

**TRAFFIC IMPACT STUDY
FOR
401-421 S. GULFVIEW HOTEL
CLEARWATER, FLORIDA**

PREPARED FOR:
ALANIK PROPERTIES

PREPARED BY:
GULFCOAST CONSULTING, INC.
JUNE 2014



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AICP #9023 / PTP #133

I. INTRODUCTION

The applicant is proposing to redevelop their property on Clearwater Beach into a 227 room resort hotel. This new hotel will replace two existing smaller hotels and a T-shirt shop that currently exist at 401-421 S. Gulfview Boulevard. This analysis is for the new hotel which will be located between S. Gulfview Boulevard and Coronado Drive along the south side of 5th Street. (See Figure 1) The redevelopment 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

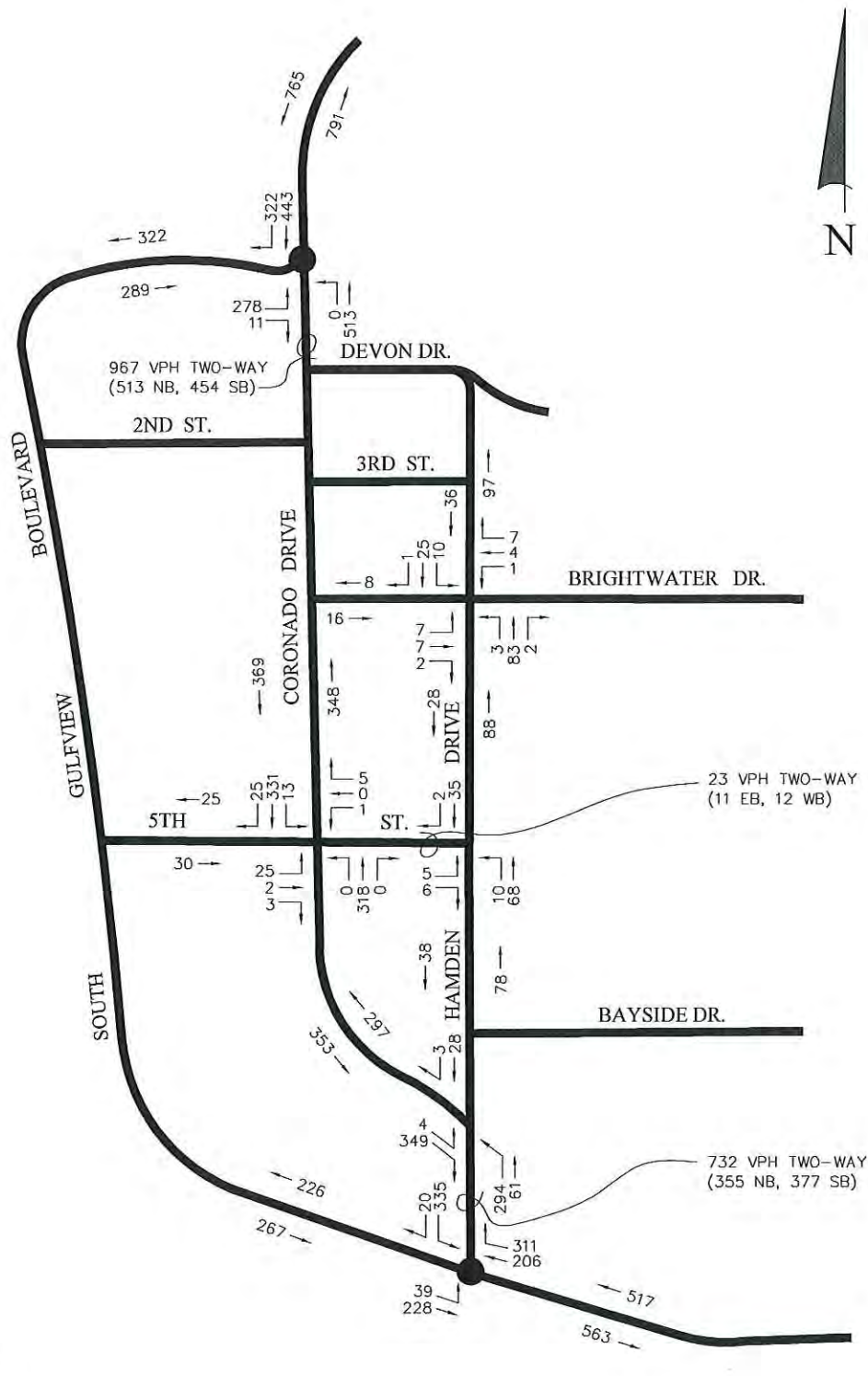
The has frontage on S. Gulfview Boulevard, Coronado Drive and 5th Street and vehicular access will be taken from Coronado Drive and 5th Street only. South Gulfview Boulevard is a two-lane collector roadway with on-street parking running along Clearwater Beach. Coronado Drive is a three-lane collector roadway with on-street parking except for a short segment between Devon Drive and S. Gulfview Boulevard which is 4-lanes undivided. Hamden Drive intersects with S. Gulfview Boulevard at a signalized intersection. 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. Per the approved methodology traffic counts that were conducted on June 21, 2012 at the following intersections during the weekday PM peak period of 4-6 PM were used as a basis for this study.

S. Gulfview Blvd. / Hamden Drive (signal)
S. Gulfview Blvd. / Coronado Drive (signal)
Coronado Drive / Hamden Drive
Coronado Drive / 5th Street
Hamden Drive / 5th Street
Hamden Drive / Brightwater Drive

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 HCS+ and SYNCHRO software. The count data, HCS+ and SYNCHRO printouts are included in Appendix A.

Presently the signalized intersection at S. Gulfview Boulevard / Coronado Drive operates at LOS A with average delay being 6.6 seconds per vehicle and an intersection capacity utilization (ICU) of 42.5%.

Presently the signalized intersection at S. Gulfview Boulevard / Hamden Drive operates at LOS A with average delay being 5.7 seconds per vehicle with ICU of 41.8%.



● = TRAFFIC SIGNAL

EXISTING PM PEAK HOUR TRAFFIC

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14-011



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FIGURE:

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At the intersection of Hamden Drive / Coronado Drive the primary movements are eastbound-to-southbound and northbound-to-westbound, whereas the southbound approach (Hamden Drive) is stop controlled. The HCS+ analysis shows the primary movements operate at LOS A with delay of 8.2 seconds per vehicle and the southbound stop-controlled movements operate at LOS C with delay of 16.6 seconds per vehicle.

At the Coronado Drive / 5th Street intersection, 5th Street is the stop-controlled minor street. Northbound/southbound left turns operate at LOS A with average delay of 8.1 seconds, the eastbound approach operates at LOS C with average delay of 17.5 seconds and the westbound approach operates at LOS B with average delay of 11.7 seconds.

At the Hamden Drive / 5th Street intersection, 5th Street (eastbound) is the stop controlled minor street. Northbound left turns operate at LOS A with average delay of 7.4 seconds, and the eastbound approach operates at LOS A with average delay of 9.1 seconds.

At the Hamden Drive / Brightwater Drive intersection, Brightwater Drive is the minor stop-controlled street. Northbound left turns operate at LOS A with 7.3 seconds average delay, southbound left turns operate at LOS A with average delay of 7.5 seconds, the eastbound approach operates at LOS B with 10.2 seconds average delay, and the westbound approach operates at LOS A with 9.6 seconds average delay.

South Gulfview Boulevard functions as collector roadway and according to FDOT 2009 QLOS Handbook capacity tables has a LOS D capacity of 1,440 vehicles per hour on the undivided segment. The segment of Gulfview Boulevard east of Hamden Drive and Coronado Drive are both three-lane collector roads with a LOS D capacity of 1,520 vehicles per hour and 2,175 vehicles per hour on the 4-lane portions. Hamden Drive north of the Y-intersection with Coronado Drive is a two-lane city roadway with an estimated LOS D capacity of 1,040 vehicles per hour. The existing PM peak hour LOS for areas roadway segments is shown below:

EXISTING ROADWAY CONDITIONS (2014)

Roadway Segment	Lanes	PM Peak Volume	LOS D Capacity	LOS
S. Gulfview (E. of Bayway)	3-lanes	878	1520	B
S. Gulfview (Bywy-Hadn)	4-lanes	1080	2175	C
S. Gulview (Hamden -5 th)	2LU	493	1440	B
S. Gulfview (5th – Coronado)	2LU	611	1440	B
Coronado (Hamden – 5 th)	2LD	650	1520	B
Coronado (5 th – Brightwater)	2LD	717	1520	B
Coronado (Devon Dr - S. Gulfview)	4LU	967	2175	C

Coronado (Gulfview to Roundabout) 4LD	1556	2900	C
Hamden (S. Gulfview-Coronado) 2LD	732	1520	B
Hamden (Coronado – 5 th) 2LU	116	1040	B
Hamden (5 th – Brightwater) 2LU	116	1040	B
Hamden (N. of Brightwater) 2LU	133	1040	B

Presently all roadway segments operate at LOS C or better 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 2017 to account for background traffic from other nearby redevelopment projects. In addition, traffic from several approved developments was added as background traffic; these include the proposed Hampton Inn #655 S. Gulfview, the proposed Clearwater Beach Resort at the corner of S. Gulfview and Coronado, the Sea Captain redevelopment at #40 Devon Drive, the Gulfview Hotel at #625 S. Gulfview, the Entrada Hotel at #521 S. Gulfview, Marquesas at #715 S. Gulfview, and Mainsteam Hotel “A”, Hotel “B”, and Hotel “C.” Background traffic volumes are shown in Figure 3.

