

MEMORANDUM

To: Gregory S. Oropeza, Esq.

From: Karl B. Peterson, P.E.

Date: May 23, 2023

Subject: Hydro-Thunder – Key West, Florida
Response to Traffic Comments

Hydro-Thunder of Key West proposes to utilize an existing retail property located at 114 Simonton Street for the storage of 50 golf carts that will be utilized for their vehicle rental business. Our offices prepared a traffic statement dated April 27, 2023, documenting the anticipated roadway impacts associated with the golf cart rentals at this location.

On May 11, 2023, we received a comment on the referenced traffic statement. This comment stated the following: “The Capacity Analyses provided compared the impact to road capacity rather than the existing level of service of use.”

In response to this comment, we have reviewed the Florida Department of Transportation (FDOT) traffic database for the project study area. Nearby traffic count stations include the following:

- Site #908112 – Simonton Street, 200 feet south of Petronia Street
- Site #900020 – Eaton Street, 200 feet west of Duval Street
- Site #900023 – Duval Street, 200 feet north of SR 5 / US 1 / Truman Avenue

The historical Annual Average Daily Traffic (AADT) volumes for the locations are presented in Attachment A to this memorandum. A Level of Service (LOS) summary table for these facilities is presented in Table 1 below.

Table 1 114 Simonton Street - Hydro-Thunder Golf Carts Key West, Florida										
Roadway	Daily					Peak Hour				
	Roadway Capacity ¹	2022 Daily Traffic Volume ²	Project Traffic ³	Total Traffic	Level of Service	Roadway Capacity ¹	2022 Peak Hour Traffic Vol. ²	Project Traffic ³	Total Traffic	Level of Service
Simonton Street	10,360	3,400	50	3,450	C	931	306	10	316	C
Eaton Street	10,360	5,200	5	5,205	D	931	468	1	469	D
Duval Street	10,360	7,400	20	7,420	D	931	666	4	670	D

¹ Roadway capacities based upon the FDOT 2020 Quality / Level of Service Handbook. Capacities reflect Class II (35 mph or slower) roadways with a 30% reduction to reflect non-state roadways and absence of turn lanes.

² Traffic volumes obtained from the nearest FDOT traffic count stations on the subject roadways. Peak hour volumes have been developed based upon K-Factors of 9.0%.

³ Project traffic volumes represent the highest volume on the roadway as documented in the traffic statement dated 4/27/23.

As indicated in Table 1 above, each of the primary roadways within the immediate proximity of the subject Hydro-Thunder location on Simonton Street is currently operating at an acceptable LOS and will continue to do so with the additional golf cart traffic.

Attachment A

**Annual Average Daily Traffic Volumes
Reported by the Florida Department of Transportation**

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2022 HISTORICAL AADT REPORT

COUNTY: 90 - MONROE

SITE: 0020 - EATON ST, 200' W DUVAL ST

YEAR	AADT		DIRECTION 1		DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
----	-----		-----		-----	-----	-----	-----
2022	5200 C	W	2900	E	2300	9.00	54.20	1.70
2021	6600 C	W	3400	E	3200	9.00	53.10	1.70
2020	5400 C	W	3100	E	2300	9.00	54.10	1.70
2019	5300 C	W	2900	E	2400	9.00	54.70	5.30
2018	5200 F	W	2700	E	2500	9.00	55.10	6.60
2017	5200 C	W	2700	E	2500	9.00	53.90	4.70
2016	4200 C	W	2100	E	2100	9.00	54.90	8.80
2015	5000 C	W	2700	E	2300	9.00	54.30	8.10
2014	5900 C	W	3100	E	2800	9.00	55.20	3.80
2013	5000 C	W	2500	E	2500	9.00	54.80	7.30
2012	4400 C	W	2200	E	2200	9.00	55.00	8.20
2011	4000 C	W	2000	E	2000	9.00	55.10	8.30
2010	4700 C	W	2300	E	2400	10.26	56.84	10.30
2009	4700 C	W	2400	E	2300	10.23	56.56	8.40
2008	5300 C	N	2700	S	2600	10.45	54.98	8.60
2007	4800 C	N	2200	S	2600	10.00	55.10	9.80

