

**TRAFFIC IMPACT STUDY
FOR
325 S. GULFVIEW BLVD HOTEL
CLEARWATER, FLORIDA**

PREPARED FOR:
BEACH ROCK LODGING, LLLP

PREPARED BY:
GULFCOAST CONSULTING, INC.
DECEMBER 2021


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

I. INTRODUCTION

The applicant is proposing to redevelop their property on Clearwater Beach into a 180 room resort hotel with ancillary retail space. (See Figure 1). This analysis is for a hotel which will be located between S. Gulfview Boulevard and Coronado Drive north of Brightwater Drive. The redevelopment of the property is the subject of a Major Amendment to a previously approved Development Agreement in the Tourist “T” zoning district. This application requires an assessment of the traffic impacts of development. This analysis is a major revision to an analysis conducted in 2014 for Hotel “A” and is being prepared in accordance with a methodology provided to City of Clearwater staff.

II. EXISTING TRAFFIC CONDITIONS

The hotel property has frontage on Coronado Drive and south Gulfview Boulevard although all vehicular access will be taken from Coronado Drive. 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 3rd Street 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 (2 lanes EB & 1 lane WB) with a small portion being 4-lanes between Hamden Drive and Bayway Boulevard.

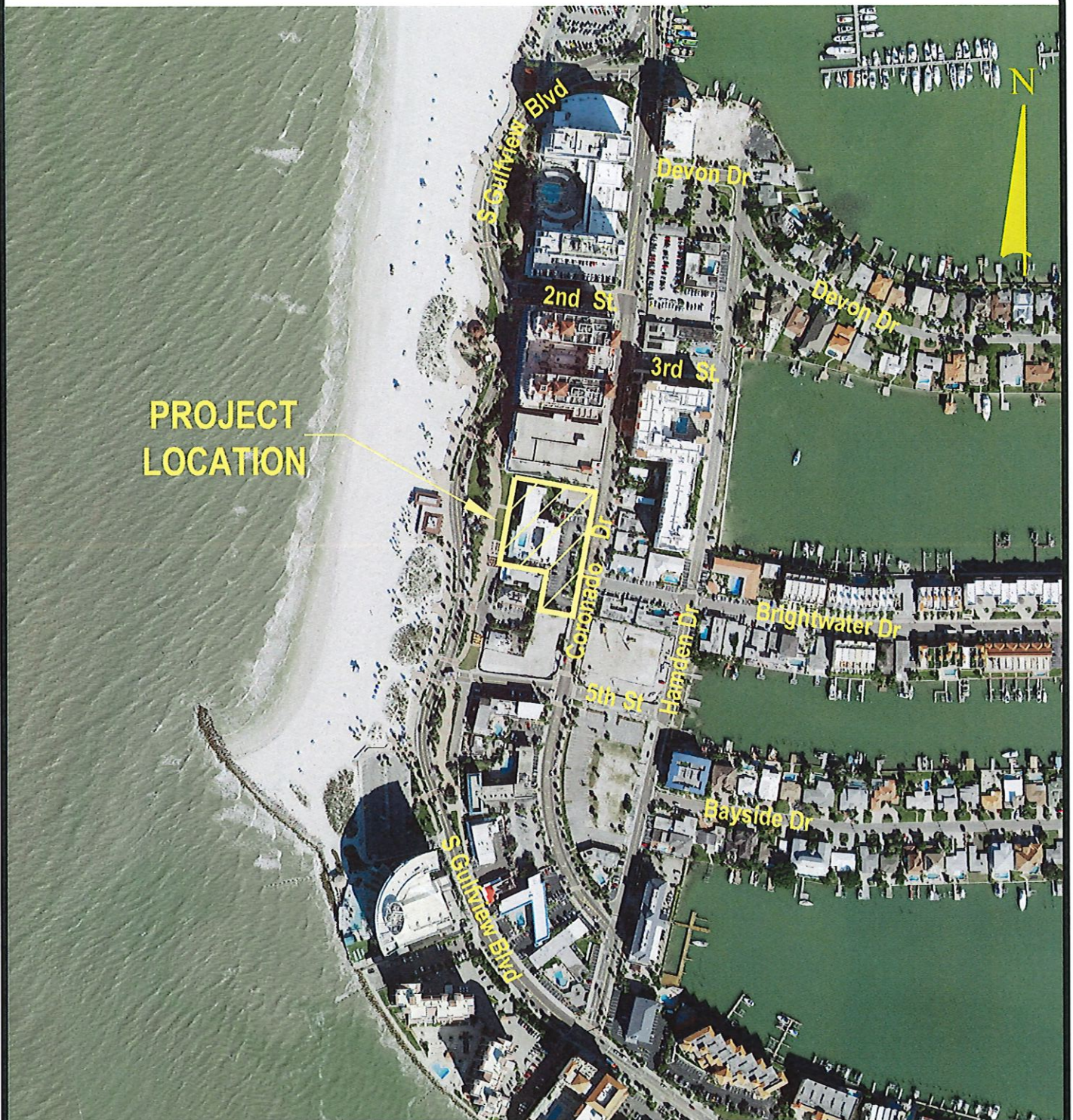
Per the methodology traffic counts that were conducted on in July 2021 at the following intersections during the weekday PM peak period of 2:30 – 4:30 PM were used as a basis for this study.

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

The above-referenced counts were supplemented by weekday PM peak period counts (2:30 – 4:30 PM) at these additional intersections in December 2021

Coronado Drive / Brightwater Drive
Coronado Drive / Third Street

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



PROJECT LOCATION - 325 S. GULFVIEW BLVD.

PROJECT NO:
21-092



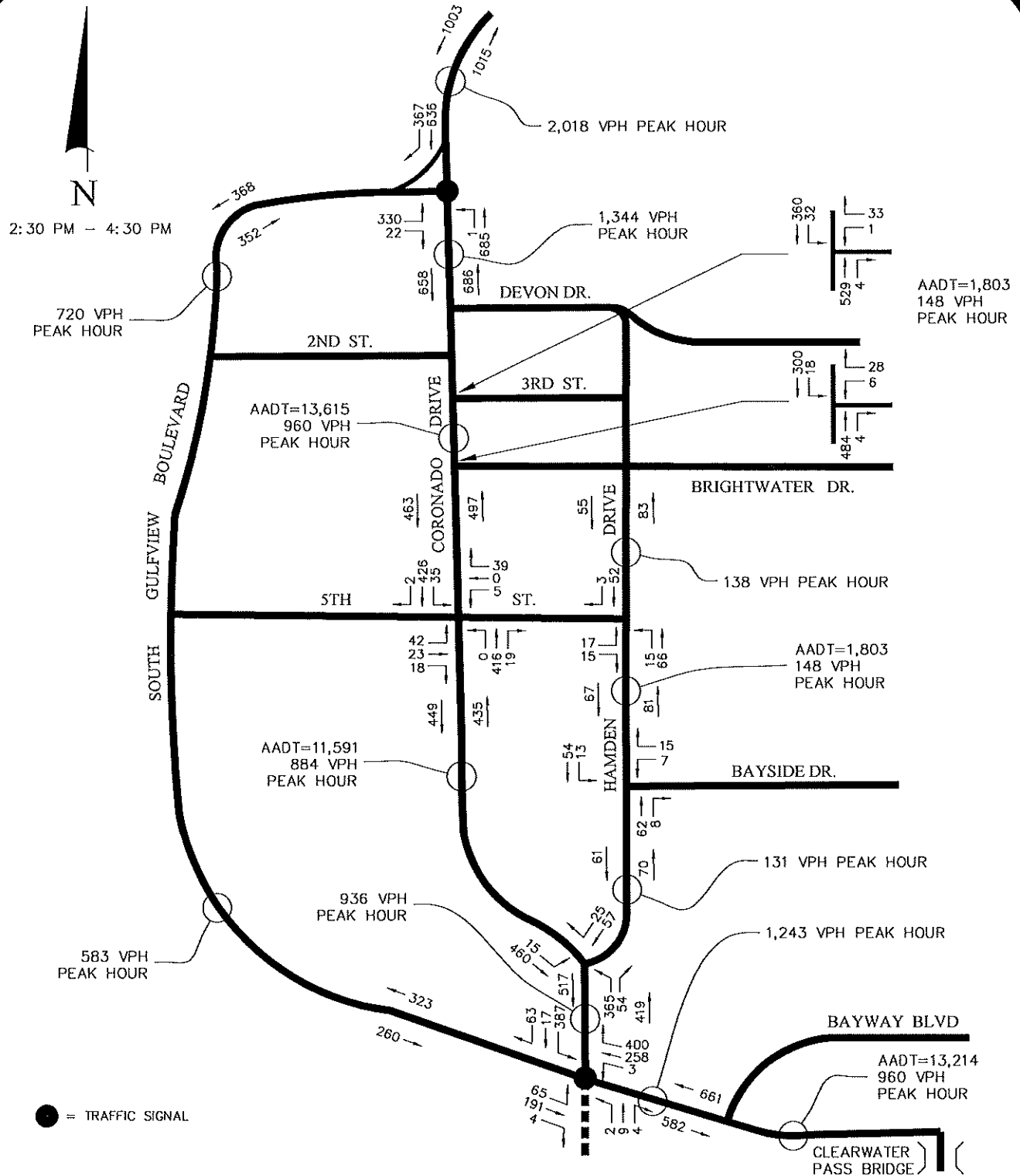
Gulf Coast Consulting, Inc.
Land Development Consulting

DATE:
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GJS

FIGURE:

1



EXISTING PM PEAK HOUR TRAFFIC (2021)

PROJECT NO:
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FIGURE:

2

Presently the signalized intersection at S. Gulfview Boulevard / Hamden Drive operates at LOS B with average delay being 11.7 seconds per vehicle with ICU of 62.2%. The maximum v/c ratio is 0.64.

At the intersection of Hamden Drive / Coronado Drive the primary movements are southbound on Coronado Drive (slight right) and northbound-on Hamden-Coronado, whereas the southwestbound approach (Hamden Drive) is stop controlled. The SYNCHRO analysis shows the stop-controlled movements on Hamden Drive operate at LOS B with delay of 12.9 seconds per vehicle and a v/c ratio of 0.113.

At the Coronado Drive / 5th Street intersection, 5th Street is the stop-controlled minor street. Southbound left turns operate at LOS A with average delay of 8.4 seconds and a v/c ratio of 0.035, the eastbound approach operates at LOS E with average delay of 38.5 seconds and a v/c ratio of 0.46, and the westbound approach operates at LOS B with average delay of 14.8 seconds with a v/c ratio of 0.114.

At the Coronado Drive/ Brightwater Drive intersection, Brightwater Drive is the stop-controlled minor street. Southbound left turns operate at LOS A with average delay of 8.6 seconds and a v/c ratio of 0.018, the westbound approach operates at LOS B with average delay of 13.2 seconds and a v/c ratio of 0.075.

At the Coronado Drive / Third Street intersection, Third Street is the stop-controlled minor street. Southbound Left turns operates at LOS A with average delay of 9.3 seconds and a v/c ratio of 0.038, the westbound approach operates at LOS C with average delay of 16 seconds and a v/c ratio of 0.099.

Presently the signalized intersection at S. Gulfview Boulevard / Coronado Drive operates at LOS A with average delay being 6.9 seconds per vehicle and an intersection capacity utilization (ICU) of 51.3%. The maximum v/c ratio is 0.44.

At the Hamden Drive / Bayside Drive T- intersection, Bayside Drive is the minor stop-controlled street. Southbound left turns operate at LOS A with average delay of 7.5 seconds and a v/c ratio of 0.011, and the westbound approach (Bayside Drive) operates at LOS A with 9.5 seconds average delay and a v/c ratio of 0.033.

At the Hamden Drive / 5th Street intersection T-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 a v/c ratio of 0.012, and the eastbound approach operates at LOS A with average delay of 9.7 seconds and a v/c ratio of 0.047.

Coronado Drive is the main roadway through south Clearwater Beach providing vehicular access to most beachfront hotels and parking garages. The segment of Coronado Drive between the two traffic signals (S. Gulfview on the south end and S. Gulfview on the north end) is approximately ½ mile in length with a posted speed limit of 25 MPH. Coronado Drive functions as a class IV minor arterial per

HCM criteria. The segment of Coronado Drive between the two traffic signals (S Gulfview to S Gulfview) was analyzed using the SYNCHRO and HCS software and presently operates at LOS B in the northbound (NB) direction and LOS C in the southbound (SB) direction.