The site will be developed as a 227 room resort hotel. Credit for the demolition of the existing hotels (127 rooms) and the T-shirt shop is included. Using Institute of Transportation Engineers (ITE) Trip Generation, 9th Edition rates, the amount of new trips was calculated and estimates are shown below:

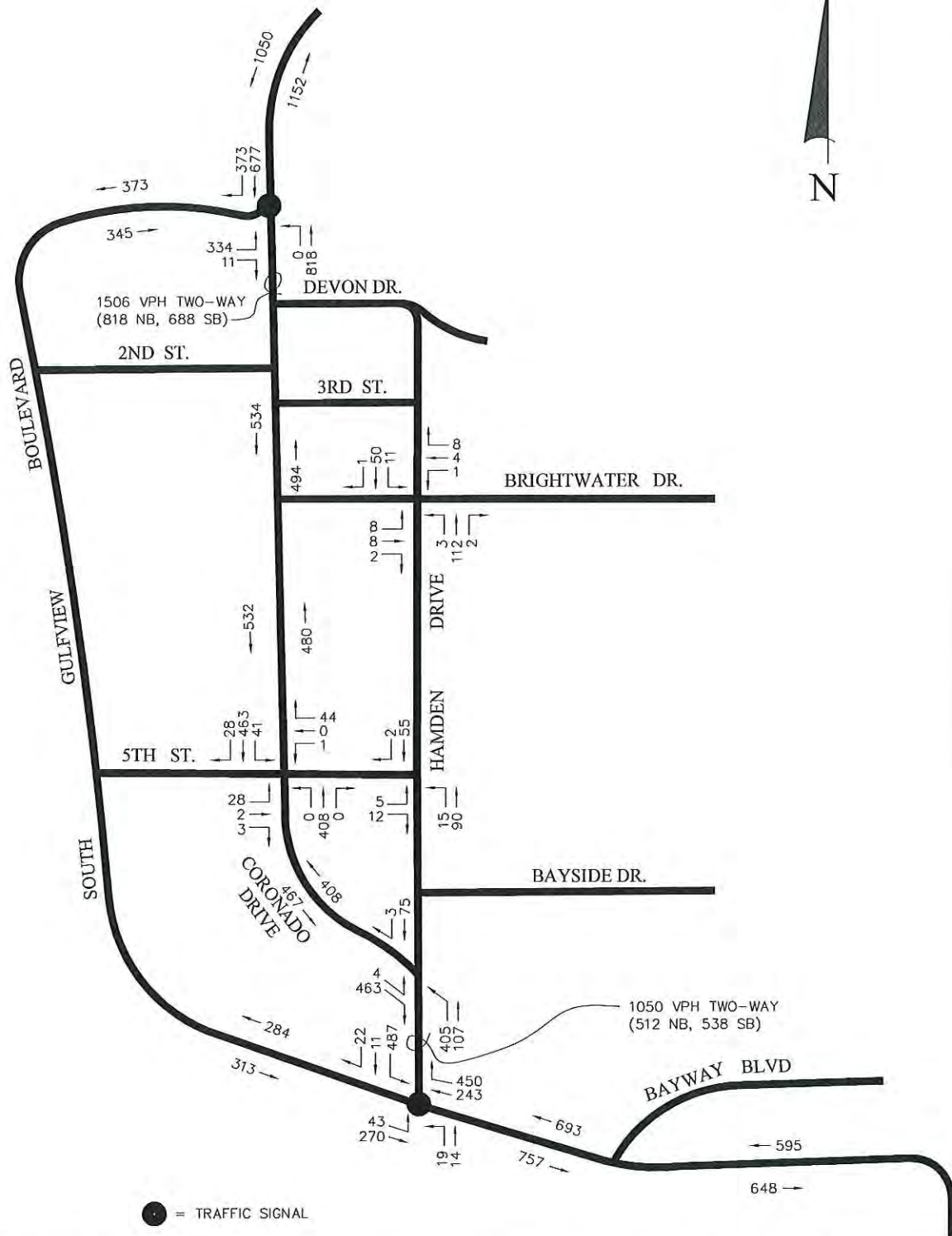
TRIP GENERATION ESTIMATES

Land Use	Amount	Daily Trips	PM Peak Trip
Resort Hotel	227 Rooms	1,895	114 (49/65)
Resort Hotels (credit for demo)	127 Rooms	-1,029	-62 (27/35)
Specialty Retail Store (credit)	1,450 SF	-64	-4 (2/2)
TOTALNEW TRIPS with Demo		802	48 (20/28)

Although the hotel will have 114 PM peak hour trips at the driveways, the net traffic increase from the property is only 48 PM peak hour trips. The vehicular access will be taken from Coronado Drive and 5th Street via two separate driveways. The expected distribution is shown in Figure 4 and is as follows:

- 60% to / from the north (28 PM peak hour trips)
- 40% to / from the south (20 PM peak hour trips)

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



BACKGROUND PM PEAK HOUR TRAFFIC 401-421 S. GULFVIEW

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14-032



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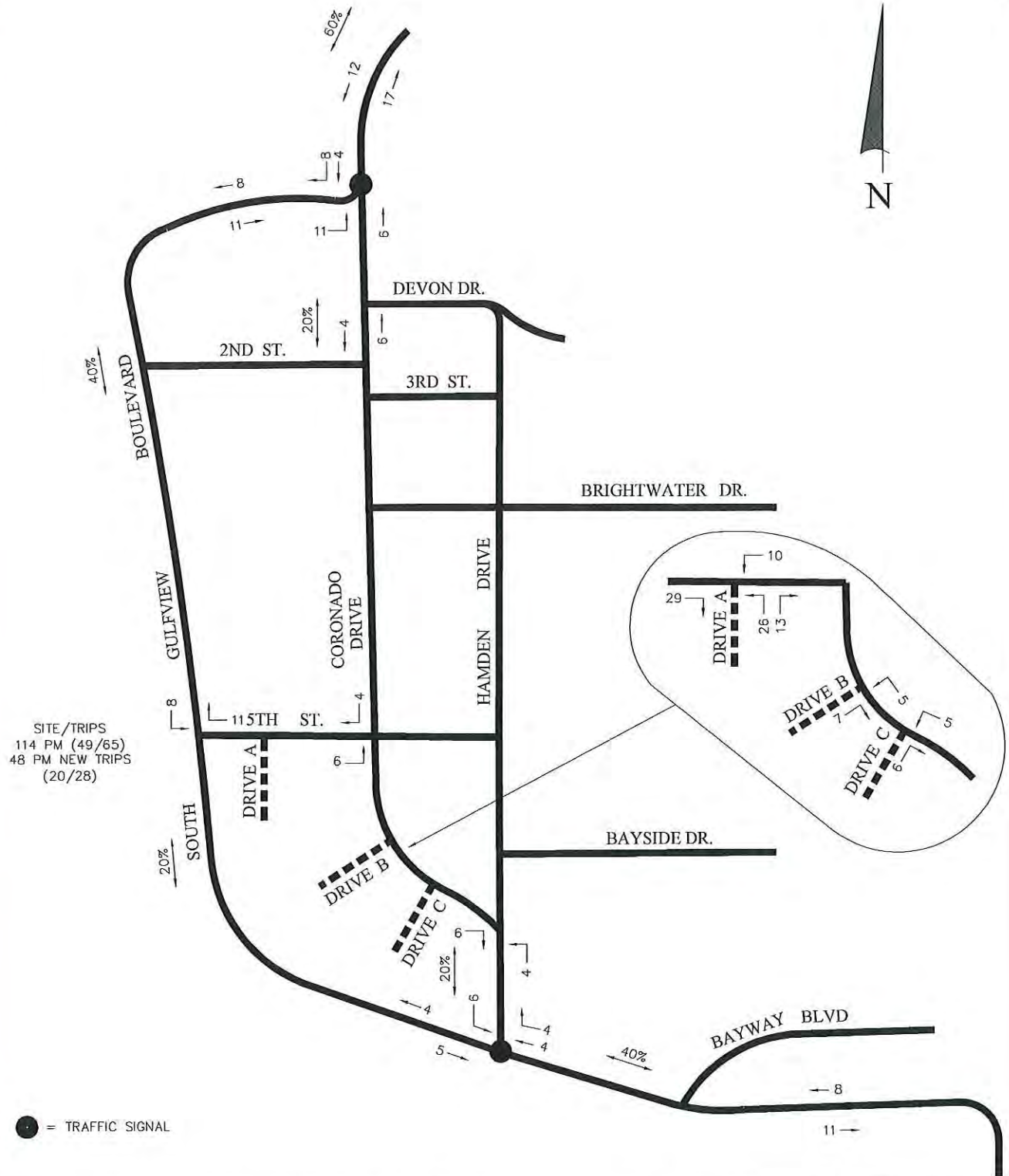
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FIGURE:

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PROJECT TRAFFIC DISTRIBUTION #401-#421 S. GULFVIEW

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FIGURE:

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PROJECT IMPACT CALCULATIONS

Road Segment	Lanes	Project Trips	Capacity	Project Percent
S. Gulfview (E. of Bayway)	3-lanes	19	1520	1.25%
S. Gulfview (Bywy-Hmdn)	4-lanes	19	2175	0.87%
S. Gulfview (Hamden-5 th)	2LU	9	1440	0.63%
S. Gulfview (5 th -Coronado)	2LU	19	1440	1.32%
Coronado (5 th – Devon)	2LD	10	1520	0.66%
Coronado (Devon - S. Gulfview)	4LU	10	2175	0.46%
Coronado (Gulfview – Roundabout)	4LD	29	2900	1.00%
Hamden (Gulfview – Coronado)	2LD	10	1520	0.66%

Project traffic impacts will be primarily to S. Gulfview Boulevard and Coronado Drive. Project traffic was added to accumulated background traffic for a build-out of 2017. All intersections, roadway segments and project driveways were analyzed for future conditions. Future traffic volumes are shown in Figure 5, and the SYNCHRO and HCS+ printouts are included in Appendix B.

The signalized intersection at S. Gulfview Boulevard / Coronado Drive would continue to operate at LOS A with average delay of 7.2 seconds per vehicle and an intersection capacity utilization (ICU) of 54.7%.

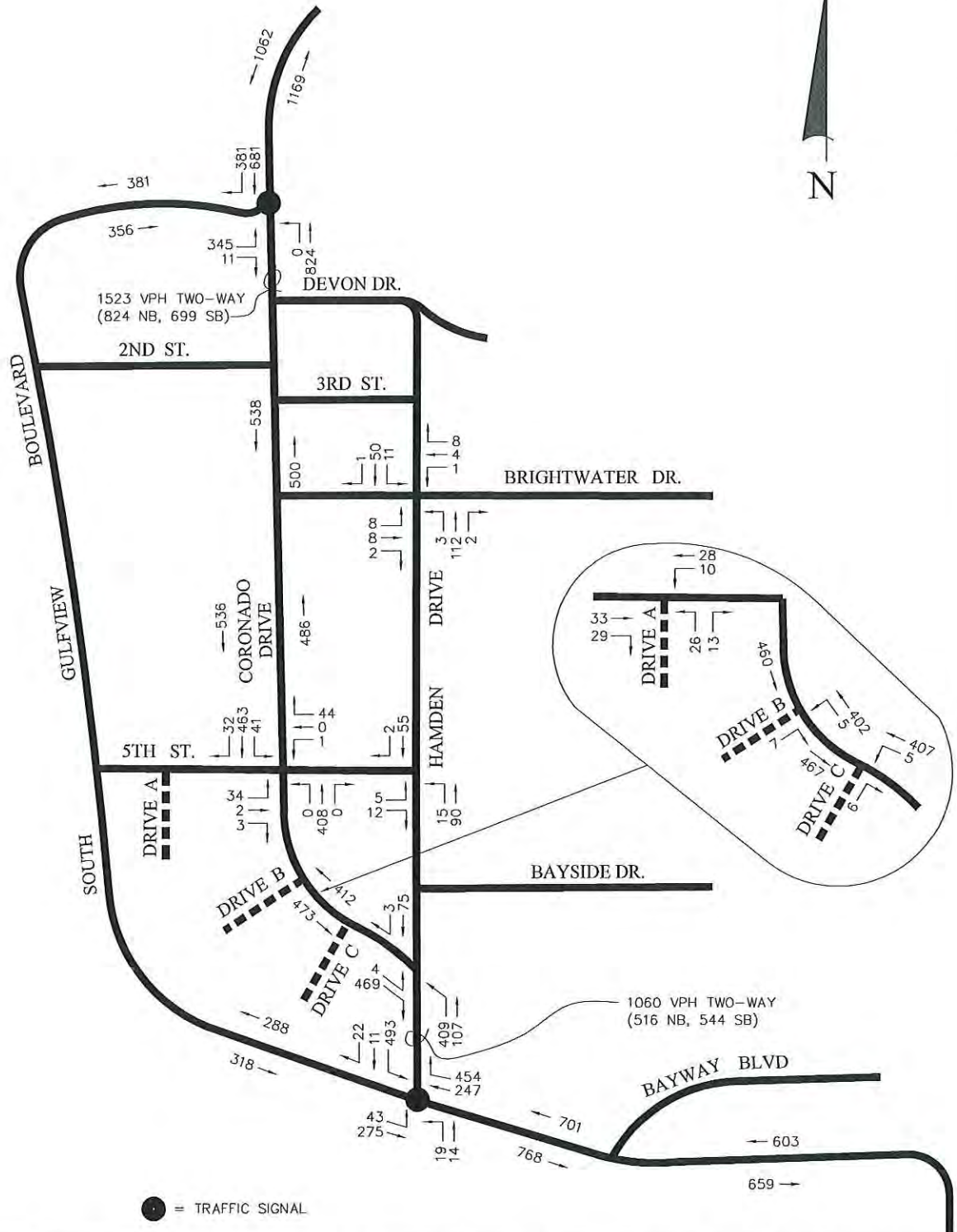
The signalized intersection at S. Gulfview Boulevard / Hamden Drive would operate at LOS B with average delay being 12.0 seconds per vehicle with ICU of 55.7%. Traffic from the Entrada Hotel at #521 S. Gulfview requires split-phase operation of this traffic signal.

At the intersection of Hamden Drive / Coronado Drive, the HCS+ analysis shows the primary movements operate at LOS A with delay of 8.7 seconds per vehicle and the southbound stop-controlled movements operate at LOS D with delay of 29.7 seconds per vehicle.

At the Coronado Drive / 5th Street intersection, northbound and southbound left turns would operate at LOS A, the eastbound approach would operate at LOS D with average delay of 29.1 seconds and the westbound approach would operate at LOS B with average delay of 12.1 seconds.

At the Hamden Drive / 5th Street intersection, northbound left turns would operate at LOS A, and the eastbound approach would operate at LOS A with average delay of 9.2 seconds.

At the Hamden Drive / Brightwater Drive intersection, northbound and southbound left turns would operate at LOS A the eastbound approach would operate at LOS B with 10.8 seconds average delay, and the westbound approach would operate at LOS A with 9.9 seconds average delay.



FUTURE PM PEAK HOUR TRAFFIC 401-421 S. GULFVIEW

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FIGURE:

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At the 5th Street/Drive A intersection the westbound left turns would operate at LOS A with 7.3 seconds delay, and the northbound exiting movements would operate at LOS A with 9.0 seconds delay from a shared lane.

At the Coronado Drive / Drive B intersection northbound left turns would operate at LOS B with 8.3 seconds delay, and the eastbound exiting movements would operate at LOS B with 11.3 seconds delay.

At the Coronado Drive / Drive C intersection northbound left turns would operate at LOS B with 8.4 seconds delay, and the eastbound exiting movements would operate at LOS B with 11.3 seconds delay.

