LTG Engineering & Planning

Via email: (jdunn@sunterracommunities.com)

Ref: 6066.04

TECHNICAL MEMORANDUM

To: James Dunn, Sun Terra Communities

From: Matthew West, AICP

Subject: Jen Florida 48 / SunTerra (Site 2) – Small-Scale Rezoning Traffic Impact Analysis (RTIA) Brevard County, FL

Date: September 22, 2023

INTRODUCTION

LTG, Inc. (LTG) has been retained by Jen Florida 48, LLC, to conduct traffic engineering and transportation planning services on behalf of the proposed rezoning for SunTerra. The proposed rezoning will change 41.4 acres from the zoning categories of General Use (GU) to a Planned Unit Development (PUD). PUD will include 41.4 acres of residential with a maximum of 3 dwelling units (DU) per acre. The subject property is located between the south side of Davis Lane and north of Willowbrook Street to the west of Babcock Street in Brevard County, Florida. Figure 1 shows a map of the project site.

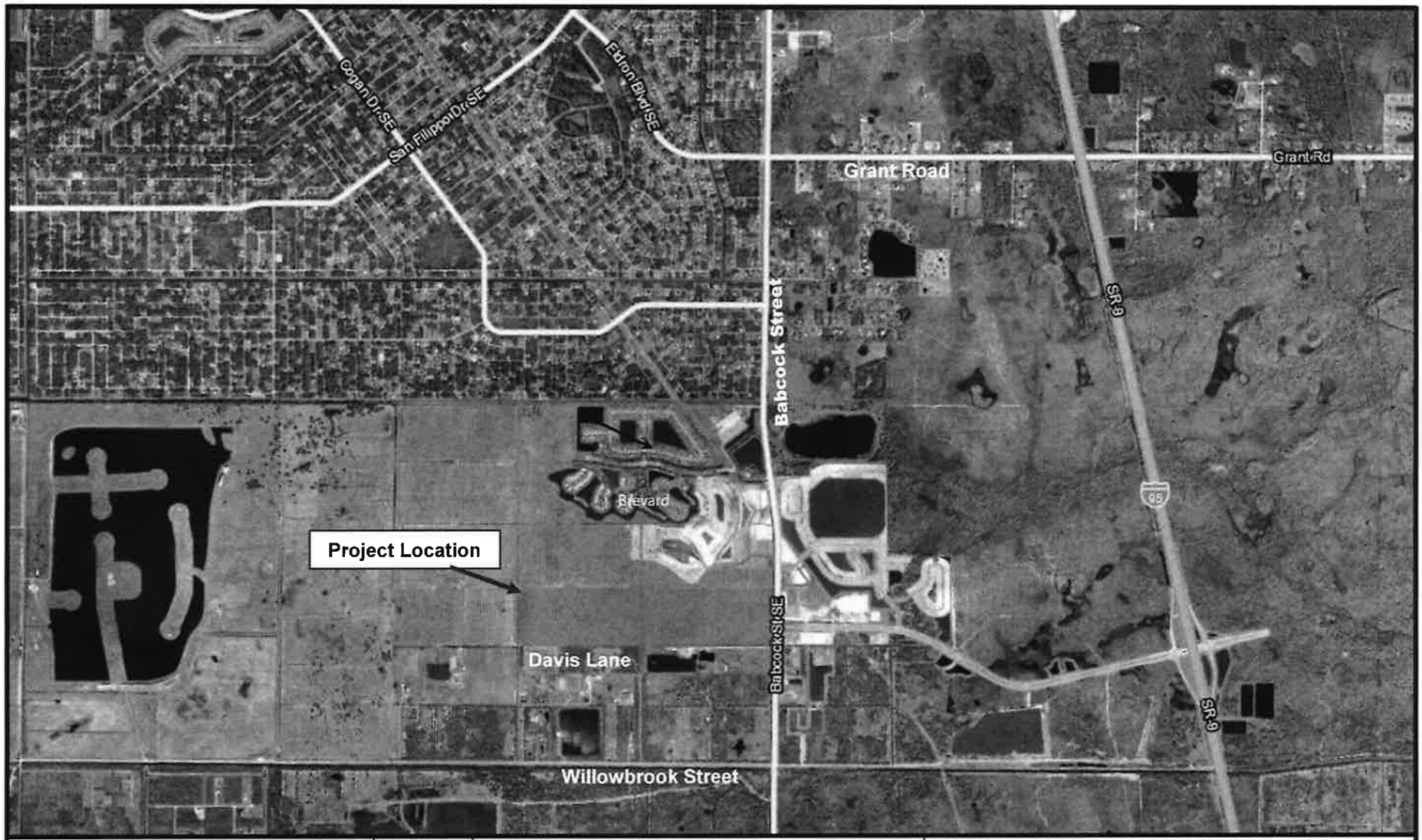
The methodology and procedures used in this analysis are consistent with Brevard County guidelines, the Florida Department of Transportation (FDOT) and the Space Coast Transportation Planning Organization (TPO).

