Traffic Impact Statement

O'Donnell Nursery
Planned Unit Development Amendment (PUDA)

Collier County, Florida
09/27/2018

Prepared for:

Peninsula Engineering
2600 Golden Gate Parkway
Bonita Springs, FL 34105
Phone: 239-403-6700

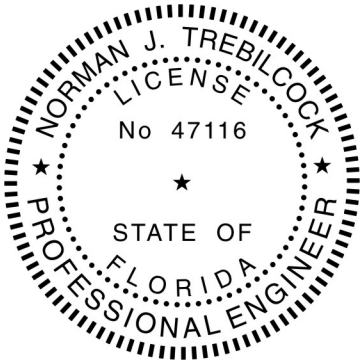
Prepared by:

Trebilcock Consulting Solutions, PA
1205 Piper Boulevard, Suite 202
Naples, FL 34110
Phone: 239-566-9551
Email: ntrebilcock@trebilcock.biz

Collier County Transportation Methodology Fee – $500.00 Fee
Collier County Transportation Review Fee – Major Study – $1,500.00 Fee

Statement of Certification

I certify that this Traffic Impact Statement has been prepared by me or under my immediate supervision and that I have experience and training in the field of Traffic and Transportation Engineering.



Norman J. Trebilcock P.E. 47116

Digitally signed by Norman J. Trebilcock P.E. 47116
DN: cn=Norman J. Trebilcock P.E. 47116, o=Trebilcock Consulting Solutions, PA, ou=Norman J. trebilcock, email=ntrebilcock@trebilcock.biz, c=US
Date: 2018.09.27 13:52:02 -04'00'

This item has been electronically signed and sealed by Norman J. Trebilcock, PE using a *SHA-1* authentication code.

Printed copies of this document are not considered signed and sealed, and the *SHA-1* authentication code must be verified on any electronic copies.

Norman J. Trebilcock, AICP, P.E.
FL Registration No. 47116
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1205 Piper Boulevard, Suite 202
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Company Cert. of Auth. No. 27796

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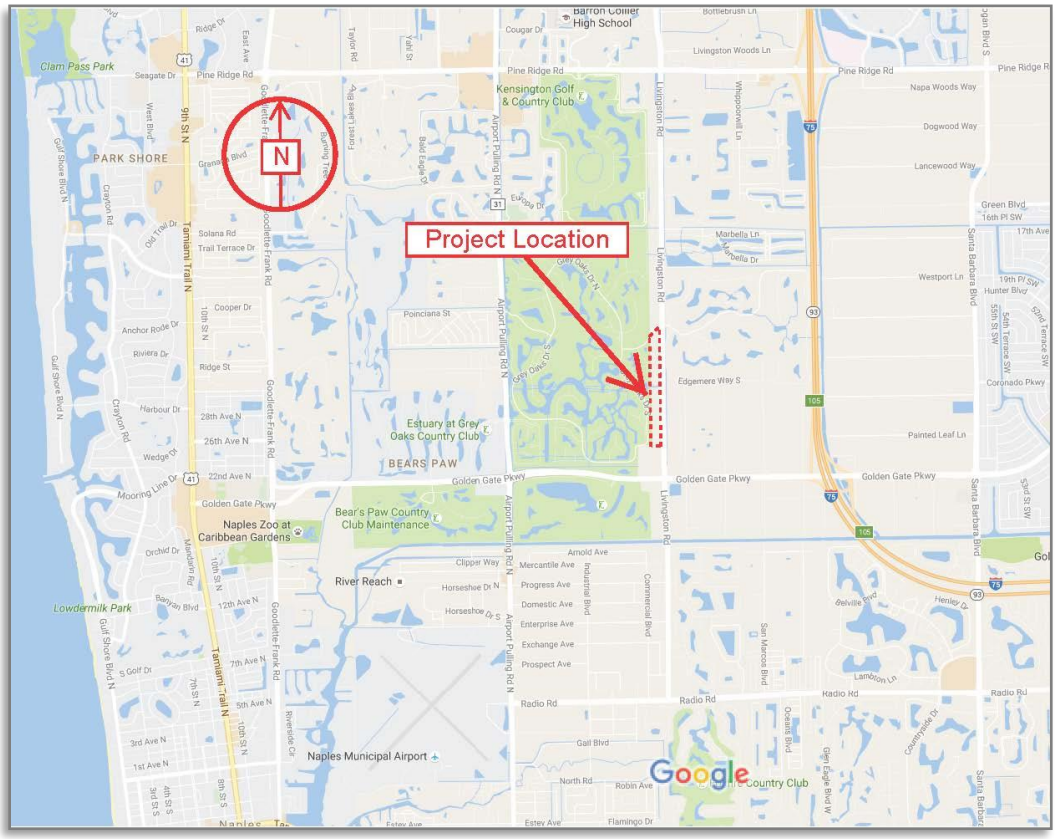
Appendices

Project Description

The O'Donnell Nursey project is a proposed wholesale nursery development located on the west side of Livingston Road approximately 1,400 feet north of the intersection of Livingston Road and Golden Gate Parkway and directly south of the intersection of Livingston Road and Grey Oaks Drive East, and is generally located within Section 24/25, Township 49 South, Range 25 East, in Collier County, Florida.