South Gulfview Boulevard functions as a minor arterial roadway and according to FDOT 2012 QLOS Handbook capacity tables has a LOS D capacity of 1,330 vehicles per hour on the undivided segment. The segment of S. Gulfview Boulevard east of Hamden Drive is three-lane road with a LOS D capacity of 1,970 vehicles per hour and 2,190 vehicles per hour on the 4-lane portion between Hamden Drive and Bayway Boulevard. Hamden Drive north of the Y-intersection with Coronado Drive is a two-lane city 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 (2021)

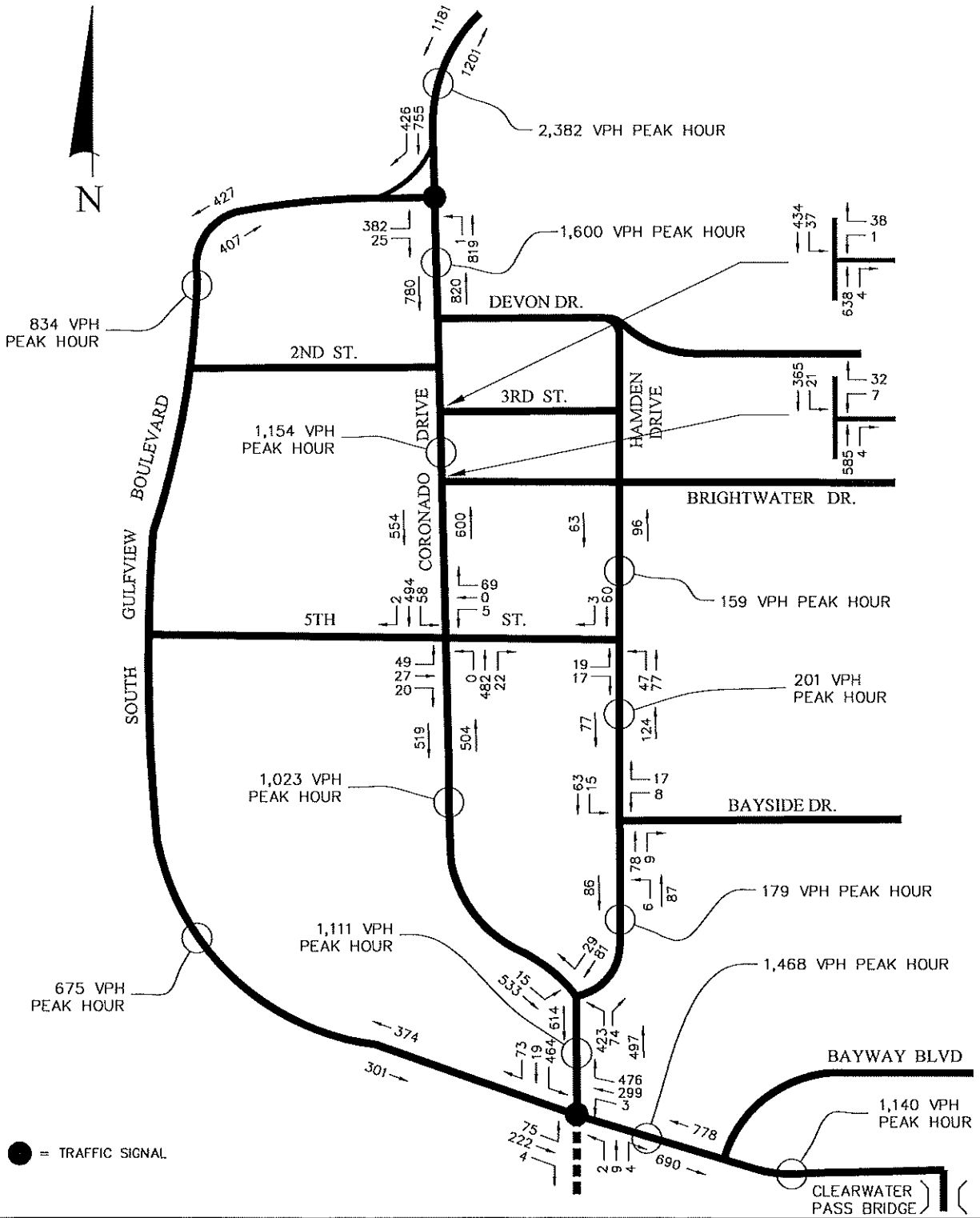
Roadway Segment	Lanes	PM Peak Volume	LOS D Capacity	LOS
S. Gulfview (E. of Bayway)	3-lanes	960	1970	D
S. Gulfview (Bywy-Hamden)	4-lanes	1243	2190	D
S. Gulfview (Hamden - 5 th)	2LU	583	1330	C
S. Gulfview (5 th – Coronado)	2LU	720	1330	D
Hamden (S. Gulfview-Coronado)	2LD	936	1390	C*
Coronado (Hamden – 5 th)	2LD	884	1390	C*
Coronado Drive (5 th – Brightwater)	2LD	960	1390	C*
Coronado Drive (Brightwater – 3 rd St)	2LD	960	1390	C*
Coronado (3 rd St - S. Gulfview)	4LU	1344	2190	C*
Coronado (Gulfview - Roundabout)	4LD	2018	2900	D
Hamden (Coronado – Bayside)	2LU	131	930	C
Hamden (Bayside – 5 th St.)	2LU	148	930	C
Hamden (5 th – Brightwater)	2LU	136	930	C

* Coronado/Hamden is LOS B NB with average travel speed of 20.9 MPH and LOS C SB with average travel speed of 18.3 MPH.

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

III. FUTURE TRAFFIC CONDITIONS

The build-out year of the hotel is 2024. As requested, by staff per the methodology, existing traffic was adjusted by a 2% annual growth rate to the expected build-out year + 5 years beyond to 2029 to account for background traffic from other nearby redevelopment projects. Background traffic volumes for 2029 are shown in Figure 3. Growth rate is shown in Appendix B.



BACKGROUND PM PEAK HOUR TRAFFIC (2029)

PROJECT NO:
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DATE:

12/2021

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FIGURE:

3

The site will be developed as a 180 room resort hotel. Using Institute of Transportation Engineers (ITE) Trip Generation, 11th Edition rates for Resort Hotel (LUC 330), 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	180 Rooms	1,438	74 (32/42)

The vehicular access will be taken from Coronado Drive via a single motor court driveway near the central part of the site north of Brightwater Drive. The expected distribution is shown in Figure 4 and is as follows:

- 60% to / from the north (44 PM peak hour trips)
- 40% to / from the south (30 PM peak hour trips)

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

PROJECT IMPACT CALCULATIONS

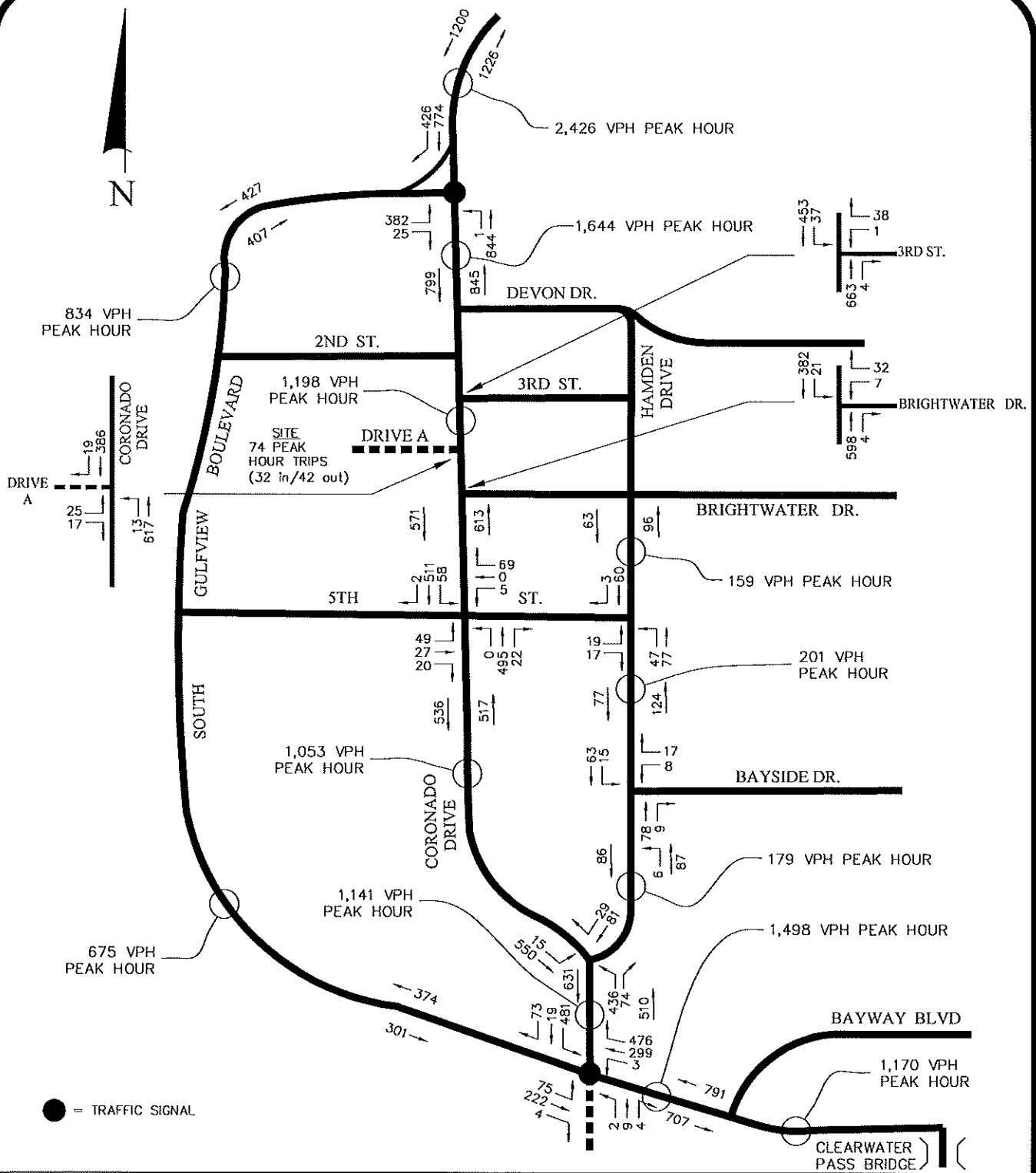
Road Segment	Lanes	Project Trips	Project Capacity	Percent
S. Gulfview (E. of Bayway)	3-lanes	30	1970	1.52%
S. Gulfview (Bayway-Hamden)	4-lanes	30	2190	1.37%
Hamden (S. Gulfview – Coronado)	2LD	30	1390	2.16%
Coronado (5 th St – Project Access)	2LD	30	1390	2.16%
Coronado (Project Access- 3 rd St)	2LD	44	1390	3.17%
Coronado (3 rd St – S Gulfview)	4LU	44	2190	2.01%
Coronado (S. Gulfview – Roundabout)	4LD	44	2900	1.52%

Significant Impact Area

Typically a project “significant impact area” is defined where the project added traffic comprises 5% or more of the roadway capacity. As shown above the project traffic does not “significantly impact” any roadway segment. Primary impacts will be to Coronado Drive.

Analysis

Project traffic impacts will be primarily to Coronado Drive. Project traffic was added to accumulated background traffic for an analysis year of 2029. All intersections, roadway segments and project driveways were analyzed for future conditions. Future traffic volumes are shown in Figure 5, and the SYNCHRO printouts are included in Appendix B.



FUTURE PM PEAK HOUR TRAFFIC WITH PROJECT (2029)

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DATE:

12/2021

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GJS

FIGURE:

5

The signalized intersection at S. Gulfview Boulevard / Hamden Drive would operate at LOS B with average delay being 13.6 seconds per vehicle with ICU of 66.9%. The maximum v/c ratio would be 0.71.

At the intersection of Hamden Drive / Coronado Drive, the analysis shows the stop-controlled movements on Hamden Drive would operate at LOS B with delay of 14.7 seconds per vehicle. The v/c ratio would be 0.182.

At the Coronado Drive / 5th Street intersection, and southbound left turns would operate at LOS A with a v/c ratio of 0.062, the eastbound approach would operate at LOS F with average delay of 99.6 seconds and a v/c ratio of 0.806, and the westbound approach would operate at LOS C with average delay of 17 seconds and a v/c ratio of 0.209. Overall intersection delays are 9 seconds/vehicle.

At the Coronado Drive / Brightwater Drive intersection southbound left turns would operate at LOS A with 9 seconds delay and a v/c ratio of 0.024, and the westbound approach would operate at LOS C with average delay of 15.4 seconds and a v/c ratio of 0.105.

At the Coronado Drive / Third Street intersection southbound left turns would operate at LOS A with 9.9 seconds delay and a v/c ratio of 0.05, and the westbound approach would operate at LOS C with average delay of 18.8 seconds and a v/c ratio of 0.136.

The signalized intersection at S. Gulfview Boulevard / Coronado Drive would continue to operate at LOS A with average delay of 7.9 seconds per vehicle and an intersection capacity utilization (ICU) of 59.4%. The maximum v/c ratio would be 0.50.

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

FUTURE ROADWAY CONDITIONS WITH PROJECT (2029)

Roadway Segment	Lanes	PM Peak Volume	LOS D Capacity	LOS
S. Gulfview (E. of Bayway) 3-lanes		1170	1970	D
S. Gulfview (Bywy-Hamden) 4-lanes		1498	2190	D
S. Gulfview (Hamden -5 th) 2LU		675	1330	D
S. Gulfview (5th – Coronado) 2LU		834	1330	D
Hamden (S. Gulfview-Coronado) 2LD		1141	1390	C*
Coronado (Hamden – 5 th) 2LD		1053	1390	C*
Coronado (5 th –Brightwater) 2LD		1184	1390	C*
Coronado (Brightwater-Project) 2LD		1047	1390	C*
Coronado (Project – 3 rd St) 2LD		1198	1390	C*
Coronado (3 rd St - S. Gulfview) 4LU		1644	2190	C*
Coronado (Gulfview - Roundabout) 4LD		2426	2900	D

* Coronado/Hamden is LOS B NB with average travel speed of 20.7 MPH and LOS C SB with average travel speed of 18.0 MPH.

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

The table below shows queues at the hotel driveway and the intersection of Coronado Drive/Brightwater Drive near the hotel driveway.

INTERSECTION	APPROACH	QUEUE (VEH)	QUEUE (FEET)	AVAILABLE DISTANCE
Coronado Dr./ Brightwater Drive	SB	0.1	0-25 feet	70 feet from Brightwater to hotel egress
Coronado Drive / Drive A	NB	0	0-25 feet	100 feet between Brightwater and Drive A ingress

The maximum queues at intersections affecting driveways are 25 feet.

Internal Circulation

The hotel will include two (2) levels of parking within a parking garage with internal ramps. Access to Coronado Drive is the sole ingress/egress for vehicles. All internal drive aisles and ramps should be 24 feet wide with appropriate signage. Sight triangles and visibility at the garage exit onto Coronado Drive appear to be adequate on the site plan and should provide clear visibility of pedestrians and vehicles along Coronado Drive.

Bicycle/Pedestrian Features

The hotel will include bicycle parking on the ground floor near the hotel lobby and near the "Beachwalk" access. The hotel will also reconstruct some existing sidewalk along the Coronado Drive frontage. The hotel will provide pedestrian access along the western frontage to "Beachwalk" which will be a major pedestrian feature for the redevelopment of this property.

IV. CONCLUSION

This analysis was conducted in accordance with a methodology provided to City of Clearwater staff. The proposed hotel would generate 1,438 daily trips of which 74 would occur during the afternoon 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

Robert Pergolizzi

From: Robert Pergolizzi
Sent: Tuesday, November 30, 2021 1:18 PM
To: Bennett Elbo (bennett.elbo@myclearwater.com)
Cc: Joe Burdette; 'katie.cole@hwhlaw.com'
Subject: 325 S Gulview Hotel - Traffic Methodology
Attachments: Traffic Methodology 11-30-21.pdf

Bennett – Please see attached methodology letter. This will build upon the recently completed traffic study for 405 Coronado. Adding 2 new intersections to this study.