TRIP GENERATION FOR THE EXISTING VS PROPOSED ZONING DESIGNATIONS

The trip generation was determined using the Institute of Transportation Engineers (ITE) document, Trip Generation Manual, *11th Edition*. The total daily, AM peak hour, and PM peak hour trips for the existing and proposed zoning categories are shown in Tables 1 and 2, respectively. Note, as calculations for current zoning is based on minimum lot sizes, acreage was reduced by 15% to account for land dedicated to infrastructure, stormwater, streets, etc. Only assumed developable land was used in the current zoning calculations.

Based on the GU minimum lot size of not less than 5 acres, a maximum development program of 7 DU is permitted. The Institute of Transportation Engineers (ITE) Land Use Code (LUC) 210 for Single-Family Residence was utilized as the highest trip-generating use for the existing zoning. As indicated in Table 1, the existing zoning would generate 88 total daily gross trips, 7 total AM peak hour trips, and 8 total PM peak hour trips.

The proposed rezoning to PUD has a maximum allowable density of 3 DU per acre. The maximum development potential for the proposed rezoning equates to 124 DU. The Single-Family Residence (ITE LUC 210) was utilized to calculate the trip generation. As indicated in Table 2, the proposed rezoning would generate 1,230 total daily gross trips, 91 total AM peak hour trips, and 122 total PM peak hour trips.



Jen Florida/SunTerra (Site 2) **Brevard County, FL**	N NTS	**Site Location Map** Project No.: 6066.04 — Figure: 1	LTG Engineering & Planning 1450 W. Granada Blvd, Suite 2 – Ormond Beach, Florida 32174 Telephone: 386.257.2571 Fax: 386.257.6996 EB# 0009227

(33)

Table 1
Existing Rezoning Total Trip Generation
Jen Florida 48 / SunTerra (Site 2) – Small-Scale RTIA

Time Period	Land Use	Land Use Code	Trip Rate Equation	Size	Units	Percent Entering	Percent Exiting	Trips Entering	Trips Exiting	Total Trips
Daily	Single Family Detached	210	Ln(T)=0.92Ln(X)+2.68	7	DU	50%	50%	44	44	88
AM PH			Ln(T)=0.91Ln(X)+0.12	7	DU	25%	75%	2	5	7
PM PH			Ln(T)=0.94Ln(X)+0.27	7	DU	63%	37%	5	3	8

Table 2
Proposed Rezoning Total Trip Generation
Jen Florida 48 / SunTerra (Site 2) – Small-Scale RTIA

Time Period	Land Use	Land Use Code	Trip Rate Equation	Size	Units	Percent Entering	Percent Exiting	Trips Entering	Trips Exiting	Total Trips
Daily	Single Family Detached	210	Ln(T)=0.92Ln(X)+2.68	124	DU	50%	50%	615	615	1,230
AM PH			Ln(T)=0.91Ln(X)+0.12	124	DU	25%	75%	23	68	91
PM PH			Ln(T)=0.94Ln(X)+0.27	124	DU	63%	37%	77	45	122

TRIP GENERATION DIFFERENCE BETWEEN THE EXISTING & PROPOSED ZONING DESIGNATIONS

The trip difference between the existing zoning and proposed designations was calculated to determine the potential transportation impact of the requested rezoning. As indicated in Table 3, the proposed change results in a potential trip increase of 1,142 total daily trips, 84 total AM peak hour, and 114 total PM peak hour trips.

Table 3
Difference in Trip Generation
Jen Florida 48 / SunTerra (Site 2) – Small-Scale RTIA

Period	Existing	Proposed	Difference	
Daily	88	1,230	1,142	INCREASE
AM Peak Hour	7	91	84	INCREASE
PM Peak Hour	8	122	114	INCREASE

Analysis of Trip Difference Transportation Impacts

The impact of the trip difference will be assessed through segment analysis for the first exterior roadway segment accessed by the project (Babcock Street). A traffic impact analysis (TIA) will need to be conducted and submitted at the time of concurrency review for a subdivision/site plan approval.

Programmed and Planned Improvements

Information on programmed or planned roadway improvements in the study area was sought from the FDOT Five Year Work Program, the Space Coast Transportation Planning Organization (TPO) Long Range Transportation Plan (LRTP), and the Brevard County Capital Improvement Program.