Refer to **Figure 1 – Project Location Map**, which follows and **Appendix A: Project Master Site Plan.**

Figure 1 – Project Location Map



The subject site consists of 2 parcels totaling approximately 31 acres in size and is currently zoned Planned Unit Development (PUD) as part of the Grey Oaks Development of Regional Impact (DRI). As allowed by the PUD commercial permitted uses, the project proposes 27 acres of wholesale nursery and landscape contracting. Neither the nursery nor landscaping uses are available to the general public and the only traffic accessing the site will be employees and their respective commercial vehicles entering and exiting the site.

A methodology meeting was held with the Collier County Transportation Planning staff on August 24, 2016, via email (refer to **Appendix B: Initial Meeting Checklist (Methodology Meeting)**). It should be noted that the information included in the methodology was based on preliminary information which has been updated and is reflected in this analysis.

For purposes of this evaluation, the project build-out year is assumed to be consistent with the Collier County 2023 planning horizon.

Consistent with the approved Collier County Ordinance #2007-40, the Grey Oaks DRI site is currently allowed to be developed with up to 1,775 residential dwelling units, 1,303,091 sf of office/retail/commercial and 72 golf course holes.

The approved development program associated with these land uses is shown in **Table 1A, Existing Approved and Built Development Program**. For details, see **Appendix C: Collier County Ordinance 2007-40 – Excerpts** and **Appendix D: Collier County PUD Monitoring Report – Excerpts**.

Table 1A
Existing Approved and Built Development Program

ITE Land Use (Zoning Designation)	ITE Land Use Code	Approved Size	Built to Date Size
Single-Family Detached	210	1,775 du	1,341 du
General Office Bldg.	710	653,453 sf	0 sf
Shopping Center	820	649,638 sf	0 sf
Golf Course	430	72 holes	72 holes

The project plans to eliminate 2 commercial access locations (approved within the Grey Oaks DRI Master Plan); one from Golden Gate Parkway and one from Airport Road, and proposes a new driveway access location from Livingston Road to serve the proposed O'Donnell Nursery project with a directional left-in/right-in/right-out access onto southbound Livingston Road (north access). There is an existing right-in/right-out access onto southbound Livingston Road (south access). The project would like to reconfigure this driveway to a right-out only access with an option to maintain the existing access as is. For details, see **Appendix E: Grey Oaks DRI – Conceptual Roadway Master Plan**.

The Developer elected to construct none of the commercial square footage. The analysis will show that, from a traffic standpoint, this project is much less intensive than the approved commercial and retail uses currently allowed in the PUD/DRI.

The project provides a highest and best use scenario with respect to the project's proposed trip generation. The proposed development program is illustrated in **Table 1B.**

Table 1B
Proposed Development Program

Development	ITE Land Use	ITE Land Use Code	Total Size
O'Donnell Nursery	Nursery – Wholesale	818	27 acres

Trip Generation – Traffic Analysis

The project's site trip generation is based on the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition. The software program OTISS – Online Traffic Impact Study Software (most current version) is used to create the raw unadjusted trip generation for the project. The ITE rates or equations are used for the trip generation calculations as applicable.

The climate and demographic makeup of Collier County and the surrounding area create a large year-round demand for landscape contracting services. In order to account for this unique demand, a supplemental calculation was performed for anticipated additional traffic from the landscape contracting activities. Based on client provided data, trip generation was calculated to include employees arriving on site in the morning in personal vehicles, then departing in company trucks (a total of 50) to their respective landscape contracting projects. Similarly, the company trucks would return to the project site in the afternoon and the employees would leave the site in their personal vehicles. It is assumed there are 5-man crews per truck and that some carpooling will occur between employees, for an average of 3 personal vehicle trips per truck. The majority of trips are assumed to occur during the AM and PM peak hour time periods as applicable, however, it is understood that some trips will fall outside of the peak hour time periods. As such, for this analysis, 80% of the landscape contracting trips are assumed to occur during the peak hour time periods.

Based on ITE recommendations, no internal capture or pass-by reductions have been taken into consideration for this development.

The proposed PUDA development trip generation is illustrated in **Table 2A**. Detailed calculations can be found in **Appendix F: Trip Generation Calculations ITE 10th Edition**.

Table 2A
Trip Generation (Proposed PUDA Development) - Average Weekday

Development		AM Peak Hour			PM Peak Hour		
Land Use	**Size**	**Enter**	**Exit**	**Total**	**Enter**	**Exit**	**Total**
Nursery - Wholesale	27 acres	5	2	7	3	9	12
Landscape Contracting*	N/A	120	40	160	40	120	160
Total External		125	42	167	43	129	172

*Manually calculated based on client supplied data.

In agreement with the Collier County Traffic Impact Study (TIS) guidelines, significantly impacted roadways are identified based on the proposed project highest peak hour trip generation (net new total) and consistent with the peak hour of the adjacent street traffic. Based on the information contained in Collier County 2017 Annual Update and Inventory Report (AUIR), the peak hour for the adjacent roadway network is PM peak hour.