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Engineering • Planning • Transportation • Permitting

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November 30, 2021

Mr. Bennett Elbo, Sr. Engineering Specialist
City of Clearwater Traffic Operations Division
100 S. Myrtle Avenue, 2nd Floor (220)
Clearwater, FL 33756

Via email: Bennett.Elbo@myclearwater.com

Dear Bennett:

We will be doing a new traffic study for 325 S. Gulfview Blvd. as part of a Major Amendment to a previously approved Development Agreement. I had initially submitted a traffic study for this project in 2014. (Hotel A) The project is still 180 rooms and all vehicle access would be from Coronado Drive. Using ITE Trip Generation, 11th Edition rates, the hotel project would generate 1,438 daily trips of which 74 would occur during the PM peak hour.

As was done with my recent study for 405 Coronado Drive we will use the recently collected peak period counts from 2:30 – 4:30 PM at several local intersections analyzed in that study. We will supplement these counts with afternoon peak period counts (2:30 – 4:30 PM) at two (2) additional intersections to obtain better coverage of the beach:

Coronado Drive/ Brightwater Drive
Coronado Drive / 3rd Street

All traffic counts will be converted to annual averages using FDOT Seasonal adjustment factors. Roadway segment volumes will be calculated using the seasonally adjusted peak period intersection counts. Existing conditions at the intersections and roadway segments will be analyzed using SYCHRO and HCS software and FDOT Generalized Tables.

Background Traffic Growth

Background traffic will be calculated using a 2% annual growth rate as done in previous studies. Documentation of FDOT data is provided that shows count stations on and near the beach have had little or no growth. Much of Pinellas County has had no traffic growth. Therefore, a 2% annual growth rate is very reasonable for the beach.

Although the expected build-out date is 2024, we will calculate background traffic to 2029 as was done for the recently completed 405 Coronado Drive traffic study. This is 5 years beyond expected buildout.

Future Conditions With Project

Project traffic will be added to the 2029 background traffic volumes. As was previously approved, and done for the recent 405 Coronado Drive study the distribution is proposed as:

60% north on Coronado Drive (44 trips)

40% south on Coronado Drive (30 trips)

We will reanalyze the intersections, project driveways and roadways using SYNCHRO & HCS software and FDOT Generalized Tables. Please note Coronado Drive is a 3-lane roadway with a continuous center left turn lane that separates left turns from the through traffic stream. We will also evaluate queues at the project driveways to Coronado Drive. A written report will be submitted for review with the Development Agreement Major Amendment application package.

We look to obtain our supplemental intersection counts in early December and have the report completed for submittal by the January 3, 2022 deadline. Please contact me if you have any questions.

Sincerely,



Robert Pergolizzi, AICP/PTP
Principal

Cc: Joe Burdette
Katie Cole
21-092

Untitled Map

Write a description for your map.

Legend

- 325 S Gulfview Blvd
- Barefoot Beach House
- Clearwater Beach Lifeguard Station #2
- Coco's Crush Bar and Grill
- Feature 1
- Feature 2
- Feature 3
- Restroom and Shower
- Simon's Place
- Surf Style



Hotel (310)

Vehicle Trip Ends vs: Rooms
On a: Weekday

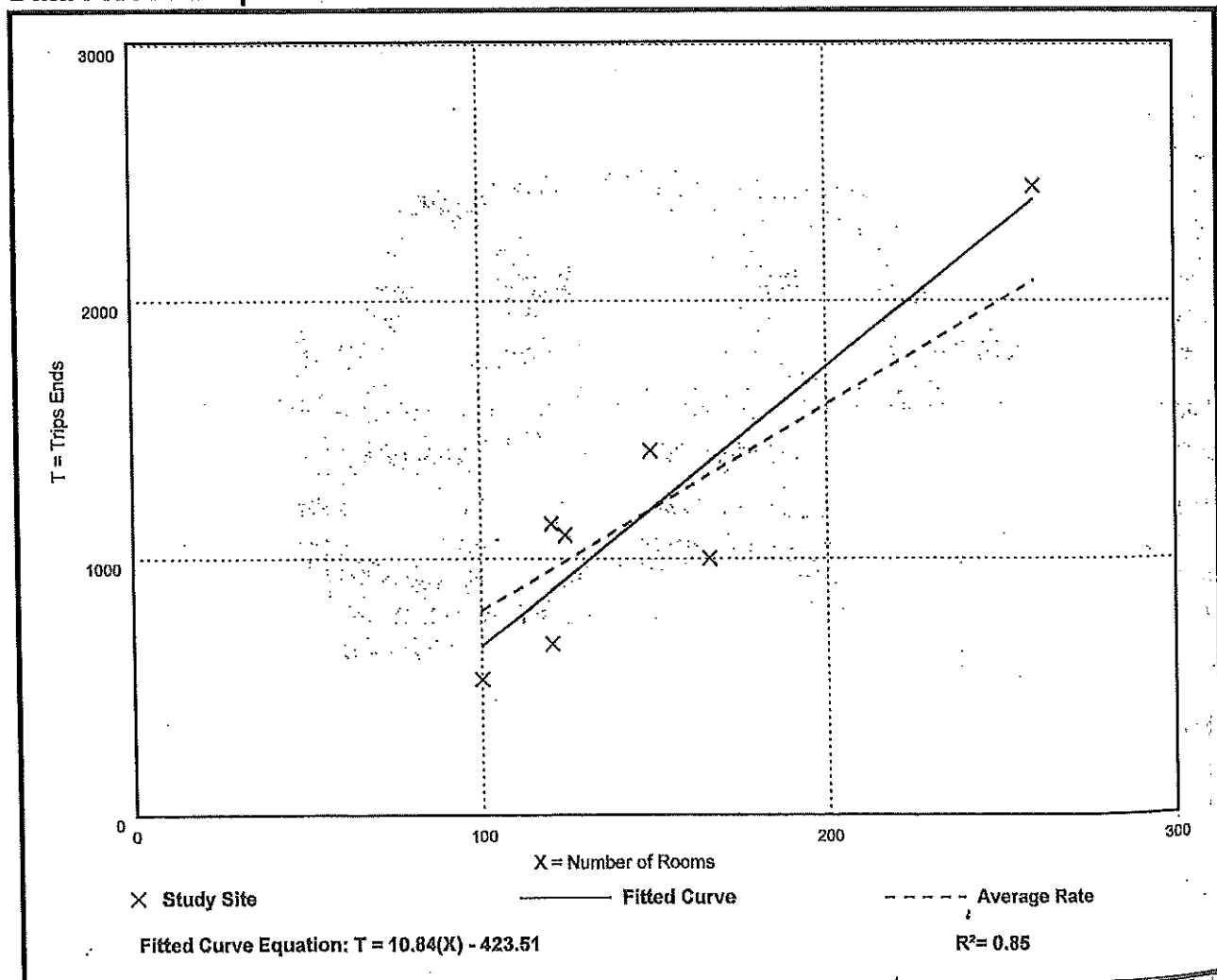
Setting/Location: General Urban/Suburban
Number of Studies: 7
Avg. Num. of Rooms: 148
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
7.99	5.31 - 9.53	1.92

Data Plot and Equation

180 rooms $\times$ 7.99 = 1438 daily



Resort Hotel (330)

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: 9

Avg. Num. of Rooms: 507

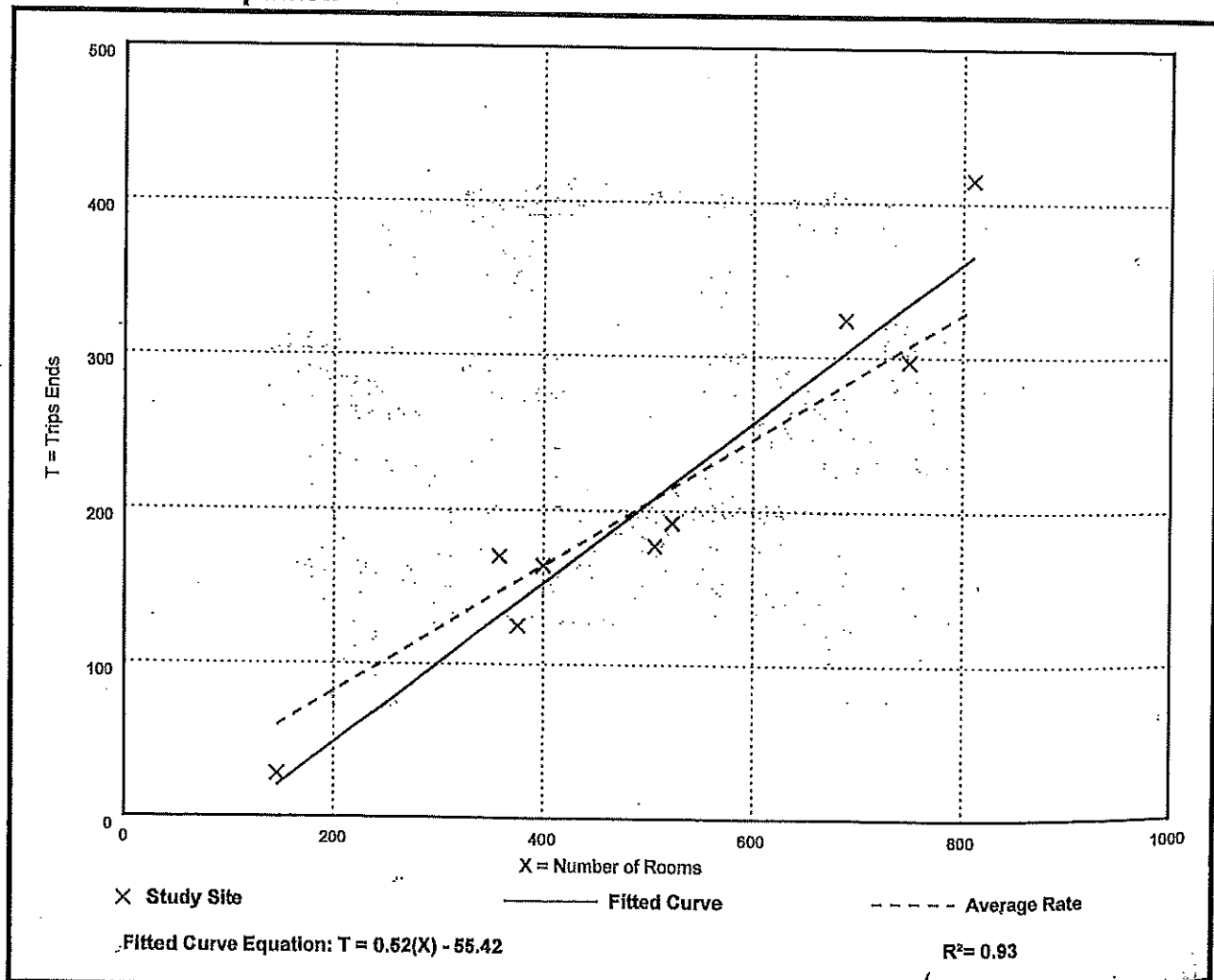
Directional Distribution: 43% entering, 57% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.41	0.19 - 0.51	0.08

Data Plot and Equation

$$180 \times 0.41 = 74 \text{ PM PEAK (32/42)}$$



FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 15 - PINELLAS

SITE: 9188 - CORONADO DR, N OF GULFVIEW BLVD

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
----	-----	-----	-----	-----	-----	-----
2020	8500 X	0	0	9.00	55.30	3.40
2019	9100 X	0	0	9.00	55.70	3.30
2018	9000 X	0	0	9.00	55.50	3.20
2017	8900 6	0	0	9.00	54.50	2.90
2016	8700 V	0	0	9.00	55.90	2.90
2015	8500 R	0	0	9.00	55.00	2.90
2014	8300 T	0	0	9.00	55.40	3.20
2013	8200 S	0	0	9.00	55.20	3.00
2012	8200 F	0	0	9.00	55.00	2.80
2011	8200 C	N	S	9.00	56.50	3.10

2011 - 2020 = 3.6% in 9 years 0.41%/year

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 15 - PINELLAS

SITE: 9168 - MEMORIAL CAUSEWAY, E OF ROUNDABOUT (HPMS)

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2020	24500 C	E 12000	W 12500	9.00	55.30	3.40
2019	29000 X	0	0	9.00	55.70	3.30
2018	29000 X	0	0	9.00	55.50	3.20
2017	29000 X	0	0	9.00	54.50	2.90
2016	28500 E	0	0	9.00	55.90	2.90
2015	28000 E	0	0	9.00	55.00	2.90
2014	27400 E			9.00	55.40	3.20
2013	27000 S	E 13500	W 13500	9.00	55.20	3.30
2012	27000 F	E 13500	W 13500	9.00	55.00	3.30
2011	27000 C	E 13500	W 13500	9.00	56.50	3.30

2011-2020 NO GROWTH

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 15 - PINELLAS

SITE: 5097 - SR 60/MEMORIAL CSWY, W OF MEMORIAL CSWY BRIDGE 3019

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2020	34000 C	E 17500	W 16500	9.00	55.30	3.20
2019	38500 C	E 19500	W 19000	9.00	55.70	2.90
2018	36500 C	E 18500	W 18000	9.00	55.50	2.80
2017	40500 F	E 20500	W 20000	9.00	54.50	3.20
2016	39500 C	E 20000	W 19500	9.00	55.90	3.20
2015	36500 C	E 18500	W 18000	9.00	55.00	3.10
2014	34500 C	E 17500	W 17000	9.00	55.40	3.30
2013	34500 C	E 17500	W 17000	9.00	55.20	3.00
2012	39500 C	E 20000	W 19500	9.00	55.00	2.60
2011	36500 C	E 18500	W 18000	9.00	56.50	2.70
2010	34000 C	E 17000	W 17000	10.52	55.26	2.60
2009	34500 C	E 17500	W 17000	10.53	55.79	2.60
2008	31000 C	E 15500	W 15500	10.29	58.46	3.20
2007	33000 C	E 16500	W 16500	10.31	56.79	4.10
2006	58000 E	E 29000	W 29000	9.88	58.53	3.80
2005	55500 C	E 27500	W 28000	9.90	58.50	2.70

2011 - 2020 = No Growth

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
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V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

2020 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
 CATEGORY: 1500 PINELLAS COUNTYWIDE

