.12
v/c Ratio	0.79	0.79	0.09		0.63	0.02	0.70	0.48	0.05	0.59	0.95	0.21
Uniform Delay, d1	97.0	96.9	86.0		110.3	104.5	104.4	23.9	17.6	108.0	46.3	24.1
Progression Factor	1.00	1.00	1.00		1.00	1.00	0.90	1.19	2.27	0.97	0.99	1.41
Incremental Delay, d2	15.4	14.7	0.2		10.9	0.1	6.0	0.2	0.0	6.8	8.8	0.5
Delay (s)	112.4	111.6	86.3		121.2	104.5	100.3	28.7	40.0	111.9	54.6	34.6
Level of Service	F	F	F		F	F	F	C	D	F	D	C
Approach Delay (s)		106.9			116.8			34.3			53.9	
Approach LOS		F			F			C			D	
Intersection Summary												
HCM 2000 Control Delay			53.9		HCM 2000 Level of Service					D		
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			240.0		Sum of lost time (s)					22.0		
Intersection Capacity Utilization			98.1%		ICU Level of Service					F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 2010 Signalized Intersection Summary























1: Kapolei Pkwy & Kualakai Pkwy

11/17/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	625	515	5	120	705	475	5	85	15	395	120	430
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		1.00	1.00		1.00	1.00		1.00	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	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	679	560	5	130	766	516	5	92	3	429	130	278
Adj No. of Lanes	2	3	0	2	3	2	1	2	0	2	2	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	809	2293	20	215	1365	1174	9	317	10	526	844	1316
Arrive On Green	0.24	0.44	0.44	0.06	0.27	0.27	0.01	0.09	0.09	0.15	0.24	0.24
Sat Flow, veh/h	3442	5198	46	3442	5085	2787	1774	3499	114	3442	3539	2773
Grp Volume(v), veh/h	679	365	200	130	766	516	5	46	49	429	130	278
Grp Sat Flow(s),veh/h/ln	1721	1695	1855	1721	1695	1393	1774	1770	1843	1721	1770	1386
Q Serve(g_s), s	17.8	6.4	6.4	3.5	12.3	12.5	0.3	2.3	2.3	11.4	2.8	5.6
Cycle Q Clear(g_c), s	17.8	6.4	6.4	3.5	12.3	12.5	0.3	2.3	2.3	11.4	2.8	5.6
Prop In Lane	1.00		0.03	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	809	1495	818	215	1365	1174	9	160	167	526	844	1316
V/C Ratio(X)	0.84	0.24	0.24	0.61	0.56	0.44	0.54	0.29	0.29	0.82	0.15	0.21
Avail Cap(c_a), veh/h	1378	1495	818	1378	2037	1542	224	709	738	798	1791	2058
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.6	16.6	16.6	43.3	29.9	19.5	47.1	40.3	40.3	38.9	28.6	14.6
Incr Delay (d2), s/veh	2.4	0.1	0.2	2.7	0.4	0.3	41.4	1.0	1.0	4.0	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	8.8	3.0	3.3	1.7	5.8	4.8	0.2	1.2	1.2	5.7	1.4	2.1
LnGrp Delay(d),s/veh	37.0	16.7	16.8	46.1	30.3	19.8	88.5	41.3	41.2	42.8	28.7	14.7
LnGrp LOS	D	B	B	D	C	B	F	D	D	D	C	B
Approach Vol, veh/h	1244			1412			100			837		
Approach Delay, s/veh	27.8			27.9			43.6			31.3		
Approach LOS	C			C			D			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.5	14.6	11.9	47.8	6.5	28.6	28.3	31.5				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	22.0	38.0	38.0	38.0	12.0	48.0	38.0	38.0				
Max Q Clear Time (g_c+I1), s	13.4	4.3	5.5	8.4	2.3	7.6	19.8	14.5				
Green Ext Time (p_c), s	1.1	2.6	0.4	14.3	0.0	2.7	2.5	11.0				
Intersection Summary												
HCM 2010 Ctrl Delay				29.1								
HCM 2010 LOS				C								
Notes												
User approved changes to right turn type.												