A purpose of this analysis is to generate a traffic comparison between the proposed project and the undeveloped retail land use within the Grey Oaks DRI. The projects total external PM peak hour 2-way trip generation is used to determine the potential traffic of the project and provides guidance as to the equivalent amount of retail square footage that would be required to produce the same traffic impact.

The ITE LUC 820, shopping center, was used to model the trip generation for the commercial portion of the DRI. As illustrated in the Halstatt DRI – Development of Regional Impact Application for Development Approval dated May 26, 1989, Trip Generation Summary, trip generation rates were developed and internal capture and pass-by reductions were calculated for the various land uses comprising the DRI. The resulting reduction factors for commercial land use at Livingston Road are 18% for internal capture and 50% for pass-by reductions (for details see **Appendix G: Halstatt DRI Trip Generation Summary – Excerpt**).

Table 2B
Trip Generation Comparison – Shopping Center – PM Peak Hour

Development		PM Peak Hour		
	Size (Rate)	**Enter**	**Exit**	**Total**
Total Traffic	70,500 sf	202	218	420
Internal Capture	(18%)	38	38	76
Total External		164	180	344
Pass-by	(50%)	86	86	172
Net External		78	94	172

Based on the results of the trip generation illustrated in **Table 2B**, 70,500 sf of shopping center is required to produce the same traffic impact as the proposed project, as illustrated in **Table 2C**.

Table 2C
Trip Generation Comparison – PM Peak Hour

Development		PM Peak Hour		
	Size	**Enter**	**Exit**	**Total**
Proposed PUDA Development	Per Table 2A	43	129	172
Proposed Retail Comparison	70,500 sf	78	94	172
Net Difference		(35)	35	0

For the purpose of this TIS, the surrounding roadway network link concurrency analysis is analyzed based on projected PM peak hour Total External traffic generated by the proposed PUDA project. The site access turn lane analysis is calculated based on the Total External traffic during the weekday AM and PM peak hour (as shown in **Table 2A**).

Trip Distribution and Assignment

The new traffic generated by the O'Donnell Nursery project is assigned to the adjacent roadways using the knowledge of the area and as coordinated with Collier County Transportation Planning Staff.

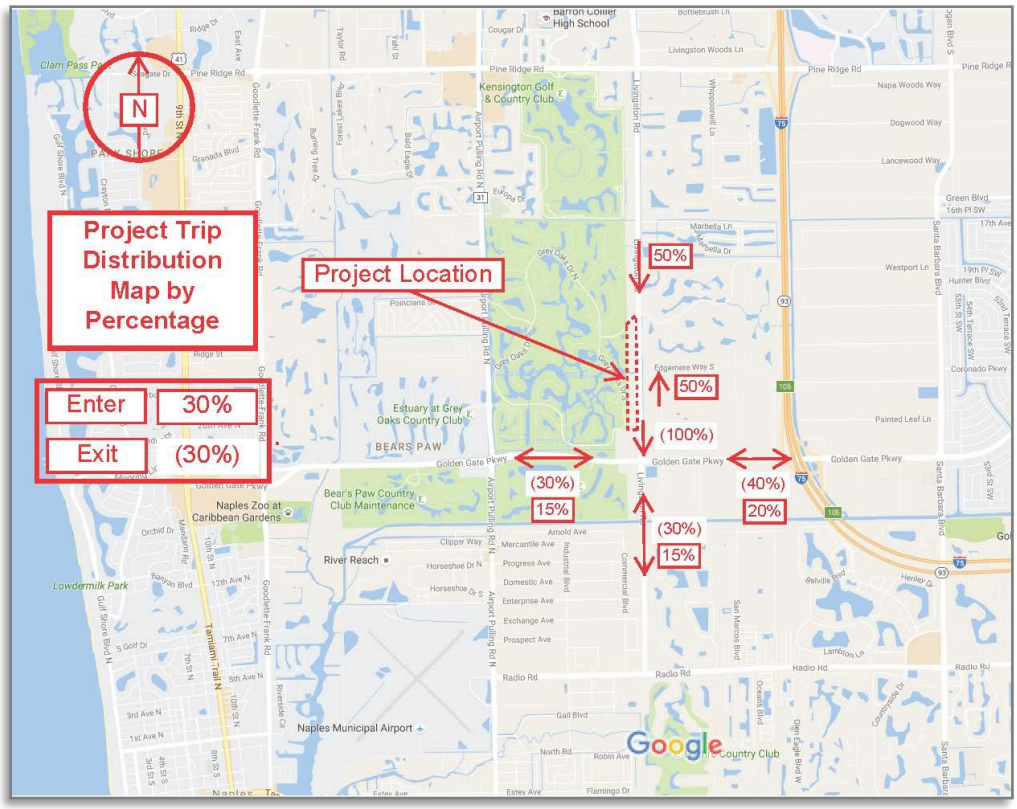
The site-generated trip distribution is shown in **Table 3, Project Traffic Distribution for Peak Hour** and is graphically depicted in **Figure 2 – Project Distribution by Percentage and By PM Peak Hour**.