WEEK	DATES	SF	MOCF: 0.90 PSCF
* 1	01/01/2020 - 01/04/2020	1.02	1.13
* 2	01/05/2020 - 01/11/2020	0.94	1.04
* 3	01/12/2020 - 01/18/2020	0.85	0.94
* 4	01/19/2020 - 01/25/2020	0.84	0.93
* 5	01/26/2020 - 02/01/2020	0.82	0.91
* 6	02/02/2020 - 02/08/2020	0.81	0.90
* 7	02/09/2020 - 02/15/2020	0.79	0.88
* 8	02/16/2020 - 02/22/2020	0.83	0.92
* 9	02/23/2020 - 02/29/2020	0.86	0.96
*10	03/01/2020 - 03/07/2020	0.90	1.00
*11	03/08/2020 - 03/14/2020	0.94	1.04
*12	03/15/2020 - 03/21/2020	0.97	1.08
*13	03/22/2020 - 03/28/2020	1.11	1.23
14	03/29/2020 - 04/04/2020	1.25	1.39
15	04/05/2020 - 04/11/2020	1.39	1.54
16	04/12/2020 - 04/18/2020	1.53	1.70
17	04/19/2020 - 04/25/2020	1.42	1.58
18	04/26/2020 - 05/02/2020	1.32	1.47
19	05/03/2020 - 05/09/2020	1.21	1.34
20	05/10/2020 - 05/16/2020	1.10	1.22
21	05/17/2020 - 05/23/2020	1.08	1.20
22	05/24/2020 - 05/30/2020	1.06	1.18
23	05/31/2020 - 06/06/2020	1.04	1.16
24	06/07/2020 - 06/13/2020	1.02	1.13
25	06/14/2020 - 06/20/2020	1.00	1.11
26	06/21/2020 - 06/27/2020	1.01	1.12
27	06/28/2020 - 07/04/2020	1.02	1.13
28	07/05/2020 - 07/11/2020	1.02	1.13
29	07/12/2020 - 07/18/2020	1.03	1.14
30	07/19/2020 - 07/25/2020	1.03	1.14
31	07/26/2020 - 08/01/2020	1.03	1.14
32	08/02/2020 - 08/08/2020	1.02	1.13
33	08/09/2020 - 08/15/2020	1.02	1.13
34	08/16/2020 - 08/22/2020	1.02	1.13
35	08/23/2020 - 08/29/2020	1.02	1.13
36	08/30/2020 - 09/05/2020	1.02	1.13
37	09/06/2020 - 09/12/2020	1.02	1.13
38	09/13/2020 - 09/19/2020	1.02	1.13
39	09/20/2020 - 09/26/2020	1.01	1.12
40	09/27/2020 - 10/03/2020	1.00	1.11
41	10/04/2020 - 10/10/2020	0.99	1.10
42	10/11/2020 - 10/17/2020	0.98	1.09
43	10/18/2020 - 10/24/2020	0.99	1.10
44	10/25/2020 - 10/31/2020	0.99	1.10
45	11/01/2020 - 11/07/2020	1.00	1.11
46	11/08/2020 - 11/14/2020	1.00	1.11
47	11/15/2020 - 11/21/2020	1.01	1.12
48	11/22/2020 - 11/28/2020	1.01	1.12
49	11/29/2020 - 12/05/2020	1.01	1.12
50	12/06/2020 - 12/12/2020	1.02	1.13
51	12/13/2020 - 12/19/2020	1.02	1.13
52	12/20/2020 - 12/26/2020	0.94	1.04
53	12/27/2020 - 12/31/2020	0.85	0.94

COVID SHUTDOWN

* PEAK SEASON

27-FEB-2021 10:30:07

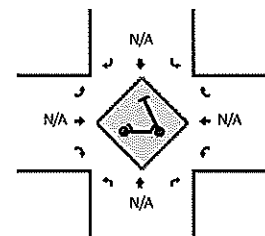
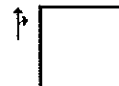
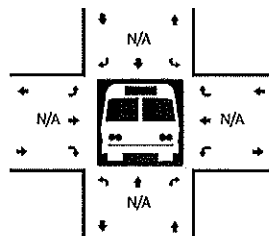
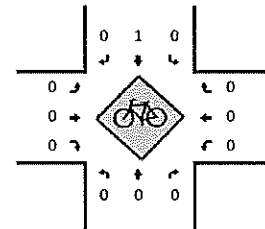
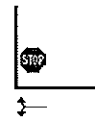
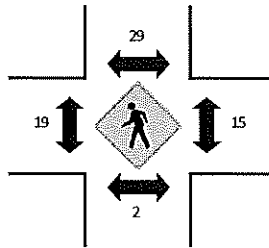
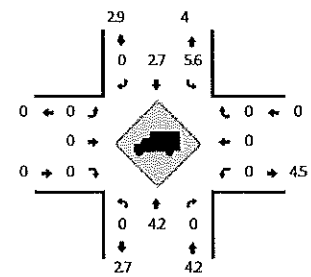
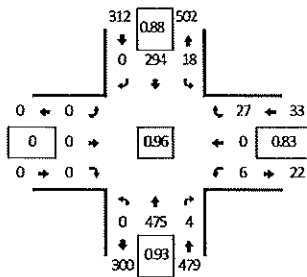
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7_1500_PKSEASON.TXT

LOCATION: Coronado Dr -- Brightwater Dr
CITY/STATE: Clearwater, FL

QC JOB #: 15656801
DATE: Tue, Dec 14 2021

Peak-Hour: 2:45 PM -- 3:45 PM
Peak 15-Min: 3:15 PM -- 3:30 PM



15-Min Count Period Beginning At	Coronado Dr (Northbound)				Coronado Dr (Southbound)				Brightwater Dr (Eastbound)				Brightwater Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:30 PM	0	93	4	0	6	58	0	0	0	0	0	0	1	0	4	0	166	
2:45 PM	0	112	1	0	4	85	0	0	0	0	0	0	3	0	6	0	211	
3:00 PM	0	118	1	0	3	63	0	0	0	0	0	0	1	0	4	0	190	
3:15 PM	0	128	1	0	3	73	0	0	0	0	0	0	1	0	8	0	214	781
3:30 PM	0	117	1	0	8	73	0	0	0	0	0	0	1	0	9	0	209	824
3:45 PM	0	87	0	0	4	75	0	0	0	0	0	0	0	0	11	0	177	790
4:00 PM	0	83	0	0	4	53	0	1	0	0	0	0	0	0	6	0	147	747
4:15 PM	0	79	1	0	4	86	0	0	0	0	0	0	0	0	0	0	170	703
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	512	4	0	12	292	0	0	0	0	0	0	4	0	32	0	856	
Heavy Trucks	0	24	0	0	4	12	0	0	0	0	0	0	0	0	0	0	40	
Buses																		
Pedestrians		8				32				16				24			80	
Bicycles	0	0	0		0	4	0		0	0	0		0	0	0		4	
Scooters																		

Comments:

Report generated on 12/21/2021 7:09 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

SE = 1.02

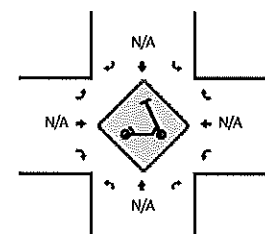
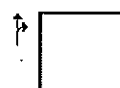
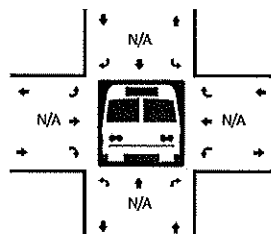
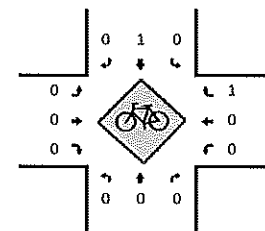
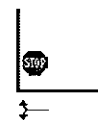
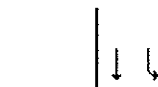
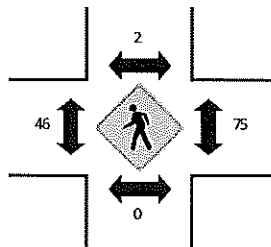
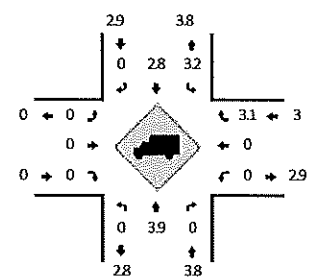
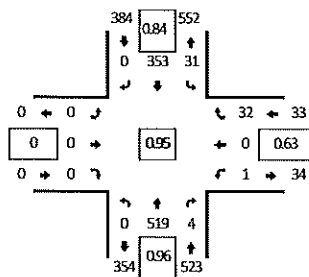
300 18
↓ L 2.8
5 6

1 P
484 4

LOCATION: Coronado Dr -- Third St
CITY/STATE: Clearwater, FL

QC JOB #: 15656802
DATE: Tue, Dec 14 2021

Peak-Hour: 2:45 PM -- 3:45 PM
Peak 15-Min: 2:45 PM -- 3:00 PM



15-Min Count Period Beginning At	Coronado Dr (Northbound)				Coronado Dr (Southbound)				Third St (Eastbound)				Third St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:30 PM	0	92	3	0	10	77	0	0	0	0	0	0	0	0	2	0	184	
2:45 PM	0	133	0	0	8	106	0	0	0	0	0	0	0	0	1	0	248	
3:00 PM	0	122	0	0	12	66	0	0	0	0	0	0	0	0	7	0	207	
3:15 PM	0	132	4	0	4	89	0	0	0	0	0	0	1	0	12	0	242	881
3:30 PM	0	132	0	0	6	92	0	1	0	0	0	0	0	0	12	0	243	940
3:45 PM	0	106	2	0	11	86	0	2	0	0	0	0	0	0	8	0	215	907
4:00 PM	0	96	1	0	6	59	0	0	0	0	0	0	0	0	5	0	167	867
4:15 PM	0	89	0	0	13	91	0	0	0	0	0	0	0	0	3	0	196	821
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	532	0	0	32	424	0	0	0	0	0	0	0	0	4	0	992	
Heavy Trucks	0	16	0	0	0	12	0	0	0	0	0	0	0	0	0	0	28	
Buses																		
Pedestrians		0				8				60				84			152	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

Comments:

Report generated on 12/21/2021 7:09 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

SF = 1.02
360 32
↓ L
33
V 1
↑ R
529 4

Lanes, Volumes, Timings

1: Hotel driveway/Hamden & S Gulfview Blvd/S Gulfview Blvd.

8/10/2021

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	2	9	4	387	17	63	65	191	4	3	258	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	202		550	355		355	800		409
Storage Lanes	0		0	1		0	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.96		0.99	0.89		0.79	0.99			1.00	0.60
Frt		0.964			0.959			0.997				0.850
Flt Protected		0.993		0.950	0.968		0.950				0.999	
Satd. Flow (prot)	0	1802	0	1715	1503	0	1736	1800	0	0	1861	1583
Flt Permitted		0.993		0.950	0.968		0.571				0.997	
Satd. Flow (perm)	0	1739	0	1689	1488	0	829	1800	0	0	1849	950
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			18			1				412
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		287			565			611			887	
Travel Time (s)		7.8			15.4			16.7			24.2	
Confl. Peds. (#/hr)	120		5	5		120	126		289	289		126
Confl. Bikes (#/hr)									9			4
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	4%	4%	4%	2%	2%	2%
Adj. Flow (vph)	2	9	4	399	18	65	67	197	4	3	266	412
Shared Lane Traffic (%)				39%								
Lane Group Flow (vph)	0	15	0	243	239	0	67	201	0	0	269	412
Turn Type	Split	NA		Split	NA		Perm	NA		Perm	NA	Perm
Protected Phases	2	2		6	6			4			4	
Permitted Phases							4			4		4
Detector Phase	2	2		6	6		4	4		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	25.0	25.0		30.0	30.0		25.0	25.0		25.0	25.0	25.0
Total Split (s)	25.0	25.0		40.0	40.0		45.0	45.0		45.0	45.0	45.0
Total Split (%)	22.7%	22.7%		36.4%	36.4%		40.9%	40.9%		40.9%	40.9%	40.9%
Maximum Green (s)	21.0	21.0		36.0	36.0		41.0	41.0		41.0	41.0	41.0
Yellow Time (s)	3.0	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	0.0
Total Lost Time (s)		4.0		4.0	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	3.0		3.0	3.0	3.0
Recall Mode	None	None		Min	Min		None	None		None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	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	0
Act Effct Green (s)		6.9		13.9	13.9		18.0	18.0			18.0	18.0
Actuated g/C Ratio		0.16		0.33	0.33		0.42	0.42			0.42	0.42
v/c Ratio		0.05		0.44	0.48		0.19	0.26			0.34	0.64

EXISTING CONDITIONS 2021 8/10/2021 AFTERNOON PEAK HOUR
RP

Synchro 8 Report
Page 1

Lanes, Volumes, Timings

1: Hotel driveway/Hamden & S Gulfview Blvd/S Gulfview Blvd.

8/10/2021

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Control Delay		22.5		16.8	16.9		11.0	10.2			10.8	6.9
Queue Delay		0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay		22.5		16.8	16.9		11.0	10.2			10.8	6.9
LOS		C		B	B		B	B			B	A
Approach Delay		22.5	Hotel		16.9	Hamden		10.4	S. Gulfview		8.4	
Approach LOS		C			B			B			A	
Queue Length 50th (ft)		2		36	33		7	22			31	0
Queue Length 95th (ft)		23		175	168		46	105			140	65
Internal Link Dist (ft)		207			485			531			807	
Turn Bay Length (ft)				202			355					409
Base Capacity (vph)		1062		1472	1293		741	1610			1654	893
Starvation Cap Reductn		0		0	0		0	0			0	0
Spillback Cap Reductn		0		0	0		0	0			0	0
Storage Cap Reductn		0		0	0		0	0			0	0
Reduced v/c Ratio		0.01		0.17	0.18		0.09	0.12			0.16	0.46

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 42.6

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 11.7

Intersection Capacity Utilization: 62.2%

Analysis Period (min) 15

Intersection LOS: B
ICU Level of Service B

Splits and Phases: 1: Hotel driveway/Hamden & S Gulfview Blvd/S Gulfview Blvd.

