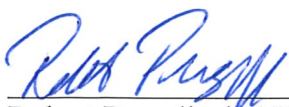


**TRAFFIC IMPACT STUDY
FOR
CHART HOUSE HOTEL
850 BAYWAY BLVD.
CLEARWATER, FLORIDA**

PREPARED FOR:
DECADE PROPERTIES, INC.

PREPARED BY:
GULFCOAST CONSULTING, INC.
SEPTEMBER 2018
PROJECT # 18-041



Robert Pergolizzi, AICP / PTP
AICP #9023 / PTP #133

I. INTRODUCTION

The applicant is proposing to redevelop their property on Clearwater Beach into a 60 room hotel. This hotel redevelopment will be constructed on property that is currently occupied by the Chart House hotel at 850 Bayway Boulevard. This new hotel will be located along the north side of Bayway Boulevard east of Gulf Boulevard and the Clearwater Pass Bridge. (See Figure 1) The development of the property is the subject of a Comprehensive Infill Redevelopment in the Tourist “T” zoning district. This application requires an assessment of the traffic impacts of development.

II. EXISTING TRAFFIC CONDITIONS

The site has frontage on Bayway Boulevard east of the intersection of Bayway Boulevard/Gulf Boulevard on south Clearwater Beach. Bayway Boulevard is a two-lane local roadway. Gulf Boulevard (Clearwater Pass Bridge) is a two-lane collector roadway running along the Gulf beaches. The segment of S. Gulfview Boulevard between Hamden Drive and the Clearwater Pass bridge is three lanes with a small portion being 4-lanes between Hamden Drive and Bayway Boulevard. To establish existing conditions, traffic counts were conducted on September 11, 2018 during the weekday PM peak period (4-6 PM) at the following intersections.

Gulf Blvd. / S. Gulfview Blvd.

Bayway Blvd. / Gulf Blvd.

S. Gulfview Blvd./ Bayway Blvd

All traffic counts were converted to annual average equivalents using FDOT seasonal adjustment factors. Existing traffic volumes are shown in Figure 2. Existing intersections were analyzed using the HCS7 software. The count data, HCS7 printouts are included in Appendix A.

At the intersection of Gulf Boulevard / S Gulfview Boulevard Clearwater Pass Bridge, the intersection is All-Way-Stop-Controlled (AWSC), with the eastbound right turns on a non-stop-controlled ramp to the bridge. The primary movements are eastbound-to-southbound and northbound-to-westbound. The HCS7 analysis shows the intersection operates at LOS B with delay of 10.1 seconds per vehicle.

At the Bayway Boulevard/ Gulf Blvd intersection all movements operate at LOS A with minimal delay.

At the S. Gulfview Boulevard / Bayway Boulevard intersection (3-way) the eastbound left turns operate at LOS A with average delay of 8.3 seconds and the southbound approach (Bayway) operates at LOS B with average delay of 12.4 seconds.



PROJECT LOCATION – CHART HOUSE HOTEL

PROJECT NO:
18-041



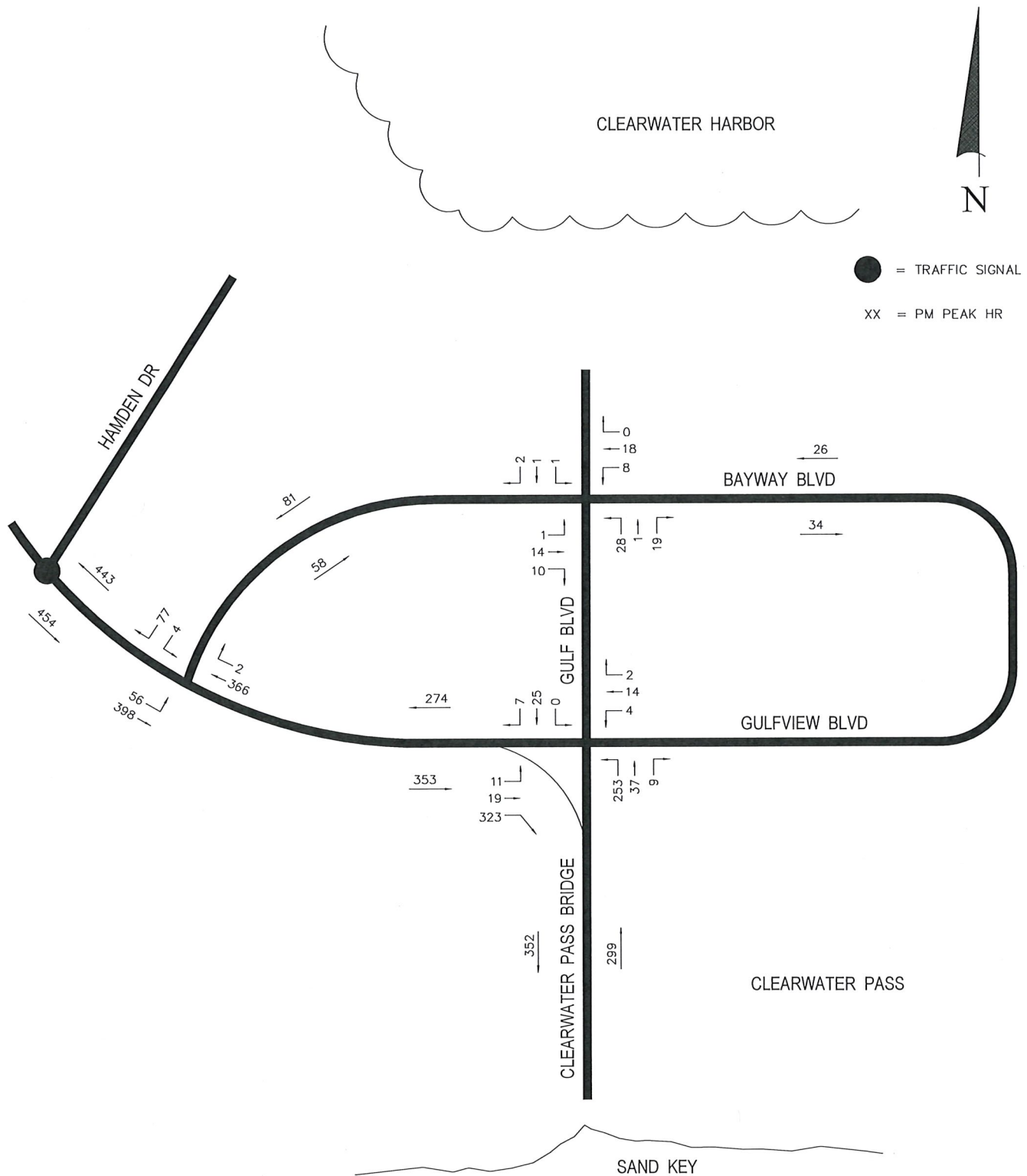
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Land Development Consulting

DATE:
9/2018

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GJS

FIGURE:

1



EXISTING PM PEAK HOUR/PEAK SEASON TRAFFIC (2018)

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 Land Development Consulting
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 Clearwater, Florida 33760
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www.gulfcoastconsultinginc.com

DATE:

09/2018

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FIGURE:

2

South Gulfview Boulevard functions as collector roadway and according to FDOT 2012 QLOS Handbook capacity tables has a LOS D capacity of 1,390 vehicles per hour on the three lane segment. The segment of S. Gulfview Boulevard between Hamden Drive and Bayway Boulevard has a LOS D capacity of 2,190 vehicles per hour on this 4-lane portion. The Clearwater Pass Bridge is two lanes with a LOS D capacity of 1,330 vehicles per hour. Bayway Boulevard is a local roadway with an estimated LOS D capacity of 930 vehicles per hour. The existing PM peak hour LOS for areas roadway segments is shown below:

EXISTING ROADWAY CONDITIONS (2018)

Roadway Segment	Lanes	PM Peak Volume	LOS D Capacity	LOS
S. Gulfview (E. of Bayway)	3-lanes	627	1390	C
S. Gulfview (Bywy-Hmdn)	4-lanes	897	2190	C
Clearwater Pass Bridge	2LU	651	1330	C
Bayway Blvd. (E. of Gulf Blvd)	2LU	60	930	C
Bayway Blvd (W. of Gulf Blvd.)	2LU	139	930	C

Presently all roadway segments operate at LOS C which indicates acceptable levels of service and traffic operations.