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

FUTURE ROADWAY CONDITIONS WITH PROJECT (2017)

Roadway Segment	Lanes	PM Peak Volume	LOS D Capacity	LOS
S. Gulfview (E of Bayway)	3-lanes	1262	1520	C
S. Gulfview (Bywy-Hmdn)	4-lanes	1469	2175	C
S. Gulfview (Hamden -5 th)	2LU	606	1440	B
S. Gulfview (5 th – Coronado)	2LU	737	1440	B
Coronado (Hamden – 5 th)	2LD	885	1520	B
Coronado (5 th – Brightwater)	2LD	1022	1520	C
Coronado (Brwttr. – Devon)	2LD	1038	1520	C
Coronado (Devon. - Gulfview)	4LU	1523	2175	C
Coronado (Gulfview to Roundabout)	4LD	2231	2900	D
Hamden (S. Gulfview-Coronado)	2LD	1060	1520	C
Hamden (Coronado – 5 th)	2LU	189	1040	B
Hamden (5 th -Brwttr)	2LU	170	1040	B
Hamden (N. of Brightwater)	2LU	190	1040	B

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

IV. CONCLUSION

This analysis was conducted in accordance with a methodology established with City of Clearwater staff. The proposed hotel would generate 1,895 daily trips of which 114 would occur during the PM peak hour. Considering the demolition of existing uses (hotels and retail) the net new trips would be 802 daily trips and 48 PM peak hour trips being added to the roadway system. 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

Lanes, Volumes, Timings

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	TTT			TTT	TTT	T
Volume (vph)	278	11	0	513	443	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500	500	500			0
Storage Lanes	1	0	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor	0.97					0.95
Frt	0.994					0.850
Flt Protected	0.954					
Satd. Flow (prot)	3427	0	0	3539	3539	1583
Flt Permitted	0.954					
Satd. Flow (perm)	3322	0	0	3539	3539	1502
Right Turn on Red		No				Yes
Satd. Flow (RTOR)						354
Link Speed (mph)	20			25	25	
Link Distance (ft)	331			260	350	
Travel Time (s)	11.3			7.1	9.5	
Confl. Peds. (#/hr)	17		33			17
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	305	12	0	564	487	354
Shared Lane Traffic (%)						
Lane Group Flow (vph)	317	0	0	564	487	354
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	2	2	1
Detector Template	Left		Left	Thru	Thru	Right
Leading Detector (ft)	20		20	100	100	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	20		20	6	6	20
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				CI+Ex	CI+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	NA		Perm	NA	NA	Perm
Protected Phases	4			2	6	

Lanes, Volumes, Timings

3:

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	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases			2			6
Detector Phase	4		2	2	6	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	20.0		20.0	20.0	20.0	20.0
Total Split (s)	25.0		35.0	35.0	35.0	35.0
Total Split (%)	41.7%		58.3%	58.3%	58.3%	58.3%
Maximum Green (s)	21.0		31.0	31.0	31.0	31.0
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0		4.0	4.0	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		Max	Max	Max	Max
Walk Time (s)	5.0		5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	9.9		32.6	32.6	32.6	32.6
Actuated g/C Ratio	0.20		0.65	0.65	0.65	0.65
v/c Ratio	0.47		0.25	0.21	0.32	0.32
Control Delay	20.0		4.4	4.3	1.5	1.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	20.0		4.4	4.3	1.5	1.5
LOS	B		A	A	A	A
Approach Delay	20.0		4.4	3.1		
Approach LOS	B		A	A		

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 50.5

Natural Cycle: 40

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 6.6

Intersection Capacity Utilization 42.5%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service A

Splits and Phases: 3:

 ø2 35s	 ø4 25s
 ø6 35s	

Lanes, Volumes, Timings

3:

2/14/2014

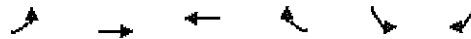


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔↔	↑	↗	↖↖	
Volume (vph)	39	228	206	311	335	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	1.00	1.00	0.97	0.95
Ped Bike Factor		0.99		0.80	1.00	
Frt				0.850	0.992	
Flt Protected		0.993			0.955	
Satd. Flow (prot)	0	3514	1863	1583	3415	0
Flt Permitted		0.897			0.955	
Satd. Flow (perm)	0	3129	1863	1273	3415	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				331	86	
Link Speed (mph)		25	25		25	
Link Distance (ft)		300	500		300	
Travel Time (s)		8.2	13.6		8.2	
Confl. Peds. (#/hr)	82			82		11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	41	243	219	331	356	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	284	219	331	377	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	
Detector Template	Left	Thru	Thru	Right	Left	
Leading Detector (ft)	20	100	100	20	20	
Trailing Detector (ft)	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	20	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	NA	
Protected Phases	7	4	8		6	
Permitted Phases	4			8		
Detector Phase	7	4	8	8	6	
Switch Phase						

Lanes, Volumes, Timings

3:

2/14/2014



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.5	20.0	20.0	20.0	20.0	
Total Split (s)	15.0	35.0	20.0	20.0	35.0	
Total Split (%)	21.4%	50.0%	28.6%	28.6%	50.0%	
Maximum Green (s)	10.5	31.0	16.0	16.0	31.0	
Yellow Time (s)	3.5	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.0	4.0	4.0	4.0	
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	Min	None	
Walk Time (s)		5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)		10.4	10.4	10.4	7.9	
Actuated g/C Ratio		0.39	0.39	0.39	0.30	
v/c Ratio		0.23	0.30	0.47	0.35	
Control Delay		6.0	6.9	3.4	6.8	
Queue Delay		0.0	0.0	0.0	0.0	
Total Delay		6.0	6.9	3.4	6.8	
LOS		A	A	A	A	
Approach Delay		6.0	4.8		6.8	
Approach LOS		A	A		A	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 26.4

Natural Cycle: 50

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.47

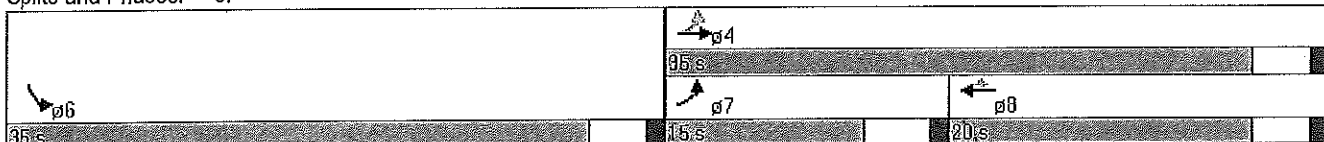
Intersection Signal Delay: 5.7

Intersection Capacity Utilization 41.8%

Analysis Period (min) 15

Intersection LOS: A
ICU Level of Service A

Splits and Phases: 3:



TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	RP			Intersection	CORONAD DR / HAMDEN DR			
Agency/Co.	GCC			Jurisdiction	CLEARWATER			
Date Performed	2/14/14			Analysis Year	2014 EXISTING			
Analysis Time Period	PM Peak							
Project Description								
East/West Street: CORONADO DR				North/South Street: HAMDEN DRIVE				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	4	349			294	61		
Peak-Hour Factor, PHF	0.91	0.91	0.91	0.97	0.91	0.91		
Hourly Flow Rate, HFR (veh/h)	4	383	0	0	323	67		
Percent Heavy Vehicles	1	--	--	0	--	--		
Median Type	Two Way Left Turn Lane							
RT Channelized			0			0		
Lanes	0	2	0	0	1	0		
Configuration	LT	T				TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)					28	3		
Peak-Hour Factor, PHF	0.91	0.97	0.91	0.97	0.91	0.91		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	30	3		
Percent Heavy Vehicles	1	0	1	0	1	1		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	1	0		
Configuration						TR		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT							TR
v (veh/h)	4							33
C (m) (veh/h)	1137							343
v/c	0.00							0.10
95% queue length	0.01							0.32
Control Delay (s/veh)	8.2							16.6
LOS	A							C
Approach Delay (s/veh)	--	--				16.6		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	RP			Intersection	CORONADO DR / 5TH ST			
Agency/Co.	GCC			Jurisdiction	CLEARWATER			
Date Performed	2/14/14			Analysis Year	2014 EXISTING			
Analysis Time Period	PM PEAK							
Project Description								
East/West Street: 5TH STREET				North/South Street: CORONADO DRIVE				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	0	318	0	13	331	25		
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93		
Hourly Flow Rate, HFR (veh/h)	0	341	0	13	355	26		
Percent Heavy Vehicles	1	--	--	1	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	1	1	0	1	1	0		
Configuration	L		TR	L		TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	25	2	3	1	0	5		
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93		
Hourly Flow Rate, HFR (veh/h)	26	2	3	1	0	5		
Percent Heavy Vehicles	1	0	0	1	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LTR			LTR		
v (veh/h)	0	13	6			31		
C (m) (veh/h)	1146	1173	541			318		
v/c	0.00	0.01	0.01			0.10		
95% queue length	0.00	0.03	0.03			0.32		
Control Delay (s/veh)	8.1	8.1	11.7			17.5		
LOS	A	A	B			C		
Approach Delay (s/veh)	--	--	11.7			17.5		
Approach LOS	--	--	B			C		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	RP			Intersection	HAMDEN DR / 5TH STREET			
Agency/Co.	GCC			Jurisdiction	CLEARWATER			
Date Performed	2/14/14			Analysis Year	2014 EXISTING			
Analysis Time Period	PM Peak							
Project Description MAINSTREAM HOTEL								
East/West Street: 5TH STREET				North/South Street: HAMDEN DRIVE				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	10	68			35	2		
Peak-Hour Factor, PHF	0.74	0.74	1.00	1.00	0.74	0.74		
Hourly Flow Rate, HFR (veh/h)	13	91	0	0	47	2		
Percent Heavy Vehicles	1	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	5		6					
Peak-Hour Factor, PHF	0.74	1.00	0.74	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	6	0	8	0	0	0		
Percent Heavy Vehicles	1	0	1	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	13						14	
C (m) (veh/h)	1530						887	
v/c	0.01						0.02	
95% queue length	0.03						0.05	
Control Delay (s/veh)	7.4						9.1	
LOS	A						A	
Approach Delay (s/veh)		--					9.1	
Approach LOS	--	--					A	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	RP	Intersection	HAMDEN DR / BRIGHTWATER DR
Agency/Co.	GCC	Jurisdiction	CLEARWATER
Date Performed	2/14/14	Analysis Year	2014 EXISTING
Analysis Time Period	PM Peak		

