

DTS 20140115
PDMU-12.04(P)

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TRAFFIC IMPACT ANALYSIS
For
The Preserve at Walden Lake

Manatee County, Florida

Approved 06/17/2014

Submitted by:

RGI

TRAFFIC ENGINEERING



RGI Traffic Engineering, LLC
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Re: R1 The Preserve at Walden Lake PDMU-12-04(P) / DTS 20140115

Josh Robinson

to:

Steve Kollar

07/02/2014 10:36 AM

Sent by:

robingsrp@gmail.com

Show Details

History: This message has been replied to.

Steve

Got your message. It is OK to insert this approval letter into the signed and sealed copy I sent you.

As far as I remember, I included CDs for both projects. Let me know if you don't find it.

Josh

On Tue, Jul 1, 2014 at 11:15 AM, <steve.kollar@mymanatee.org> wrote:

RE: The Preserve at Walden Lake - Traffic Impact Analysis

Petition # PDMU-12-04(P) / DTS 20140115

Consultant: RGI Traffic Engineering, LLC

Dear Mr. Robinson,

The Manatee County Public Works Department, Transportation Planning Division, has reviewed and approved the Traffic Impact Analysis (TIA) study by RGI Traffic Engineering, Inc. dated April 2014, for the above-referenced project. The Preserve at Walden Lake project will consist of 216 multi family dwelling units. Based upon data provided in this document, the Applicant has addressed the Comprehensive Plan requirements and provided appropriate traffic-related information to substantiate the findings. Therefore, Transportation Planning recommends transportation concurrency approval.

Please note that the Impact Analysis identified no off-site concurrency-related improvements which are directly attributed to project impacts, as concurred by the Transportation Planning Division.

The project takes access to the Manatee County Transportation network through two proposed driveways on 33rd Street East. Two site related improvements are required as a result of this development.

1. Prior to the first final plat approval, construct a northbound left-turn lane at the north project access on 33rd Street East. The northbound left-turn lane shall be 265 feet total length (25 feet storage length plus 240 feet deceleration and taper length) and constructed in accordance with FDOT Design Standards (Index 301).

2. Prior to the first final plat approval, construct a southbound right-turn lane taper at the north project access on 33rd Street East. The southbound right-turn lane taper shall be 50

feet total length 105 foot long straight line taper from the northern radius of the northern driveway for a 50 mph design speed per Figure 3-13 of the Florida Greenbook and constructed in accordance with FDOT Design Standards (Index 301).

These improvements shall be shown and labeled with dimensions on the applicable Preliminary Site Plan, Final Site Plan and/or Construction Plans submittals. In addition, the improvements shall be installed, certified, inspected, accepted, and consistent with the applicable Final Site Plans and/or Construction Plans.

The Applicant shall be responsible for ensuring that all development proceeds with the terms and conditions of Transportation Concurrency requirements for the site, including being subject to requirements in the Land Development Code (LDC), Land Development Agreement (LDA) and the Comprehensive Plan.

Please submit two (2) hard copies of the finalized signed and sealed TIA study, along with a CD of all electronic files and a PDF copy of the final study that includes a copy of this approval letter. Also, please indicate on the cover of the TIA the full approval date (mm/dd/yyyy). The package will be routed to the Building and Development Services Department, at 1112 Manatee Avenue West, Bradenton, FL 34205, for Concurrency and Permanent Records.

If you have any questions or require further assistance, please contact Clarke Davis (clarke.davis@mymanatee.org, [941.708.7450](tel:941.708.7450) x7272) or me at the number below.

Sincerely,

Steve Kollar
Transportation Systems Modeler
AutoDesk Contract Administrator
Manatee County Public Works Department
Transportation Planning Division
1022 26th Avenue East Bradenton Fl. 34208
Phone [\(941\) 748-4501](tel:(941)748-4501) Ext. 7604
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Josh Robinson, P.E.
RGI Traffic Engineering, LLC
President / Sr. Transportation Engineer
(813) 966-9960 (cell)

1.0 INTRODUCTION

The Preserve at Walden Lake is a proposed development in Manatee County. The project will contain a total of 216 multi-family units, which will be completed within the 3-year CLOS period. The site is currently vacant.

This study evaluates the traffic impact of the proposed development upon the adjacent roadway network.

2.0 PROJECT LOCATION

The proposed development will be located on 33rd Street E, just south of S.R. 70 (see Exhibit 1). A preliminary site plan, which shows the location of the project, is shown in Exhibit 2. As shown on the plan, the project will be accessible via two driveways, both off of 33rd Street E. The north driveway will provide inbound/outbound access, while the south driveway will provide outbound access only.