HCM 2010 Signalized Intersection Summary 2: Kapolei Pkwy & Renton Rd

11/17/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	30	70	20	300	135	370	50	980	400	280	530	45
Number	3	8	18	7	4	14	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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	33	76	13	326	147	93	54	1065	381	304	576	42
Adj No. of Lanes	1	1	0	1	1	1	1	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	345	482	82	418	578	492	70	1291	462	338	2421	175
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.04	0.35	0.35	0.19	0.50	0.50
Sat Flow, veh/h	1135	1551	265	1303	1863	1583	1774	3697	1323	1774	4841	350
Grp Volume(v), veh/h	33	0	89	326	147	93	54	977	469	304	402	216
Grp Sat Flow(s),veh/h/ln	1135	0	1816	1303	1863	1583	1774	1695	1629	1774	1695	1801
Q Serve(g_s), s	2.7	0.0	4.3	29.1	7.1	5.2	3.6	31.6	31.6	20.1	8.1	8.2
Cycle Q Clear(g_c), s	9.8	0.0	4.3	33.3	7.1	5.2	3.6	31.6	31.6	20.1	8.1	8.2
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.81	1.00		0.19
Lane Grp Cap(c), veh/h	345	0	564	418	578	492	70	1184	569	338	1695	901
V/C Ratio(X)	0.10	0.00	0.16	0.78	0.25	0.19	0.77	0.82	0.82	0.90	0.24	0.24
Avail Cap(c_a), veh/h	399	0	650	480	667	567	251	1242	597	517	1750	930
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(l)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.7	0.0	30.0	42.1	31.0	30.3	57.1	35.7	35.7	47.5	17.0	17.1
Incr Delay (d2), s/veh	0.1	0.0	0.1	7.1	0.2	0.2	16.1	4.5	8.9	13.2	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	0.9	0.0	2.2	11.2	3.7	2.3	2.1	15.5	15.6	11.1	3.8	4.1
LnGrp Delay(d),s/veh	34.8	0.0	30.1	49.2	31.2	30.5	73.2	40.2	44.6	60.7	17.1	17.2
LnGrp LOS	C		C	D	C	C	E	D	D	E	B	B
Approach Vol, veh/h	122			566			1500			922		
Approach Delay, s/veh	31.4			41.4			42.8			31.5		
Approach LOS	C			D			D			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	28.9	47.9		43.3	10.7	66.1		43.3				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	35.0	44.0		43.0	17.0	62.0		43.0				
Max Q Clear Time (g_c+1), s	22.1	33.6		35.3	5.6	10.2		11.8				
Green Ext Time (p_c), s	0.7	8.3		2.0	0.1	25.0		3.2				
Intersection Summary												
HCM 2010 Ctrl Delay	38.7											
HCM 2010 LOS	D											

Intersection						
Int Delay, s/veh	7.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	5	5	195	5	5	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	5	212	5	5	98
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	11	0	437	8
Stage 1	-	-	-	-	8	-
Stage 2	-	-	-	-	429	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1608	-	577	1074
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	657	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1608	-	501	1074
Mov Cap-2 Maneuver	-	-	-	-	501	-
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	570	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		7.4		9	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	1013	-	-	1608	-	
HCM Lane V/C Ratio	0.102	-	-	0.132	-	
HCM Control Delay (s)	9	-	-	7.6	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.3	-	-	0.5	-	

HCM 2010 TWSC
4: Phillipine Sea & Roosevelt Ave

10/14/2014

Intersection

Int Delay, s/veh 4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	70	295	0	0	655	20	0	0	0	15	0	180
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	76	321	0	0	712	22	0	0	0	16	0	196