		
25 s	40 s	45 s

Intersection

Int Delay, s/veh 0

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Vol, veh/h	365	54	15	460	57	25
Conflicting Peds, #/hr	0	0	14	0	0	14
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	0	75	-	0	40
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	372	55	15	469	58	26

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	514
Stage 1	-	-	14
Stage 2	-	-	500
Critical Hdwy	-	-	6.4
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	-	-	3.5
Pot Cap-1 Maneuver	-	-	524
Stage 1	-	-	-
Stage 2	-	-	613
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	514
Mov Cap-2 Maneuver	-	-	514
Stage 1	-	-	-
Stage 2	-	-	609

Approach	NB	SB	SW
HCM Control Delay, s	0		
HCM LOS			-

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1	SWLn2
Capacity (veh/h)	-	-	-	-	514	-
HCM Lane V/C Ratio	-	-	-	-	0.113	-
HCM Control Delay (s)	-	-	-	-	12.9	-
HCM Lane LOS	-	-	-	-	B	-
HCM 95th %tile Q(veh)	-	-	-	-	0.4	-

SW BOUND (HAMDEN) (STOP)
APPROACH

Intersection												
Int Delay, s/veh	4	OVERALL						DELAY				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	42	23	18	5	0	39	0	416	19	35	426	2
Conflicting Peds, #/hr	68	0	68	8	0	8	199	0	199	7	0	7
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	300	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	2	2	2	2	2	2	1	1	1
Mvmt Flow	45	25	19	5	0	42	0	447	20	38	458	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1088	1078	726	1090	1069	473	528	0	0	476	0	0
Stage 1	602	602	-	466	466	-	-	-	-	-	-	-
Stage 2	486	476	-	624	603	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.52	6.22	4.12	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4.018	3.318	2.218	-	-	2.209	-	-
Pot Cap-1 Maneuver	195	220	428	193	221	591	1039	-	-	1091	-	-
Stage 1	490	492	-	577	562	-	-	-	-	-	-	-
Stage 2	566	560	-	473	488	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	164	197	324	128	198	583	842	-	-	1084	-	-
Mov Cap-2 Maneuver	164	197	-	128	198	-	-	-	-	-	-	-
Stage 1	458	444	-	573	558	-	-	-	-	-	-	-
Stage 2	522	556	-	328	440	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	38.5	14.8	0	0.6
HCM LOS	E	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	842	-	-	194	415	1084	-	-
HCM Lane V/C Ratio	-	-	-	0.46	0.114	0.035	-	-
HCM Control Delay (s)	0	-	-	38.5	14.8	8.4	-	-
HCM Lane LOS	A	-	-	E	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	2.2	0.4	0.1	-	-

WB

SBL7 CORONADO DR.

Intersection						
Int Delay, s/veh	0.7	OVERALL DELAY				

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	6	28	484	4	18	300
Conflicting Peds, #/hr	15	15	0	15	15	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	4	4	3	3
Mvmt Flow	6	29	504	4	19	312

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	871	536	0 0 523 0
Stage 1	521	-	- - - -
Stage 2	350	-	- - - -
Critical Hdwy	6.4	6.2	- - 4.13 -
Critical Hdwy Stg 1	5.4	-	- - - -
Critical Hdwy Stg 2	5.4	-	- - - -
Follow-up Hdwy	3.5	3.3	- - 2.227 -
Pot Cap-1 Maneuver	324	549	- - 1038 -
Stage 1	600	-	- - - -
Stage 2	718	-	- - - -
Platoon blocked, %	-	-	- - - -
Mov Cap-1 Maneuver	309	533	- - 1023 -
Mov Cap-2 Maneuver	309	-	- - - -
Stage 1	591	-	- - - -
Stage 2	695	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	13.2	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	473	1023
HCM Lane V/C Ratio	-	-	0.075	0.018
HCM Control Delay (s)	-	-	13.2	8.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

SPLIT CORONADO DR
WB BRIGHTWATER DR

Intersection						
Int Delay, s/veh	0.9	OVERALL DELAY				

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	1	33	529	4	32	360
Conflicting Peds, #/hr	75	75	0	75	75	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	4	4	3	3
Mvmt Flow	1	35	557	4	34	379

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1080	709	0 0 636 0
Stage 1	634	-	- - - -
Stage 2	446	-	- - - -
Critical Hdwy	6.43	6.23	- - 4.13 -
Critical Hdwy Stg 1	5.43	-	- - - -
Critical Hdwy Stg 2	5.43	-	- - - -
Follow-up Hdwy	3.527	3.327	- - 2.227 -
Pot Cap-1 Maneuver	240	432	- - 943 -
Stage 1	527	-	- - - -
Stage 2	643	-	- - - -
Platoon blocked, %	-	-	- - - -
Mov Cap-1 Maneuver	199	372	- - 876 -
Mov Cap-2 Maneuver	199	-	- - - -
Stage 1	489	-	- - - -
Stage 2	574	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	16	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 363	876	-
HCM Lane V/C Ratio	-	- 0.099	0.038	-
HCM Control Delay (s)	-	- 16	9.3	-
HCM Lane LOS	-	- C	A	-
HCM 95th %tile Q(veh)	-	- 0.3	0.1	-

WB THIRD ST.

SBL7 CORONADO DR.

Lanes, Volumes, Timings
17: Coronado Dr & Gulfview Dr.

8/10/2021

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	330	22	1	685	636	367
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Storage Length (ft)	291	0	400			200
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	1.00			1.00		0.88
Friction	0.991					0.850
Flt Protected	0.955					
Satd. Flow (prot)	3306	0	0	3421	3421	1531
Flt Permitted	0.955			0.954		
Satd. Flow (perm)	3297	0	0	3264	3421	1343
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	6					386
Link Speed (mph)	25			25	25	
Link Distance (ft)	435			400	542	
Travel Time (s)	11.9			10.9	14.8	
Confl. Peds. (#/hr)	1		34			34
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	347	23	1	721	669	386
Shared Lane Traffic (%)						
Lane Group Flow (vph)	370	0	0	722	669	386
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Detector Phase	4		2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	30.0		80.0	80.0	80.0	80.0
Total Split (%)	27.3%		72.7%	72.7%	72.7%	72.7%
Maximum Green (s)	26.0		76.0	76.0	76.0	76.0
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		Min	Min	Min	Min
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
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)	9.6			18.8	18.8	18.8
Actuated g/C Ratio	0.26			0.51	0.51	0.51
v/c Ratio	0.42			0.43	0.38	0.44

Lanes, Volumes, Timings
17: Coronado Dr & Gulfview Dr.

8/10/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Control Delay	13.8			6.5	6.1	2.5
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	13.8			6.5	6.1	2.5
LOS	B			A	A	A
Approach Delay	13.8			6.5	4.8	
Approach LOS	B			A	A	
Queue Length 50th (ft)	29			38	34	0
Queue Length 95th (ft)	74			76	68	26
Internal Link Dist (ft)	355			320	462	
Turn Bay Length (ft)	291					200
Base Capacity (vph)	2429			3264	3421	1343
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.15			0.22	0.20	0.29

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 36.7

Natural Cycle: 45

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 6.9

Intersection Capacity Utilization: 51.3%

Analysis Period (min) 15

Intersection LOS: A
ICU Level of Service A

Splits and Phases: 17: Coronado Dr & Gulfview Dr.

90 s	30 s
90 s	

Intersection

Int Delay, s/veh 1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	7	15	62	8	13	54
Conflicting Peds, #/hr	34	32	0	2	9	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	5	5	3	3	0	0
Mvmt Flow	9	19	77	10	16	67

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	214	124	0 0 120 0
Stage 1	115	-	- - - -
Stage 2	99	-	- - - -
Critical Hdwy	6.45	6.25	- - 4.1 -
Critical Hdwy Stg 1	5.45	-	- - - -
Critical Hdwy Stg 2	5.45	-	- - - -
Follow-up Hdwy	3.545	3.345	- - 2.2 -
Pot Cap-1 Maneuver	768	919	- - 1480 -
Stage 1	902	-	- - - -
Stage 2	917	-	- - - -
Platoon blocked, %	-	-	- - - -
Mov Cap-1 Maneuver	734	882	- - 1467 -
Mov Cap-2 Maneuver	734	-	- - - -
Stage 1	873	-	- - - -
Stage 2	905	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	1.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	829	1467
HCM Lane V/C Ratio	-	-	0.033	0.011
HCM Control Delay (s)	-	-	9.5	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

SBLT (HAMDEN)

WB APPROACH BAYSIDE

Intersection

Int Delay, s/veh 2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	17	15	15	66	52	3
Conflicting Peds, #/hr	26	26	0	0	0	9
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	6	6	4	4	0	0
Mvmt Flow	20	18	18	79	62	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	204	90	91	0	-	0
Stage 1	90	-	-	-	-	-
Stage 2	114	-	-	-	-	-
Critical Hdwy	6.46	6.26	4.14	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	2.236	-	-	-
Pot Cap-1 Maneuver	776	957	1491	-	-	-
Stage 1	924	-	-	-	-	-
Stage 2	901	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	728	933	1491	-	-	-
Mov Cap-2 Maneuver	728	-	-	-	-	-
Stage 1	901	-	-	-	-	-
Stage 2	867	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	1.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1491	-	812	-	-
HCM Lane V/C Ratio	0.012	-	0.047	-	-
HCM Control Delay (s)	7.4	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %ile Q(veh)	0	-	0.1	-	-

EB APPROACH (5th St)

NBLT (HAMDEN)

AASHTO's functional classes are based on travel volume, mileage, and the characteristic of service the urban street is intended to provide. The analysis method in this manual makes use of the AASHTO distinction between principal arterial and minor arterial. But a second classification step is used herein to determine the appropriate design category for the arterial. The design category depends on the posted speed limit, signal density, driveway/access-point density, and other design features. The third step is to determine the appropriate urban street class on the basis of a combination of functional category and design category. Exhibits 10-3 and 10-4 are useful for establishing urban street class.

Four urban street classes are defined in this manual. The classes are designated by number (i.e., I, II, III, and IV) and reflect unique combinations of street function and design, as shown in Exhibit 10-3. The functional component is separated into two categories: principal arterial and minor arterial. The design component is separated into four categories: high-speed, suburban, intermediate, and urban. The characteristics associated with each category are described in the remainder of this section. Exhibit 10-4 summarizes these characteristics.

EXHIBIT 10-3. URBAN STREET CLASS BASED ON FUNCTIONAL AND DESIGN CATEGORIES

Design Category	Functional Category	
	Principal Arterial	Minor Arterial
High-Speed	I	N/A
Suburban	II	II
Intermediate	II	III or IV
Urban	III or IV	IV

EXHIBIT 10-4. FUNCTIONAL AND DESIGN CATEGORIES

Criterion	Functional Category			
	Principal Arterial	Minor Arterial		
Mobility function	Very important	Important		
Access function	Very minor	Substantial		
Points connected	Freeways, important activity centers, major traffic generators	Principal arterials		
Predominant trips served	Relatively long trips between major points and through-trips entering, leaving, and passing through the city	Trips of moderate length within relatively small geographical areas		
Criterion	Design Category			
	High-Speed	Suburban	Intermediate	Urban
Driveway/access density	Very low density	Low density	Moderate density	High density
Arterial type	Multilane divided; undivided or two-lane with shoulders	Multilane divided; undivided or two-lane with shoulders	Multilane divided or undivided; one-way, two-lane	Undivided one-way, two-way, two or more lanes
Parking	No	No	Some	Significant
Separate left-turn lanes	Yes	Yes	Usually	Some
Signals/mi	0.5–2	1–5	4–10	6–12
Speed limit	45–55 mi/h	40–45 mi/h	30–40 mi/h	25–35 mi/h
Pedestrian activity	Very little	Little	Some	Usually
Roadside development	Low density	Low to medium density	Medium to moderate density	High density

A principal arterial serves major through movements between important centers of activity in a metropolitan area and a substantial portion of trips entering and leaving the area. It also connects freeways with major traffic generators. In smaller cities

(population under 50,000), its importance is derived from the service provided to traffic passing through the urban area. Service to abutting land is subordinate to the function of moving through traffic.

A minor arterial connects and augments the principal arterial system. Although its main function is traffic mobility, it performs this function at a lower level and places more emphasis on land access than does the principal arterial. A system of minor arterials serves trips of moderate length and distributes travel to geographical areas smaller than those served by the principal arterial.

The urban street is further classified by its design category. Exhibit 10-3 shows urban street classes based on functional and design categories.

High-speed design represents an urban street with a very low driveway/access-point density, separate left-turn lanes, and no parking. It may be multilane divided or undivided or a two-lane facility with shoulders. Signals are infrequent and spaced at long distances. Roadside development is low density, and the speed limit is typically 45 to 55 mi/h. This design category includes many urban streets in suburban settings.

Suburban design represents a street with a low driveway/access-point density, separate left-turn lanes, and no parking. It may be multilane divided or undivided or a two-lane facility with shoulders. Signals are spaced for good progressive movement (up to five signals per mile). Roadside development is low to medium density, and speed limits are usually 40 to 45 mi/h.

Intermediate design represents an urban street with a moderate driveway/access-point density. It may be a multilane divided, an undivided one-way, or a two-lane facility. It may have some separate or continuous left-turn lanes and some portions where parking is permitted. It has a higher density of roadside development than the typical suburban design and usually has four to ten signals per mile. Speed limits are typically 30 to 40 mi/h.

Urban design represents an urban street with a high driveway/access-point density. It frequently is an undivided one-way or two-way facility with two or more lanes. Parking is usually permitted. Generally, there are few separate left-turn lanes, and some pedestrian interference is present. It commonly has six to twelve signals per mile. Roadside development is dense with commercial uses. Speed limits range from 25 to 35 mi/h.

In addition to the above definitions, Exhibit 10-4 can be used as an aid in the determination of functional and design categories. Once the functional and design categories have been determined, the urban street classification may be established by referring to Exhibit 10-3.

In practice, there are sometimes ambiguities in determining the proper categories. The measurement or estimation of the free-flow speed is a great aid in this determination, because each urban street class has a characteristic range of free-flow speeds, as shown in Chapter 15.

Length

The portion of the urban street being analyzed should be at least 1 mi long in a downtown area and 2 mi long elsewhere for the LOS speed criteria to be meaningful. Study lengths shorter than 1 mi should be analyzed as individual intersections and the LOS assessed according to individual intersection criteria.

Free-Flow Speed

The free-flow speed is used to determine the urban street class and to estimate the segment running time. If FFS cannot be measured in the field, the analyst should attempt to take measurements on a similar facility in the same area or should resort to established local policies. Lacking any of these options, the analyst might rely on the posted speed limit (or some value around that limit) or on default values in this manual.

High-speed design defined

Suburban design defined

Intermediate design defined

Urban design defined

Measure free-flow speed as far as possible from nearest signal or stop-controlled intersection and at flows < 200 veh/h/ln

other hand, longer urban street segments comprising heavily loaded intersections can provide reasonably good LOS, although an individual signalized intersection might be operating at a lower level. The term through vehicle refers to all vehicles passing directly through a street segment and not turning.

Exhibit 15-2 lists urban street LOS criteria based on average travel speed and urban street class. It should be noted that if demand volume exceeds capacity at any point on the facility, the average travel speed might not be a good measure of the LOS. The street classifications identified in Exhibit 15-2 are defined in the next section.

