A Traffic Impact Analysis of:

Rooms to Go Outdoor

Located in:

City of Stuart, Florida

Prepared for:

Rooms to Go
400 Perimeter Center Terrace
Suite 800
Atlanta, GA 30346

Prepared by:

GIANGRANDE
Engineering & Planning
Engineering Business License: 30901
2081 SE Ocean Blvd, Suite 1A
Stuart FL, 34996
772.888.9076

Prepared:
August 21, 2018
Revised: October 15, 2018



This item has been digitally signed and sealed by **Leo D. Giangrande, PE** on **October 18, 2018** using a Digital Signature.

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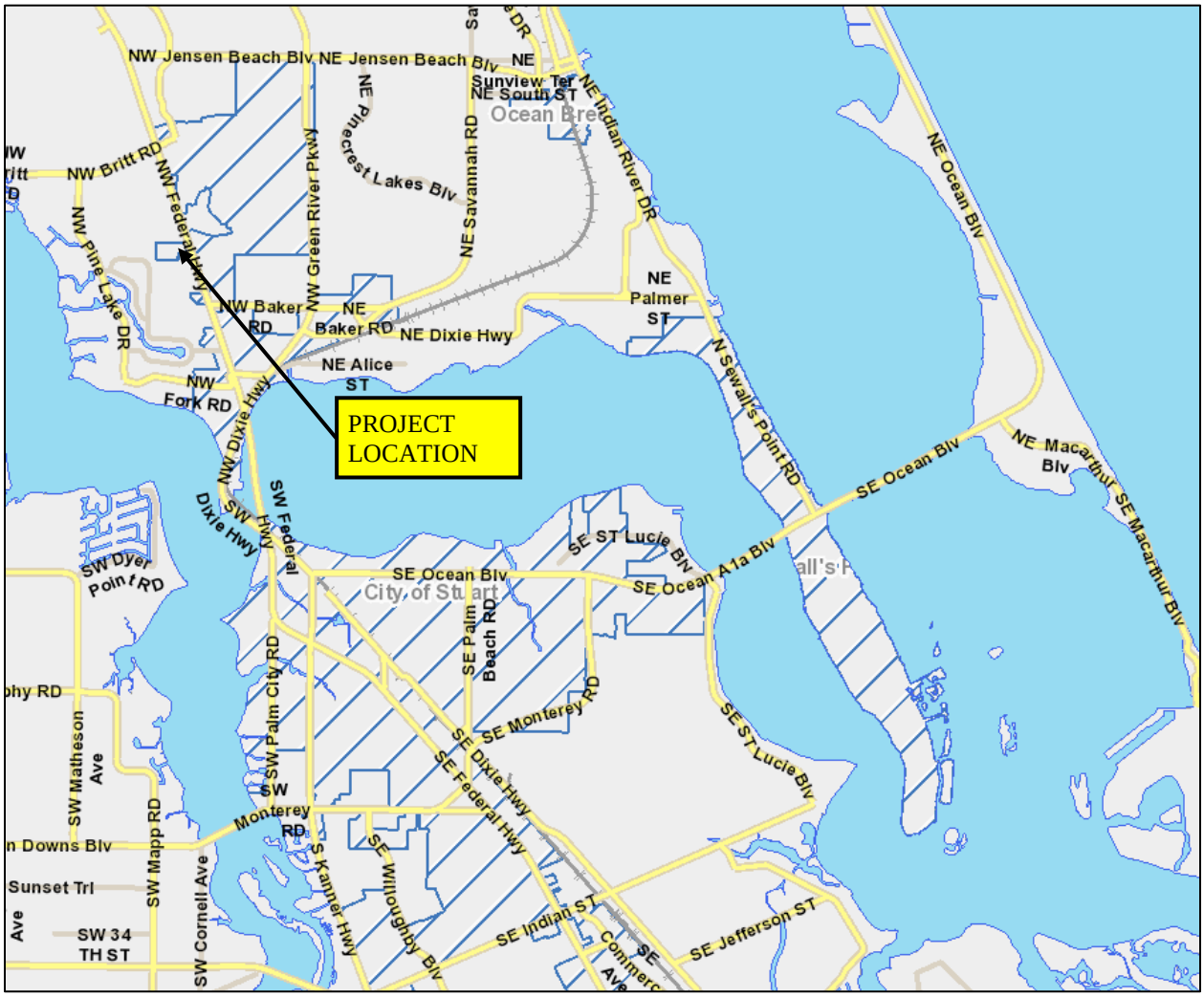
Martin County 2017 Level of Service Report
Site Plan Prepared by Carter Associates, Inc.
FDOT Pre-application Letter