Project Description MAINSTREAM HOTEL

East/West Street: BRIGHTWATER DR

North/South Street: HAMDEN DRIVE

Intersection Orientation: North-South

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	3	83	2	10	25	1
Peak-Hour Factor, PHF	0.76	0.76	0.76	0.76	0.76	0.76
Hourly Flow Rate, HFR (veh/h)	3	109	2	13	32	1
Percent Heavy Vehicles	1	--	--	1	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal		0			0	
Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	7	7	2	1	4	7
Peak-Hour Factor, PHF	0.76	0.76	0.76	0.76	0.76	0.76
Hourly Flow Rate, HFR (veh/h)	9	9	2	1	5	9
Percent Heavy Vehicles	1	1	1	1	1	1
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	3	13		15			20	
C (m) (veh/h)	1541	1443		793			707	
v/c	0.00	0.01		0.02			0.03	
95% queue length	0.01	0.03		0.06			0.09	
Control Delay (s/veh)	7.3	7.5		9.6			10.2	
LOS	A	A		A			B	
Approach Delay (s/veh)	--	--		9.6			10.2	
Approach LOS	--	--		A			B	

TABLE 4

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

10/4/10

STATE SIGNALIZED ARTERIALS					
Class I (>0.00 to 1.99 signalized intersections per mile)					
Lanes	Median	B	C	D	E
2	Undivided	930	1,500	1,600	***
4	Divided	2,840	3,440	3,560	***
6	Divided	4,370	5,200	5,360	***
8	Divided	5,900	6,970	7,160	***
2LD Gull Run 837 1350 1440 2LD Class II (2.00 to 4.50 signalized intersections per mile)					
Lanes	Median	B	C	D	E
2	Undivided	**	1,020	1,480	1,570
4	Divided	**	2,420	3,220	3,400
6	Divided	**	3,790	4,880	5,150
8	Divided	**	5,150	6,530	6,880
4LD Coronado (0.90) 2178 2900 4LD Class III/IV (more than 4.50 signalized intersections per mile)					
Lanes	Median	B	C	D	E
2	Undivided	**	500	1,150	1,440
4	Divided	**	1,220	2,730	3,100
6	Divided	**	1,910	4,240	4,680
8	Divided	**	2,620	5,770	6,280
Coronado/Hamden 2LD/TWLT					

FREEWAYS					
Lanes	B	C	D	E	
4	4,000	5,500	6,770	7,300	
6	6,000	8,320	10,150	11,290	
8	8,000	11,050	13,480	15,270	
10	10,000	13,960	16,930	19,250	
12	13,730	18,600	21,950	23,230	
Freeway Adjustments					
Auxiliary Lanes	Ramp Metering				
+ 1,800	+ 5%				

UNINTERRUPTED FLOW HIGHWAYS					
Lanes	Median	B	C	D	E
2	Undivided	730	1,460	2,080	2,620
4	Divided	3,220	4,660	6,040	6,840
6	Divided	4,840	6,990	9,060	10,280
Uninterrupted Flow Highway Adjustments					
Lanes	Median	Exclusive left lanes	Adjustment factors		
2	Divided	Yes	+5%		
Multi	Undivided	Yes	-5%		
Multi	Undivided	No	-25%		

Non-State Signalized Roadway Adjustments					
(Alter corresponding state volumes by the indicated percent.)					
Major City/County Roadways -10% Gull Run					
Other Signalized Roadways -35% Coronado Hamden					
Kos Hamden 600 775 1040					
State & Non-State Signalized Roadway Adjustments					
(Alter corresponding state volumes by the indicated percent.)					
Divided/Undivided & Turn Lane Adjustments					
Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors	
2	Divided	Yes	No	+5%	
2	Undivided	No	No	-20%	
Multi	Undivided	Yes	No	-5%	
Multi	Undivided	No	No	-25%	
-	-	-	Yes	+ 5%	

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%	**	310	1,180	>1,180	
50-84%	240	360	>360	***	
85-100%	620	>620	***	***	
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%	**	**	480	1,390	
50-84%	**	**	1,100	1,820	
85-100%	**	1,100	1,820	>1,820	
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 hourly two-way volumes for levels of service and are for the automobile/truck modes unless specifically stated. Although presented as peak hour two-way volumes, they actually represent peak hour peak direction conditions with an applicable D factor applied. 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, Bicycle LOS Model, Pedestrian LOS Model and Transit Capacity and Quality of Service Manual, respectively for the automobile/truck, bicycle, pedestrian and bus modes.

² Level of service for this 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
605 Suwannee Street, MS 19
Tallahassee, FL 32399-0450

APPENDIX B

Hotel (310)

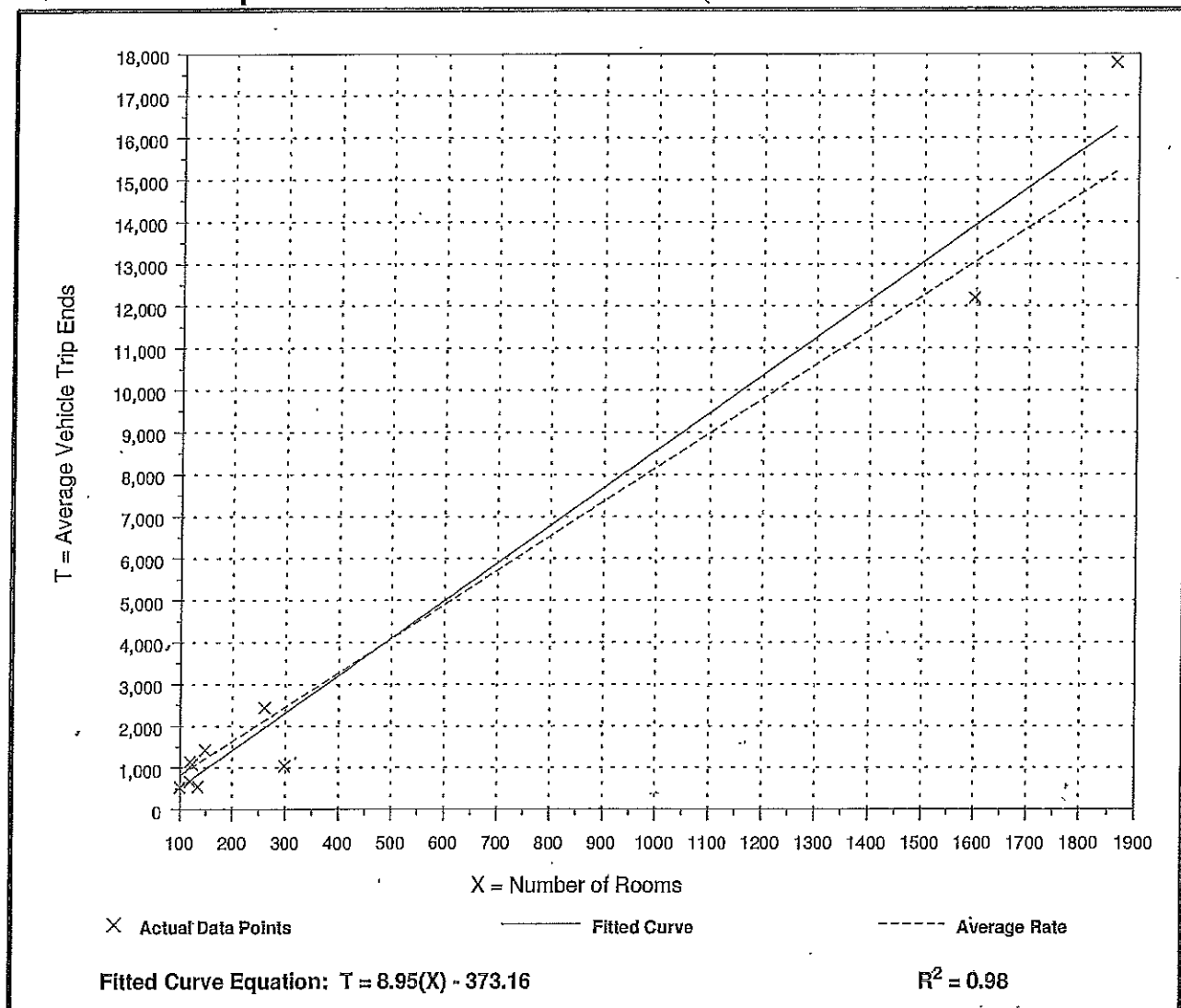
Average Vehicle Trip Ends vs: Rooms On a: Weekday