3.0 PROJECT STUDY AREA

The study area for this project was submitted in a methodology letter, and subsequently approved with comments from the Manatee County Public Works Department, Transportation Planning and Traffic Engineering Divisions. The comments have been addressed (see Appendix A). Based on the approved methodology for this study, the following roadway segment shall be included in this analysis:

<u>Link No.</u>	<u>Road Name</u>	<u>From Street</u>	<u>To Street</u>
1530	33 rd St E	SR 70	63 Ave E (Saunders Rd)

33rd St E is a 2-lane minor collector that currently operates at LOS D or better, which is better than the adopted LOS for this roadway (see Appendix B).

The methodology also states that the analysis needs to include two intersections within this link segment. These intersections include:

- 33rd St E at SR 70
- 33rd St E at 63 Ave E (Saunders Rd)

The SR 70 intersection is currently signalized, while the Saunders Road intersection is currently unsignalized.

4.0 EXISTING CONDITION ANALYSIS

PM peak hour turning movement counts (TMCs) were conducted at the above-mentioned intersections. The TMC's were converted to existing volumes by multiplying each TMC volume by the appropriate peak season conversion factor. The existing volumes are shown on Exhibit 3. The count data is included in Appendix C. The Manatee Peak Season Category Report is included in Appendix D.

An existing conditions capacity analysis was performed for the above-mentioned intersections, using the volumes shown in Exhibit 3. The analysis was performed using the latest version of the Highway Capacity Software (HCS 2010), which is based on the methodology from the 2010 Edition of the Highway Capacity Manual. The results of the analysis are shown in Table 1. The HCS analysis sheets are included in Appendix F.

An arterial analysis was also performed for the link segments within the study area, using the latest FDOT Generalized Peak Hour Directional Service Volumes (see Appendix K). The results of the analysis are shown in Table 1. The calculation sheets are included in Appendix L.

5.0 FUTURE WITHOUT PROJECT CONDITION ANALYSIS

Per the approved methodology, the future background traffic will consist of the existing traffic, plus the reserved trips for the study area link segment. The reserve trips were distributed according to the following criteria, as per directive from the County:

1. Matching the reserve trip volumes shown on the Manatee County link sheet using a 50-50 directional split on each link segment and using the existing turning percentages at each intersection approach.

The future background volumes are shown on Exhibit 4. The background traffic volume calculations are included in Appendix G.

A future without project conditions capacity analysis was performed for the above-mentioned intersections, using the volumes shown in Exhibit 4. The results of the analysis are shown in Table 2. The HCS analysis sheets are included in Appendix H.

An arterial analysis was also performed for the link segment within the study area, using the latest FDOT Generalized Peak Hour Directional Service Volumes. The results of the analysis are shown in Table 2. The calculation sheets are included in Appendix L.

6.0 PROJECT TRIP GENERATION

The PM peak hour trip generation criterion will be derived from Institute of Transportation Engineers (ITE) Trip Generation Manual (9th Edition), using the rate for land use code (LUC) 220. The peak hour project trip generation for this project is shown below:

LUC	Land Use	# of Units	Total PM Peak Hour Trips	Entering Trips	Exiting Trips
220	Apartments	216	134	87	47

7.0 PROJECT TRIP DISTRIBUTION

Per the approved methodology for this project, the project trips were distributed onto the roadway network using the turning percentages from the FSUTMS model (see Appendix I). As mentioned in Section 2.0, the project will be accessible via one full-access driveway and one outbound only driveway; both off of 33rd Street E.

The project trip distribution is shown on Exhibit 5. The project trips amongst the links adjacent to the study area are shown below:

Link #	Road Name	From Street	To Street	Project Trips
1530	33 rd St E	SR 70	63 rd Ave E	134
1525	33 rd St E	51 st Ave E	SR 70	17
1540	33 rd St E	63 rd Ave E	Whitfield Ave E	29
1960	63 rd Ave E	US 301	39 th St E	11
3101	SR 70	30 th St E	33 rd St E	46
3102	SR 70	33 rd St E	37 th St E	19

8.0 FUTURE WITH PROJECT CONDITION ANALYSIS

The project trip generation volumes were added to the future background traffic volumes during the analysis year. The resulting future with project intersection volumes are shown in Exhibit 6. Capacity analyses were performed for the study area intersections; using these future with project traffic volumes (see Exhibit 6). The results of the analysis are shown in Table 3. The HCS analysis sheets are shown in Appendix J.

An arterial analysis was also performed for the link segments within the study area, using the latest FDOT Generalized Peak Hour Directional Service Volumes (see Appendix L). The results of the analysis are shown in Table 3.