INTRODUCTION

Giangrande Engineering and Planning has been requested to provide traffic impact analysis in for the 2.57 acre site located at 1850 NW Federal Hwy, Stuart, FL, United States. The site plan application proposes the development of 9,000 square feet of furniture store in Phase I. A future phase will add 6,000 square feet of retail. Analysis of both phases is provided in this report as requested by the City of Stuart. A copy of the site plan is included in the **Appendix**.

The analysis performed in this report provides the potential impacts to the City's transportation brought about by the proposed development. The analysis includes existing, background, committed trips, and the projected traffic volumes and the capacity analysis for required roadways. **Figure 1** below shows the location of the project in relation to the surrounding roadway network.

Figure 1 – Site Location



TRIP GENERATION

Trip generation has been based on the proposed development of a furniture store. The peak hour traffic generation for the site was available from the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 10th Edition. The calculation of the trip generation is summarized below in **Table 1:**

Table 1 – Proposed Trip Generation

Rooms To Go Outdoor									
Proposed Trip Generation									
			AM			PM			ADT
ITE Code	Type	Amount	In	Out	Total	In	Out	Total	Total
890	Furniture Store	9,000 SF	3	2	5	3	3	6	57
		Phase I Total	***3***	***2***	***5***	***3***	***3***	***6***	***57***
820	Shopping Center	6,000 SF	10	9	18	13	13	25	227
	pass-by reduction	*62%*	*6*	*5*	*11*	*8*	*8*	*16*	*140*
		Phase II Total	***4***	***3***	***7***	***5***	***5***	***10***	***86***
		Total Build-out	**7**	**5**	**12**	**8**	**8**	**16**	**143**

The equations utilized in the trip generation shown in **Table 1** are summarized as follows where T is equal to vehicle trips and X is the independent variable:

- **820 Shopping Center (X=1,000 sq. ft. of gross building area)**
  - AM Peak Hour: *T = 3.00 (X)*
    - Entrance Split: 0.54
    - Exit Split: 0.48
  - PM Peak Hour: *T = 4.21 (X)*
    - Entrance Split: 0.50
    - Exit Split: 0.50
- **890 Furniture Store (X=1,000 sq. ft. of gross building area)**
  - AM Peak Hour: *T = 0.52 (X)*
    - Entrance Split: 0.62
    - Exit Split: 0.38
  - PM Peak Hour: *T = 0.70 (X)*
    - Entrance Split: 0.51
    - Exit Split: 0.49