Number of Studies: 10
Average Number of Rooms: 476
Directional Distribution: 50% entering, 50% exiting

Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
8.17	3.47 - 9.58	3.38

Data Plot and Equation



Resort Hotel (330)

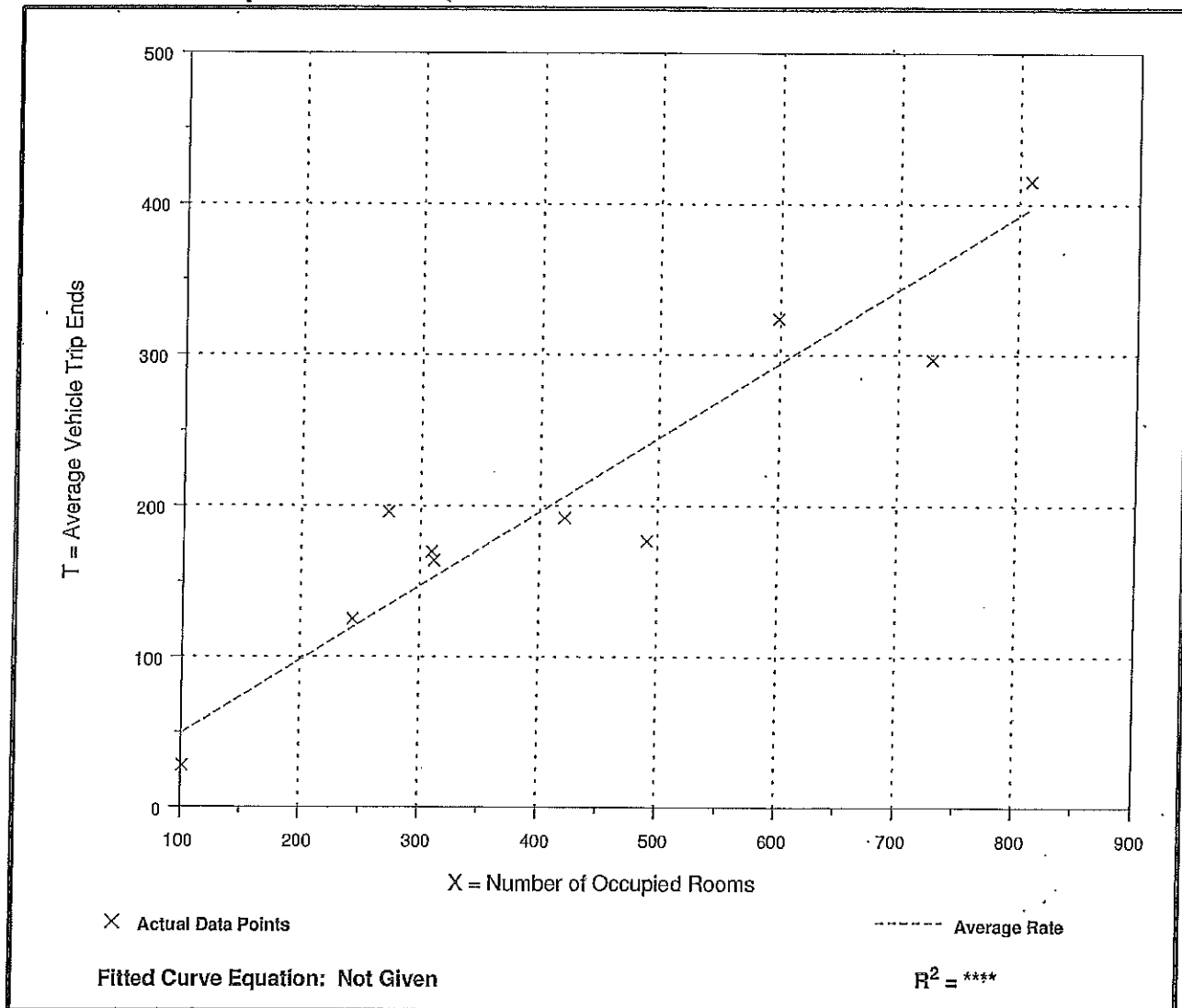
Average Vehicle Trip Ends vs: Occupied Rooms
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Number of Studies: 10
 Average Number of Occupied Rooms: 429
 Directional Distribution: 43% entering, 57% exiting

Trip Generation per Occupied Room

Average Rate	Range of Rates	Standard Deviation
0.49	0.27 - 0.72	0.70

Data Plot and Equation



Specialty Retail Center (826)

Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Leasable Area
On a: Weekday

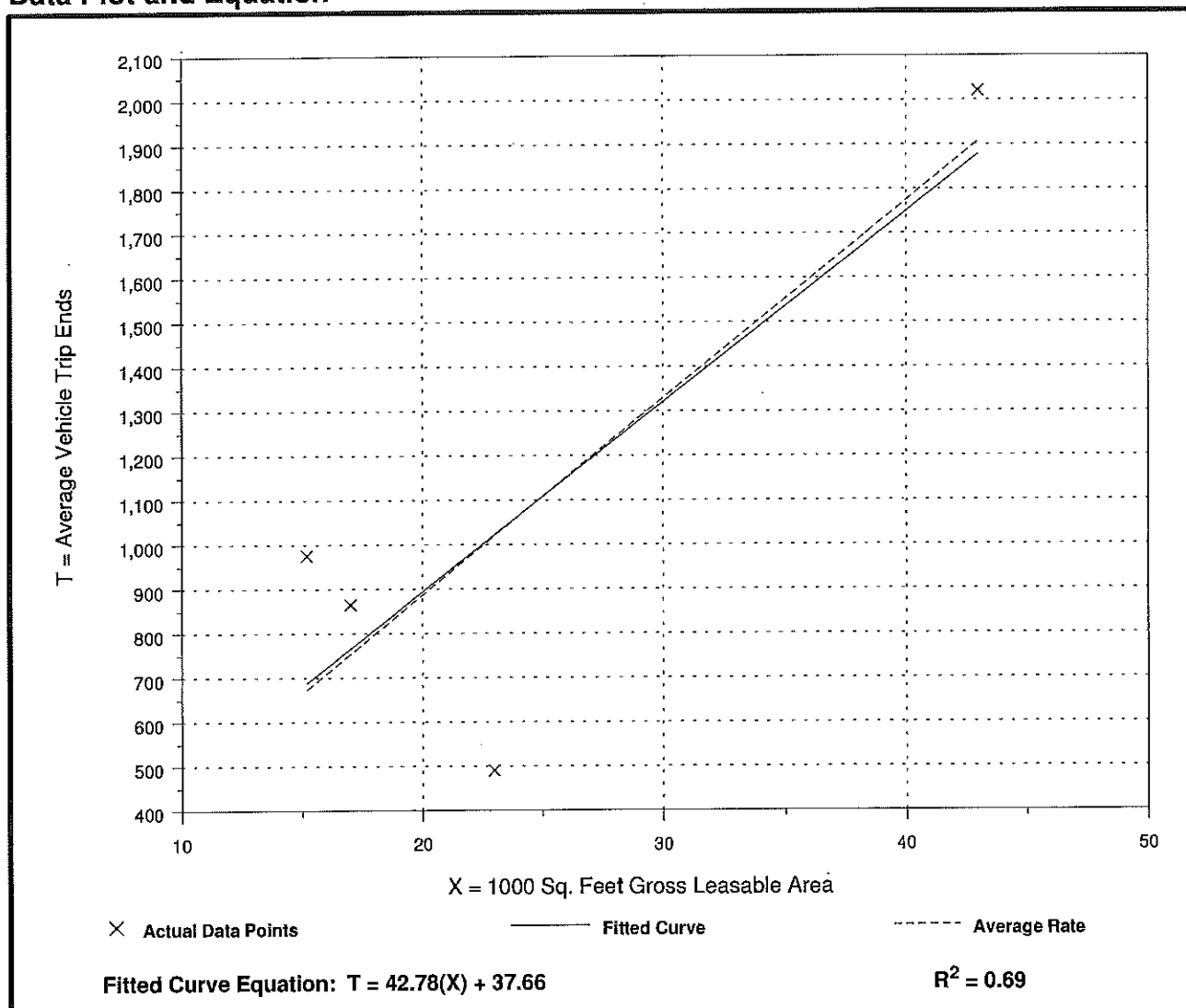
Number of Studies: 4
Average 1000 Sq. Feet GLA: 25
Directional Distribution: 50% entering, 50% exiting

Trip Generation per 1000 Sq. Feet Gross Leasable Area

Average Rate	Range of Rates	Standard Deviation
44.32	21.30 - 64.21	15.52

Data Plot and Equation

Caution - Use Carefully - Small Sample Size



Specialty Retail Center (826)

Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Leasable Area
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