III. FUTURE TRAFFIC CONDITIONS

Existing traffic was adjusted by a 2% annual growth rate to the expected build-out year of 2019 to account for background traffic from other nearby redevelopment projects. In addition, traffic from the #345 Coronado Drive hotel was added. Background traffic volumes are shown in Figure 3.

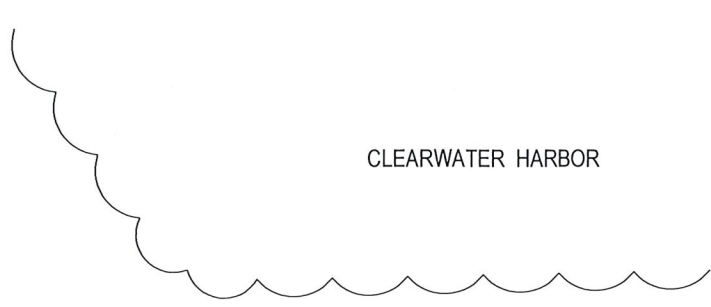
The site will be developed as a 60 room hotel and will not have any on-site restaurants or amenities. Using Institute of Transportation Engineers (ITE) Trip Generation, 10th Edition rates, the amount of new trips was calculated and estimates are shown below:

TRIP GENERATION ESTIMATES

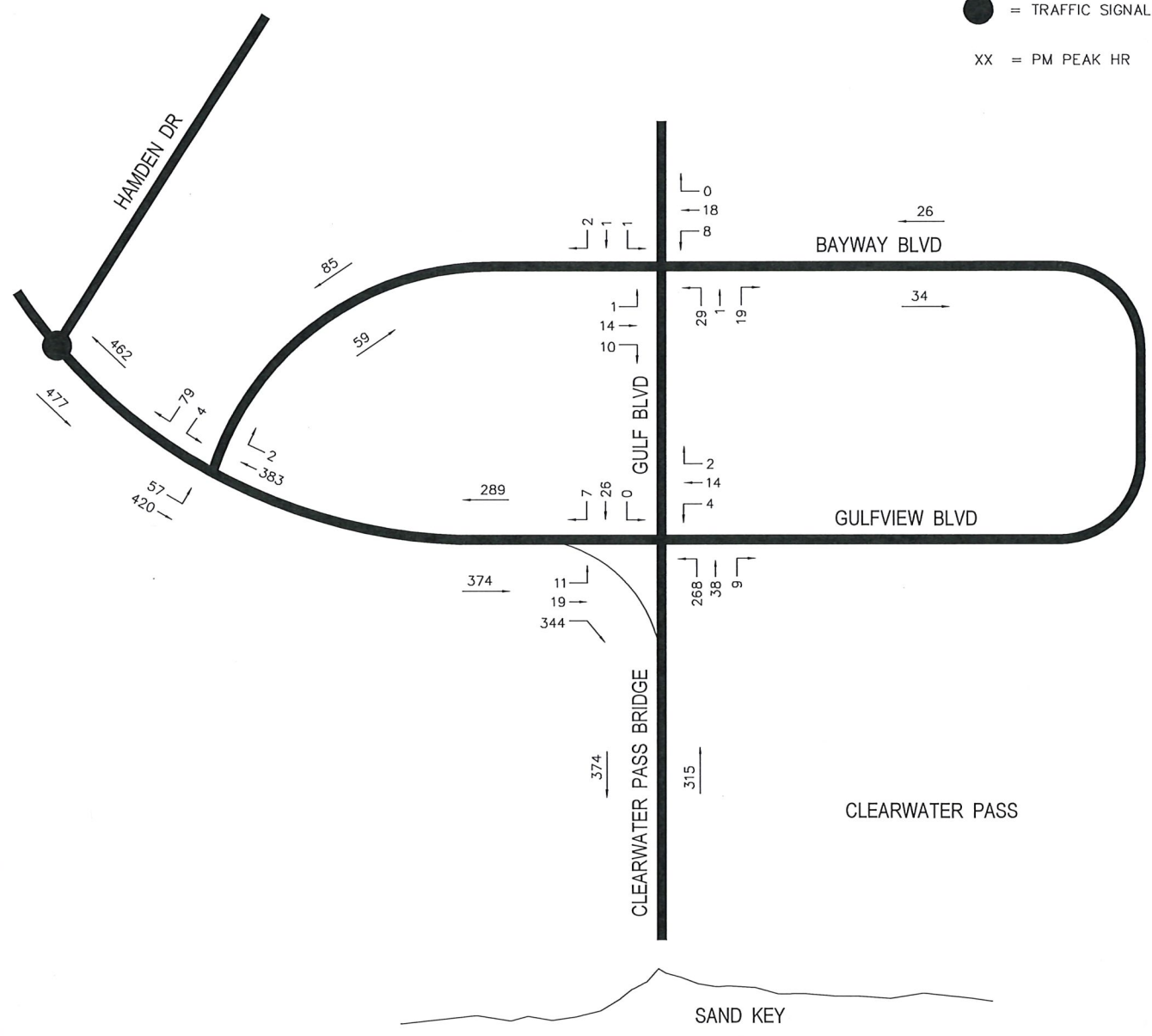
Land Use	Amount	Daily Trips	PM Peak Trip
Hotel	60 Rooms	502	36 (18/18)

The hotel will generate 502 daily trips and have 36 PM peak hour trips. The vehicular access will be taken from Bayway Boulevard via two separate driveways. The expected distribution is shown in Figure 4 and is as follows:

- 40% to / from the west (14 PM peak hour trips)
- 60% to / from the south from Sand Key (22 PM peak hour trips)



● = TRAFFIC SIGNAL
XX = PM PEAK HR



BACKGROUND PM PEAK HOUR/PEAK SEASON TRAFFIC (2019)

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FIGURE:

3

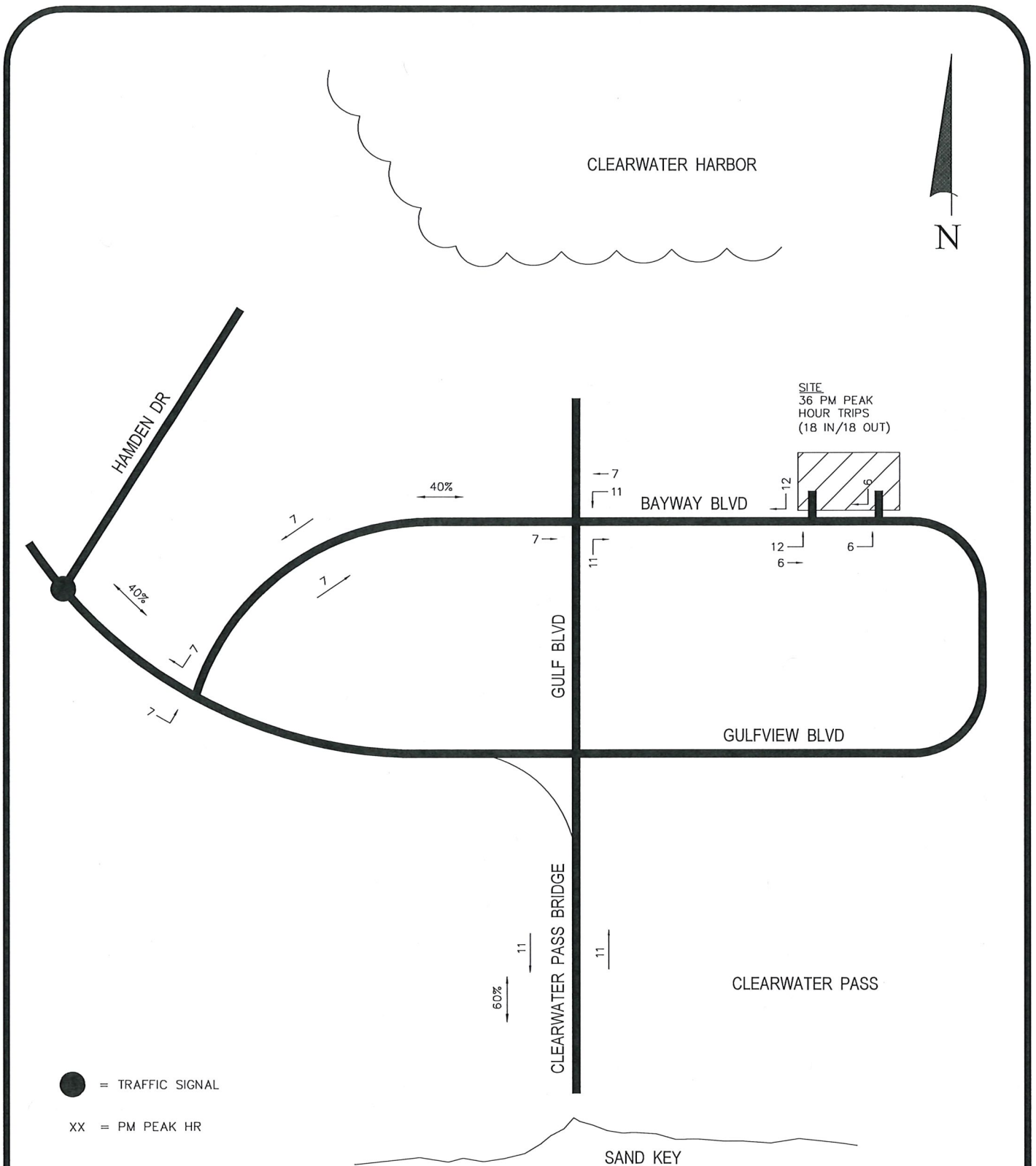


CHART HOUSE HOTEL PROJECT TRAFFIC DISTRIBUTION

PROJECT NO:
18-041



Gulf Coast Consulting, Inc.
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FIGURE:

4

The projects impacts to the surrounding roadway system are shown below:

PROJECT IMPACT CALCULATIONS

Road Segment	Lanes	Project Trips	Capacity	Project Percent
S. Gulfview (E. of Bayway)	3-lanes	0	1390	0.00%
S. Gulfview (Bywy-Hmdn)	4-lanes	14	2190	0.64%
Clearwater Pass Bridge	2LU	22	1330	1.65%
Bayway Blvd. (E. of Gulf Blvd)	2LU	36	930	3.87%
Bayway Blvd (W. of Gulf Blvd.)	2LU	14	930	1.51%

Project traffic impacts will be primarily to Bayway Boulevard, the Clearwater Pass Bridge (Gulf Blvd.) and South Gulfview Boulevard. Project traffic was added to accumulated background traffic for a build-out of 2019. All intersections, roadway segments and project driveways were analyzed for future conditions. Future traffic volumes are shown in Figure 5, and the HCS7 printouts are included in Appendix B.

At the intersection of Gulf Boulevard / S Gulfview Boulevard Clearwater Pass Bridge, the HCS7 analysis shows the intersection would continue to operate at LOS B with delay of 10.3 seconds per vehicle.

At the Bayway Boulevard/ Gulf Blvd intersection all movements would continue to operate at LOS A with minimal delay.

At the S. Gulfview Boulevard / Bayway Boulevard intersection (3-way) the eastbound left turns would operate at LOS A with average delay of 8.4 seconds and the southbound approach (Bayway) would operate at LOS B with average delay of 12.8 seconds.

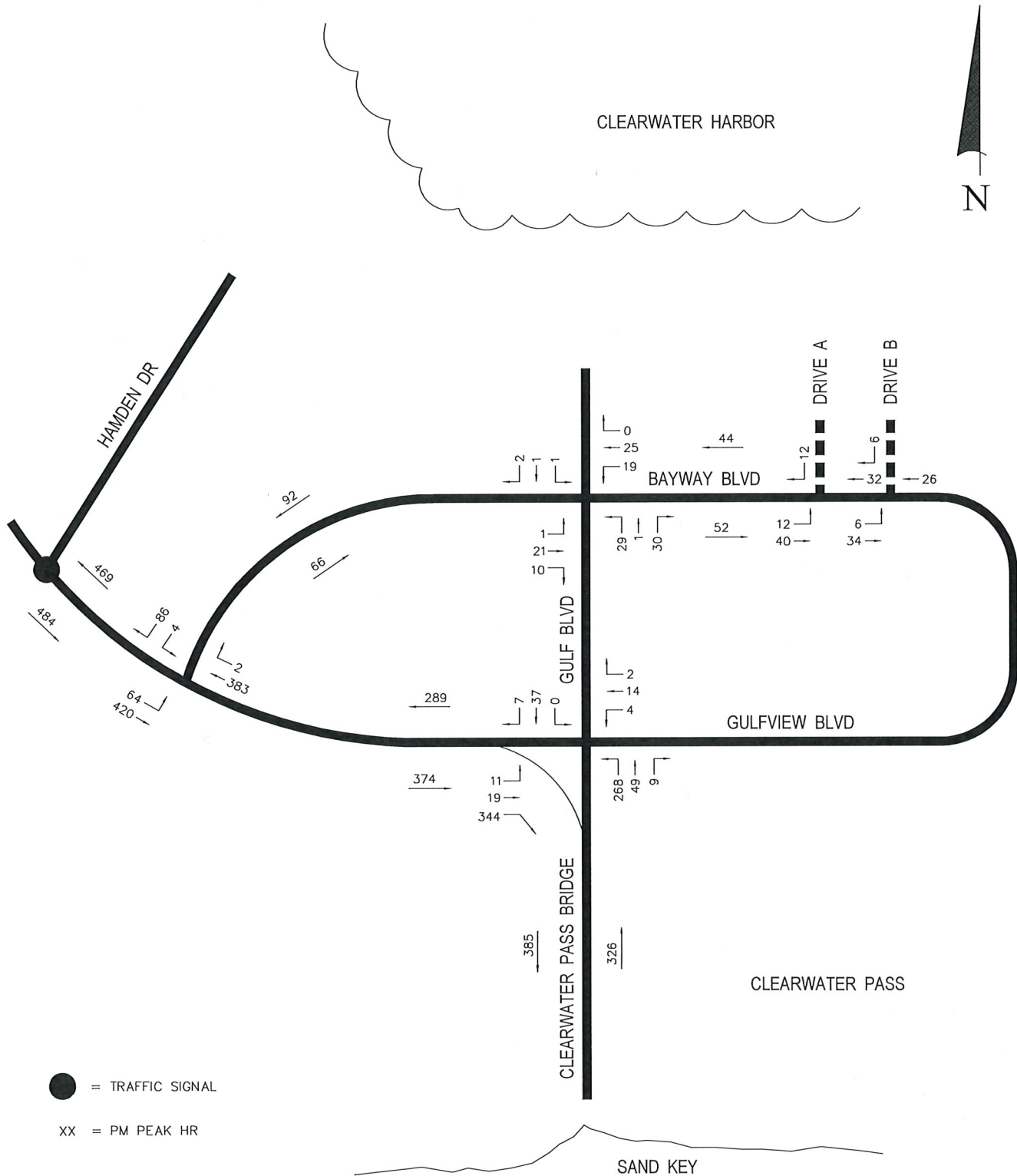
At the Bayway Boulevard/Drive A and Bayway Blvd. / Drive B intersection all movements would operate at LOS A with minimal delay.