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
2022 HISTORICAL AADT REPORT

COUNTY: 90 - MONROE

SITE: 0023 - DUVAL ST, 200' N SR 5/US-1/TRUMAN AV

YEAR	AADT		DIRECTION 1		DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
----	-----		-----		-----	-----	-----	-----
2022	7400 C	N	3400	S	4000	9.00	54.20	2.70
2021	7400 C	N	3600	S	3800	9.00	53.10	2.40
2020	7000 C	N	3600	S	3400	9.00	54.10	2.40
2019	7000 C	N	3500	S	3500	9.00	54.70	2.40
2018	7400 F	N	3700	S	3700	9.00	55.10	6.60
2017	7400 C	N	3700	S	3700	9.00	53.90	4.70
2016	7100 C	N	3500	S	3600	9.00	54.90	8.80
2015	7100 C	N	3700	S	3400	9.00	54.30	8.10
2014	9100 C	N	5100	S	4000	9.00	55.20	3.80
2013	7200 C	N	3600	S	3600	9.00	54.80	7.30
2012	7500 C	N	3700	S	3800	9.00	55.00	8.20
2011	7200 C	N	3600	S	3600	9.00	55.10	8.30
2010	6900 C	N	3500	S	3400	10.26	56.84	10.30
2009	7000 C	N	3400	S	3600	10.23	56.56	8.40
2008	6600 C	N	3300	S	3300	10.45	54.98	8.60
2007	6600 C	N	3200	S	3400	10.00	55.10	9.80

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
2022 HISTORICAL AADT REPORT

COUNTY: 90 - MONROE

SITE: 8112 - SIMONTON ST, 200' SOUTH OF PETRONIA ST (2011 OFF SYSTEM CYCLE)

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
----	-----	-----	-----	-----	-----	-----
2022	3400 S	N 1800	S 1600	9.00	54.20	2.70
2021	3400 F	N 1800	S 1600	9.00	53.10	5.70
2020	3400 C	N 1800	S 1600	9.00	54.10	9.50
2019	5300 T	N 2700	S 2600	9.00	54.70	4.70
2018	5300 S	N 2700	S 2600	9.00	55.10	6.60
2017	5300 F	N 2700	S 2600	9.00	53.90	4.70
2016	5300 C	N 2700	S 2600	9.00	54.90	8.80
2015	6600 T	0	0	9.00	54.30	8.10
2014	6300 S			9.00	55.20	3.80
2013	6200 F	0	0	9.00	54.80	7.30
2012	6100 C	N 0	S 0	9.00	55.00	8.20

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

KBP CONSULTING, INC.

April 27, 2023

Gregory S. Oropeza, Esq.
Oropeza Stones Cardenas
221 Simonton Street
Key West, FL 33040

**Re: Hydro-Thunder Golf Carts – Key West, Florida
Traffic Statement**

Dear Greg:

There is an existing retail property located generally in the southern quadrant of the intersection at Simonton Street and Front Street in Key West, Monroe County, Florida. More specifically, the subject site is located at 114 Simonton Street. Hydro-Thunder of Key West proposes to utilize this location for the storage of 50 golf carts that will be utilized for their vehicle rental business. The purpose of this traffic statement is to document the anticipated roadway impacts associated with the location of 50 golf cart rental licenses at 114 Simonton Street.

Location of Proposed Golf Carts & Roadway Access

According to the latest plans the proposed golf carts will be stored in the rear of the subject building. Access to the interior vehicle storage area will be provided by an existing garage door on the south side of the building. Vehicular access to the site is provided by an existing full access driveway on Simonton Street that leads to a surface parking lot on the south side of the building. This access point will allow exiting golf carts to turn left or right onto Simonton Street. And, in a similar manner, golf carts entering the site will be able to turn left or right from Simonton Street. The proposed storage location of these vehicles is depicted on the overall floor plan contained in Attachment A to this memorandum.