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	734	0	0	321	0	0	1294	1207	321	1196	1196	723
Stage 1	-	-	-	-	-	-	473	473	-	723	723	-
Stage 2	-	-	-	-	-	-	821	734	-	473	473	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	871	-	-	1239	-	-	139	183	720	163	186	426
Stage 1	-	-	-	-	-	-	572	558	-	417	431	-
Stage 2	-	-	-	-	-	-	369	426	-	572	558	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	871	-	-	1239	-	-	69	164	720	150	166	426
Mov Cap-2 Maneuver	-	-	-	-	-	-	69	164	-	150	166	-
Stage 1	-	-	-	-	-	-	511	499	-	373	431	-
Stage 2	-	-	-	-	-	-	200	426	-	511	499	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	0	0	26.6
HCM LOS			A	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	871	-	-	1239	-	-	373
HCM Lane V/C Ratio	-	0.087	-	-	-	-	-	0.568
HCM Control Delay (s)	0	9.5	0	-	0	-	-	26.6
HCM Lane LOS	A	A	A	-	A	-	-	D
HCM 95th %tile Q(veh)	-	0.3	-	-	0	-	-	3.4

HCM 2010 TWSC
5: Essex Rd & Roosevelt Ave/Geiger Rd

10/14/2014

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	295	10	25	685	10	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	321	11	27	745	11	5
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	332	0	1125	326
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	799	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1227	-	227	715
Stage 1	-	-	-	-	731	-
Stage 2	-	-	-	-	443	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1227	-	222	715
Mov Cap-2 Maneuver	-	-	-	-	222	-
Stage 1	-	-	-	-	731	-
Stage 2	-	-	-	-	433	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.3		18.2	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	288	-	-	1227	-	
HCM Lane V/C Ratio	0.057	-	-	0.022	-	
HCM Control Delay (s)	18.2	-	-	8	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-	

HCM 2010 TWSC

6: Geiger Rd & Ewa Refuse Convenience Center

10/14/2014

Intersection

Int Delay, s/veh 0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	300	0	0	725	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	326	0	0	788	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	788	0	0	326	0	0	1114	1114	326	1114	1114	788
Stage 1	-	-	-	-	-	-	326	326	-	788	788	-
Stage 2	-	-	-	-	-	-	788	788	-	326	326	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	831	-	-	1234	-	-	185	208	715	185	208	391
Stage 1	-	-	-	-	-	-	687	648	-	384	402	-
Stage 2	-	-	-	-	-	-	384	402	-	687	648	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	831	-	-	1234	-	-	185	208	715	185	208	391
Mov Cap-2 Maneuver	-	-	-	-	-	-	185	208	-	185	208	-
Stage 1	-	-	-	-	-	-	687	648	-	384	402	-
Stage 2	-	-	-	-	-	-	384	402	-	687	648	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	0	0
HCM LOS	A	A	A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	831	-	-	1234	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-

Intersection							
Int Delay, s/veh	0.4						
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Vol, veh/h	0	295	710	5	10	10	
Conflicting Peds, #/hr	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Stop	Stop	
RT Channelized	-	None	-	None	-	None	
Storage Length	-	-	-	-	0	-	
Veh in Median Storage, #	-	0	0	-	0	-	
Grade, %	-	0	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	
Mvmt Flow	0	321	772	5	11	11	
Major/Minor	Major1		Major2		Minor2		
Conflicting Flow All	777	0	-	0	1095	774	
Stage 1	-	-	-	-	774	-	
Stage 2	-	-	-	-	321	-	
Critical Hdwy	4.12	-	-	-	6.42	6.22	
Critical Hdwy Stg 1	-	-	-	-	5.42	-	
Critical Hdwy Stg 2	-	-	-	-	5.42	-	
Follow-up Hdwy	2.218	-	-	-	3.518	3.318	
Pot Cap-1 Maneuver	839	-	-	-	236	398	
Stage 1	-	-	-	-	455	-	
Stage 2	-	-	-	-	735	-	
Platoon blocked, %	-	-	-	-	-	-	
Mov Cap-1 Maneuver	839	-	-	-	236	398	
Mov Cap-2 Maneuver	-	-	-	-	236	-	
Stage 1	-	-	-	-	455	-	
Stage 2	-	-	-	-	735	-	
Approach	EB		WB		SB		
HCM Control Delay, s	0		0		18.1		
HCM LOS					C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	839	-	-	-	296		
HCM Lane V/C Ratio	-	-	-	-	0.073		
HCM Control Delay (s)	0	-	-	-	18.1		
HCM Lane LOS	A	-	-	-	C		
HCM 95th %tile Q(veh)	0	-	-	-	0.2		