Expected roadway conditions with the project in impacts are shown below:

FUTURE ROADWAY CONDITIONS WITH PROJECT (2019)

Roadway Segment	Lanes	PM Peak Volume	LOS D Capacity	LOS
S. Gulfview (E. of Bayway)	3-lanes	663	1390	C
S. Gulfview (Bywy-Hmdn)	4-lanes	953	2190	C
Clearwater Pass Bridge	2LU	711	1330	D
Bayway Blvd. (E. of Gulf Blvd)	2LU	96	930	C
Bayway Blvd (W. of Gulf Blvd.)	2LU	158	930	C

All roadway segments would continue to operate at LOS D or better.



● = TRAFFIC SIGNAL
XX = PM PEAK HR

FUTURE PM PEAK HOUR/PEAK SEASON TRAFFIC (2019)

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DATE:
09/2018
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FIGURE:
5

IV. CONCLUSION

This analysis was conducted to evaluate the project traffic impacts on south Clearwater beach near the Clearwater Pass Bridge to Sand Key. The proposed hotel would generate 502 daily trips of which 36 would occur during the PM peak hour. This analysis demonstrates traffic operations at nearby intersections and on adjacent roadways would continue at acceptable levels of service with or without the project impacts.

APPENDIX A

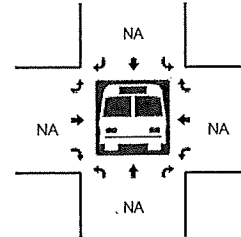
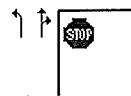
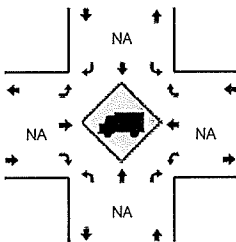
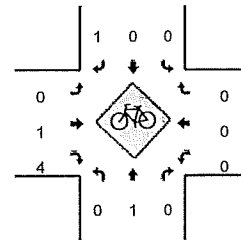
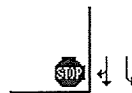
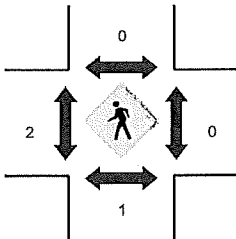
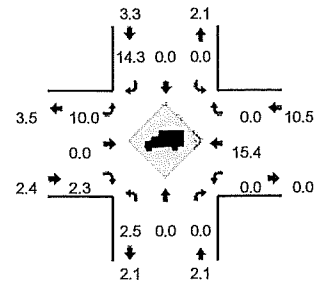
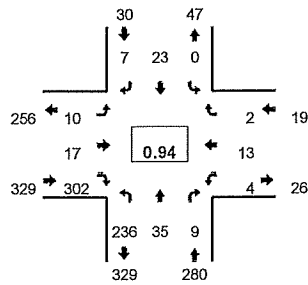
2016 Peak Season Factor Category Report - Report Type: ALL
Category: 1500 PINELLAS COUNTYWIDE

Week	Dates	SF	MOCF: 0.94
			PSCF
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2	01/03/2016 - 01/09/2016	1.04	1.11
3	01/10/2016 - 01/16/2016	1.03	1.10
4	01/17/2016 - 01/23/2016	1.01	1.07
5	01/24/2016 - 01/30/2016	1.00	1.06
6	01/31/2016 - 02/06/2016	0.98	1.04
* 7	02/07/2016 - 02/13/2016	0.96	1.02
* 8	02/14/2016 - 02/20/2016	0.95	1.01
* 9	02/21/2016 - 02/27/2016	0.94	1.00
*10	02/28/2016 - 03/05/2016	0.93	0.99
*11	03/06/2016 - 03/12/2016	0.92	0.98
*12	03/13/2016 - 03/19/2016	0.91	0.97
*13	03/20/2016 - 03/26/2016	0.92	0.98
*14	03/27/2016 - 04/02/2016	0.93	0.99
*15	04/03/2016 - 04/09/2016	0.93	0.99
*16	04/10/2016 - 04/16/2016	0.94	1.00
*17	04/17/2016 - 04/23/2016	0.95	1.01
*18	04/24/2016 - 04/30/2016	0.96	1.02
*19	05/01/2016 - 05/07/2016	0.96	1.02
20	05/08/2016 - 05/14/2016	0.97	1.03
21	05/15/2016 - 05/21/2016	0.98	1.04
22	05/22/2016 - 05/28/2016	0.98	1.04
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27	06/26/2016 - 07/02/2016	1.01	1.07
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31	07/24/2016 - 07/30/2016	1.03	1.10
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34	08/14/2016 - 08/20/2016	1.05	1.12
35	08/21/2016 - 08/27/2016	1.06	1.13
36	08/28/2016 - 09/03/2016	1.06	1.13
37	09/04/2016 - 09/10/2016	1.07	1.14
38	09/11/2016 - 09/17/2016	1.07	1.14
39	09/18/2016 - 09/24/2016	1.06	1.13
40	09/25/2016 - 10/01/2016	1.05	1.12
41	10/02/2016 - 10/08/2016	1.04	1.11
42	10/09/2016 - 10/15/2016	1.03	1.10
43	10/16/2016 - 10/22/2016	1.03	1.10
44	10/23/2016 - 10/29/2016	1.04	1.11
45	10/30/2016 - 11/05/2016	1.04	1.11
46	11/06/2016 - 11/12/2016	1.04	1.11
47	11/13/2016 - 11/19/2016	1.04	1.11
48	11/20/2016 - 11/26/2016	1.05	1.12
49	11/27/2016 - 12/03/2016	1.05	1.12
50	12/04/2016 - 12/10/2016	1.05	1.12
51	12/11/2016 - 12/17/2016	1.05	1.12
52	12/18/2016 - 12/24/2016	1.04	1.11
53	12/25/2016 - 12/31/2016	1.03	1.10

* Peak Season

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

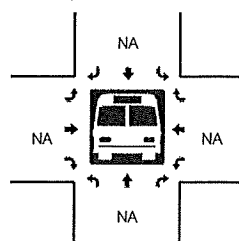
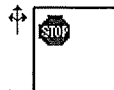
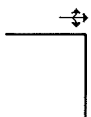
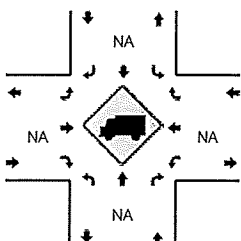
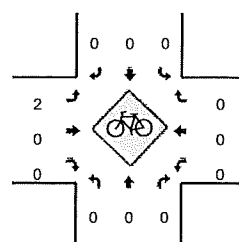
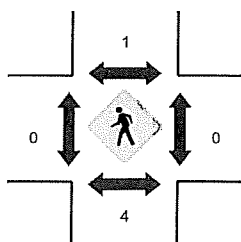
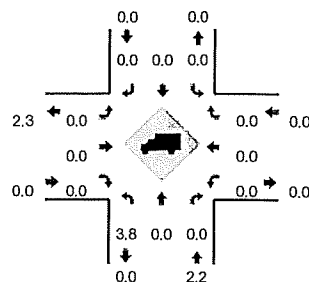
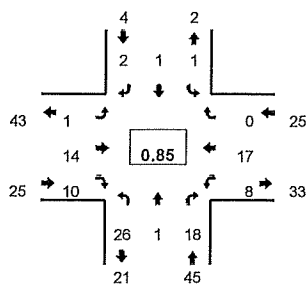
LOCATION: Gulf Blvd -- S Gulfview Blvd
CITY/STATE: Clearwater, FLQC JOB #: 14786001
DATE: Tue, Sep 11 2018Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