Trip Generation Analysis

Concerning the proposed location of 50 rental golf carts at 114 Simonton Street, it is estimated that a majority of these vehicles at this location will be rented on a daily basis and by guests of nearby hotels and resorts. That is, they will be rented in the morning or early afternoon and returned that same day. As such, these vehicles will typically result in one (1) exiting trip and one (1) entering trip per day. Therefore, in a worst-case scenario, 50 golf cart rentals would generate approximately 100 daily vehicle trips (i.e. one inbound and one outbound trip per day). Additionally, the peak hour impact is estimated to be approximately 20% of the daily trips or 20 peak hour trips.

Traffic Impacts

In accordance with Section 18-358 of the City's Code of Ordinances, the traffic impacts associated with the proposed golf cart rentals at the subject location must be addressed. More specifically, insignificant (or "de minimis") impacts are defined as those that constitute an impact of less than three percent (3.0%) of the capacity on the local transportation network.

Based upon the location of the proposed rental golf carts, it is expected that these vehicles will quickly disperse throughout the City's street grid network. As a result of this trip dispersion, impacts to any single roadway or intersection will be minimal. However, for the purposes of this traffic impact analysis, our focus is on Simonton Street, Front Street, Greene Street, Caroline Street, Eaton Street and Duval Street.

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The trip distribution patterns for this site have been developed based upon the surrounding roadway network and the area's land uses / attractions. The inbound and outbound trip distribution patterns are presented in Attachment B to this memorandum.

Capacity Analyses

According to the FDOT's 2020 Quality / Level of Service Handbook, in urbanized areas two-lane undivided, class II (35 miles per hour or slower posted speed limit), non-state roadways (without turn lanes) have a daily capacity of approximately 10,360 vehicles and a peak hour capacity of approximately 931 vehicles. (Please see Attachment C for the referenced level of service thresholds.) The daily and peak hour traffic impacts to the surrounding (and primarily impacted) roadway segments are summarized in Table 1 below.

Table 1 114 Simonton Street - Hydro-Thunder Golf Carts Key West, Florida						
Roadway	Daily			Peak Hour		
	Capacity	Project Traffic	% Impact	Capacity	Project Traffic	% Impact
Simonton Street - North of Front St	10,360	5	0.05%	931	1	0.11%
Simonton Street - Front St to Project DW	10,360	50	0.48%	931	10	1.07%
Simonton Street - Project DW to Greene St	10,360	50	0.48%	931	10	1.07%
Simonton Street - Greene St to Caroline St	10,360	30	0.29%	931	6	0.64%
Simonton Street - Caroline St to Eaton St	10,360	20	0.19%	931	4	0.43%
Front Street - East of Simonton St	10,360	15	0.14%	931	3	0.32%
Front Street - West of Simonton St	10,360	30	0.29%	931	6	0.64%
Greene Street - Elizabeth St to Simonton St	10,360	10	0.10%	931	2	0.21%
Greene Street - Simonton St to Duval St	10,360	10	0.10%	931	2	0.21%
Caroline Street - Elizabeth St to Simonton St	10,360	5	0.05%	931	1	0.11%
Caroline Street - Simonton St to Duval St	10,360	5	0.05%	931	1	0.11%
Eaton Street - Elizabeth St to Simonton St	10,360	5	0.05%	931	1	0.11%
Eaton Street - Simonton St to Duval St	10,360	5	0.05%	931	1	0.11%
Duval Street - Front St to Greene St	10,360	20	0.19%	931	4	0.43%
Duval Street - Greene St to Caroline St	10,360	20	0.19%	931	4	0.43%
Duval Street - Caroline St to Eaton St	10,360	15	0.14%	931	3	0.32%

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As indicated in Table 1 on the previous page, the projected daily and peak hour vehicle trips associated with the proposed Hydro-Thunder golf cart rentals at 114 Simonton Street are substantially less than the 3.0% significance thresholds on each of the directly impacted roadway segments in close proximity to the site. Therefore, these volumes will not have a significant impact on the local street network.