EXHIBIT 15-2. URBAN STREET LOS BY CLASS

Urban Street Class	I	II	III	IV
Range of free-flow speeds (FFS)	55 to 45 mi/h	45 to 35 mi/h	35 to 30 mi/h	35 to 25 mi/h
Typical FFS	50 mi/h	40 mi/h	35 mi/h *	30 mi/h
LOS	Average Travel Speed (mi/h)			
A	> 42	> 35	> 30	> 25
B	> 34-42	> 28-35	> 24-30	> 19-25
C	> 27-34	> 22-28	> 18-24	> 13-19
D	> 21-27	> 17-22	> 14-18	> 9-13
E	> 16-21	> 13-17	> 10-14	> 7-9
F	≤ 16	≤ 13	≤ 10	≤ 7

Travel speed defines LOS on urban streets

DETERMINING URBAN STREET CLASS

The first step in the analysis is to determine the urban street's class. This can be based on direct field measurement of the FFS or on an assessment of the subject street's functional and design categories. A procedure for measuring the FFS is described in Appendix B.

If the FFS measurements are not available, the street's functional and design categories must be used to identify its class. The functional category is identified first, followed by the design category. This identification uses the definitions provided in Chapter 10 and Exhibit 10-4. After determining the functional and design categories, the urban street class can be established using Exhibit 10-3.

DETERMINING RUNNING TIME

There are two principal components of the total time that a vehicle spends on a segment of an urban street: running time and control delay at signalized intersections. To compute the running time for a segment, the analyst must know the street's classification, its segment length, and its FFS. The segment running time then can be found by using Exhibit 15-3.

Within each urban street class there are several influences on actual running time. Exhibit 15-3 shows the effect of street length. In addition, the presence of parking, side friction, local development, and street use can affect running time. In this chapter, these also are assumed to influence the FFS. Direct observation of the FFS, therefore, includes the effect of these factors and, by implication, their effect on the running speed.

If it is not possible to observe the FFS on the actual or a comparable facility, default values are given in a note to Exhibit 15-3.

DETERMINING DELAY

Computing the urban street or section speed requires the intersection control delays. Because the function of an urban street is to serve through traffic, the lane group for through traffic is used to characterize the urban street.

Running time is estimated using FFS, urban street classification, and arterial segment length

Arterial Level of Service: NB Coronado Dr

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Gulfview Dr.	IV	25	76.5	6.5	83.0	0.53	23.1	B
Total	IV		76.5	6.5	83.0	0.53	23.1	B

Arterial Level of Service: SB Coronado Dr

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Gulfview Dr.	IV	25	22.6	6.1	28.7	0.10	12.9	D
Total	IV		22.6	6.1	28.7	0.10	12.9	D

(S Gulfview - S. Gulfview)
(S) (N)

NOT SAME SEGMENT

URBAN STREET WORKSHEET #1								
General Information				Site Information				
Analyst	RP			Urban Street	CORONADO DRIVE			
Agency/Co.	GCC			Direction of Travel	North-bound			
Date Performed	12/22/2021			Jurisdiction	CLEARWATER			
Time Period	AFTERNOON PEAK HOUR			Analysis Year	2021			
Project Description: EXISTING CONDITIONS - CORONADO/HAMDEN NB								
Input Parameters								
Analysis Period(h) T = 0.25	Segments							
	1	2	3	4	5	6	7	8
Cycle length, C (s)	110.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
Eff. green to cycle ratio, g/C	0.550	0.700	0.700	0.700	0.700	0.700	0.700	0.700
v/c ratio for lane group, X	0.430	0.600	0.600	0.600	0.600	0.600	0.600	0.600
Cap of lane group, c (veh/h)	3264	600	600	600	600	600	600	600
Pct Veh on Grn., PVG								
Arrival type, AT	3	4	4	4	4	4	4	4
Unit extension, UE (sec)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Length of segment, L (mi)	0.53							
Initial queue, Q _b (veh)	0	0	0	0	0	0	0	0
Urban street class, SC	4	4	4	4	4	4	4	4
Free-flow speed, FSS (mi/h)	25	30	30	30	30	30	30	30
Running time, TR (s)	76.3							
Other delay, (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Computation								
Uniform delay, d ₁ (s)	14.6	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Incremental delay adj, k	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Upstream filtering adj factor, I	1.000	0.865	0.769	0.769	0.769	0.769	0.769	0.769
Incremental delay, d ₂ (s)	0.4	3.8	3.4	3.4	3.4	3.4	3.4	3.4
Initial queue delay, d ₃ (s)	0	0	0	0	0	0	0	0
Progression adj factor, PF	1.000	0.256	0.256	0.256	0.256	0.256	0.256	0.256
Control delay, d (s)	15.0	5.2	4.8	4.8	4.8	4.8	4.8	4.8
Segment LOS Determination								
Travel time, ST (s)	91.3							
Travel speed, SA (mi/h)	20.9							
Segment LOS	B							
Urban Street LOS Determination								
Total travel time (s)	91.3							
Total length (mi)	0.53							
Total travel speed, SA (mi/h)	20.9							
Total urban street LOS	B							

URBAN STREET WORKSHEET #1								
General Information				Site Information				
Analyst	RP			Urban Street	CORONADO/HAMDEN			
Agency/Co.	GCC			Direction of Travel	South-bound			
Date Performed	12/22/21			Jurisdiction	CLEARWATER			
Time Period	AFTERNOON PEAK HR			Analysis Year	2021			
Project Description: EXISTING CONDITIONS - CORONADO/HAMDEN SB								
Input Parameters								
Analysis Period(h) T = 0.25	Segments							
	1	2	3	4	5	6	7	8
Cycle length, C (s)	110.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
Eff. green to cycle ratio, g/C	0.360	0.700	0.700	0.700	0.700	0.700	0.700	0.700
v/c ratio for lane group, X	0.440	0.600	0.600	0.600	0.600	0.600	0.600	0.600
Cap of lane group, c (veh/h)	1472	600	600	600	600	600	600	600
Pct Veh on Grn., PVG								
Arrival type, AT	3	4	4	4	4	4	4	4
Unit extension, UE (sec)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Length of segment, L (mi)	0.53							
Initial queue, Q _b (veh)	0	0	0	0	0	0	0	0
Urban street class, SC	4	4	4	4	4	4	4	4
Free-flow speed, FSS (mi/h)	25	30	30	30	30	30	30	30
Running time, TR (s)	76.3							
Other delay, (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Computation								
Uniform delay, d ₁ (s)	26.8	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Incremental delay adj, k	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Upstream filtering adj factor, I	1.000	0.899	0.769	0.769	0.769	0.769	0.769	0.769
Incremental delay, d ₂ (s)	1.0	4.0	3.4	3.4	3.4	3.4	3.4	3.4
Initial queue delay, d ₃ (s)	0	0	0	0	0	0	0	0
Progression adj factor, PF	1.000	0.256	0.256	0.256	0.256	0.256	0.256	0.256
Control delay, d (s)	27.7	5.4	4.8	4.8	4.8	4.8	4.8	4.8
Segment LOS Determination								
Travel time, ST (s)	104.0							
Travel speed, SA (mi/h)	18.3							
Segment LOS	C							
Urban Street LOS Determination								
Total travel time (s)	104.0							
Total length (mi)	0.53							
Total travel speed, SA (mi/h)	18.3							
Total urban street LOS	C							

TABLE 7

Generalized Peak Hour Directional 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)											
Lanes	Median	B	C	D	E	Lanes	B	C	D	E	
1	Undivided	*	830	880	**	2	2,260	3,020	3,660	3,940	
2	Divided	*	1,910	2,000	**	3	3,360	4,580	5,500	6,080	
3	Divided	*	2,940	3,020	**	4	4,500	6,080	7,320	8,220	
4	Divided	*	3,970	4,040	**	5	5,660	7,680	9,220	10,360	
						6	7,900	10,320	12,060	12,500	
Class II (35 mph or slower posted speed limit)						Freeway Adjustments					
Lanes	Median	B	C	D	E						
1	Undivided	*	370	750	800	Auxiliary Lane + 1,000					
2	Divided	*	730	1,630	1,700	Ramp Metering + 5%					
3	Divided	*	1,170	2,520	2,560						
4	Divided	*	1,610	3,390	3,420						
Non-State Signalized Roadway Adjustments											
(Alter corresponding state volumes by the indicated percent.)											
Non-State Signalized Roadways - 10%											
Median & Turn Lane Adjustments											
Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors		UNINTERRUPTED FLOW HIGHWAYS					
1	Divided	Yes	No	+5%		Lanes	Median	B	C	D	E
1	Undivided	No	No	-20%		1	Undivided	420	840	1,190	1,640
Multi	Undivided	Yes	No	-5%		2	Divided	1,810	2,560	3,240	3,590
Multi	Undivided	No	No	-25%		3	Divided	2,720	3,840	4,860	5,380
-	-	-	Yes	+5%		Uninterrupted Flow Highway Adjustments					
One-Way Facility Adjustment						Lanes	Median	Exclusive left lanes	Adjustment factors		
Multiply the corresponding directional volumes in this table by 1.2						1	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%	*	150	390	1,000							
50-84%	110	340	1,000	>1,000							
85-100%	470	1,000	>1,000	**							
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%	*	*	140	480							
50-84%	*	80	440	800							
85-100%	200	540	880	>1,000							
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 directional 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/sr/los/default.shtm

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)											
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)						Freeway Adjustments					
Lanes	Median	B	C	D	E	Auxiliary Lanes		Ramp			
2	Undivided	8,600	660	1,330	1,410	Present in Both Directions		Metering			
4	Divided	Coronado 4LU	1,310	2,920	3,040	+1,800		+5%			
6	Divided	*	2,090	4,500	4,590						
8	Divided	*	2,880	6,060	6,130						
S. GULFWAY 4LU -25% 980 12190						S. GULFWAY (S of Coronado) D					
						2LU 660 1330					
Non-State Signalized Roadway Adjustments						Coronado Hamden 2LU 690 1390					
(Alter corresponding state volumes by the indicated percent.)						+5%					
Non-State Signalized Roadways -10%											
Hamden 2LU 70% 460 930											
Median & Turn Lane Adjustments						UNINTERRUPTED FLOW HIGHWAYS					
Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors		Lanes	Median	B	C	D	E
2	Divided	Yes	No	+5%		2	Undivided	770	1,530	2,170	2,990
2	Undivided	No	No	-20%		4	Divided	3,300	4,660	5,900	6,530
Multi	Undivided	Yes	No	-5%		6	Divided	4,950	6,990	8,840	9,790
Multi	Undivided	No	No	-25%							
-	-	-	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					UNINTERRUPTED FLOW HIGHWAYS					
(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)					Lanes	Median	B	C	D	E
Paved Shoulder/Bicycle					2	Undivided	770	1,530	2,170	2,990
Lane Coverage	B	C	D	E	4	Divided	3,300	4,660	5,900	6,530
0-49%	*	260	680	1,770	6	Divided	4,950	6,990	8,840	9,790
50-84%	190	600	1,770	>1,770						
85-100%	830	1,770	>1,770	**	Uninterrupted Flow Highway Adjustments					
					Lanes	Median	Exclusive left lanes	Adjustment factors		
					2	Divided	Yes	+5%		
					Multi	Undivided	Yes	-5%		
					Multi	Undivided	No	-25%		

PEDESTRIAN MODE ²					UNINTERRUPTED FLOW HIGHWAYS					
(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)					Lanes	Median	B	C	D	E
Sidewalk Coverage					2	Undivided	770	1,530	2,170	2,990
Lane Coverage	B	C	D	E	4	Divided	3,300	4,660	5,900	6,530
0-49%	*	*	250	850	6	Divided	4,950	6,990	8,840	9,790
50-84%	*	150	780	1,420						
85-100%	340	960	1,560	>1,770	Uninterrupted Flow Highway Adjustments					
					Lanes	Median	Exclusive left lanes	Adjustment factors		
					2	Divided	Yes	+5%		
					Multi	Undivided	Yes	-5%		
					Multi	Undivided	No	-25%		

BUS MODE (Scheduled Fixed Route) ³					UNINTERRUPTED FLOW HIGHWAYS					
(Buses in peak hour in peak direction)					Lanes	Median	B	C	D	E
Sidewalk Coverage					2	Undivided	770	1,530	2,170	2,990
Lane Coverage	B	C	D	E	4	Divided	3,300	4,660	5,900	6,530
0-84%	>5	≥4	≥3	≥2	6	Divided	4,950	6,990	8,840	9,790
85-100%	>4	≥3	≥2	≥1						

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

APPENDIX B

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 15 - PINELLAS

SITE: 9188 - CORONADO DR, N OF GULFVIEW BLVD

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
----	-----	-----	-----	-----	-----	-----
2020	8500 X	0	0	9.00	55.30	3.40
2019	9100 X	0	0	9.00	55.70	3.30
2018	9000 X	0	0	9.00	55.50	3.20
2017	8900 S	0	0	9.00	54.50	2.90
2016	8700 V	0	0	9.00	55.90	2.90
2015	8500 R	0	0	9.00	55.00	2.90
2014	8300 T			9.00	55.40	3.20
2013	8200 S	0	0	9.00	55.20	3.00
2012	8200 E	0	0	9.00	55.00	2.80
2011	8200 C	N	S	9.00	56.50	3.10

2011 - 2020 = 3.6% in 9 years 0.41%/year

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARD, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 15 - PINELLAS

SITE: 9168 - MEMORIAL CAUSEWAY, E OF ROUNDABOUT (HPMS)

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
-----	-----	-----	-----	-----	-----	-----
2020	24500 C	E 12000	W 12500	9.00	55.30	3.40
2019	29000 X	0	0	9.00	55.70	3.30
2018	29000 X	0	0	9.00	55.50	3.20
2017	29000 X	0	0	9.00	54.50	2.90
2016	28500 E	0	0	9.00	55.90	2.90
2015	28000 E	0	0	9.00	55.00	2.90
2014	27400 E			9.00	55.40	3.20
2013	27000 S	E 13500	W 13500	9.00	55.20	3.30
2012	27000 F	E 13500	W 13500	9.00	55.00	3.30
2011	27000 C	E 13500	W 13500	9.00	56.50	3.30