15-Min Count Period	Gulf Blvd (Northbound)				Gulf Blvd (Southbound)				S Gulfview Blvd (Eastbound)				S Gulfview Blvd (Westbound)				Total	Hourly Totals
Beginning At	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	89	7	1	0	0	6	1	0	1	3	71	0	2	1	0	0	182	
4:15 PM	76	5	0	0	0	6	1	0	1	0	54	0	5	3	0	0	151	
4:30 PM	53	7	3	0	0	6	1	0	2	6	80	0	2	3	0	0	163	
4:45 PM	61	7	1	0	0	4	1	0	1	4	67	0	0	5	0	0	151	647
5:00 PM	63	15	1	0	0	9	4	0	3	4	72	0	1	3	0	0	175	640
5:15 PM	59	6	4	0	0	4	1	0	4	3	83	0	1	2	2	0	169	658
5:30 PM	66	12	1	0	0	3	0	0	3	4	63	0	1	2	0	0	155	650
5:45 PM	61	8	0	0	0	5	0	0	0	2	61	0	0	3	1	0	141	640
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Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	252	60	4	0	0	36	16	0	12	16	288	0	4	12	0	0	700	
Heavy Trucks	8	0	0	0	0	0	4	0	4	0	8	0	0	0	0	0	24	
Pedestrians		4				0				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	1		0	0	0		1	
Railroad																		
Stopped Buses																		

Comments:

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

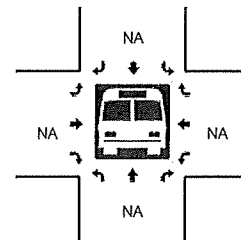
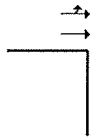
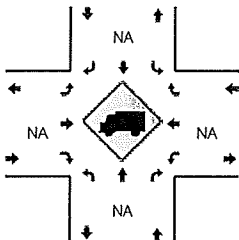
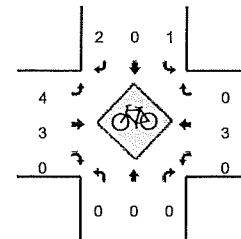
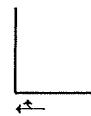
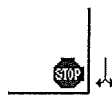
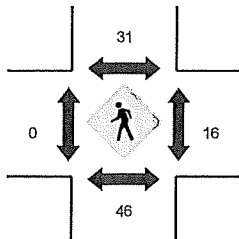
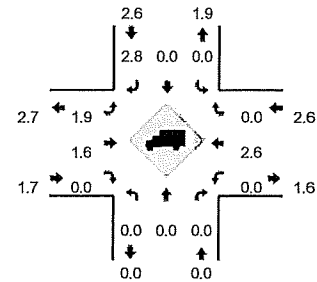
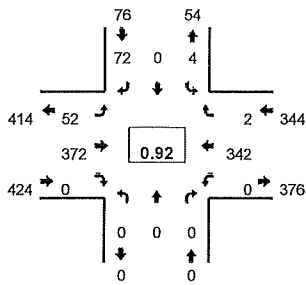
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CITY/STATE: Clearwater, FLQC JOB #: 14786002
DATE: Tue, Sep 11 2018Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

15-Min Count Period	Gulf Blvd (Northbound)				Gulf Blvd (Southbound)				Bayway Blvd (Eastbound)				Bayway Blvd (Westbound)				Total	Hourly Totals
Beginning At	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	6	1	1	0	0	0	0	0	0	3	4	0	1	4	0	0	20	
4:15 PM	3	0	2	0	0	0	0	0	0	10	2	0	2	1	0	0	20	
4:30 PM	4	0	2	0	0	0	0	0	0	3	4	0	4	4	0	0	21	
4:45 PM	3	0	3	0	0	0	0	0	0	5	3	0	1	8	0	0	23	84
5:00 PM	10	1	5	1	1	1	1	0	1	2	3	0	3	0	0	0	29	93
5:15 PM	6	0	4	1	0	0	0	0	0	3	3	0	3	5	0	0	25	98
5:30 PM	5	0	6	0	0	0	1	0	0	4	1	0	1	4	0	0	22	99
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Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	40	4	20	4	4	4	4	0	4	8	12	0	12	0	0	0	116	
Heavy Trucks	4	0	0		0	0	0		0	0	0		0	0	0		4	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

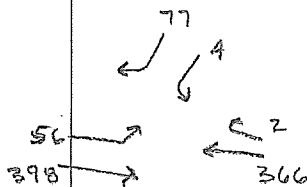
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

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CITY/STATE: Clearwater, FLQC JOB #: 14786003
DATE: Tue, Sep 11 2018Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:00 PM -- 4:15 PM

15-Min Count Period	Bayway Blvd (Northbound)				Bayway Blvd (Southbound)				S Gulfview Blvd (Eastbound)				S Gulfview Blvd (Westbound)				Total	Hourly Totals
Beginning At	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	16	0	9	99	0	0	0	103	2	0	229	
4:15 PM	0	0	0	0	3	0	17	0	13	78	0	0	0	96	0	0	207	
4:30 PM	0	0	0	0	1	0	18	0	15	103	0	0	0	65	0	0	202	
4:45 PM	0	0	0	0	0	0	21	0	15	92	0	0	0	78	0	0	206	844
5:00 PM	0	0	0	0	0	0	15	0	9	84	0	0	0	72	0	0	180	795
5:15 PM	0	0	0	0	2	0	13	0	8	82	0	0	0	72	0	0	177	765
5:30 PM	0	0	0	0	1	0	25	0	12	89	0	0	0	75	0	0	202	765
5:45 PM	0	0	0	0	4	0	14	0	11	78	0	1	0	72	0	0	180	739

SF = 1.07



Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	64	0	36	396	0	0	0	412	8	0	916
Heavy Trucks	0	0	0	0	0	0	0	0	0	8	0	0	0	12	0	0	20
Pedestrians	0	64	0	0	8	0	0	0	0	0	0	0	0	0	0	0	72
Bicycles	0	0	0	0	1	0	1	0	2	2	0	0	0	0	0	0	6
Railroad																	
Stopped Buses																	

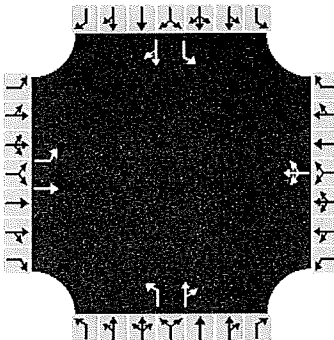
Comments:

HCS7 All-Way Stop Control Report

General Information

Analyst	RP	Intersection	GULF BLVD / S GULFVIEW
Agency/Co.	GCC	Jurisdiction	CLWTR
Date Performed	9/19/2018	East/West Street	S GULFVIEW BLVD
Analysis Year	2018	North/South Street	GULF BLVD / BRIDGE RAMP
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.94
Time Analyzed	PM PEAK		
Project Description	EXISTING CONDITIONS		