Conclusions

Based upon the foregoing analysis and assessment of the traffic operations associated with the proposed Hydro-Thunder golf cart rentals to be located at 114 Simonton Street in Key West, it is evident that the resulting daily and peak hour traffic can be accommodated within the City's 3.0% traffic impact threshold on the directly impacted roadway segments.

If you have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

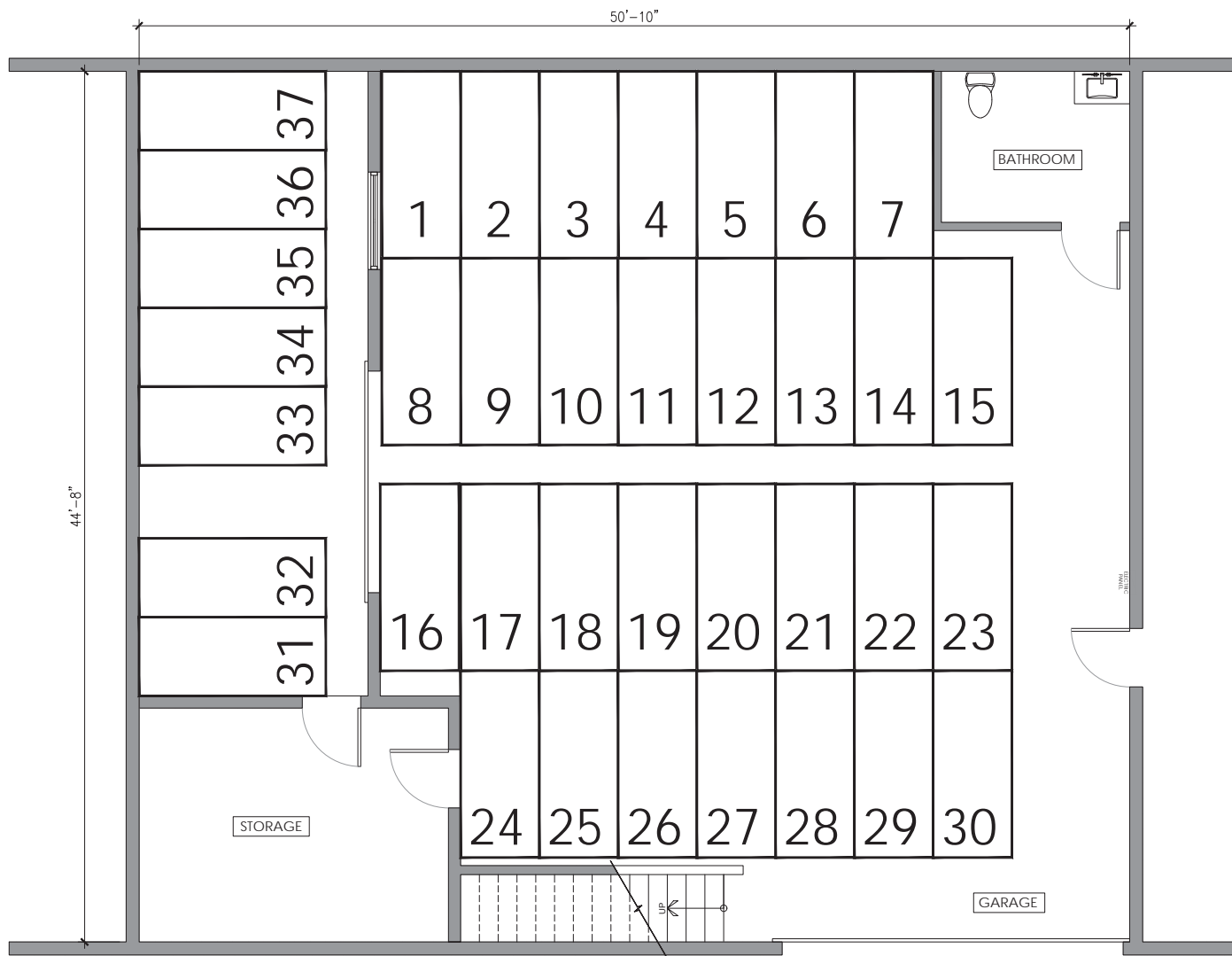
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Karl B. Peterson, P.E.
Senior Transportation Engineer