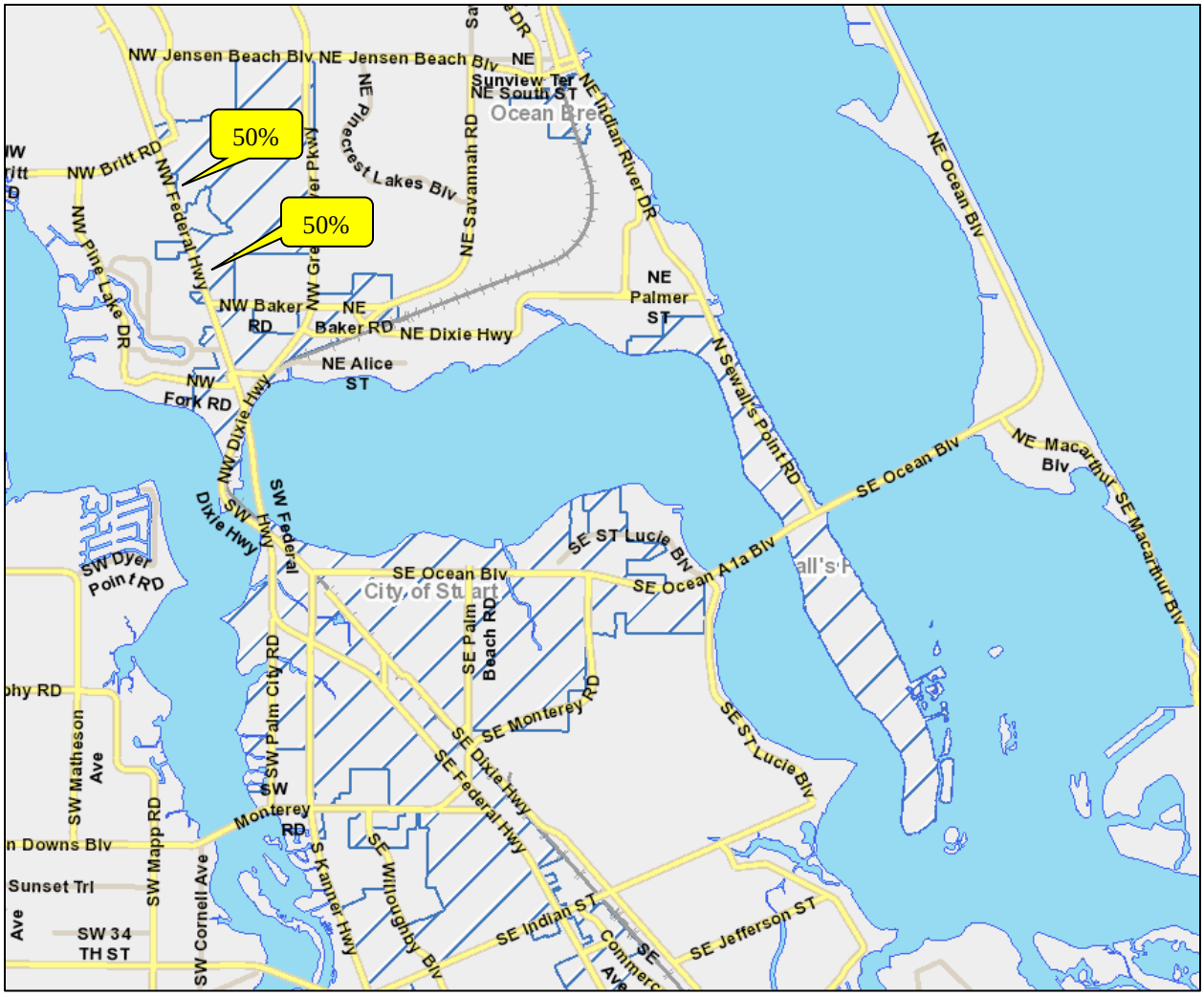
A pass by reduction of 62% is specified by Palm Beach County for retail less than 10,000 SF. Martin County has adopted these criteria for previous traffic studies and traffic conditions in the City of Stuart and Martin County are similar. Pass-by reduction percentage was also reviewed in the *ITE Trip Generation Handbook*, 3rd Edition (Figure E.7). There is a wide variation in pass-by for ITE Code 820 Shopping Center; however, a pass-by percentage of 62% is consistent with data points with a similar square footage of gross building area.

TRIP DISTRIBUTION

A trip distribution was performed to show the traffic impact based on the total trips generated from the proposed project. The trip distribution has 50% of the project trips from the north on US-1 and 50% from the south on US-1.

The project trips generated as shown in **Table 1** are distributed to the surrounding roadway system based on anticipated vehicular routes used to access and exit the site. Distribution is based on the potential population growth, demographics of the potential clients in the vicinity of the site and other similar uses of the surrounding area. **Figure 2** is provided as a graphical representation of the trip distribution percentages to roadway links and intersections within the project vicinity. Project trip distribution can also be viewed in **Table 2.** The adjacent link of US-1 (Baker Road to Britt Road) will carry 100% of the traffic from this development.

Figure 2 – Trip Distribution



BACKGROUND & BUILD-OUT CONDITIONS

Background conditions for the Phase I completion year, 2019, have been calculated using the annual growth percentage shown in **Table 2**, which was obtained from the 2017 Martin County Roadway Level of Service report.

Table 3 tabulates the expected traffic volumes for the roadway links in the vicinity of the project for the design year compared to the LOS service volume. With both the Phase I and Phase II build-out for the proposed project, all the links that are expected to be utilized are below the LOS service volume established for that segment.