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	11	19		4	14	2	253	37	9	0	25	7
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	T		LTR			L	TR		L	TR	
Flow Rate, v (veh/h)	12	20		21			269	49		0	34	
Percent Heavy Vehicles	2	2		2			2	2		2	3	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20			3.20	3.20		3.20	3.20	
Initial Degree of Utilization, x	0.010	0.018		0.019			0.239	0.043		0.000	0.030	
Final Departure Headway, hd (s)	5.95	5.45		5.45			5.21	4.58		5.45	4.81	
Final Degree of Utilization, x	0.019	0.031		0.032			0.390	0.062		0.000	0.045	
Move-Up Time, m (s)	2.3	2.3		2.0			2.3	2.3		2.3	2.3	
Service Time, ts (s)	3.65	3.15		3.45			2.91	2.28		3.15	2.51	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	12	20		21			269	49		0	34	
Capacity	605	661		661			691	787		0	748	
95% Queue Length, Q ₉₅ (veh)	0.1	0.1		0.1			1.9	0.2		0.0	0.1	
Control Delay (s/veh)	8.8	8.3		8.6			11.2	7.6		8.1	7.7	
Level of Service, LOS	A	A		A			B	A			A	
Approach Delay (s/veh)	8.5			8.6			10.6			7.7		
Approach LOS	A			A			B			A		
Intersection Delay, s/veh LOS				10.1						B		

HCS7 Two-Way Stop-Control Report

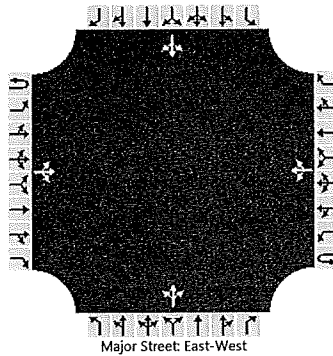
General Information

Analyst	RP
Agency/Co.	GCC
Date Performed	9/19/2018
Analysis Year	2018
Time Analyzed	PM PEAK
Intersection Orientation	East-West
Project Description	EXISTING CONDITIONS

Site Information

Intersection	BAYWAY BLVD / GULF BLVD
Jurisdiction	CLWTR
East/West Street	BAYWAY BLVD
North/South Street	GULF BLVD
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		1	14	10		8	18	0		28	1	19		1	1	2
Percent Heavy Vehicles (%)		0				0				2	2	2		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.12	6.52	6.22		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.52	4.02	3.32		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		1				9					56				5	
Capacity, c (veh/h)		1608				1598					966				947	
v/c Ratio		0.00				0.01					0.06				0.00	
95% Queue Length, Q ₉₅ (veh)		0.0				0.0					0.2				0.0	
Control Delay (s/veh)		7.2		0.0		7.3		0.0			9.0				8.8	
Level of Service (LOS)		A		A		A		A			A				A	
Approach Delay (s/veh)	0.3				2.3				9.0				8.8			
Approach LOS									A				A			

HCS7 Two-Way Stop-Control Report

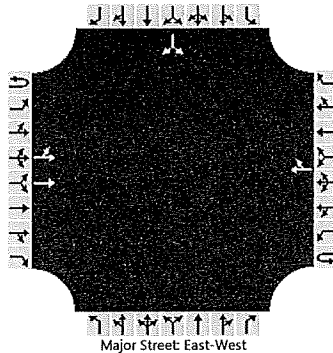
General Information

Analyst	RP
Agency/Co.	GCC
Date Performed	9/19/2018
Analysis Year	2018
Time Analyzed	PM PEAK
Intersection Orientation	East-West
Project Description	EXISTING CONDITIONS

Site Information

Intersection	S GULFVIEW / BAYWAY BLVD
Jurisdiction	CLWTR
East/West Street	S GULFVIEW BLVD
North/South Street	BAYWAY BLVD
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT	T					TR							LR	
Volume (veh/h)		56	398				366	2						4		77
Percent Heavy Vehicles (%)		2												3		3
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.5		6.9
Critical Headway (sec)		4.14												6.86		6.96
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		61													88	
Capacity, c (veh/h)		1155													575	
v/c Ratio		0.05													0.15	
95% Queue Length, Q ₉₅ (veh)		0.2													0.5	
Control Delay (s/veh)		8.3													12.4	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)		1.2													12.4	
Approach LOS															B	

TABLE 4

Generalized **Peak Hour Two-Way** Volumes for Florida's
Urbanized Areas¹

12/18/12

INTERRUPTED FLOW FACILITIES						UNINTERRUPTED FLOW FACILITIES					
STATE SIGNALIZED ARTERIALS						FREEWAYS					
Class I (40 mph or higher posted speed limit)						Freeway Adjustments					
Lanes	Median	B	C	D	E	Lanes	B	C	D	E	
2	Undivided	*	1,510	1,600	**	4	4,120	5,540	6,700	7,190	
4	Divided	*	3,420	3,580	**	6	6,130	8,370	10,060	11,100	
6	Divided	*	5,250	5,390	**	8	8,230	11,100	13,390	15,010	
8	Divided	*	7,090	7,210	**	10	10,330	14,040	16,840	18,930	
						12	14,450	18,880	22,030	22,860	
Class II (35 mph or slower posted speed limit)						Auxiliary Lanes					
Lanes	Median	B	C	D	E	Present in Both Directions					
2	Undivided	Before	660	1,330	1,410	+ 1,800					
4	Divided	*	1,310	2,920	3,040	Ramp Metering					
6	Divided	*	2,090	4,500	4,590	+ 5%					
8	Divided	*	2,880	6,060	6,130						
Non-State Signalized Roadway Adjustments											
(Alter corresponding state volumes by the indicated percent.)											
Non-State Signalized Roadways - 10%											
Bayway Blvd 2LV 460 930											
Median & Turn Lane Adjustments											
Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors		UNINTERRUPTED FLOW HIGHWAYS					
2	Divided	Yes	No	+5%		Lanes	Median	B	C	D	E
2	Undivided	No	No	-20%		2	Undivided	770	1,530	2,170	2,990
Multi	Undivided	Yes	No	-5%		4	Divided	3,300	4,660	5,900	6,530
Multi	Undivided	No	No	-25%		6	Divided	4,950	6,990	8,840	9,790
-	-	-	Yes	+5%		Uninterrupted Flow Highway Adjustments					
One-Way Facility Adjustment						Lanes	Median	Exclusive left lanes	Adjustment factors		
Multiply the corresponding two-directional volumes in this table by 0.6						2	Divided	Yes	+5%		
						Multi	Undivided	Yes	-5%		
						Multi	Undivided	No	-25%		
BICYCLE MODE ²											
(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)											
Paved Shoulder/Bicycle											
Lane Coverage	B	C	D	E							
0-49%	*	260	680	1,770							
50-84%	190	600	1,770	>1,770							
85-100%	830	1,770	>1,770	**							
PEDESTRIAN MODE ²											
(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)											
Sidewalk Coverage	B	C	D	E							
0-49%	*	*	250	850							
50-84%	*	150	780	1,420							
85-100%	340	960	1,560	>1,770							
BUS MODE (Scheduled Fixed Route) ³											
(Buses in peak hour in peak direction)											
Sidewalk Coverage	B	C	D	E							
0-84%	> 5	≥ 4	≥ 3	≥ 2							
85-100%	> 4	≥ 3	≥ 2	≥ 1							

¹ Values shown are presented as peak hour two-way volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the Highway Capacity Manual and the Transit Capacity and Quality of Service Manual.

² Level of service for the bicycle and pedestrian modes in this table is based on number of motorized vehicles, not number of bicyclists or pedestrians using the facility.

³ Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

* Cannot be achieved using table input value defaults.

** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Planning Office
www.dot.state.fl.us/planning/systems/smi/los/default.htm

APPENDIX B

Hotel (310)

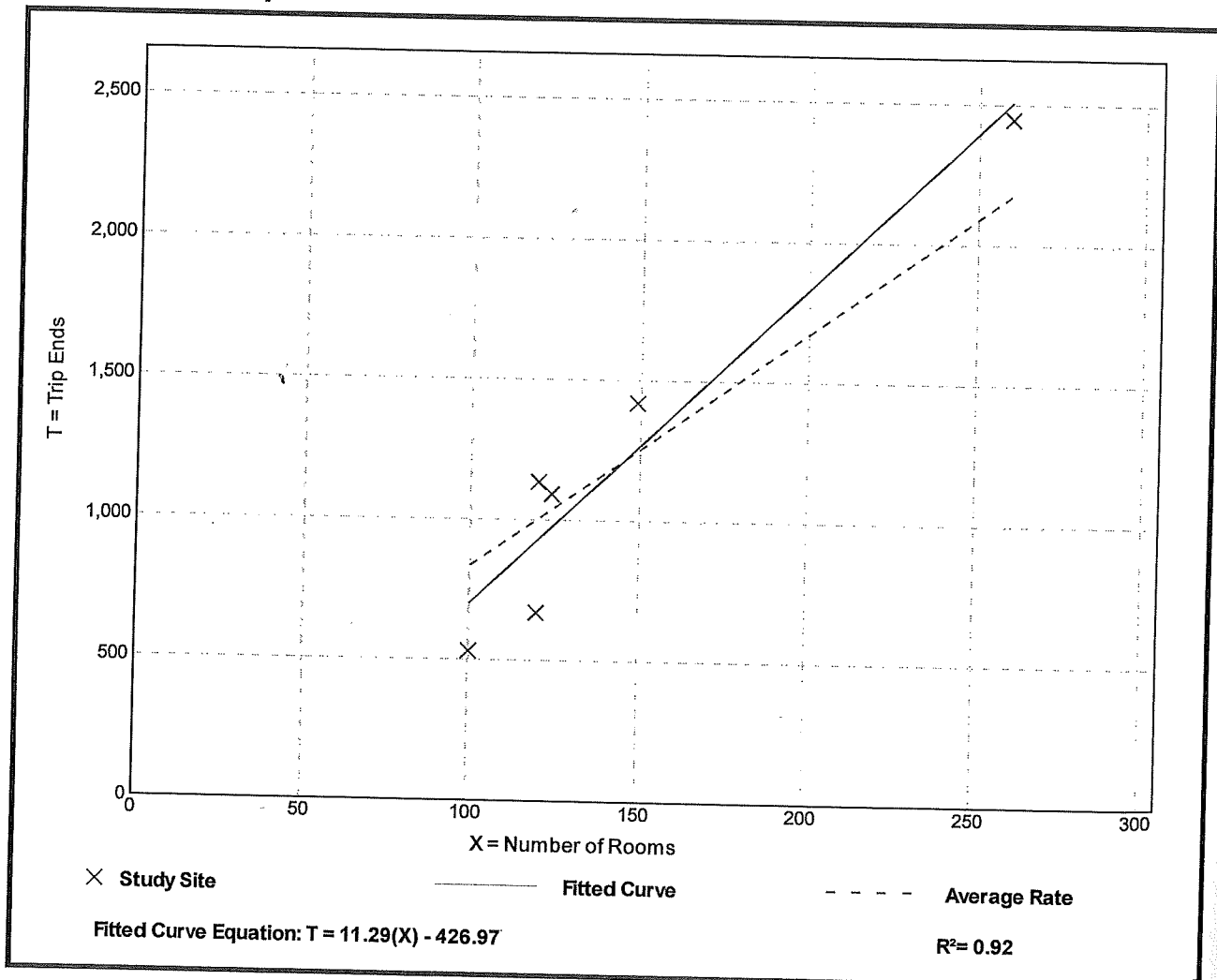
Vehicle Trip Ends vs: Rooms
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 6
Avg. Num. of Rooms: 146
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
8.36	5.31 - 9.53	1.86

Data Plot and Equation



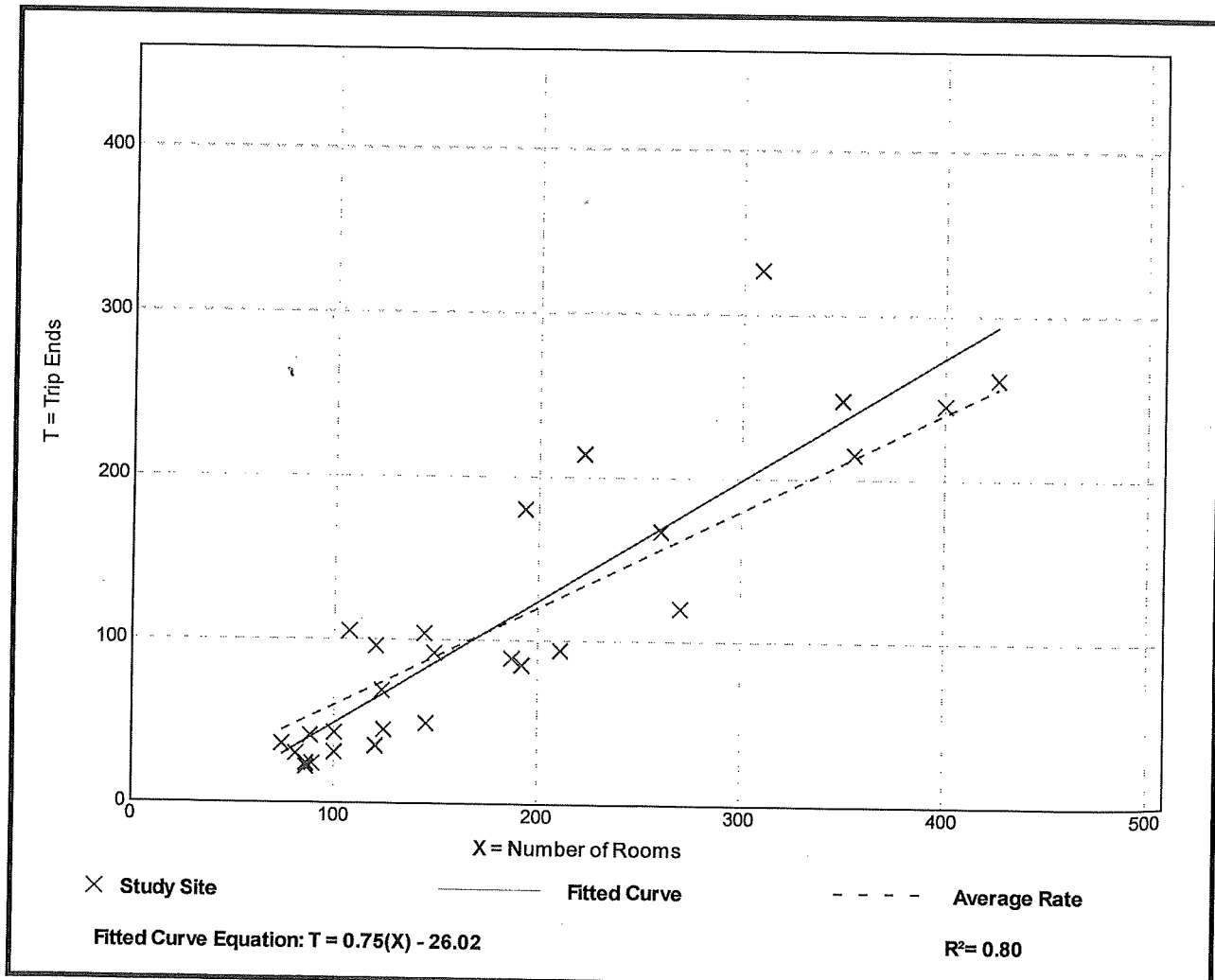
Hotel (310)

Vehicle Trip Ends vs: Rooms
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 4 and 6 p.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 28
 Avg. Num. of Rooms: 183
 Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.60	0.26 - 1.06	0.22