9.0 FUTURE IMPROVEMENTS NEEDED

As shown in Tables 1, 2 and 3, the intersection of 33rd St E and 63rd Ave E (Saunders Rd) currently shows a v/c ratio of greater than 1.0 for the eastbound movement, and will continue to do so in the future conditions, both with and without the project. Since this is already an existing deficiency, the applicant is not accountable for this improvement.

The necessary improvement for this deficiency is indicated below:

1. Perform a signal warrant analysis and install a traffic signal, when warranted.

A signalized intersection capacity analyses was performed for the above-mentioned intersection with a new traffic signal, using both the existing, future without project, and future with project traffic volumes (see Exhibits 3, 4, and 6), The results of the analysis are shown in Table 4. The HCS calculations are included in Appendix M.

Also, as shown in Tables 2 and 3, the intersection of 33rd St E and SR 70 shows a v/c ratio of greater than 1.0 for the southbound left turn movement, both with and without the project. Since this deficiency is due to background growth, and not as a result of the project, the applicant is not accountable for this improvement.

The necessary improvement for this deficiency is indicated below:

1. Retime the traffic signal to remove the deficiency described above.

A signalized intersection capacity analyses was performed for the above-mentioned intersection with the retimed traffic signal, using both the future without project, and future with project traffic volumes (see Exhibits 4, and 6), The results of the analysis are shown in Table 5. The HCS calculations are included in Appendix N.

10.0 DRIVEWAY TURN LANE WARRANTS AND STORAGE LENGTH ANALYSIS

Per the approved methodology, the left turn warrants at the project driveway were done in accordance with NCHRP-745. According to the analysis, a northbound left turn lane is warranted at the north (inbound) driveway at 33rd Street E.

Per the approved methodology, the right turn lane analysis was done in accordance with the criteria shown in NCHRP-279. According to the analysis, a southbound right turn taper (not a turn lane) is warranted at the north (inbound) driveway at 33rd Street E.

The turn lane warrant analyses at the driveways are included in Appendix O.

The northbound left turn lane storage length at the north project driveway was calculated using FDOT Standard Index #301, plus a 25' queue length per County directive. The resulting storage length is shown in Table 6.

The turn lane storage length calculations at the driveway are included in Appendix O.

11.0 CONCLUSIONS

As mentioned in section 6.0, this project will add a net total of 134 new trips onto the surrounding roadway network during the PM peak hour.

Section 9.0 details in narrative form the improvements that are needed in the future year. These include the following:

1. The 33rd St E and 63rd Ave E (Saunders Rd) intersection currently needs a traffic signal in order to operate with all lane group v/c ratios at less than 1.0. As shown in Table 1, this deficiency occurs in the existing condition; hence, it is not a result of trips from the proposed development. Therefore, the applicant is not accountable for this improvement.
2. The intersection of 33rd St E and SR 70 shows a v/c ratio of greater than 1.0 for the southbound left turn movement, both with and without the project (see Tables 2 and 3). The signal will need to be retimed to correct this deficiency. Since this deficiency is due to background growth, and not as a result of the project, the applicant is not accountable for this improvement.

Table 1

Intersection v/c Ratios
(Existing Conditions)

<u>Intersection</u>	<u>Approach v/c Ratio</u>
33 rd St E / SR 70	
EB L	0.779
EB T	0.678
EB R	0.146
WB L	0.756
WB T	0.539
WB R	0.174
NB L	0.716
NB T	0.479
NB R	0.866
SB L	0.887
SB T	0.162
SB R	0.107

33 rd St E / 63 rd Ave E (Saunders Rd)	
NB LTR	0.02
SB LTR	0.05
WB LTR	0.72
EB LTR	1.43

<u>Arterial</u>	<u>Directional LOS</u>
33 rd St E between SR 70 and 63 rd Ave E (Saunders Rd)	
NB	D or better
SB	D or better

Table 2

Intersection v/c Ratios
(Future Without Project Conditions)

<u>Intersection</u>	<u>Approach v/c Ratio</u>
33 rd St E / SR 70	
EB L	0.793
EB T	0.892
EB R	0.193
WB L	0.812
WB T	0.764
WB R	0.248
NB L	0.744
NB T	0.500
NB R	0.900
SB L	1.136
SB T	0.218
SB R	0.142

33 rd St E / 63 rd Ave E (Saunders Rd)	
NB LTR	0.02
SB LTR	0.07
WB LTR	0.99
EB LTR	2.17

<u>Arterial</u>	<u>Directional LOS</u>
33 rd St E between SR 70 and 63 rd Ave E (Saunders Rd)	
NB	D or better
SB	D or better