Table 2 – Build-Out Calculation

Phase I									
Road Name	**From**	**To**	**Type**	**2017 PH (dir) Existing**	**Annual Growth**	**2019 PH (dir) Growth**	**Project Assign.**	**Project Trips**	**2019 PH (dir) Build-out**
SR-5 (US-1)	Baker Road	Britt Road	6-Ln	2,309	0.50%	2,332	100.0%	3	2,335
Phase II Build-out									
Road Name	**From**	**To**	**Type**	**2017 PH (dir) Existing**	**Annual Growth**	**2021 PH (dir) Growth**	**Project Assign.**	**Project Trips**	**2021 PH (dir) Build-out**
SR-5 (US-1)	Baker Road	Britt Road	6-Ln	2,309	0.50%	2,356	100.0%	8	2,364

Table 3 – LOS Build-Out Link Data

Phase I									
Road Name	**From**	**To**	**Type**	**Project Trips**	**2019 PH (dir) Build-out**	**Service Volume***	**Project % of Service**	**2% Test**	**Concurrency Test**
SR-5 (US-1)	Baker Road	Britt Road	6-Ln	3	2,335	3,020	0.1%	60	OK
Phase II Build-out									
Road Name	**From**	**To**	**Type**	**Project Trips**	**2021 PH (dir) Build-out**	**Service Volume***	**Project % of Service**	**2% Test**	**Concurrency Test**
SR-5 (US-1)	Baker Road	Britt Road	6-Ln	8	2,364	3,020	0.3%	60	OK

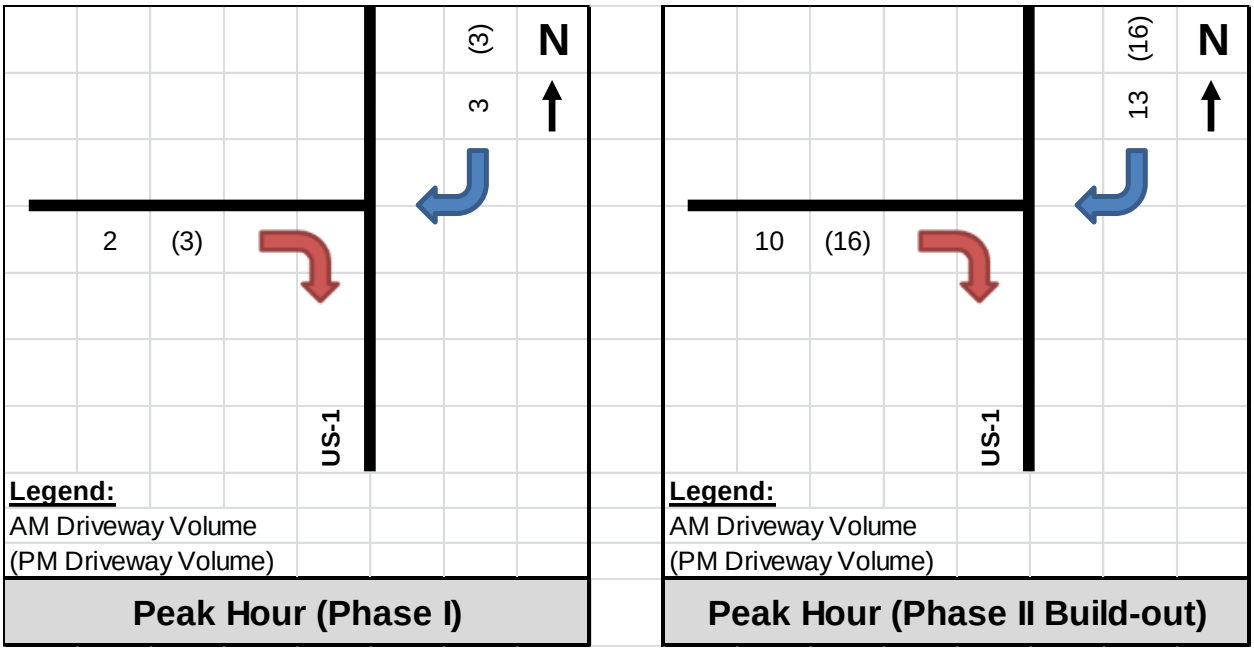
**Service volume represents generalized service capacity or Interim LOS Threshhold according to the Martin County 2017 Roadway LOS Inventory Report.*

PROJECT ACCESS

The site is located on the East side of NW Federal Highway (US-1). The site will be serviced by a right in/right out driveway. An FDOT pre-application letter for the driveway connection is provided in the **Appendix**.