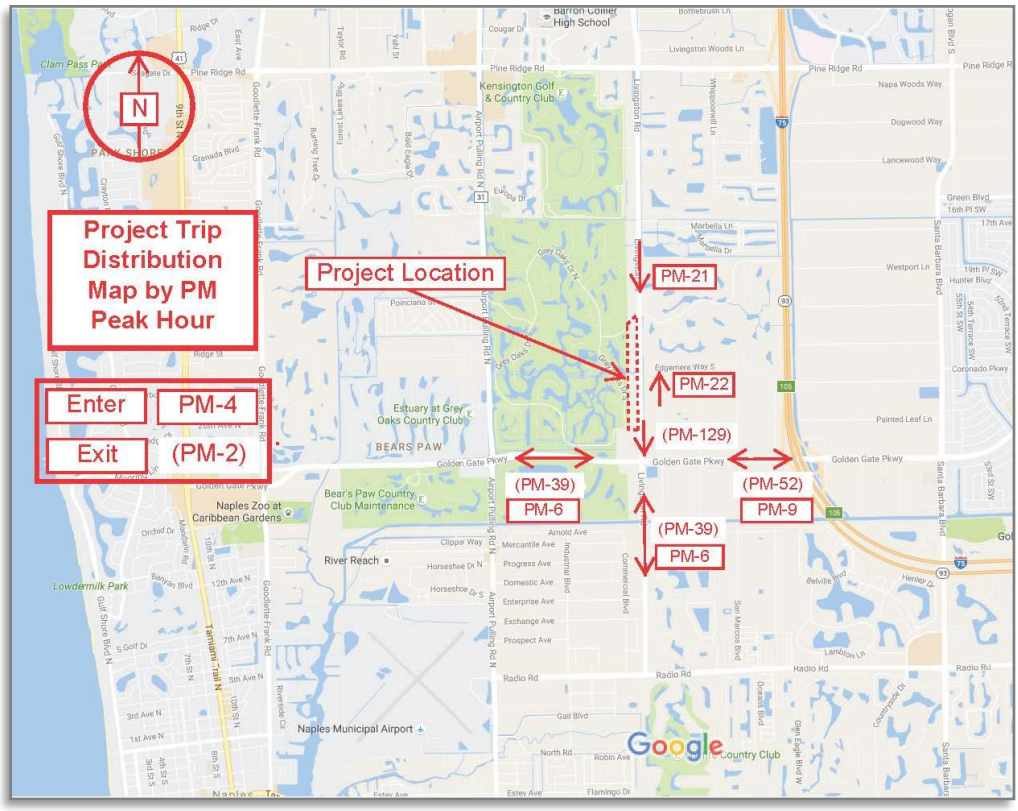
Table 3
Project Traffic Distribution for PM Peak Hour

Roadway Link	Collier County Link No.	Roadway Link Location	Distribution of Project Traffic Enter/(Exit)	PM Peak Hour Project Vol.*	
				Enter	Exit
Livingston Road	54.0	South of project to Golden Gate Parkway	50%/(100%)	**NB – 22**	SB – 129
Livingston Road	54.0	North of project to Pine Ridge Road	50%/(N/A)	SB – 21	N/A
Livingston Road	55.0	Golden Gate Parkway to Radio Road	15%/(30%)	**NB – 6**	SB – 39
Golden Gate Parkway	20.2	Livingston Road to I-75	20%/(40%)	WB – 9	**EB – 52**
Golden Gate Parkway	20.1	Livingston Road to Airport Road	15%/(30%)	**EB – 6**	WB – 39

Note(s): *Peak hour, peak direction traffic volumes are **underlined** and **bold** to be used in Roadway Link Level of Service calculations.

Figure 2 – Project Distribution by Percentage and By PM Peak Hour





Background Traffic

Average background traffic growth rates were estimated for the segments of the roadway network in the study area using the Collier County Transportation Planning Staff guidance of a minimum 2% growth rate, or the historical growth rate from annual traffic counts (estimated from 2008 through 2017), whichever is greater. Another way to derive the background traffic is to use the 2017 AUIR volume plus the trip bank volume. **Table 4, Background Traffic without Project** illustrates the application of projected growth rates to generate the projected background (without project) peak hour peak direction traffic volume for the build-out year 2023.

Table 4
Background Traffic without Project (2017 - 2023)

Roadway Link	CC AUIR Link ID #	Roadway Link Location	2017 AUIR Pk Hr, Pk Dir Background Traffic Volume (trips/hr)	Projected Traffic Annual Growth Rate (%/yr)*	Growth Factor	2023 Projected Pk Hr, Peak Dir Background Traffic Volume w/out Project (trips/hr) Growth Factor**	Trip Bank	2023 Projected Pk Hr, Peak Dir Background Traffic Volume w/out Project (trips/hr) Trip Bank***
Livingston Road	54.0	South of project to Golden Gate Parkway	1,470	2.0%	1.1262	**1,656**	34	1,504
Livingston Road	54.0	North of project to Pine Ridge Road	1,470	2.0%	1.1262	**1,656**	34	1,504
Livingston Road	55.0	Golden Gate Parkway to Radio Road	1,270	2.0%	1.1262	**1,431**	39	1,309
Golden Gate Parkway	20.2	Livingston Road to I-75	2,770	2.0%	1.1262	**3,120**	1	2,771
Golden Gate Parkway	20.1	Livingston Road to Airport Road	2,200	2.0%	1.1262	**2,478**	0	2,200