Attachment A

Floor Plan with Proposed Golf Cart Location



1 EXISTING FLOOR PLAN

SCALE: 3/16" = 1'-0"

[ROTATED]



GENERAL NOTE: NO CONSTRUCTION, NOR DEMOLITION IS PROPOSED FOR THIS PROJECT. THE FLOOR PLAN PROVIDED IS INTENDED TO DEMONSTRATE THE ABILITY OF THE APPLICANT TO PARK GOLF CARTS IN THE SPACE PROVIDED BY THE PROPERTY OWNER.

SHEET:

G7.7

MAR. 06, 2023

TITLE:

EXISTING
GROUND FLOOR
PLAN W/ PARKING
LAYOUT

PROJECT: 23.04

HYDRO-THUNDER OF KEY WEST, INC.

GOLF CART STORAGE
PARKING

114 SIMONTON ST., KEY WEST, FLORIDA 33040

A²O

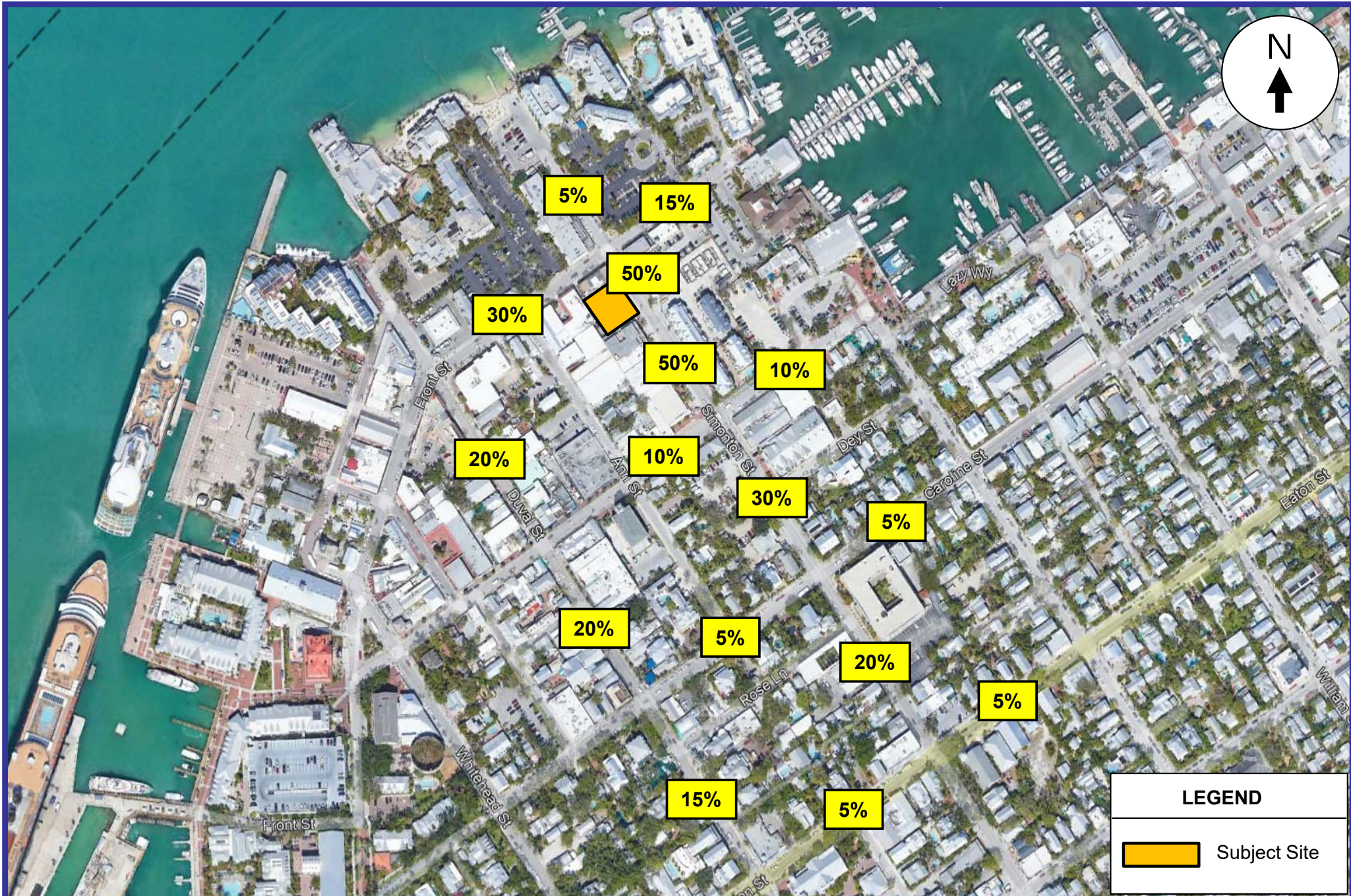
ARCHITECTURE

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E: A2OARCHITECTURE@GMAIL.COM
PROJ. REG. A20603572

ARCHITECT:
AUSTIN A. OSBORN, P.E.
LICENSE NO. AP7663
EXPIRATION DATE: 02/28/25

Attachment B

Trip Distribution Patterns



Attachment C

FDOT Level of Service Tables

TABLE 1

Generalized **Annual Average Daily** Volumes for Florida's
Urbanized Areas

January 2020

INTERRUPTED FLOW FACILITIES						UNINTERRUPTED FLOW FACILITIES					
STATE SIGNALIZED ARTERIALS						FREEWAYS					
Class I (40 mph or higher posted speed limit)						Core Urbanized					
Lanes	Median	B	C	D	E	Lanes	B	C	D	E	
2	Undivided	*	16,800	17,700	**	4	47,600	66,400	83,200	87,300	
4	Divided	*	37,900	39,800	**	6	70,100	97,800	123,600	131,200	
6	Divided	*	58,400	59,900	**	8	92,200	128,900	164,200	174,700	
8	Divided	*	78,800	80,100	**	10	115,300	158,900	203,600	218,600	
						12	136,500	192,400	246,200	272,900	
Class II (35 mph or slower posted speed limit)						Urbanized					
Lanes	Median	B	C	D	E	Lanes	B	C	D	E	
2	Undivided	*	7,300	14,800	15,600	4	45,900	62,700	75,600	85,400	
4	Divided	*	14,500	32,400	33,800	6	68,900	93,900	113,600	128,100	
6	Divided	*	23,300	50,000	50,900	8	91,900	125,200	151,300	170,900	
8	Divided	*	32,000	67,300	68,100	10	115,000	156,800	189,300	213,600	
Non-State Signalized Roadway Adjustments						Freeway Adjustments					