2011 - 2020 No Growth

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

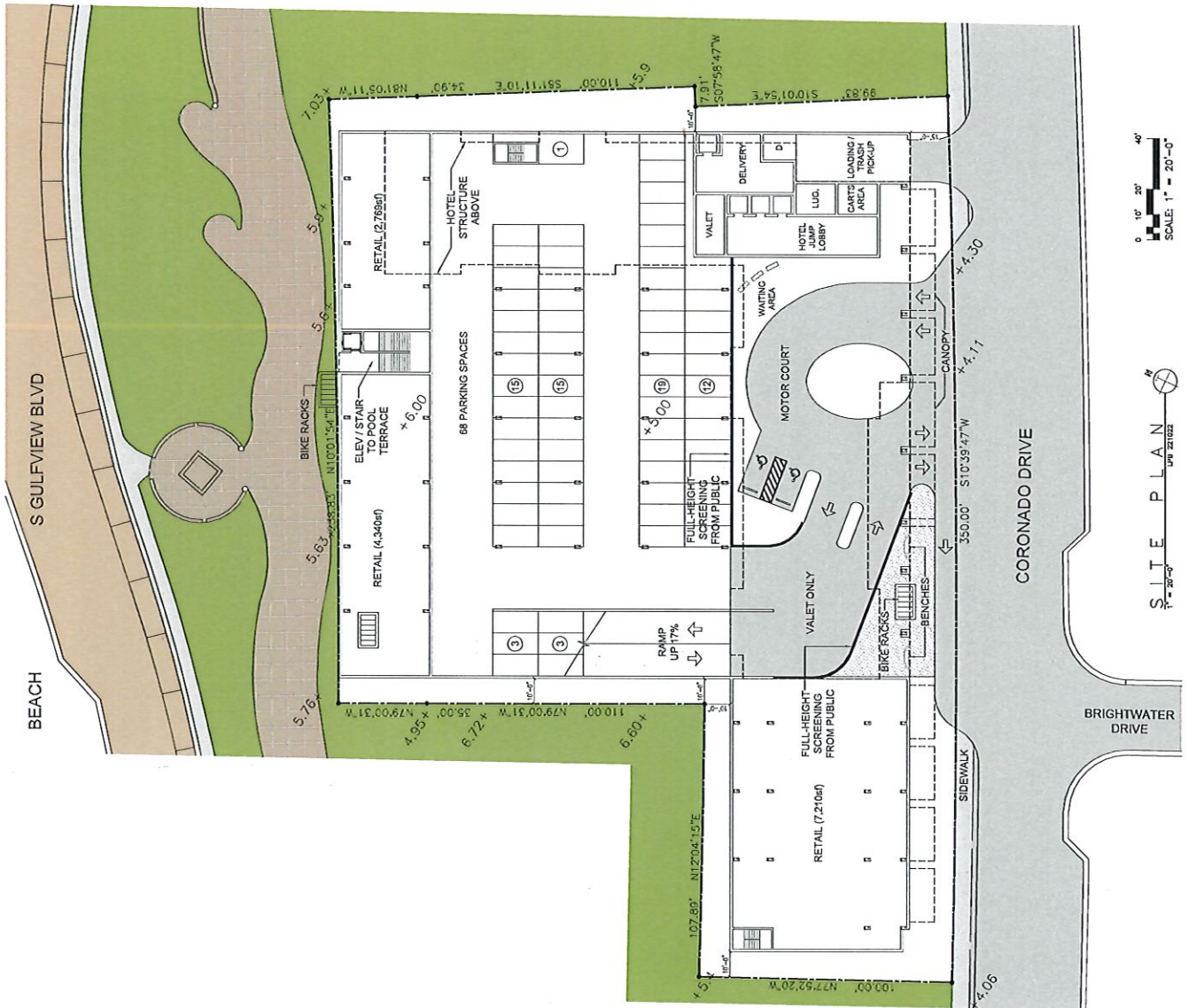
COUNTY: 15 - PINELLAS

SITE: 5097 - SR 60/MEMORIAL CSWY, W OF MEMORIAL CSWY BRIDGE 3019

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2020	34000 C	E 17500	W 16500	9.00	55.30	3.20
2019	38500 C	E 19500	W 19000	9.00	55.70	2.90
2018	36500 C	E 18500	W 18000	9.00	55.50	2.80
2017	40500 F	E 20500	W 20000	9.00	54.50	3.20
2016	39500 C	E 20000	W 19500	9.00	55.90	3.20
2015	36500 C	E 18500	W 18000	9.00	55.00	3.10
2014	34500 C	E 17500	W 17000	9.00	55.40	3.30
2013	34500 C	E 17500	W 17000	9.00	55.20	3.00
2012	39500 C	E 20000	W 19500	9.00	55.00	2.60
2011	36500 C	E 18500	W 18000	9.00	56.50	2.70
2010	34000 C	E 17000	W 17000	10.52	55.26	2.60
2009	34500 C	E 17500	W 17000	10.53	55.79	2.60
2008	31000 C	E 15500	W 15500	10.29	58.46	3.20
2007	33000 C	E 16500	W 16500	10.31	56.79	4.10
2006	58000 E	E 29000	W 29000	9.88	58.53	3.80
2005	55500 C	E 27500	W 28000	9.90	58.50	2.70

2011 - 2020 - No Growth

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES



Hotel (310)

Vehicle Trip Ends vs: Rooms
On a: Weekday

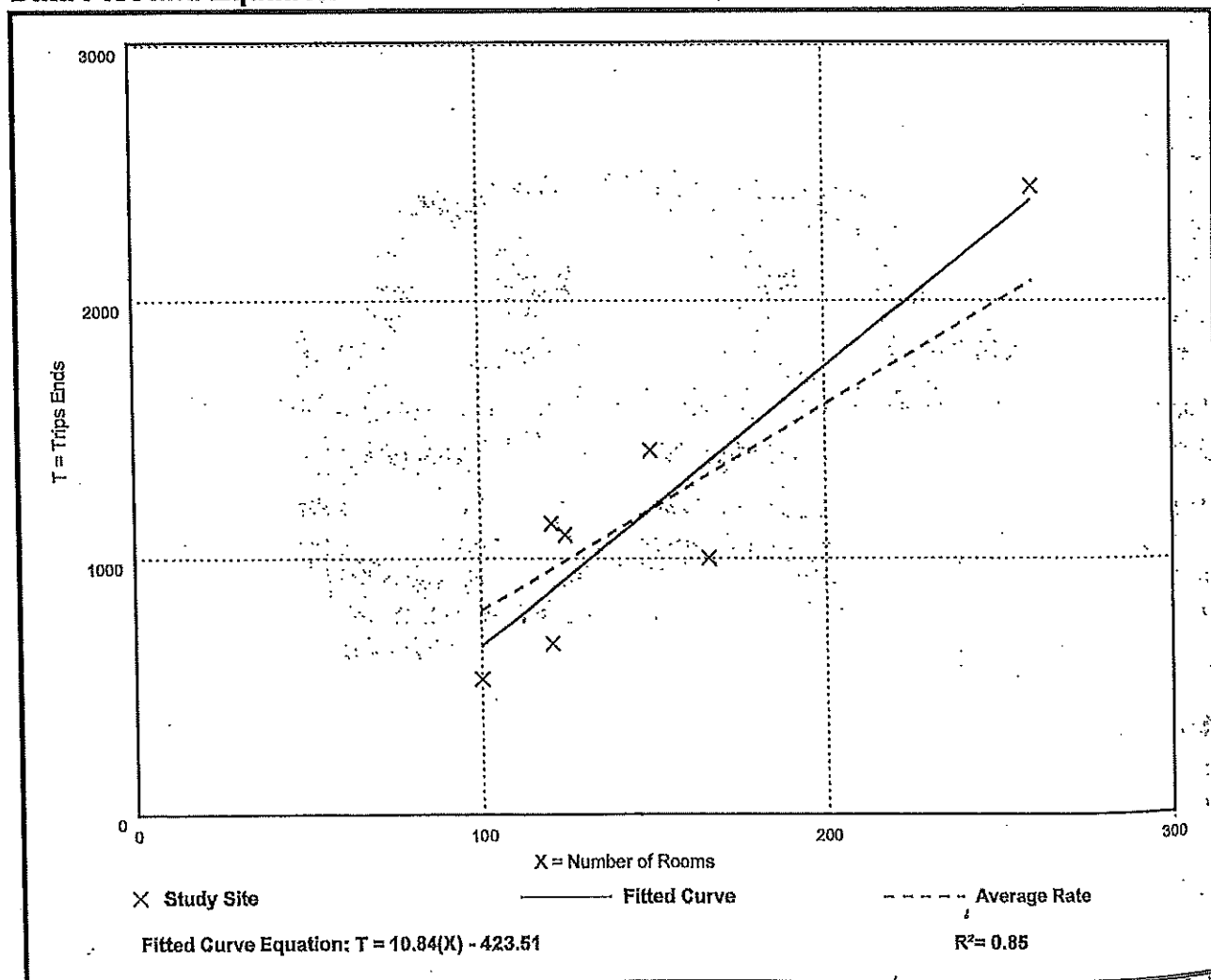
Setting/Location: General Urban/Suburban
Number of Studies: 7
Avg. Num. of Rooms: 148
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
7.99	5.31 - 9.53	1.92

Data Plot and Equation

180 rooms x 7.99 = 1438 day



Resort Hotel (330)

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: 9

Avg. Num. of Rooms: 507

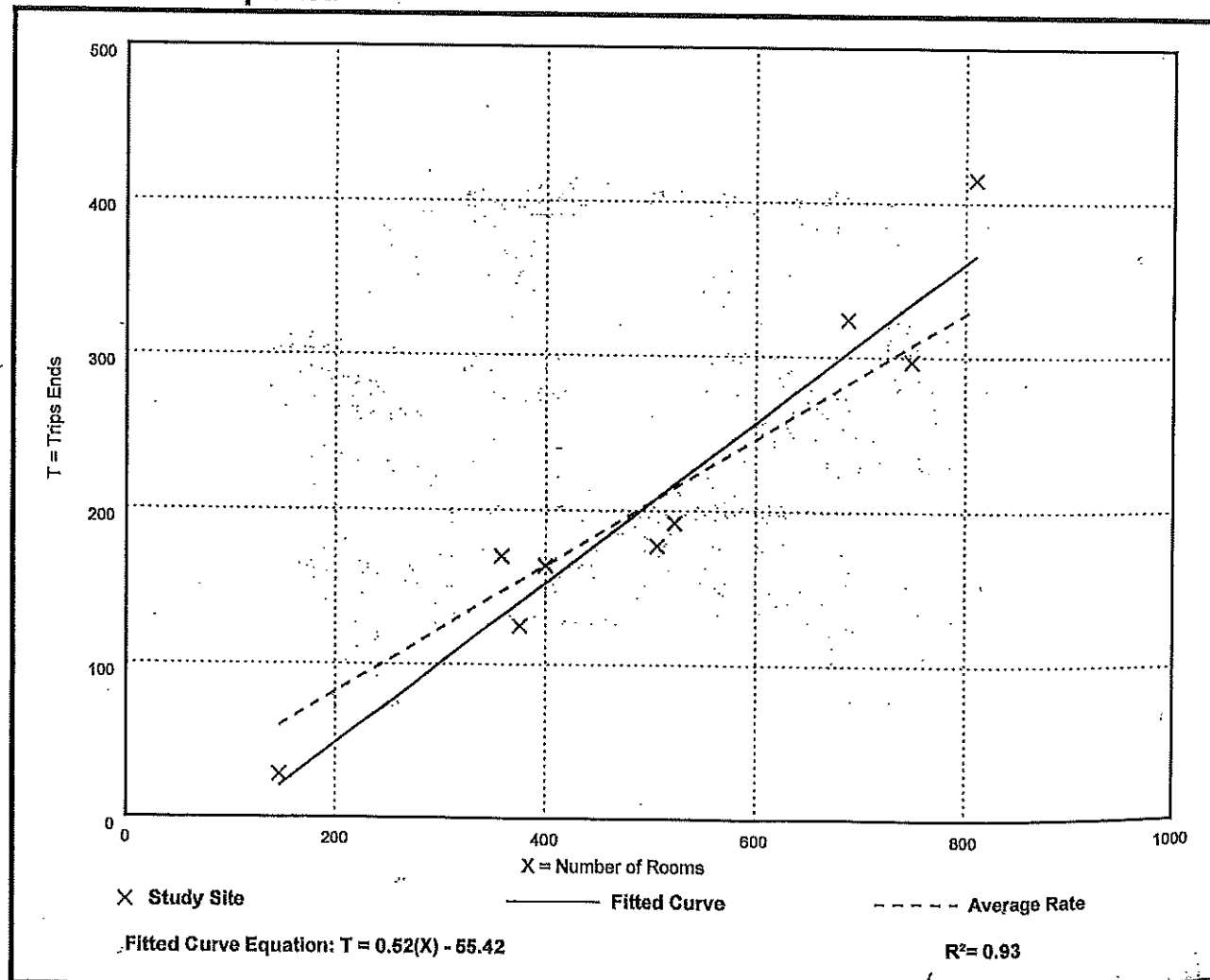
Directional Distribution: 43% entering, 57% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.41	0.19 - 0.51	0.08

Data Plot and Equation

$$180 \times 0.41 = 74 \text{ PM PERK (32/42)}$$



Lanes, Volumes, Timings

1: Hotel driveway/Hamden & S Gulfview Blvd/S Gulfview Blvd.

12/22/2021

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	2	9	4	481	19	73	75	222	4	3	299	476
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	202		550	355		355	800		409
Storage Lanes	0		0	1		0	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.96		0.99	0.89		0.82	0.99			1.00	0.60
Frt		0.964			0.962			0.997				0.850
Flt Protected		0.993		0.950	0.967		0.950					
Satd. Flow (prot)	0	1802	0	1715	1516	0	1736	1803	0	0	1863	1583
Flt Permitted		0.993		0.950	0.967		0.510				0.998	
Satd. Flow (perm)	0	1743	0	1689	1501	0	766	1803	0	0	1853	950
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			17			1				491
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		287			709			611			887	
Travel Time (s)		7.8			19.3			16.7			24.2	
Confl. Peds. (#/hr)	120		5	5		120	126		289	289		126
Confl. Bikes (#/hr)									9			4
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	4%	4%	4%	2%	2%	2%
Shared Lane Traffic (%)				40%								
Lane Group Flow (vph)	0	15	0	298	293	0	77	233	0	0	311	491
Turn Type	Split	NA		Split	NA		Perm	NA		Perm	NA	Perm
Protected Phases	2	2		6	6			4			4	
Permitted Phases							4			4		4
Detector Phase	2	2		6	6		4	4		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	25.0	25.0		30.0	30.0		25.0	25.0		25.0	25.0	25.0
Total Split (s)	25.0	25.0		40.0	40.0		45.0	45.0		45.0	45.0	45.0
Total Split (%)	22.7%	22.7%		36.4%	36.4%		40.9%	40.9%		40.9%	40.9%	40.9%
Maximum Green (s)	21.0	21.0		36.0	36.0		41.0	41.0		41.0	41.0	41.0
Yellow Time (s)	3.0	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	0.0
Total Lost Time (s)		4.0		4.0	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	3.0		3.0	3.0	3.0
Recall Mode	None	None		Min	Min		None	None		None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	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	0
Act Effct Green (s)		7.0		17.5	17.5		21.7	21.7			21.7	21.7
→ Actuated g/C Ratio		0.14		0.35	0.35		0.43	0.43			0.43	0.43
→ v/c Ratio		0.06		0.50	0.54		0.23	0.30			0.39	0.71
Control Delay		26.8		18.5	19.0		13.4	11.9			12.7	8.3

FUTURE CONDITIONS WITH PROJECT 2029 12/22/2021 AFTERNOON PEAK HOUR
RP

Synchro 8 Report
Page 1

Lanes, Volumes, Timings

1: Hotel driveway/Hamden & S Gulfview Blvd/S Gulfview Blvd.