Table 3

Intersection v/c Ratios
(Future With Project Conditions)

<u>Intersection</u>	<u>Approach v/c Ratio</u>
33 rd St E / SR 70	
EB L	0.794
EB T	0.912
EB R	0.242
WB L	0.829
WB T	0.775
WB R	0.252
NB L	0.761
NB T	0.498
NB R	0.911
SB L	1.136
SB T	0.244
SB R	0.141

33 rd St E / 63 rd Ave E (Saunders Rd)	
NB LTR	0.02
SB LTR	0.07
WB LTR	> 1.0
EB LTR	2.57

<u>Arterial</u>	<u>Directional LOS</u>
33 rd St E between SR 70 and 63 rd Ave E (Saunders Rd)	
NB	D or better
SB	D or better

Table 4

33rd St E / 63rd Ave E (Saunders Rd)--Intersection v/c Ratios With Improvement

Existing Traffic Conditions (With New Traffic Signal)

<u>Intersection</u>	<u>Approach v/c Ratio</u>
33 rd St E / 63 rd Ave E (Saunders Rd)	
EB LTR	0.609
WB LTR	0.429
NB LTR	0.367
SB LTR	0.403

Future Without Project Traffic Conditions (With New Traffic Signal)

<u>Intersection</u>	<u>Approach v/c Ratio</u>
33 rd St E / 63 rd Ave E (Saunders Rd)	
EB LTR	0.665
WB LTR	0.471
NB LTR	0.354
SB LTR	0.505

Future With Project Traffic Conditions (With New Traffic Signal)

<u>Intersection</u>	<u>Approach v/c Ratio</u>
33 rd St E / 63 rd Ave E (Saunders Rd)	
EB LTR	0.666
WB LTR	0.477
NB LTR	0.380
SB LTR	0.528

Table 5

33rd St E / SR 70--Intersection v/c Ratios With Improvement
(Future Without Project Conditions)

<u>Intersection</u>	<u>Approach v/c Ratio</u>
33 rd St E / SR 70	
EB L	0.796
EB T	0.919
EB R	0.199
WB L	0.923
WB T	0.800
WB R	0.260
NB L	0.740
NB T	0.514
NB R	0.926
SB L	0.974
SB T	0.199
SB R	0.130

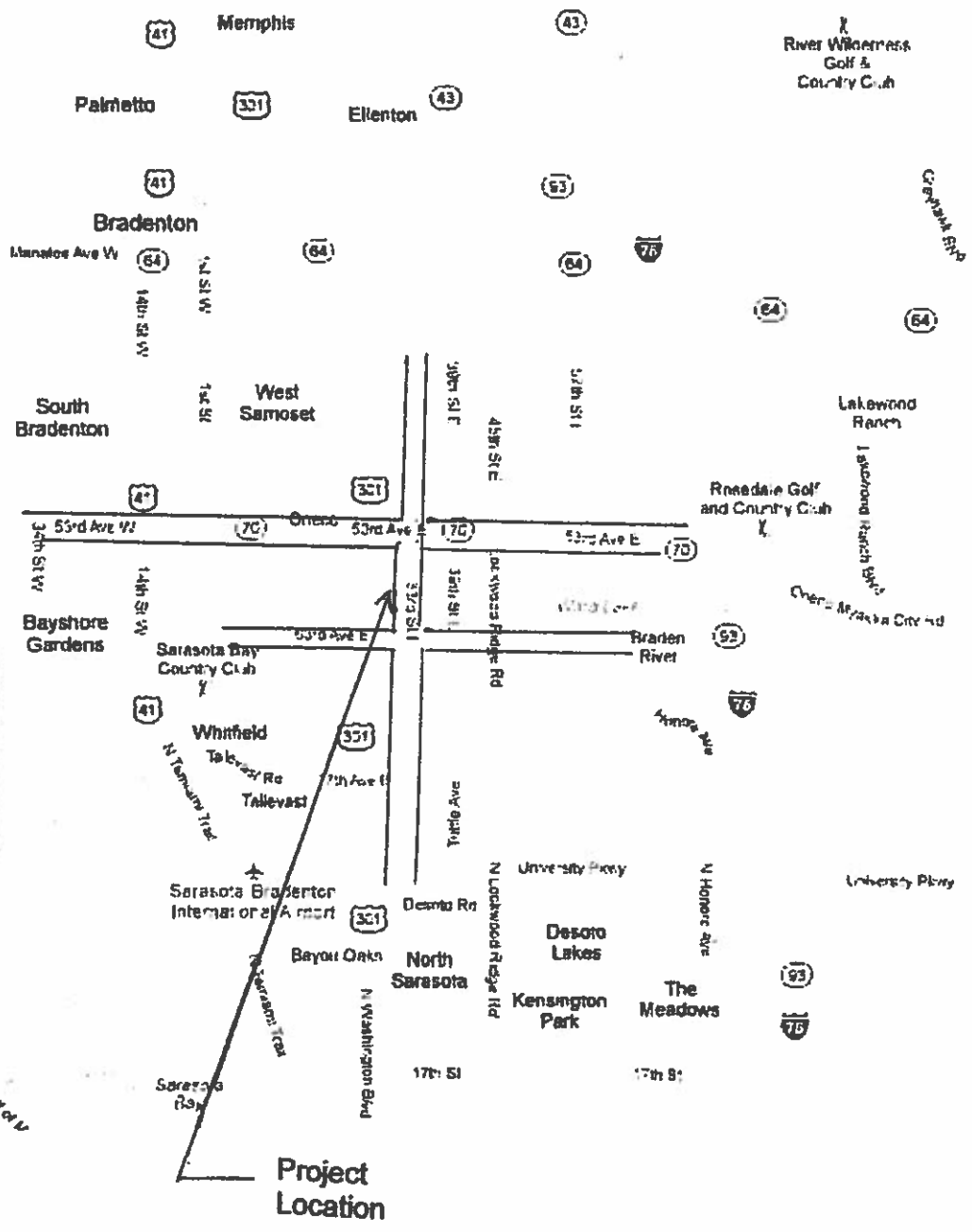
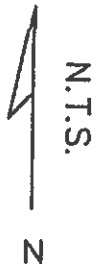
(Future With Project Conditions)