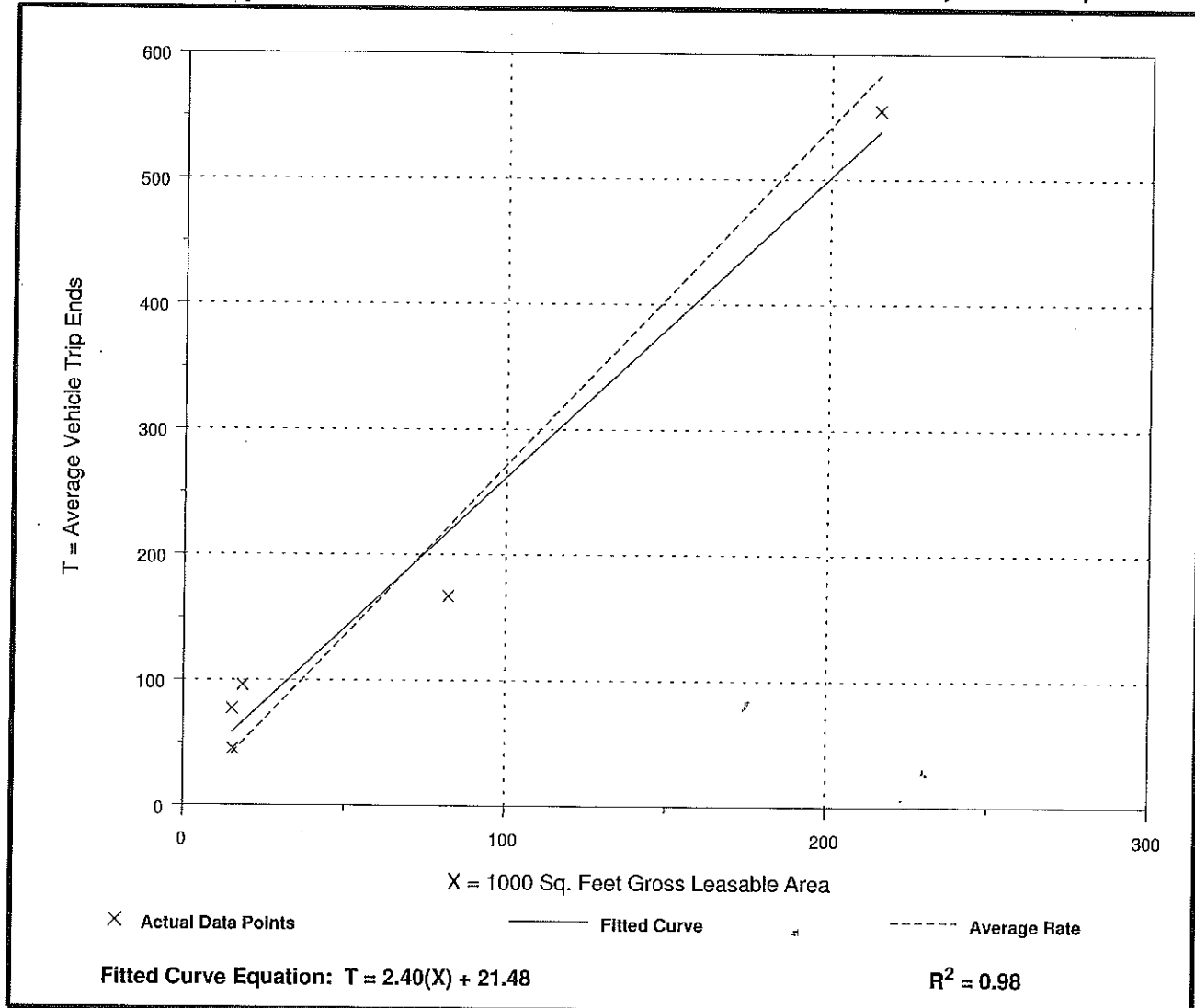
Number of Studies: 5
 Average 1000 Sq. Feet GLA: 69
 Directional Distribution: 44% entering, 56% exiting

Trip Generation per 1000 Sq. Feet Gross Leasable Area

Average Rate	Range of Rates	Standard Deviation
2.71	2.03 - 5.16	1.83

Data Plot and Equation

Caution - Use Carefully - Small Sample Size



Lanes, Volumes, Timings

3:

6/16/2014



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	345	11	0	824	681	381
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500	500	500			0
Storage Lanes	1	0	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	0.95	0.95	0.95	0.95	1.00
Ped Blke Factor	0.97					0.95
Frt	0.995					0.850
Flt Protected	0.954					
Satd. Flow (prot)	3430	0	0	3539	3539	1583
Flt Permitted	0.954					
Satd. Flow (perm)	3324	0	0	3539	3539	1502
Right Turn on Red		No				Yes
Satd. Flow (RTOR)						419
Link Speed (mph)	20			25	25	
Link Distance (ft)	331			260	350	
Travel Time (s)	11.3			7.1	9.5	
Confl. Peds. (#/hr)	17		33			17
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	379	12	0	905	748	419
Shared Lane Traffic (%)						
Lane Group Flow (vph)	391	0	0	905	748	419
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	2	2	1
Detector Template	Left		Left	Thru	Thru	Right
Leading Detector (ft)	20		20	100	100	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	20		20	6	6	20
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				CI+Ex	CI+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	NA		Perm	NA	NA	Perm
Protected Phases	4			2	6	

Lanes, Volumes, Timings

3:

6/16/2014



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases			2			6
Detector Phase	4		2	2	6	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	20.0		20.0	20.0	20.0	20.0
Total Split (s)	25.0		35.0	35.0	35.0	35.0
Total Split (%)	41.7%		58.3%	58.3%	58.3%	58.3%
Maximum Green (s)	21.0		31.0	31.0	31.0	31.0
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	4.0			4.0	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		Max	Max	Max	Max
Walk Time (s)	5.0		5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	10.9			31.6	31.6	31.6
Actuated g/C Ratio	0.22			0.63	0.63	0.63
v/c Ratio	0.53			0.41	0.34	0.38
Control Delay	20.1			5.8	5.3	1.8
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	20.1			5.8	5.3	1.8
LOS	C			A	A	A
Approach Delay	20.1			5.8	4.1	
Approach LOS	C			A	A	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 50.5

Natural Cycle: 40

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 7.2

Intersection Capacity Utilization 54.7%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service A

Splits and Phases: 3:

Lanes, Volumes, Timings

3:

6/16/2014

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	43	275	0	0	247	454	19	14	0	493	11	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		0.99				0.80					1.00	
Frt						0.850					0.987	
Flt Protected		0.993						0.972		0.950	0.958	
Satd. Flow (prot)	0	3514	0	0	1863	1583	0	1811	0	1681	1667	0
Flt Permitted		0.889						0.972		0.950	0.958	
Satd. Flow (perm)	0	3109	0	0	1863	1273	0	1811	0	1681	1667	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						483					6	
Link Speed (mph)		25			25			30			25	
Link Distance (ft)		300			500			415			300	
Travel Time (s)		8.2			13.6			9.4			8.2	
Confl. Peds. (#/hr)	82					82						11
Peak Hour Factor	0.94	0.94	0.92	0.92	0.94	0.94	0.94	0.94	0.94	0.94	0.92	0.94
Adj. Flow (vph)	46	293	0	0	263	483	20	15	0	524	12	23
Shared Lane Traffic (%)										46%		
Lane Group Flow (vph)	0	339	0	0	263	483	0	35	0	283	276	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4			8		2	2		6	6	
Permitted Phases	4			8		8						
Detector Phase	7	4		8	8	8	2	2		6	6	
Switch Phase												

Lanes, Volumes, Timings

3:

6/16/2014



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	8.5	20.0		20.0	20.0	20.0	10.0	10.0		20.0	20.0	
Total Split (s)	15.0	35.0		20.0	20.0	20.0	15.0	15.0		20.0	20.0	
Total Split (%)	21.4%	50.0%		28.6%	28.6%	28.6%	21.4%	21.4%		28.6%	28.6%	
Maximum Green (s)	10.5	31.0		16.0	16.0	16.0	11.0	11.0		16.0	16.0	
Yellow Time (s)	3.5	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		4.0			4.0	4.0		4.0		4.0	4.0	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)		5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0	0	0	0		0	0	
Act Effct Green (s)		12.7			12.7	12.7		6.9		12.6	12.6	
Actuated g/C Ratio		0.34			0.34	0.34		0.18		0.34	0.34	
v/c Ratio		0.32			0.42	0.64		0.11		0.50	0.49	
Control Delay		11.9			14.0	6.6		18.5		15.7	15.3	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		11.9			14.0	6.6		18.5		15.7	15.3	
LOS		B			B	A		B		B	B	
Approach Delay		11.9			9.2			18.5			15.5	
Approach LOS		B			A			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 37.5