Impacts on Existing LOS

Roadway LOS describes the operating condition determined from the number of vehicles passing over a given section of roadway during a specified time period. It is a qualitative measure of several factors which include speed, travel time, traffic interruptions, freedom to maneuver, driver comfort, convenience, safety, and vehicle operating costs. Six levels of service have been established as standards by which to gauge roadway performance, designated by the letters A through F. The level of service categories is defined as follows:

Level of Service A: Free flow, individual users virtually unaffected by the presence of others
Level of Service B: Stable flow with a high degree of freedom to select operating conditions
Level of Service C: Flow remains stable, but with significant interactions with others
Level of Service D: High-density stable flow in which the freedom to maneuver is severely restricted
Level of Service E: This condition represents the capacity level of the road
Level of Service F: Forced flow in which the traffic exceeds the amount that can be served

The adopted LOS, capacity, existing AADT, and existing PM Peak-Hour Two-Way Volume data was obtained from the FDOT Traffic Online website and Space Coast Transportation Planning Organization (SCTPO). The existing LOS for the study area roadway segments during the PM peak-hour is shown in Table 4. As indicated in the table, the roadway segment currently operates within the adopted LOS.

Table 4
Existing PM Peak-Hour Two-Way LOS – Roadway Segment
Jen Florida 48 / SunTerra (Site 2) – Small-Scale RTIA

Daily												
Roadway	Segment		Segment ID	Jurisdiction	Classification	No. of Lanes	Speed Limit (MPH)	Adopted LOS	Existing AADT Two-Way Volume[1]	Adopted Daily Two-Way MAV	Existing Daily V/C Ratio	Existing Volume Exceeds Daily Capacity?
Babcock Street	Micco Road	Grant Road	370	Brevard	Major Collector - Rural	2	45	D	5,480	14,200	0.39	No
PM Peak Hour												
Roadway	Segment		Segment ID	Jurisdiction	Classification	No. of Lanes	Speed Limit (MPH)	Adopted LOS	Existing PM Peak Hour Two-Way Volume[2]	Peak Hour Two-Way Capacity at Adopted Daily Two-Way MAV	Existing PM Peak Hour V/C Ratio	Existing Volume Exceeds Peak Hour Capacity?
Babcock Street	Micco Road	Grant Road	370	Brevard	Major Collector - Rural	2	45	D	441	1,760	0.25	No

2030 Future Conditions

The FDOT Traffic Trends software and the past five years of historical Average Annual Daily Traffic (AADT) data were used to determine the historical growth for the study area roadway segment. When the existing growth rate falls below the two percent (2%) threshold, a minimum growth rate of two percent (2%) is applied to the existing traffic volumes. The Traffic Trends analysis worksheet is contained in Exhibit A.

The build-out traffic was developed by the sum of the 2030 background traffic and the estimated project traffic increase. The build-out LOS for the study area roadway segments during the PM peak-hour is shown in Table 5, below. As indicated in Table 5, when assessing the difference in maximum development potential between the existing and proposed zoning, the roadway segment is projected to operate within the adopted LOS in 2030.

Table 5
2030 PM Peak-Hour Segment Analysis
Jen Florida 48 / SunTerra (Site 2) – Small-Scale RTIA

Daily														
Roadway	Segment		Segment ID	Jurisdiction	Classification	No. of Lanes	Speed Limit (MPH)	Adopted LOS	Background 2030 AADT Two-Way Volume	Project Distribution	Project Trips	Build-Out 2030 AADT Two-Way Volume	Adopted Daily Two-Way MAV	Build-Out Daily V/C Ratio	Build-Out Volume Exceeds Daily Capacity?
Babcock Street	Micco Road	Grant Road	370	Brevard	Major Collector - Rural	2	45	D	6,357	100.0%	1,142	7,499	14,200	0.53	No
PM Peak Hour															
Roadway	Segment		Segment ID	Jurisdiction	Classification	No. of Lanes	Speed Limit (MPH)	Adopted LOS	Background 2030 PM Peak Hour Two-Way Volume	Project Distribution	Project Trips	Build-Out 2030 PM Peak Hour Two-Way Volume	Peak Hour Two-Way Capacity at Adopted Daily Two-Way MAV	Build-Out PM Peak Hour V/C Ratio	Build-Out Volume Exceeds Peak Hour Capacity?
Babcock Street	Micco Road	Grant Road	370	Brevard	Major Collector - Rural	2	45	D	512	100.0%	114	626	1,760	0.36	No

CONCLUSION

The study was conducted to evaluate the potential impact the proposed rezoning would have on the transportation system. Based on this analysis, there would be a net increase in potential trip generation.

The roadway segment analysis herein shows the roadway will operate within the adopted level of service.