(Alter corresponding state volumes by the indicated percent.)						Auxiliary Lanes Ramp					
Non-State Signalized Roadways - 10%						Present in Both Directions Metering					
						+ 20,000 + 5%					
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	11,700	18,000	24,200	32,600
2	Undivided	No	No	-20%		4	Divided	36,300	52,600	66,200	75,300
Multi	Undivided	Yes	No	-5%		6	Divided	54,600	78,800	99,400	113,100
Multi	Undivided	No	No	-25%							
—	—	—	Yes	+ 5%							
One-Way Facility Adjustment						Uninterrupted Flow Highway Adjustments					
Multiply the corresponding two-directional volumes in this table by 0.6						Lanes	Median	Exclusive left lanes	Adjustment factors		
						2	Divided	Yes	+5%		
						Multi	Undivided	Yes	-5%		
						Multi	Undivided	No	-25%		
BICYCLE MODE ²						¹ Values shown are presented as two-way annual average daily 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 HCM and the Transit Capacity and Quality of Service Manual.					
(Multiply 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		² Level of service for the bicycle and pedestrian modes in this table is based on number of vehicles, not number of bicyclists or pedestrians using the facility.					
0-49%	*	2,900	7,600	19,700							
50-84%	2,100	6,700	19,700	>19,700							
85-100%	9,300	19,700	>19,700	**		³ Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.					
PEDESTRIAN MODE²											
(Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)						* Cannot be achieved using table input value defaults.					
Sidewalk Coverage	B	C	D	E							
0-49%	*	*	2,800	9,500							
50-84%	*	1,600	8,700	15,800		** 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.					
85-100%	3,800	10,700	17,400	>19,700							
BUS MODE (Scheduled Fixed Route) ³						Source: Florida Department of Transportation Systems Implementation Office https://www.fdot.gov/planning/systems/					
(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							