HCM 2010 TWSC
8: Geiger Rd & Honouliuli Drwy 2

10/14/2014

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	290	0	0	705	15	0	0	0	5	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	315	0	0	766	16	0	0	0	5	0	11
























Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	783	0	0	315	0	0	1106	1109	315	1100	1100	774
Stage 1	-	-	-	-	-	-	326	326	-	774	774	-
Stage 2	-	-	-	-	-	-	780	783	-	326	326	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	835	-	-	1245	-	-	188	210	725	190	212	398
Stage 1	-	-	-	-	-	-	687	648	-	391	408	-
Stage 2	-	-	-	-	-	-	388	404	-	687	648	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	835	-	-	1245	-	-	182	209	725	189	211	398
Mov Cap-2 Maneuver	-	-	-	-	-	-	182	209	-	189	211	-
Stage 1	-	-	-	-	-	-	682	643	-	388	408	-
Stage 2	-	-	-	-	-	-	377	404	-	682	643	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	0	18.1
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	835	-	-	1245	-	-	291
HCM Lane V/C Ratio	-	0.007	-	-	-	-	-	0.056
HCM Control Delay (s)	0	9.3	0	-	0	-	-	18.1
HCM Lane LOS	A	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.2

HCM 2010 Signalized Intersection Summary 9: Kapolei Pkwy & Geiger Rd

10/27/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	125	185	95	285	235	390	1015	180	160	720	50
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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	11	136	17	103	310	42	424	1103	109	174	783	12
Adj No. of Lanes	1	2	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	18	434	53	128	370	314	458	1682	752	203	1175	525
Arrive On Green	0.01	0.14	0.14	0.07	0.20	0.20	0.26	0.48	0.48	0.11	0.33	0.33
Sat Flow, veh/h	1774	3173	391	1774	1863	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	11	75	78	103	310	42	424	1103	109	174	783	12
Grp Sat Flow(s),veh/h/ln	1774	1770	1794	1774	1863	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.7	4.6	4.7	6.8	19.1	2.6	27.8	28.3	4.6	11.5	22.6	0.6
Cycle Q Clear(g_c), s	0.7	4.6	4.7	6.8	19.1	2.6	27.8	28.3	4.6	11.5	22.6	0.6
Prop In Lane	1.00		0.22	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	18	242	245	128	370	314	458	1682	752	203	1175	525
V/C Ratio(X)	0.61	0.31	0.32	0.80	0.84	0.13	0.93	0.66	0.14	0.86	0.67	0.02
Avail Cap(c_a), veh/h	193	549	557	193	578	491	580	1960	877	298	1395	624
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.8	46.4	46.4	54.5	45.9	39.3	43.1	23.8	17.6	51.8	34.2	26.8
Incr Delay (d2), s/veh	28.3	0.7	0.7	13.4	6.3	0.2	18.4	0.6	0.1	14.8	0.9	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.3	2.4	3.8	10.5	1.2	15.9	13.9	2.0	6.4	11.2	0.3
LnGrp Delay(d),s/veh	87.1	47.1	47.2	67.9	52.3	39.5	61.5	24.5	17.7	66.6	35.1	26.8
LnGrp LOS	F	D	D	E	D	D	E	C	B	E	D	C
Approach Vol, veh/h	164		455				1636		969			
Approach Delay, s/veh	49.8		54.6				33.6		40.7			
Approach LOS	D		D				C		D			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.7	62.6	14.6	22.3	36.8	45.6	7.2	29.7				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	20.0	66.0	13.0	37.0	39.0	47.0	13.0	37.0				
Max Q Clear Time (g_c+I1), s	13.5	30.3	8.8	6.7	29.8	24.6	2.7	21.1				
Green Ext Time (p_c), s	0.2	20.0	0.1	3.1	1.0	14.9	0.0	2.6				
Intersection Summary												
HCM 2010 Ctrl Delay			39.5									
HCM 2010 LOS			D									