Projected turning movements are provided in Figure 3 for both Phase I and II of this project. The driveway volumes depicted of the development DO NOT require the addition of a right-in turn lane; however one is being proposed by the client for safety reasons.

Figure 3 – Driveway Volumes



CONCLUSION

Based on this traffic analysis, the proposed development is not anticipated to have detrimental adverse impacts to the surrounding roadway network based on build-out conditions. The projected volumes indicate that the adjacent roadway links will operate at an acceptable Level of Service with no mitigation improvements. The existing roadway network is capable of accommodating the additional new vehicle trips the development is anticipated to generate.

APPENDIX

Martin County 2017 Roadway Level of Service Inventory Report

Road Name	From	To	Generalized Service Capacity	2017 AADT	Peak Hour Factor K_{30}	Directional Distribution D_{100}	2017 Peak Hour Directional Volume	2017 Generalized LOS	Avg. Annual Growth Rate
SR-5 (US-1)	Monroe St	Indian St	3020	43,510	0.08	0.50	1,809	C	1.7%
SR-5 (US-1)	Indian St	SR-714	3020	44,676	0.10	0.52	2,212	C	0.6%
SR-5 (US-1)	SR-714	SR-5A	3020	37,801	0.09	0.50	1,772	C	0.6%
SR-5 (US-1)	SR-5A(Cut-off Rd)	SR-76	3020	37,383	0.08	0.51	1,492	C	1.2%
SR-5 (US-1)	SR-76	Palm City Rd	2520	48,535	0.08	0.53	2,013	D	1.1%
SR-5 (US-1)	Palm City Rd	Joan Jefferson Wy	2520	56,700	0.07	0.53	2,191	D	1.5%
SR-5 (US-1)	Joan Jefferson Wy	Wright Blvd	3020	60,449	0.09	0.60	3,286	F	1.4%
SR-5 (US-1)	Wright Blvd	Baker Rd	3020	52,000	0.08	0.51	2,174	C	0.5%
SR-5 (US-1)	Baker Rd	Britt Rd	3020	52,984	0.08	0.55	2,309	C	0.5%
SR-5 (US-1)	Britt Rd	SR-732	3020	55,861	0.09	0.51	2,681	C	0.5%
SR-5 (US-1)	SR-732	Westmoreland Blvd	4040	64,497	0.09	0.59	3,384	C	1.0%
SR-5 (US-1)	Westmoreland Blvd	St Lucie County	4040	65,901	0.07	0.62	2,638	C	2.9%
SR-710 (Warfield Blvd)	Okeechobee County	Fox Brown Rd	670	6,141	0.07	0.58	244	C	2.7%
SR-710 (Warfield Blvd)	Fox Brown Rd	CR-609 (Allapattah)	670	7,286	0.08	0.59	319	C	1.4%
SR-710 (Warfield Blvd)	CR-609 (Allapattah)	Van Buren	870	11,622	0.10	0.58	661	C	7.6%
SR-710 (Warfield Blvd)	Van Buren	CR-726 (Citrus)	765	11,622	0.10	0.58	661	C	7.6%
SR-710 (Warfield Blvd)	CR-726	SR-76 (Kanner)	2450	10,624	0.08	0.58	457	A/B	6.0%
SR-710 (Warfield Blvd)	SR-76	Palm Beach County	2450	6,769	0.07	0.53	262	A/B	1.4%
SR-714 (Martin Hwy)	I-95	CR-76A (Citrus)	1200	12,637	0.10	0.54	639	C	7.0%
SR-714 (Martin Hwy)	CR-76A (Citrus)	Florida's Turnpike	925	19,691	0.10	0.56	1,031	F	6.4%
SR-714 (Martin Downs Blvd)	Florida's Turnpike	CR-713	2000	19,879	0.08	0.53	897	C	1.2%

Segments with shaded LOS require additional analysis.
The peaks are: CR-A1A (PM/SB); Murphy Rd (PM/NB); SR-5 (PM/NB); and SR-714 (PM/WB).