TABLE 4

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

January 2020

INTERRUPTED FLOW FACILITIES						UNINTERRUPTED FLOW FACILITIES					
STATE SIGNALIZED ARTERIALS						FREEWAYS					
Class I (40 mph or higher posted speed limit)						Core Urbanized					
Lanes	Median	B	C	D	E	Lanes	B	C	D	E	
2	Undivided	*	1,510	1,600	**	4	4,050	5,640	6,800	7,420	
4	Divided	*	3,420	3,580	**	6	5,960	8,310	10,220	11,150	
6	Divided	*	5,250	5,390	**	8	7,840	10,960	13,620	14,850	
8	Divided	*	7,090	7,210	**	10	9,800	13,510	17,040	18,580	
						12	11,600	16,350	20,930	23,200	
Class II (35 mph or slower posted speed limit)						Urbanized					
Lanes	Median	B	C	D	E	Lanes	B	C	D	E	
2	Undivided	*	660	1,330	1,410	4	4,130	5,640	7,070	7,690	
4	Divided	*	1,310	2,920	3,040	6	6,200	8,450	10,510	11,530	
6	Divided	*	2,090	4,500	4,590	8	8,270	11,270	13,960	15,380	
8	Divided	*	2,880	6,060	6,130	10	10,350	14,110	17,310	19,220	
Non-State Signalized Roadway Adjustments						Freeway Adjustments					
(Alter corresponding state volumes by the indicated percent.)						Auxiliary Lanes					
Non-State Signalized Roadways - 10%						Present in Both Directions + 1,800					
Median & Turn Lane Adjustments						Ramp Metering + 5%					
Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors		UNINTERRUPTED FLOW HIGHWAYS					
2	Divided	Yes	No	+5%		Lanes	Median	B	C	D	E
2	Undivided	No	No	-20%		2	Undivided	1,050	1,620	2,180	2,930
Multi	Undivided	Yes	No	-5%		4	Divided	3,270	4,730	5,960	6,780
Multi	Undivided	No	No	-25%		6	Divided	4,910	7,090	8,950	10,180
—	—	—	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 MODE²						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 HCM and the Transit Capacity and Quality of Service Manual.					
(Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)						² Level of service for the bicycle and pedestrian modes in this table is based on number of vehicles, not number of bicyclists or pedestrians using the facility.					
Paved Shoulder/Bicycle						³ Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.					
Lane Coverage	B	C	D	E		* Cannot be achieved using table input value defaults.					
0-49%	*	260	680	1,770		** 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.					
50-84%	190	600	1,770	>1,770		Source:					
85-100%	830	1,700	>1,770	**		Florida Department of Transportation					
PEDESTRIAN MODE²						Systems Implementation Office					
(Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)						https://www.fdot.gov/planning/systems/					
Sidewalk Coverage	B	C	D	E							
0-49%	*	*	250	850							
50-84%	*	150	780	1,420							
85-100%	340	960	1,560	>1,770							
BUS MODE (Scheduled Fixed Route)³											
(Buses in peak hour in peak direction)											
Sidewalk Coverage	B	C	D	E							
0-84%	> 5	≥ 4	≥ 3	≥ 2							
85-100%	> 4	≥ 3	≥ 2	≥ 1							