<u>Intersection</u>	<u>Approach v/c Ratio</u>
33 rd St E / SR 70	
EB L	0.796
EB T	0.919
EB R	0.244
WB L	0.984
WB T	0.800
WB R	0.260
NB L	0.756
NB T	0.541
NB R	0.988
SB L	0.974
SB T	0.229
SB R	0.132

Table 6

Required Driveway Turn Lane Length (including taper)

<u>Driveway</u>	<u>Future With Project</u>
33 rd Street N--North Driveway	
NB Left	265'
SB Right (Taper Only)	50' minimum



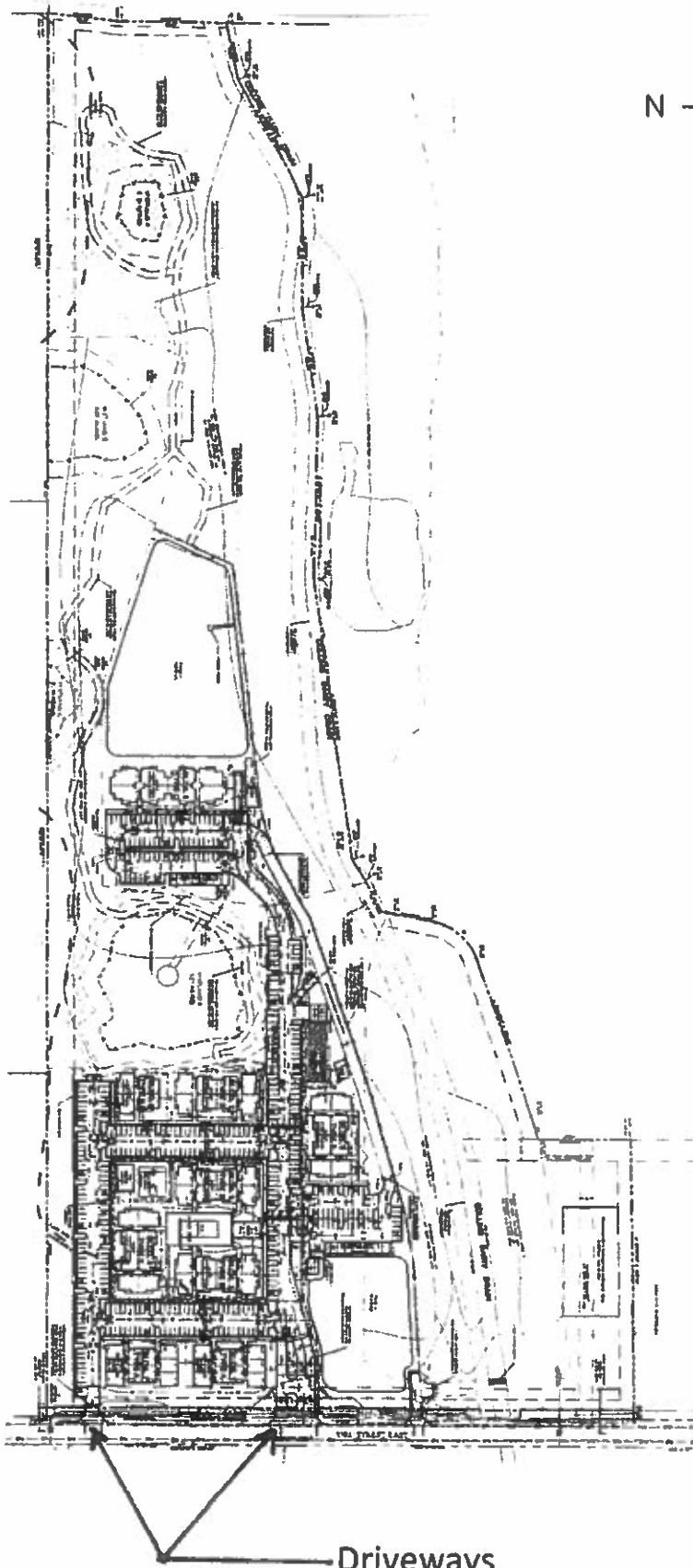
The Robinson Group, Inc.
 18546 Avocet Drive
 Lutz, FL 33558
 813-966-9960