Note(s): *Annual Growth Rate - from 2017 AUIR, 2% minimum. **Growth Factor = (1+Annual Growth Rate) [6]. 2023 Projected Volume= 2017 AUIR Volume x Growth Factor. ***2023 Projected Volume= 2017 AUIR Volume + Trip Bank. The projected 2023 Peak Hour – Peak Direction Background Traffic is the greater of the Growth Factor or Trip Bank calculation, which is **underlined** and **bold** as applicable.

Existing and Future Roadway Network

The existing roadway conditions are extracted from the 2017 Annual Update and Inventory Report (AUIR) and the project roadway conditions are based on the current Collier County 5-Year Work Program. Roadway improvements that are currently under construction or are scheduled to be constructed within the five-year Transportation Improvement Plan (TIP) or Capital Improvement program (CIP) are considered to be committed improvements. As no such improvements were identified in the Collier County 2017 AUIR, the evaluated roadways are anticipated to remain as such through project build-out. The existing and future roadway conditions are illustrated in **Table 5, Existing and Future Roadway Conditions**.

Table 5
Existing and Future Roadway Conditions

Roadway Link	CC AUIR Link ID #	Roadway Link Location	Exist Roadway	Min. Standard LOS	Exist Peak Dir, Peak Hr Capacity Volume	Future Project Build out Roadway
Livingston Road	54.0	South of project to Golden Gate Parkway	6D	E	3,100 (NB)	6D
Livingston Road	54.0	North of project to Pine Ridge Road	6D	E	3,100 (NB)	6D
Livingston Road	55.0	Golden Gate Parkway to Radio Road	6D	E	3,000 (NB)	6D
Golden Gate Parkway	20.2	Livingston Road to I-75	6D	E	3,300 (EB)	6D
Golden Gate Parkway	20.1	Livingston Road to Airport Road	6D	E	3,300 (EB)	6D

Note(s): 2U = 2-lane undivided roadway; 4D, 6D, 8D =4-lane, 6-lane, 8-lane divided roadway, respectively; LOS = Level of Service.

Project Impacts to Area Roadway Network-Link Analysis

The Collier County Transportation Planning Services developed Level of Service (LOS) volumes for the roadway links impacted by the project, which were evaluated to determine the project impacts to the area roadway network in the future horizon (2023). The Collier County Transportation Planning Services guidelines have determined that a project will be considered to have a significant and adverse impact if **both** the percentage volume capacity exceeds 2% of the capacity for the link directly accessed by the project and for the link adjacent to the link directly accessed by the project; 3% for other subsequent links **and** if the roadway is projected to operate below the adopted LOS standard.

Based on these criteria, this project does not create a significant impact on any of the analyzed. All links analyzed are projected to operate above the adopted LOS standard with or without the project at 2023 future build-out conditions. **Table 6, Roadway Link Level of Service** illustrates the LOS impacts of the project on the roadway network closest to the project.

Table 6
Roadway Link Level of Service (LOS) – With Project in the Year 2023

Roadway Link	CC AUIR Link ID #	Roadway Link Location	2017 Peak Dir, Peak Hr Capacity Volume	Roadway Link, Peak Dir, Peak Hr (Project Vol Added)*	2023 Peak Dir, Peak Hr Volume w/Project **	% Vol Capacity Impact by Project	Min LOS exceeded without Project? Yes/No	Min LOS exceeded with Project? Yes/No
Livingston Road	54.0	South of project to Golden Gate Parkway	3,100 (NB)	NB – 22	1,678	0.71%	No	No
Livingston Road	54.0	North of project to Pine Ridge Road	3,100 (NB)	N/A	1,656	N/A	No	No
Livingston Road	55.0	Golden Gate Parkway to Radio Road	3,000 (NB)	NB – 6	1,437	0.20%	No	No
Golden Gate Parkway	20.2	Livingston Road to I-75	3,300 (EB)	EB – 52	3,172	1.58%	No	No
Golden Gate Parkway	20.1	Livingston Road to Airport Road	3,300 (EB)	EB – 6	2,484	0.18%	No	No

Note(s): *Refer to **Table 3** from this report. **2023 Projected Volume = 2023 background (refer to **Table 4**) + Project Volume added.

Site Access Turn Lane Analysis

The project plans to eliminate 2 commercial access locations (approved within the Grey Oaks DRI Master Plan); one from Golden Gate Parkway and one from Airport Road, and proposes a new driveway access location from Livingston Road to serve the proposed O'Donnell Nursery project with a directional left-in/right-in/right-out access onto southbound Livingston Road (north access). There is an existing right-in/right-out access onto southbound Livingston Road (south access). The project would like to reconfigure this driveway to a right-out only access with an option to maintain the existing southern access as is. For details, refer to **Appendix A: Project Master Site Plan** and **Appendix E: Grey Oaks DRI – Conceptual Roadway Master Plan**.