12/22/2021

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Queue Delay		0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay		26.8		18.5	19.0		13.4	11.9			12.7	8.3
LOS		C		B	B		B	B			B	A
Approach Delay		26.8			18.7			12.3			10.0	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)		2		56	53		11	33			47	0
Queue Length 95th (ft)		26		227	222		60	138			185	92
Internal Link Dist (ft)		207			629			531			807	
Turn Bay Length (ft)				202			355					409
Base Capacity (vph)		908		1337	1186		637	1501			1543	873
Starvation Cap Reductn		0		0	0		0	0			0	0
Spillback Cap Reductn		0		0	0		0	0			0	0
Storage Cap Reductn		0		0	0		0	0			0	0
Reduced v/c Ratio		0.02		0.22	0.25		0.12	0.16			0.20	0.56

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 50

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 13.6

Intersection LOS: B

Intersection Capacity Utilization 66.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Hotel driveway/Hamden & S Gulfview Blvd/S Gulfview Blvd.

		
ø2	ø6	ø4
25 s	40 s	45 s

Intersection

Int Delay, s/veh 0

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Vol, veh/h	436	74	15	550	81	29
Conflicting Peds, #/hr	0	0	14	0	0	14
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	0	75	-	0	40
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	445	76	15	561	83	30

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	459
Stage 1	-	-	14
Stage 2	-	-	592
Critical Hdwy	-	-	6.4
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	-	-	3.5
Pot Cap-1 Maneuver	-	-	463
Stage 1	-	-	-
Stage 2	-	-	557
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	454
Mov Cap-2 Maneuver	-	-	454
Stage 1	-	-	-
Stage 2	-	-	554

Approach	NB	SB	SW
HCM Control Delay, s	0		
HCM LOS			-

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1	SWLn2
Capacity (veh/h)	-	-	-	-	454	-
HCM Lane V/C Ratio	-	-	-	-	0.182	-
HCM Control Delay (s)	-	-	-	-	14.7	-
HCM Lane LOS	-	-	-	-	B	-
HCM 95th %tile Q(veh)	-	-	-	-	0.7	-

SW BOUND (HAMDEN) (STOP)

Intersection												
Int Delay, s/veh	9		OVERALL DELAY									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	49	27	20	5	0	69	0	495	22	58	511	2
Conflicting Peds, #/hr	68	0	68	8	0	8	199	0	199	7	0	7
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	300	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	2	2	2	2	2	2	1	1	1
Mvmt Flow	53	29	22	5	0	74	0	532	24	62	549	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1332	1307	818	1321	1296	559	620	0	0	564	0	0
Stage 1	743	743	-	552	552	-	-	-	-	-	-	-
Stage 2	589	564	-	769	744	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.52	6.22	4.12	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4.018	3.318	2.218	-	-	2.209	-	-
Pot Cap-1 Maneuver	133	161	379	134	162	529	960	-	-	1013	-	-
Stage 1	410	425	-	518	515	-	-	-	-	-	-	-
Stage 2	498	512	-	394	421	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	101	140	287	80	141	521	778	-	-	1006	-	-
Mov Cap-2 Maneuver	101	140	-	80	141	-	-	-	-	-	-	-
Stage 1	383	373	-	514	511	-	-	-	-	-	-	-
Stage 2	424	508	-	256	369	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	99.6	17	0	0.9
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	778	-	-	128	380	1006	-	-
HCM Lane V/C Ratio	-	-	-	0.806	0.209	0.062	-	-
HCM Control Delay (s)	0	-	-	99.6	17	8.8	-	-
HCM Lane LOS	A	-	-	F	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	4.9	0.8	0.2	-	-

EB WB SBLT CORONADO

Intersection						
Int Delay, s/veh	0.8	OVERALL DELAY				

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	7	32	598	4	21	382
Conflicting Peds, #/hr	15	15	0	15	15	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	4	4	3	3
Mvmt Flow	7	33	623	4	22	398

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1082	655	0
Stage 1	640	-	-
Stage 2	442	-	-
Critical Hdwy	6.4	6.2	4.13
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	2.227
Pot Cap-1 Maneuver	243	470	938
Stage 1	529	-	-
Stage 2	652	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	230	457	925
Mov Cap-2 Maneuver	230	-	-
Stage 1	521	-	-
Stage 2	627	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.4	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	388	925
HCM Lane V/C Ratio	-	-	0.105	0.024
HCM Control Delay (s)	-	-	15.4	9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1

WB BRIGHTWATER
SBLT CORONADO

Intersection

Int Delay, s/veh 0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	1	38	663	4	37	453
Conflicting Peds, #/hr	75	75	0	75	75	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	4	4	3	3
Mvmt Flow	1	40	698	4	39	477

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1330	850	0 0 777 0
Stage 1	775	-	- - - -
Stage 2	555	-	- - - -
Critical Hdwy	6.43	6.23	- - 4.13 -
Critical Hdwy Stg 1	5.43	-	- - - -
Critical Hdwy Stg 2	5.43	-	- - - -
Follow-up Hdwy	3.527	3.327	- - 2.227 -
Pot Cap-1 Maneuver	170	359	- - 835 -
Stage 1	453	-	- - - -
Stage 2	573	-	- - - -
Platoon blocked, %	-	-	- - - -
Mov Cap-1 Maneuver	139	310	- - 775 -
Mov Cap-2 Maneuver	139	-	- - - -
Stage 1	421	-	- - - -
Stage 2	505	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	18.8	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	301	775	-
HCM Lane V/C Ratio	-	-	0.136	0.05	-
HCM Control Delay (s)	-	-	18.8	9.9	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.2	-

WB THIRD ST
SBLT CORONADO DR

Lanes, Volumes, Timings
17: Coronado Dr & Gulfview Dr.

12/22/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	382	25	1	844	774	426
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Storage Length (ft)	291	0	400			200
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	1.00			1.00		0.88
Frt	0.991					0.850
Flt Protected	0.955					
Satd. Flow (prot)	3306	0	0	3421	3421	1531
Flt Permitted	0.955			0.955		
Satd. Flow (perm)	3297	0	0	3267	3421	1343
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	6					448
Link Speed (mph)	25			25	25	
Link Distance (ft)	435			400	542	
Travel Time (s)	11.9			10.9	14.8	
Confl. Peds. (#/hr)	1		34			34
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Lane Group Flow (vph)	428	0	0	889	815	448
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Detector Phase	4		2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	30.0		80.0	80.0	80.0	80.0
Total Split (%)	27.3%		72.7%	72.7%	72.7%	72.7%
Maximum Green (s)	26.0		76.0	76.0	76.0	76.0
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		Min	Min	Min	Min
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
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)	11.4			24.7	24.7	24.7
Actuated g/C Ratio	0.26			0.55	0.55	0.55
v/c Ratio	0.50			0.49	0.43	0.48
Control Delay	17.9			7.0	6.5	2.5



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	17.9			7.0	6.5	2.5
LOS	B			A	A	A
Approach Delay	17.9			7.0	5.1	
Approach LOS	B			A	A	
Queue Length 50th (ft)	43			57	50	0
Queue Length 95th (ft)	110			114	101	28
Internal Link Dist (ft)	355			320	462	
Turn Bay Length (ft)	291					200
Base Capacity (vph)	2051			3267	3421	1343
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.21			0.27	0.24	0.33

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 44.6

Natural Cycle: 45

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 7.9

Intersection LOS: A

Intersection Capacity Utilization: 59.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 17: Coronado Dr & Gulfview Dr.

 p2	 p4
80 s	30 s
 p6	
80 s	

HCS7 Two-Way Stop-Control Report

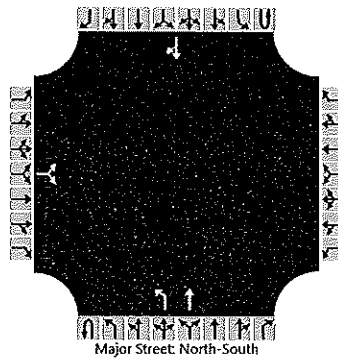
General Information

Analyst	RP
Agency/Co.	GCC
Date Performed	12/22/2021
Analysis Year	2029
Time Analyzed	AFTERNOON PEAK HOUR
Intersection Orientation	North-South
Project Description	FUTURE CONDITIONS WITH PROJECT

Site Information

Intersection	CORONADO / DRIVE A
Jurisdiction	CLEARWATER
East/West Street	HOTEL DRIVE A
North/South Street	CORONADO DRIVE
Peak Hour Factor	0.95
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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	1	1	0	0	0	1	0
Configuration			LR							L	T					TR
Volume (veh/h)		25		17						13	617				386	19
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Left Only								1							

Critical and Follow-up Headways

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

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			44							14						
Capacity, c (veh/h)			397							1090						
v/c Ratio			0.11							0.01						
95% Queue Length, Q ₉₅ (veh)			0.4							0.0						
Control Delay (s/veh)			15.2							8.3						
Level of Service (LOS)			C							A						
Approach Delay (s/veh)			15.2							0.2						
Approach LOS			C													

URBAN STREET WORKSHEET #1								
General Information				Site Information				
Analyst	RP			Urban Street	CORONADO DRIVE			
Agency/Co.	GCC			Direction of Travel	North-bound			
Date Performed	12/22/2021			Jurisdiction	CLEARWATER			
Time Period	AFTERNOON PEAK HOUR			Analysis Year	2029			
Project Description: FUTURE CONDITIONS - CORONADO/HAMDEN NB								
Input Parameters								
Analysis Period(h) T = 0.25	Segments							
	1	2	3	4	5	6	7	8
Cycle length, C (s)	110.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
Eff. green to cycle ratio, g/C	0.550	0.700	0.700	0.700	0.700	0.700	0.700	0.700
v/c ratio for lane group, X	0.490	0.600	0.600	0.600	0.600	0.600	0.600	0.600
Cap of lane group, c (veh/h)	3267	600	600	600	600	600	600	600
Pct Veh on Grn., PVG								
Arrival type, AT	3	4	4	4	4	4	4	4
Unit extension, UE (sec)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Length of segment, L (mi)	0.53							
Initial queue, Q _b (veh)	0	0	0	0	0	0	0	0
Urban street class, SC	4	4	4	4	4	4	4	4
Free-flow speed, FSS (mi/h)	25	30	30	30	30	30	30	30
Running time, TR (s)	76.3							
Other delay, (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Computation								
Uniform delay, d ₁ (s)	15.2	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Incremental delay adj, k	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Upstream filtering adj factor, I	1.000	0.769	0.769	0.769	0.769	0.769	0.769	0.769
Incremental delay, d ₂ (s)	0.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Initial queue delay, d ₃ (s)	0	0	0	0	0	0	0	0
Progression adj factor, PF	1.000	0.256	0.256	0.256	0.256	0.256	0.256	0.256
Control delay, d (s)	15.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
Segment LOS Determination								
Travel time, ST (s)	92.1							
Travel speed, SA (mi/h)	20.7							
Segment LOS	B							
Urban Street LOS Determination								
Total travel time (s)	92.1							
Total length (mi)	0.53							
Total travel speed, SA (mi/h)	20.7							
Total urban street LOS	B							

URBAN STREET WORKSHEET #1								
General Information				Site Information				
Analyst	RP			Urban Street	CORONADO/HAMDEN			
Agency/Co.	GCC			Direction of Travel	South-bound			
Date Performed	12/22/21			Jurisdiction	CLEARWATER			
Time Period	AFTERNOON PEAK HR			Analysis Year	2029			
Project Description: FUTURE CONDITIONS - CORONADO/HAMDEN SB								
Input Parameters								
Analysis Period(h) T = 0.25	Segments							
	1	2	3	4	5	6	7	8
Cycle length, C (s)	110.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
Eff. green to cycle ratio, g/C	0.350	0.700	0.700	0.700	0.700	0.700	0.700	0.700
v/c ratio for lane group, X	0.500	0.600	0.600	0.600	0.600	0.600	0.600	0.600
Cap of lane group, c (veh/h)	1337	600	600	600	600	600	600	600
Pct Veh on Grn., PVG								
Arrival type, AT	3	4	4	4	4	4	4	4
Unit extension, UE (sec)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Length of segment, L (mi)	0.53							
Initial queue, Q _b (veh)	0	0	0	0	0	0	0	0
Urban street class, SC	4	4	4	4	4	4	4	4
Free-flow speed, FSS (mi/h)	25	30	30	30	30	30	30	30
Running time, TR (s)	76.3							
Other delay, (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Computation								
Uniform delay, d ₁ (s)	28.2	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Incremental delay adj, k	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Upstream filtering adj factor, I	1.000	0.858	0.769	0.769	0.769	0.769	0.769	0.769
Incremental delay, d ₂ (s)	1.3	3.8	3.4	3.4	3.4	3.4	3.4	3.4
Initial queue delay, d ₃ (s)	0	0	0	0	0	0	0	0
Progression adj factor, PF	1.000	0.256	0.256	0.256	0.256	0.256	0.256	0.256
Control delay, d (s)	29.5	5.2	4.8	4.8	4.8	4.8	4.8	4.8
Segment LOS Determination								
Travel time, ST (s)	105.8							
Travel speed, SA (mi/h)	18.0							
Segment LOS	C							
Urban Street LOS Determination								
Total travel time (s)	105.8							
Total length (mi)	0.53							
Total travel speed, SA (mi/h)	18.0							
Total urban street LOS	C							