The Preserve at Walden Lake

Project Location

EXHIBIT

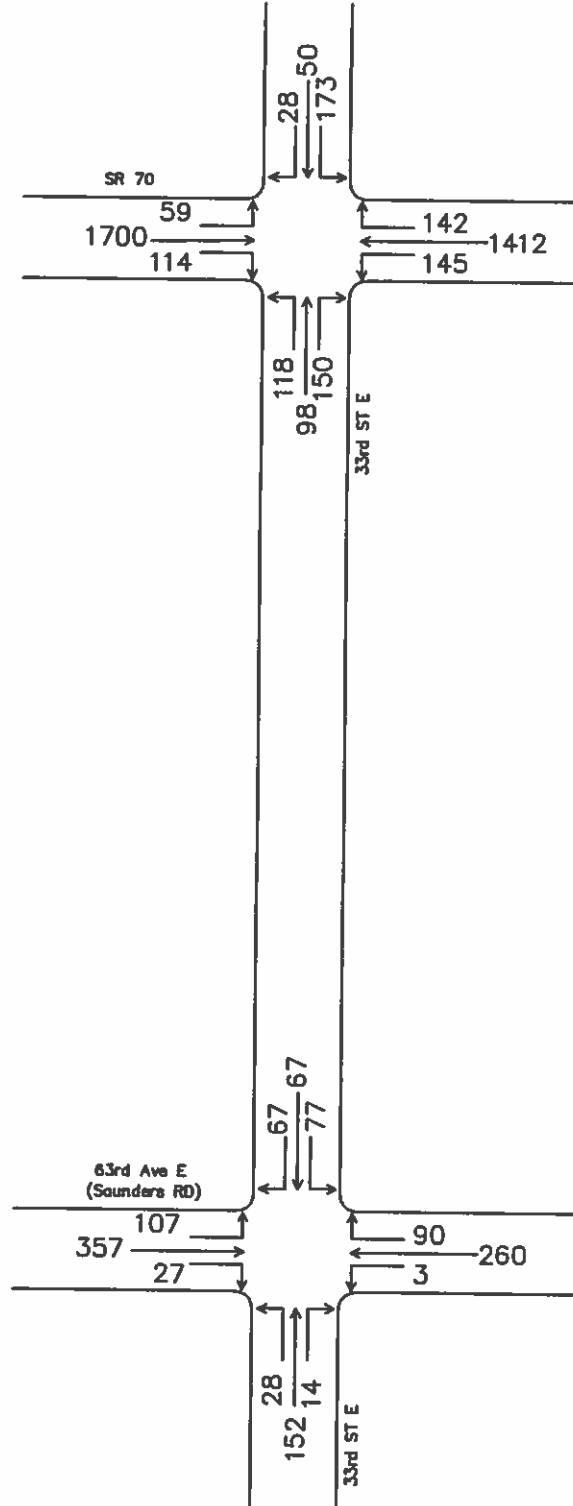
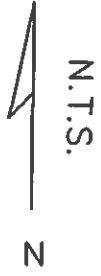
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Driveways

RGI Traffic Engineering, LLC 18546 Avocet Drive Lutz, FL 33558 813-966-9960	The Preserve at Walden Lake	EXHIBIT 2
	Project Site Plan	