Data Plot and Equation



HCS7 All-Way Stop Control Report

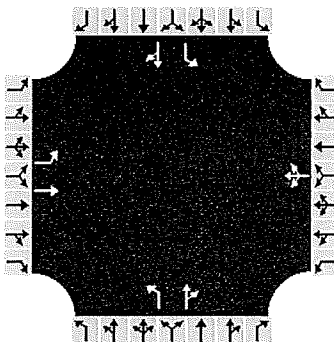
General Information

Analyst	RP
Agency/Co.	GCC
Date Performed	9/20/18
Analysis Year	2019
Analysis Time Period (hrs)	0.25
Time Analyzed	PM PEAK
Project Description	FUTURE CONDITION W/ HOTEL

Site Information

Intersection	GULF BLVD / S GULFVIEW
Jurisdiction	CLWTR
East/West Street	S GULFVIEW BLVD
North/South Street	GULF BLVD / BRIDGE RAMP
Peak Hour Factor	0.94

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	11	19		4	14	2	268	49	9	0	37	7
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	T		LTR			L	TR		L	TR	
Flow Rate, v (veh/h)	12	20		21			285	62		0	47	
Percent Heavy Vehicles	2	2		2			2	2		2	3	

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20			3.20	3.20		3.20	3.20	
Initial Degree of Utilization, x	0.010	0.018		0.019			0.253	0.055		0.000	0.042	
Final Departure Headway, hd (s)	6.04	5.54		5.54			5.23	4.62		5.48	4.88	
Final Degree of Utilization, x	0.020	0.031		0.033			0.414	0.079		0.000	0.063	
Move-Up Time, m (s)	2.3	2.3		2.0			2.3	2.3		2.3	2.3	
Service Time, ts (s)	3.74	3.24		3.54			2.93	2.32		3.18	2.58	

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	12	20		21			285	62		0	47	
Capacity	596	650		650			689	780		0	737	
95% Queue Length, Q ₉₅ (veh)	0.1	0.1		0.1			2.0	0.3		0.0	0.2	
Control Delay (s/veh)	8.9	8.4		8.7			11.6	7.7		8.2	7.9	
Level of Service, LOS	A	A		A			B	A			A	
Approach Delay (s/veh)	8.6			8.7			10.9			7.9		
Approach LOS	A			A			B			A		
Intersection Delay, s/veh LOS	10.3						B					

HCS7 Two-Way Stop-Control Report

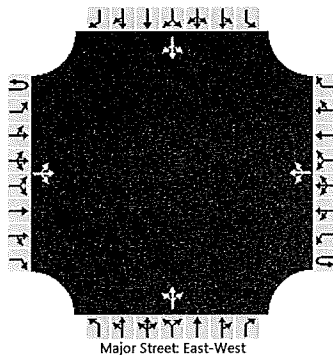
General Information

Analyst	RP
Agency/Co.	GCC
Date Performed	9/20/2018
Analysis Year	2019
Time Analyzed	PM PEAK
Intersection Orientation	East-West
Project Description	FUTURE CONDITIONS W/ HOTEL

Site Information

Intersection	BAYWAY BLVD / GULF BLVD
Jurisdiction	CLWTR
East/West Street	BAYWAY BLVD
North/South Street	GULF BLVD
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		1	21	10		19	25	0		29	1	30		1	1	2
Percent Heavy Vehicles (%)		0				0				2	2	2		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.12	6.52	6.22		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.52	4.02	3.32		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		1				22					71				5	
Capacity, c (veh/h)		1597				1587					939				903	
v/c Ratio		0.00				0.01					0.08				0.01	
95% Queue Length, Q ₉₅ (veh)		0.0				0.0					0.2				0.0	
Control Delay (s/veh)		7.3		0.0		7.3		0.1			9.1				9.0	
Level of Service (LOS)		A		A		A		A			A				A	
Approach Delay (s/veh)	0.2				3.2				9.1				9.0			
Approach LOS									A				A			

HCS7 Two-Way Stop-Control Report

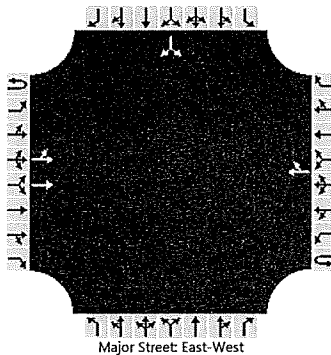
General Information

Analyst	RP
Agency/Co.	GCC
Date Performed	9/21/2018
Analysis Year	2019
Time Analyzed	PM PEAK
Intersection Orientation	East-West
Project Description	future conditions w/hote

Site Information

Intersection	S GULFVIEW / BAYWAY BLVD
Jurisdiction	CLWTR
East/West Street	S GULFVIEW BLVD
North/South Street	BAYWAY BLVD
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT	T					TR							LR	
Volume (veh/h)		64	420				383	2						4		86
Percent Heavy Vehicles (%)		2												3		3
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type Storage					Undivided											

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.5		6.9
Critical Headway (sec)		4.14												6.86		6.96
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.53		3.33

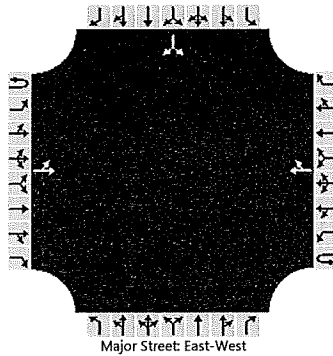
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		70													98	
Capacity, c (veh/h)		1137													559	
v/c Ratio		0.06													0.17	
95% Queue Length, Q ₉₅ (veh)		0.2													0.6	
Control Delay (s/veh)		8.4													12.8	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)		1.3													12.8	
Approach LOS															B	

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	RP	Intersection	BAYWAY BLVD /DRIVE A
Agency/Co.	GCC	Jurisdiction	CLWTR
Date Performed	9/20/2018	East/West Street	BAYWAY BLVD
Analysis Year	2019	North/South Street	DRIVE A
Time Analyzed	PM PEAK	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	FUTURE CONDITIONS W/HOTEL		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		12	40				32	0						0		12
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		13													13	
Capacity, c (veh/h)		1570													1035	
v/c Ratio		0.01													0.01	
95% Queue Length, Q ₉₅ (veh)		0.0													0.0	
Control Delay (s/veh)		7.3													8.5	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)		1.7													8.5	
Approach LOS															A	

HCS7 Two-Way Stop-Control Report

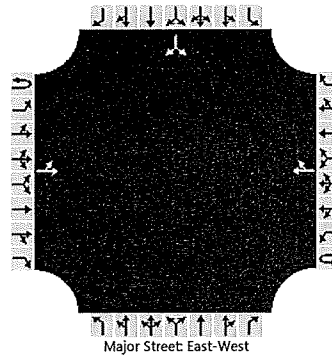
General Information

Analyst	RP
Agency/Co.	GCC
Date Performed	9/20/2018
Analysis Year	2019
Time Analyzed	PM PEAK
Intersection Orientation	East-West
Project Description	FUTURE CONDITIONS W/HOTEL

Site Information

Intersection	BAYWAY BLVD /DRIVE B
Jurisdiction	CLWTR
East/West Street	BAYWAY BLVD
North/South Street	DRIVE B
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		6	34				26	0						0		6
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		7												7		
Capacity, c (veh/h)		1579												1044		
v/c Ratio		0.00												0.01		
95% Queue Length, Q ₉₅ (veh)		0.0												0.0		
Control Delay (s/veh)		7.3												8.5		
Level of Service (LOS)		A												A		
Approach Delay (s/veh)		1.1												8.5		
Approach LOS														A		