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 12.0

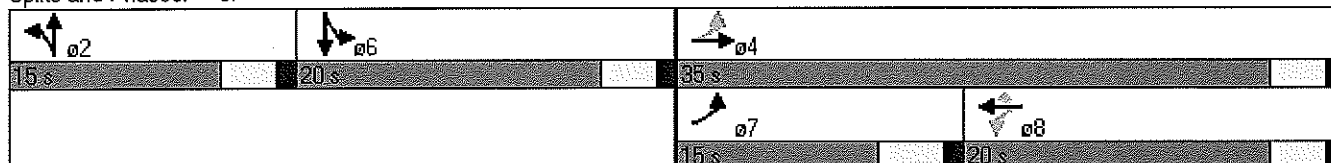
Intersection Capacity Utilization 55.7%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service B

Splits and Phases: 3:



TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	RP			Intersection	CORONAD DR / HAMDEN DR			
Agency/Co.	GCC			Jurisdiction	CLEARWATER			
Date Performed	6/15/14			Analysis Year	FUTURE WITH PROJECT			
Analysis Time Period	PM Peak							
Project Description 401-421 S. Gulfview								
East/West Street: CORONADO DR				North/South Street: HAMDEN DRIVE				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	4	469			409	107		
Peak-Hour Factor, PHF	0.91	0.91	0.91	0.97	0.91	0.91		
Hourly Flow Rate, HFR (veh/h)	4	515	0	0	449	117		
Percent Heavy Vehicles	1	--	--	0	--	--		
Median Type	Two Way Left Turn Lane							
RT Channelized			0			0		
Lanes	0	2	0	0	1	0		
Configuration	LT	T				TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)					75	3		
Peak-Hour Factor, PHF	0.91	0.97	0.91	0.97	0.91	0.91		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	82	3		
Percent Heavy Vehicles	1	0	1	0	1	1		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	1	0		
Configuration						TR		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT							TR
v (veh/h)	4							85
C (m) (veh/h)	979							229
v/c	0.00							0.37
95% queue length	0.01							1.62
Control Delay (s/veh)	8.7							29.7
LOS	A							D
Approach Delay (s/veh)	--	--				29.7		
Approach LOS	--	--				D		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	RP			Intersection	CORONADO DR / 5TH ST			
Agency/Co.	GCC			Jurisdiction	CLEARWATER			
Date Performed	6/15/14			Analysis Year	FUTURE WITH PROJECT			
Analysis Time Period	PM PEAK							
Project Description 401-421 S Gulfview								
East/West Street: 5TH STREET				North/South Street: CORONADO DRIVE				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	0	408	0	21	463	32		
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93		
Hourly Flow Rate, HFR (veh/h)	0	438	0	22	497	34		
Percent Heavy Vehicles	1	--	--	1	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	1	1	0	1	1	0		
Configuration	L		TR	L		TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	34	2	3	1	0	44		
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93		
Hourly Flow Rate, HFR (veh/h)	36	2	3	1	0	47		
Percent Heavy Vehicles	1	0	0	1	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
v (veh/h)	0	22		48			41	
C (m) (veh/h)	1009	1081		557			190	
v/c	0.00	0.02		0.09			0.22	
95% queue length	0.00	0.06		0.28			0.79	
Control Delay (s/veh)	8.6	8.4		12.1			29.1	
LOS	A	A		B			D	
Approach Delay (s/veh)	--	--	12.1			29.1		
Approach LOS	--	--	B			D		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	RP			Intersection	HAMDEN DR / 5TH STREET			
Agency/Co.	GCC			Jurisdiction	CLEARWATER			
Date Performed	6/17/14			Analysis Year	FUTURE WITH PROJECT			
Analysis Time Period	PM Peak							
Project Description 401-421 S. Gulfview								
East/West Street: 5TH STREET				North/South Street: HAMDEN DRIVE				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	15	90			55	2		
Peak-Hour Factor, PHF	0.74	0.74	1.00	1.00	0.74	0.74		
Hourly Flow Rate, HFR (veh/h)	20	121	0	0	74	2		
Percent Heavy Vehicles	1	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	5		12					
Peak-Hour Factor, PHF	0.74	1.00	0.74	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	6	0	16	0	0	0		
Percent Heavy Vehicles	1	0	1	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	20						22	
C (m) (veh/h)	1497						870	
v/c	0.01						0.03	
95% queue length	0.04						0.08	
Control Delay (s/veh)	7.4						9.2	
LOS	A						A	
Approach Delay (s/veh)	--	--				9.2		
Approach LOS	--	--				A		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	RP			Intersection	HAMDEN DR / BRIGHTWATER DR			
Agency/Co.	GCC			Jurisdiction	CLEARWATER			
Date Performed	6/17/14			Analysis Year	FUTURE WITH PROJECT			
Analysis Time Period	PM Peak							
Project Description 401-421 S. Gulfview								
East/West Street: BRIGHTWATER DR				North/South Street: HAMDEN DRIVE				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	3	112	2	11	50	1		
Peak-Hour Factor, PHF	0.76	0.76	0.76	0.76	0.76	0.76		
Hourly Flow Rate, HFR (veh/h)	3	147	2	14	65	1		
Percent Heavy Vehicles	1	--	--	1	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	8	8	2	1	4	8		
Peak-Hour Factor, PHF	0.76	0.76	0.76	0.76	0.76	0.76		
Hourly Flow Rate, HFR (veh/h)	10	10	2	1	5	10		
Percent Heavy Vehicles	1	1	1	1	1	1		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	3	14		16			22	
C (m) (veh/h)	1498	1398		745			639	
v/c	0.00	0.01		0.02			0.03	
95% queue length	0.01	0.03		0.07			0.11	
Control Delay (s/veh)	7.4	7.6		9.9			10.8	
LOS	A	A		A			B	
Approach Delay (s/veh)	--	--	9.9			10.8		
Approach LOS	--	--	A			B		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	RP			Intersection	5TH ST / DRIVE A		
Agency/Co.	GCC			Jurisdiction	CLEARWATER		
Date Performed	6/17/2014			Analysis Year	FUTURE WITH PROJECT		
Analysis Time Period	PM PEAK						
Project Description 401-421 S GULFVIEW							
East/West Street: 5TH STREET				North/South Street: DRIVE A			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		33	29	10	28		
Peak-Hour Factor, PHF	1.00	0.93	0.93	0.93	0.93	1.00	
Hourly Flow Rate, HFR (veh/h)	0	35	31	10	30	0	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	26		13				
Peak-Hour Factor, PHF	0.93	1.00	0.93	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	27	0	13	0	0	0	
Percent Heavy Vehicles	0	0	0	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		10		40			
C (m) (veh/h)		1549		935			
v/c		0.01		0.04			
95% queue length		0.02		0.13			
Control Delay (s/veh)		7.3		9.0			
LOS		A		A			
Approach Delay (s/veh)	--	--		9.0			
Approach LOS	--	--		A			

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	RP			Intersection	CORONADO / DRIVE B		
Agency/Co.	GCC			Jurisdiction	CLEARWATER		
Date Performed	6/17/2014			Analysis Year	FUTURE WITH PROJECT		
Analysis Time Period	PM PEAK						
Project Description 401-421 S. GULFVIEW							
East/West Street: DRIVE B				North/South Street: CORONADO DRIVE			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	5	402			460	0	
Peak-Hour Factor, PHF	0.93	0.93	1.00	1.00	0.93	0.93	
Hourly Flow Rate, HFR (veh/h)	5	432	0	0	494	0	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	1	1	0	0	1	0	
Configuration	L	T				TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	0		7				
Peak-Hour Factor, PHF	0.93	1.00	0.93	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	0	0	7	0	0	0	
Percent Heavy Vehicles	0	0	0	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L						LR
v (veh/h)	5						7
C (m) (veh/h)	1080						579
v/c	0.00						0.01
95% queue length	0.01						0.04
Control Delay (s/veh)	8.3						11.3
LOS	A						B
Approach Delay (s/veh)	--	--					11.3
Approach LOS	--	--					B

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	RP			Intersection	CORONADO / DRIVE C		
Agency/Co.	GCC			Jurisdiction	CLEARWATER		
Date Performed	6/17/2014			Analysis Year	FUTURE WITH PROJECT		
Analysis Time Period	PM PEAK						
Project Description 401-421 S. GULFVIEW							
East/West Street: DRIVE C				North/South Street: CORONADO DRIVE			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	5	407			467	0	
Peak-Hour Factor, PHF	0.93	0.93	1.00	1.00	0.93	0.93	
Hourly Flow Rate, HFR (veh/h)	5	437	0	0	502	0	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	1	1	0	0	1	0	
Configuration	L	T				TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	0		6				
Peak-Hour Factor, PHF	0.93	1.00	0.93	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	0	0	6	0	0	0	
Percent Heavy Vehicles	0	0	0	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	L						LR
v (veh/h)	5						6
C (m) (veh/h)	1073						573
v/c	0.00						0.01
95% queue length	0.01						0.03
Control Delay (s/veh)	8.4						11.3
LOS	A						B
Approach Delay (s/veh)	--	--					11.3
Approach LOS	--	--					B