SITE DATA

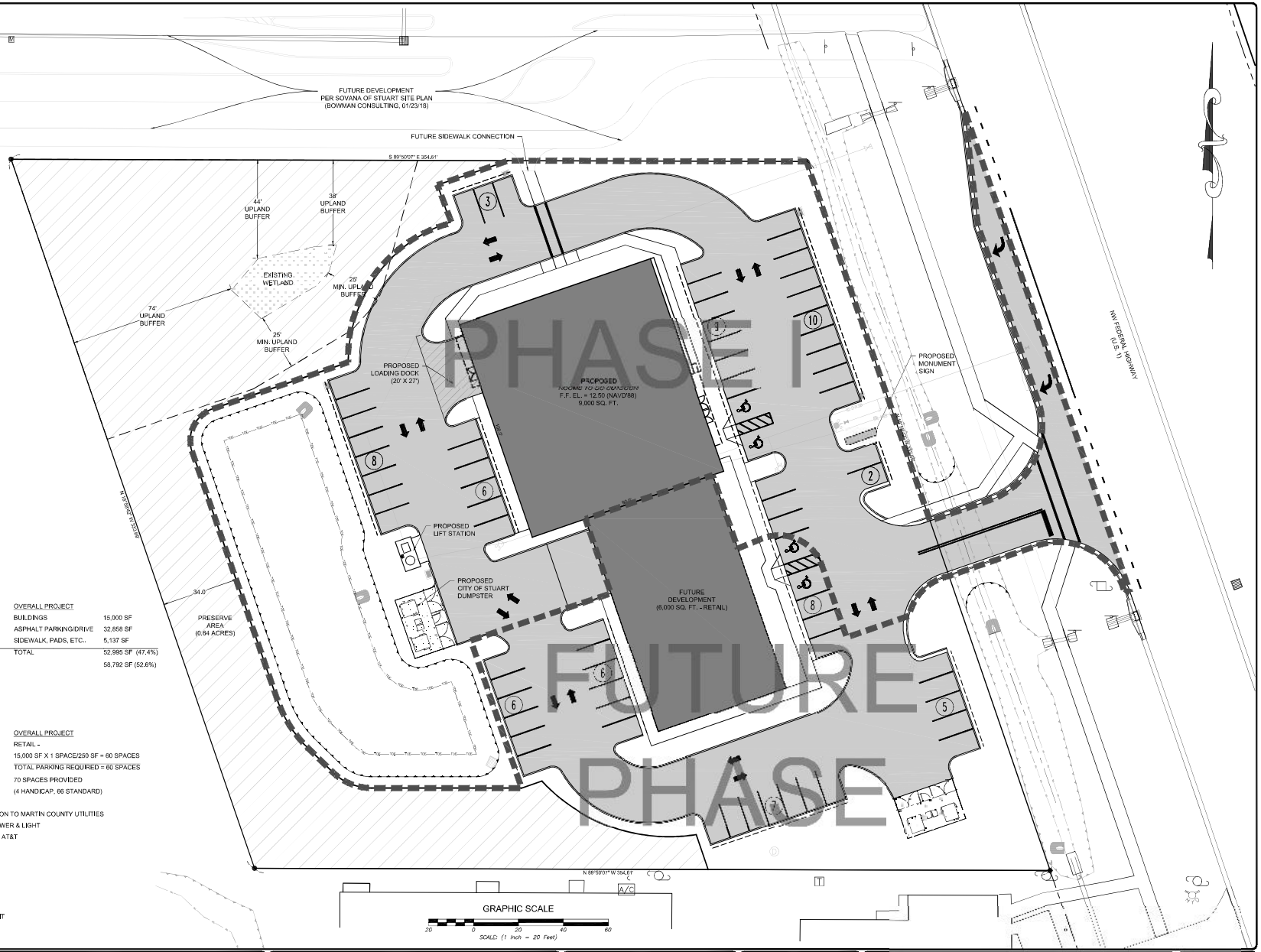
PROJECT NAME:	ROOMS TO GO - OUTDOOR
SITE ADDRESS:	1850 NW FEDERAL HWY STUART, FLORIDA 34994
APPLICANT/OWNER:	FLORIDA PATIO PARTNERS, LLC. 11540 US HIGHWAY 92 EAST SEFFNER, FLORIDA 33584 (678) 338-4566
INTENDED USE:	RETAIL (CPUD)
EXISTING USE:	GENERAL COMMERCIAL (VACANT)
ENGINEER:	CARTER ASSOCIATES, INC. JOHN H. BLUM, P.E. 1708 21ST STREET VERO BEACH, FLORIDA 32960 (772) 562-4191
TAX PARCEL NO.:	2937410040020011O4
ZONING:	CPUD
LAND USE:	COMMERCIAL
SETBACKS:	REQUIRED / PROVIDED FRONT 30 FT. / 78.3 FT. REAR 20 FT. / 165.0 FT. SIDE 5 FT. / 42.9 FT.
BUILDING HEIGHT:	21.7 FT
FLOOD PLAIN:	ZONE X, OUTSIDE 500 YR. FLOOD MAP #12085C0132G DATED MARCH 16, 2015