Livingston Road is a 6-lane urban divided arterial roadway under Collier County jurisdiction, and has a posted legal speed of 45 mph in the vicinity of the project. Based on FDOT Index 301, design speed of 45 mph – urban conditions – the minimum turn lane length is 185 feet (which includes a 50 foot taper) plus required queue.

Project access is evaluated for turn lane warrants based on Collier County Right-of-way Manual: (a) two-lane roadways – 40vph for right-turn lane/20vph for left-turn lane; (b) multi-lane divided roadways – right turn lanes shall always be provided; and c) when new median openings are permitted, they shall always include left turn lanes.

Turn lane lengths required at build-out conditions are analyzed based on the number of turning vehicles in an average one-minute period for right-turning movements, and two-minute period for left-turning movements, within the peak hour traffic. The minimum queue length is 25 feet and the queue/vehicle is 25 feet.

Projected turning traffic movements are illustrated in **Appendix G: Turning Movements Exhibits**.

Left-in/Right-in/Right-out North Access and Right-out only South Access

A dedicated southbound right-turn lane is warranted as the project meets the multi-lane criteria. The proposed project is expected to generate 63vph and 22vph right-turning movements during the AM and PM peak hour, respectively. At the minimum, the turn lane should be 235 feet long (which includes a minimum of 50 feet of storage). As such, a 235 foot right-turn lane is recommended to accommodate projected traffic at this location.

A dedicated northbound left-turn lane is warranted as the project meets the multi-lane criteria. There is an existing northbound left-turn lane approximately 550 feet long. The proposed project is expected to generate 62vph and 21vph left-turning movements during the AM and PM peak hour, respectively. At the minimum, the turn lane should be 260 feet long (which includes a minimum of 75 feet of storage). As such, the existing 550 foot left-turn lane is adequate to accommodate projected traffic at this location.

Left-in/Right-in/Right-out North Access and Optional Right-in/Right-out South Access

A dedicated southbound right-turn lane at the proposed north access is warranted as the project meets the multi-lane criteria. The proposed project is expected to generate 38vph and 13vph right-turning movements during the AM and PM peak hour, respectively. At the minimum, the turn lane should be 210 feet long (which includes a minimum of 25 feet of storage). As such, a 210 foot right-turn lane is recommended to accommodate projected traffic at this location.

A dedicated northbound left-turn lane is warranted as the project meets the multi-lane criteria. There is an existing northbound left-turn lane approximately 550 feet long. The proposed project is expected to generate 62vph and 21vph left-turning movements during the AM and PM peak hour, respectively. At the minimum, the turn lane should be 260 feet long (which includes a

minimum of 75 feet of storage). As such, the existing 550 foot left-turn lane is adequate to accommodate projected traffic at this location.

A dedicated southbound right-turn lane at the proposed optional south access is warranted as the project meets the multi-lane criteria. The proposed project is expected to generate 25vph and 9vph right-turning movements during the AM and PM peak hour, respectively. At the minimum, the turn lane should be 210 feet long (which includes a minimum of 25 feet of storage). As such, a 210 foot right-turn lane is recommended to accommodate projected traffic at this location.

A detailed evaluation of applicable access points will be performed at the time of site development permitting/platting to determine turn lane requirements as more accurate parameters become available, as applicable.

Improvement Analysis

Based on the results of the comparison analysis included in this report, this project's traffic impact does not exceed the traffic generated by the approved PUD ordinance.

As illustrated in the link analysis and trip distribution, the projected traffic does not create any significant impacts on the analyzed roadway segments of the study network.