Concurrency and any required mitigation to support a proposed development plan will be assessed in greater detail during the final development permitting process.

I affirm, by affixing my signature below, that the findings contained herein are, to my knowledge, accurate and truthful and were developed using current procedures standard to the practice of professional planning.

Name : Matthew West

Signature: Matthew West Digitally signed by Matthew West DN: C=US, E=mwest@ltg-inc.us, O="LTG, Inc.", OU=Principal, CN=Matthew West Date: 2023.09.25 09:56:45-05'00'

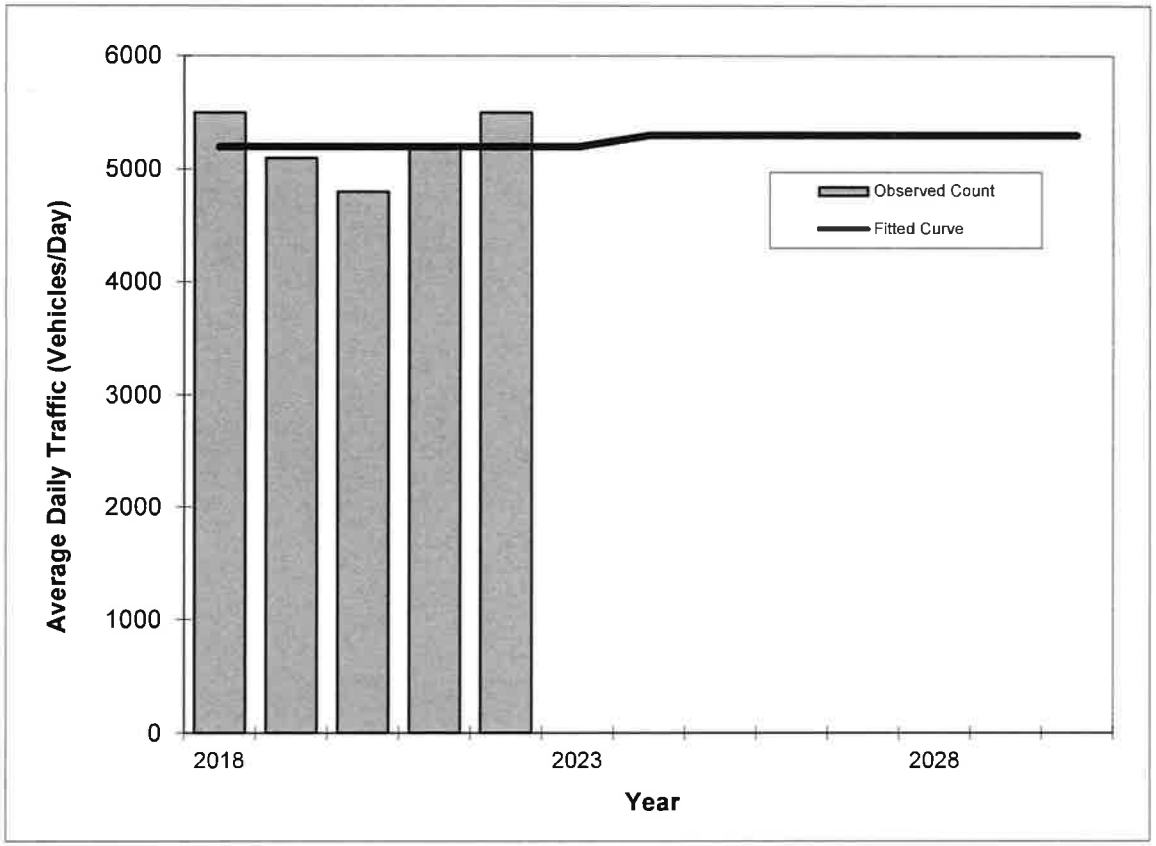
Date: September 22, 2023

EXHIBIT A

TRAFFIC TRENDS

Babcock Street -- Micco Road to Grant Road

County:	Brevard
Station #:	370
Highway:	Babcock Street



Year	Traffic (ADT/AADT) Count*	Trend**
2018	5500	5200
2019	5100	5200
2020	4800	5200
2021	5200	5200
2022	5500	5200
2023 Opening Year Trend		
2023	N/A	5200
2025 Mid-Year Trend		
2025	N/A	5300
2030 Design Year Trend		
2030	N/A	5300
TRANPLAN Forecasts/Trends		

Trend R-squared:	0.3%
Compounded Annual Historic Growth Rate:	0.00%
Compounded Growth Rate (2022 to Design Year):	0.24%
Printed:	31-Aug-23
Exponential Growth Option	

***Axle-Adjusted**