SITE CALCULATIONS

TOTAL PARCEL AREA:	111,787 SF (2.57 ACRES)			
RETENTION AREA:	10,610 SF (0.24 ACRES)			
PROPOSED IMPERVIOUS AREA:	(MAX 65% IMPERVIOUS)			
	PHASE I		OVERALL PROJECT	
	BUILDING	9,000 SF	BUILDINGS	15,000 SF
	ASPHALT PARKING/DRIVE	21,942 SF	ASPHALT PARKING/DRIVE	32,858 SF
	SIDEWALK, PADS, ETC..	3,424 SF	SIDEWALK, PADS, ETC..	5,137 SF
	TOTAL	34,366 SF (30.7%)	TOTAL	52,995 SF (47.4%)
PROPOSED OPEN SPACE:		77,421 SF (69.3%)		58,792 SF (52.6%)
REQUIRED PRESERVE AREA:	(111,787 - 839) SF X 25% = 27,737 (0.64 ACRES)			
PROPOSED PRESERVE AREA:	27,883 SF (0.64 ACRES)			
AVERAGE WETLAND BUFFER (50'):	14,782 SF - REQUIRED			
	15,312 SF - PROVIDED			

PARKING CALCULATIONS

PARKING REQUIRED:	PHASE I	OVERALL PROJECT
	RETAIL -	RETAIL -
	9,000 SF X 1 SPACE/250 SF = 36 SPACES	15,000 SF X 1 SPACE/250 SF = 60 SPACES
	TOTAL PARKING REQUIRED = 36 SPACES	TOTAL PARKING REQUIRED = 60 SPACES
PARKING PROVIDED:	36 SPACES PROVIDED	70 SPACES PROVIDED
	(2 HANDICAP, 34 STANDARD)	(4 HANDICAP, 66 STANDARD)
TRAFFIC:	SEE TRAFFIC STUDY	
UTILITIES:	PROPOSED WATER & WASTEWATER CONNECTION TO MARTIN COUNTY UTILITIES	
	PROPOSED ELECTRIC SERVICE BY FLORIDA POWER & LIGHT	
	PROPOSED TELEPHONE/INTERNET SERVICE BY AT&T	
	IRRIGATION VIA ON-SITE WELL	
PERMITS REQUIRED:		
	CITY OF STUART CPUD AMENDMENT	
	FDOT DRIVEWAY CONNECTION PERMIT	
	FDOT DRAINAGE CONNECTION PERMIT	
	SFWMD ERP	
	MARTIN COUNTY UTILITIES CONNECTION PERMIT	



NO.	REVISION	BY	DATE
1			
2			
3			
4			
5			
6			

FLORIDA PATIO PARTNERS, LLC.
11540 US HIGHWAY 92 EAST
SEFFNER, FLORIDA 33584
-
TEL: 678-338-4566 FAX: 770-352-9953

CARTER ASSOCIATES, INC.
CONSULTING ENGINEERS AND LAND SURVEYORS
1708 21st STREET, VERO BEACH, FL 32960
TEL: (772) 562-4191 FAX: (772) 562-7180

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JOHN H. BLUM, P.E.
FLORIDA LICENSE No. 45813
CARTER ASSOCIATES, INC.
SIGNATURE DATE
COA 205 / LB 205

DATE : August 2018
PROJ. # : 19-01 E
DRAWN BY: TNS
APPD. BY : JHB
PLOT BY : Tyler Spencer
FILE NAME :
REF. # : 20887-C
F.B. & PG. : 863/VB/46+

ROOMS TO GO OUTDOOR

CPUD MASTER SITE PLAN

SHEET
C-1

Florida Department of Transportation

RICK SCOTT
GOVERNOR

3400 West Commercial Blvd.
Fort Lauderdale, FL 33309

MICHAEL DEW
SECRETARY

August 15, 2017

THIS PRE-APPLICATION LETTER IS **EXTENDED** UNTIL – **August 15, 2018**
THIS LETTER IS NOT A PERMIT APPROVAL

Leo Giangrande
Giangrande Engineering & Planning
73 SW Flagler Avenue
Stuart, Florida 34994

Dear Mr. Giangrande:

RE: **August 15, 2017 -** Pre-application **Extension** for **Category C Driveway,** Date of Pre-Application meeting **January 14, 2016**
Martin County – In the City of Urban SR 5 Sec. # 89010; MP – 21.750
Access Class - 03 Posted Speed – 45 mph SIS – N
Request: Right-in/right-out driveway located approximately 105 feet north of the southern property line with a right turn lane.