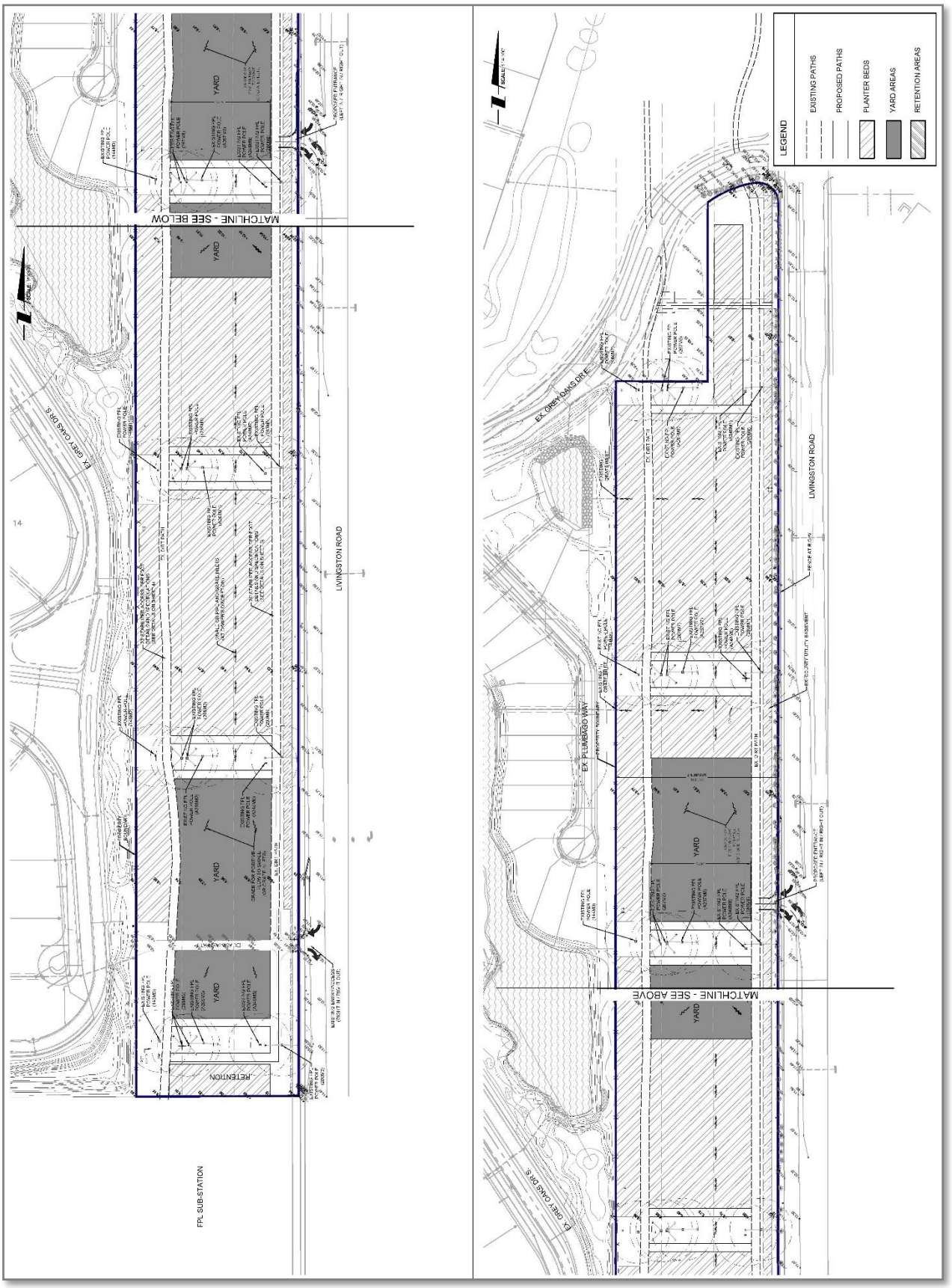
None of the analyzed links are projected to exceed the adopted LOS standard with or without the project at 2023 future build-out conditions. There is adequate and sufficient roadway capacity to accommodate the proposed development without adversely affecting adjacent roadway network level of service.

Consistent with the site access turn lane analysis results, southbound right-turn lanes are recommended to accommodate traffic at build-out conditions. The existing northbound left-turn lane is adequate to accommodate projected traffic at this location.

Mitigation of Impact

From a zoning perspective, given that access is eliminated on Golden Gate Parkway and Airport Road due to less intensive established land uses there and this proposal does not create a net increase in development external trips as compared to the original development parameters, the prior established DRI mitigation should be deemed satisfactory.

Appendix A: Project Master Site Plan


LEGEND
EXISTING PATHS
PROPOSED PATHS
PLANTER BEDS
YARD AREAS
RETENTION AREAS
LIVINGSTON ROAD
EX. GREY OAKS DR E
EX. PLUMSAGO WAY
MATCHLINE - SEE ABOVE
MATCHLINE - SEE BELOW
FPL SUB-STATION
RETENTION
YARD

Appendix B: Initial Meeting Checklist (Methodology Meeting)

INITIAL MEETING CHECKLIST

Suggestion: Use this Appendix as a worksheet to ensure that no important elements are overlooked. Cross out the items that do not apply, or N/A (not applicable).

Date: August 24, 2016 Time: N/A

Location: N/A – Via Email

People Attending:
Name, Organization, and Telephone Numbers

1) Chad Sweet, Collier County Growth Management Department
2) Norman Trebilcock, TCS
3) Daniel Doyle, TCS

Study Preparer:
Preparer's Name and Title: Norman Trebilcock, AICP, PE
Organization: Trebilcock Consulting Solutions, PA
Address & Telephone Number: 1205 Piper Boulevard, Suite 202, Naples, Fl 34110; ph 239-566-9551

Reviewer(s):
Reviewer's Name & Title: Chad Sweet, PE
Collier County Transportation Planning Department
Organization & Telephone Number: 239-252-2491

Applicant:
Applicant's Name: Peninsula Engineering
Address: 2600 Golden Gate Parkway, Naples, FL 34105
Telephone Number: 239-403-6700

Proposed Development:
Name: O'Donnell Nursery – SIP
Location: West of Livingston Road, east of Grey Oaks and approximately 970 feet north of Golden Gate Parkway (Refer to **Fig.1**).
Land Use Type: Nursery (Wholesale)
ITE Code #: Land Use Code (LUC) 818
Description: The project proposes a 31 acre wholesale nursery. The site is currently vacant. The property will allow for cultivation of landscaping vegetation as well as provide storage for landscaping materials, trucks and equipment.