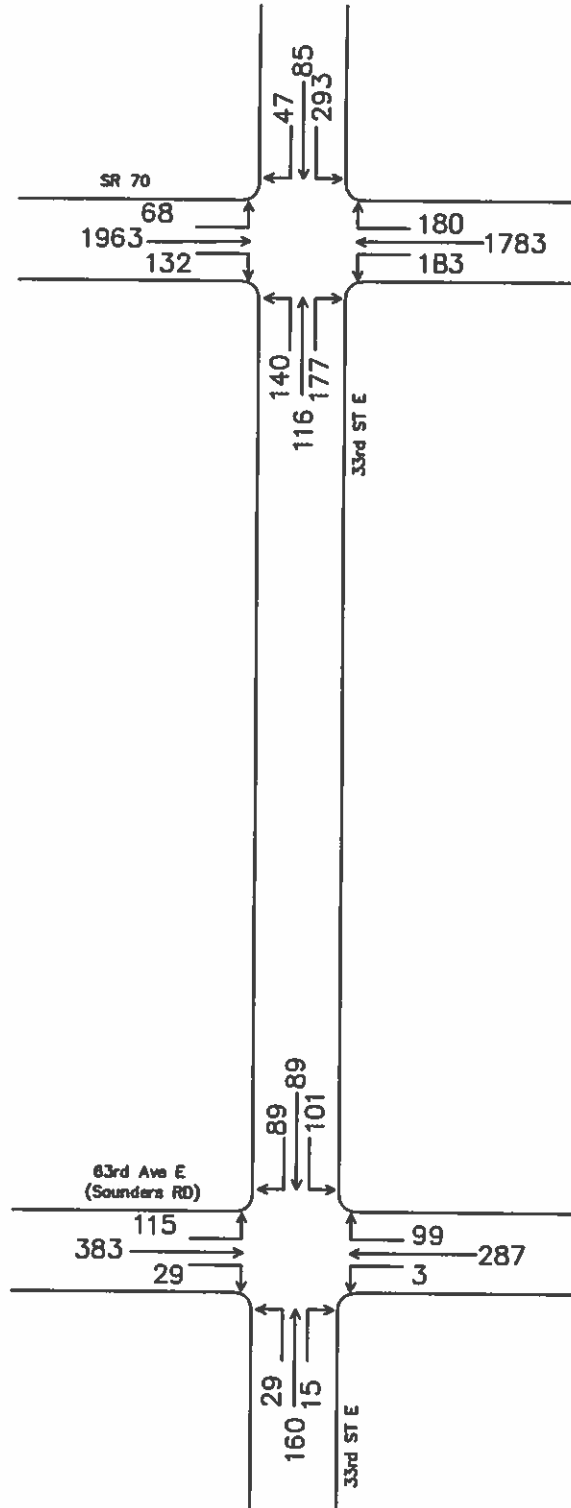
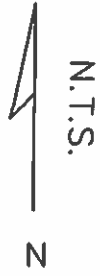
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The Preserve at Walden Lake

Existing Traffic Volumes

EXHIBIT

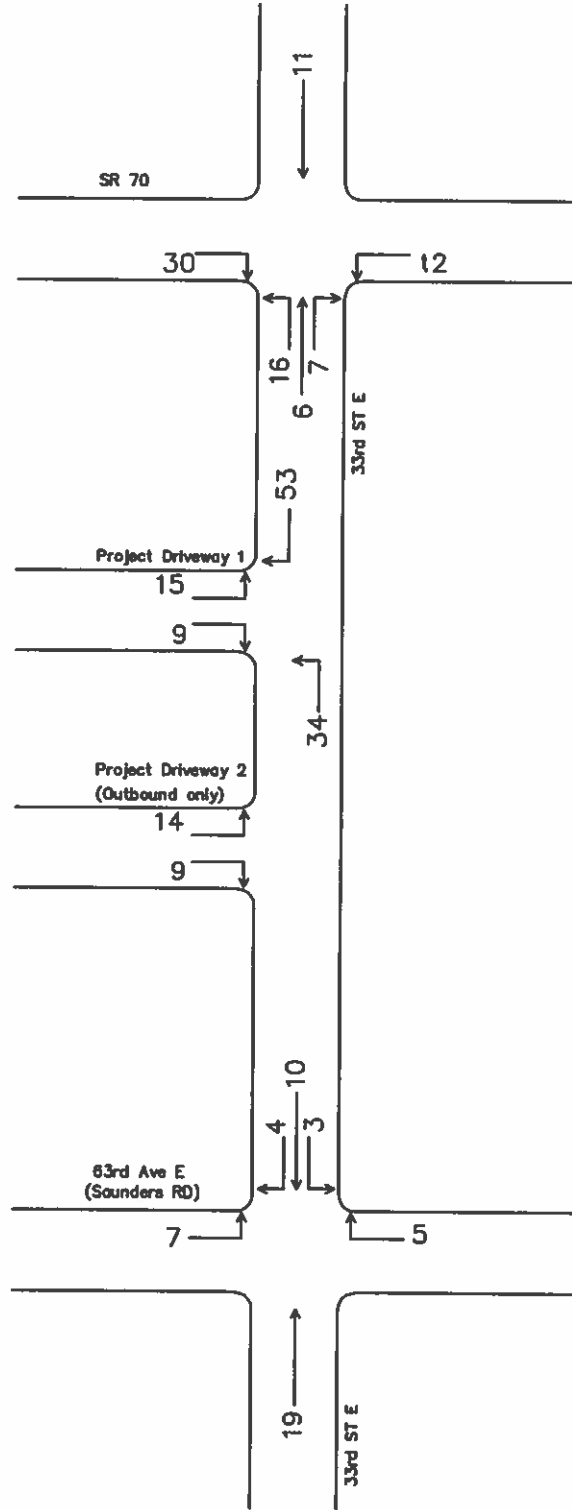
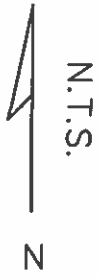
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The Preserve at Walden Lake
 Future Background Traffic Volumes