SITE SPECIFIC INFORMATION
Project Name & Address: **Kornbluh Commercial Project – St. Lucie Gardens Lot 12 Block 2**
Applicant & Property Owner: Alan Kornbluh
Parcel Size: **2.56 Acres** Max. Sq.ft./Proposed LU: **17,000 S.F. Commercial**

WE APPROVE YOUR REQUEST

This decision is based on your presentation of the facts, site plan and survey - please see the **conditions** and **comments** below. You may choose to review this concept further with the District Access Management Review Committee (AMRC).

Conditions:
- **A minimum driveway length of 25 feet, as measured from the ultimate right-of-way line to the first conflict point shall be provided. If a guard gate is installed a minimum driveway length of 100 feet is required.**
- **A right turn lane is required and must meet FDOT design standards and include space for bicycle lane.**
- **A recorded cross access easement with the adjacent property to the north/west shall be provided at the time of Permit.**

Comments:

- Drainage mitigation is required for any impacts within FDOT right-of-way (i.e. increased runoff or reduction of existing storage). A Storm Water Pollution Prevention Plan must be submitted with the application for more than one acre of "disturbed area" as defined by the Florida Department of Environmental Protection (FDEP).
- The applicant shall donate the right-of-way to the Department if right-of-way dedication is required to implement the improvements,
- All driveways not approved in this letter must be fully removed and the area restored.
- Dimensions between driveways are measured from the near edge of pavement to near edge of pavement and for median openings are measured from centerline to centerline unless otherwise indicated.

The purpose of this Pre-Application letter is to document the conceptual review of the approximate location of driveway(s) to the State Highway system and to note required improvements, if any. This letter shall be submitted with any further reviews and for permitting. The Department's personnel shall review permit plans for compliance with this letter as well as current Department standards and/or specifications. Final design must consider the existing roadway profile and any impacts to the existing drainage system. **Note, this letter does not guarantee permit approval.** The permit may be denied based on the review of the submitted engineering plans. Be aware that any approved median openings may be modified (or closed) in the future, at the sole discretion of the Department. For right-of-way dedication requirements go to: https://gis.dot.state.fl.us/OneStopPermitting; click on Statewide Permit News; Scroll down to District 4; Scroll down to Additional Information and Examples and choose Right-of-way Donations/Dedications.

Please contact Geysa Sosa, P.E. at the District Permits Office with any questions regarding permits – Tel. # 954-777-4377, or e-mail: geysa.sosa@dot.state.fl.us.

Sincerely,

Dalila Fernandez, P.E.
District Access Management Manager

For: DFS

cc: Nesa Y. Harden

File: S:\Transportation Operations\Traffic Operations\Access Management\1. Pre-Apps and Variance\2016-01-14\8. 89010 MP 21.750_Kornbluh Commercial Project\89010 MP 21.75_Kornbluh Commercial Project.doc

Centennial FDOT 1915 ★ 2015

Florida Department of Transportation

RICK SCOTT
GOVERNOR

3400 West Commercial Blvd.
Fort Lauderdale, FL 33309

JIM BOXOLD
SECRETARY

JANUARY 14, 2016

THIS PRE-APPLICATION LETTER IS VALID UNTIL – **JANUARY 14, 2017**
THIS LETTER IS NOT A PERMIT APPROVAL

Leo Giangrande
Giangrande Engineering & Planning
73 SW Flagler Avenue
Stuart, Florida 34994

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Sincerely,

Dalila Fernandez, P.E.
District Traffic Access Manager

GS/nyh
cc: Andres Aquino AEA

File: S:\Transportation Operations\Traffic Operations\Access Management\1. Pre-Apps and Variance\2016-01-14\8. 89010 MP 21.75_Kornbluh Commercial Project\89010 MP 21.75_Kornbluh Commercial Project.doc