EXHIBIT
 4

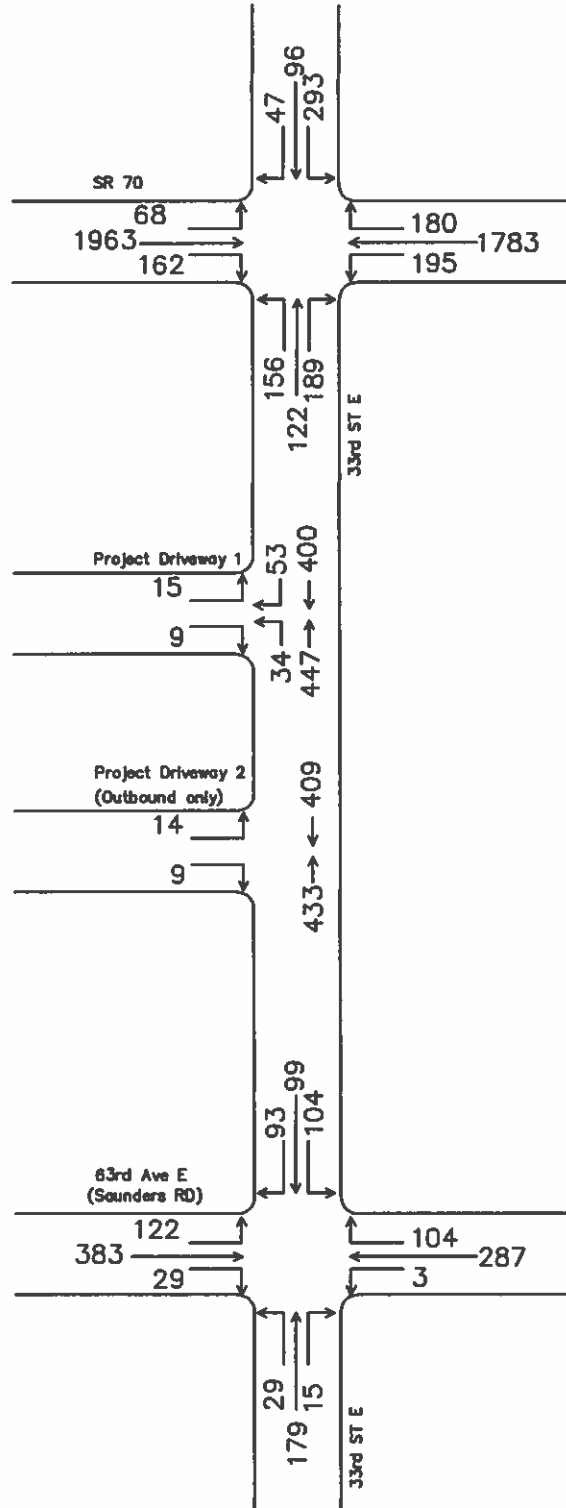
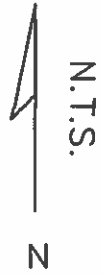


RGI Traffic Engineering, LLC
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The Preserve at Walden Lake

Project Trip Distribution

EXHIBIT
 5



RGI Traffic Engineering, LLC
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The Preserve at Walden Lake

Future Traffic Volumes With Project

EXHIBIT

6