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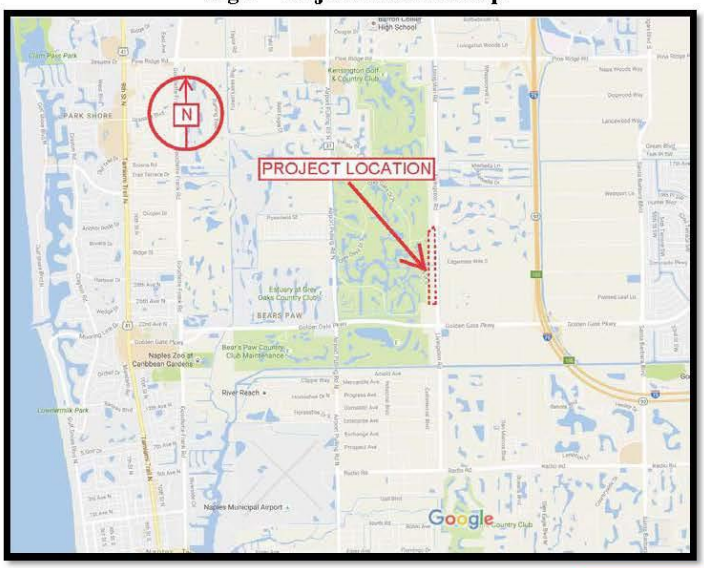
Fig.1 – Project Location Map



Project will need a PUD amendment to allow for any access points off of Livingston. Not any accesses shown on the Master Site Plan.

Zoning
Existing Grey Oaks DRI-MPUD – Collier County Ordinance 07-40
Comprehensive plan recommendation: N/A
Requested: SIP approval for new development

Findings of the Preliminary Study:
Study type: The proposed project traffic is less than 50 trips – this study qualifies for a Small Scale TIS – no significant operational or roadway impacts.
The TIS will include AM and PM peak hour trip generation, PM Pk Hr traffic distribution and assignments, significance test, roadway link analysis.
Operational Site Access Turn Lane Analysis – based on build-out External AM-PM Pk Hr trip generation. Traffic exiting the project for northbound destinations will divert to I-75, Airport-Pulling Road or US-41 as applicable.

Study Type: (if not net increase, operational study)
Small Scale TIS ☒ Minor TIS ☐
Major TIS ☐

Study Area:
Boundaries: East – Livingston Rd.

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Additional intersections to be analyzed: N/A
Build Out Year: 2018
Planning Horizon Year: 2018
Analysis Time Period(s): AM/PM
Future Off-Site Developments: N/A
Source of Trip Generation Rates: ITE 9th Edition
Reductions in Trip Generation Rates:
None: N/A
Pass-by trips: N/A
Internal trips (PUD): N/A
Transit use: N/A
Other: N/A
Horizon Year Roadway Network Improvements: 2018
Methodology & Assumptions:
Non-site traffic estimates: Collier County traffic counts and/or 2015 AUIR
Site-trip generation: LUC 818 – ITE 9th Edition
Trip distribution method: engineer's estimate – refer to **Fig. 2**, below
Traffic assignment method: project trip generation with background growth
Traffic growth rate: historical growth rate or 2% minimum
Project Accesses:
Livingston Rd – northbound left in. Livingston Rd – southbound right in-right out. – see **Fig. 3 – Project Turning Movements by Percentage** on next page.

Fig. 2 – Project Trip Distribution by Percentage

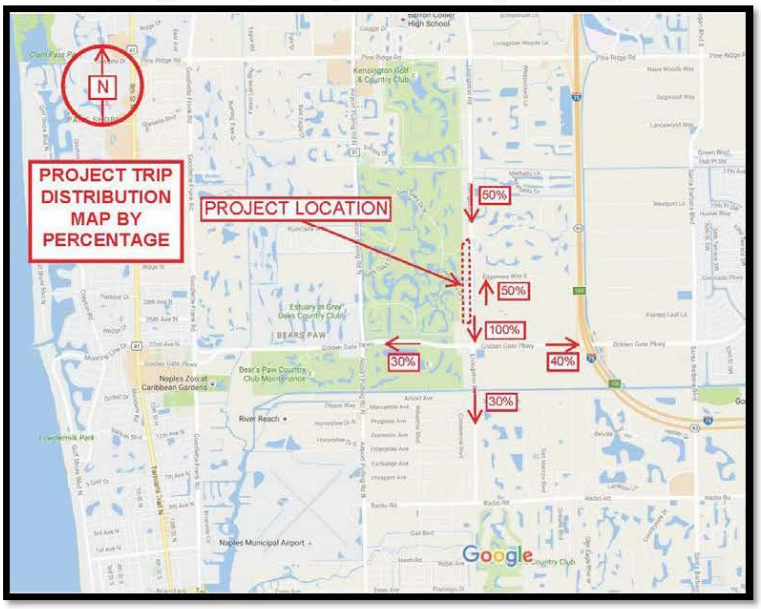
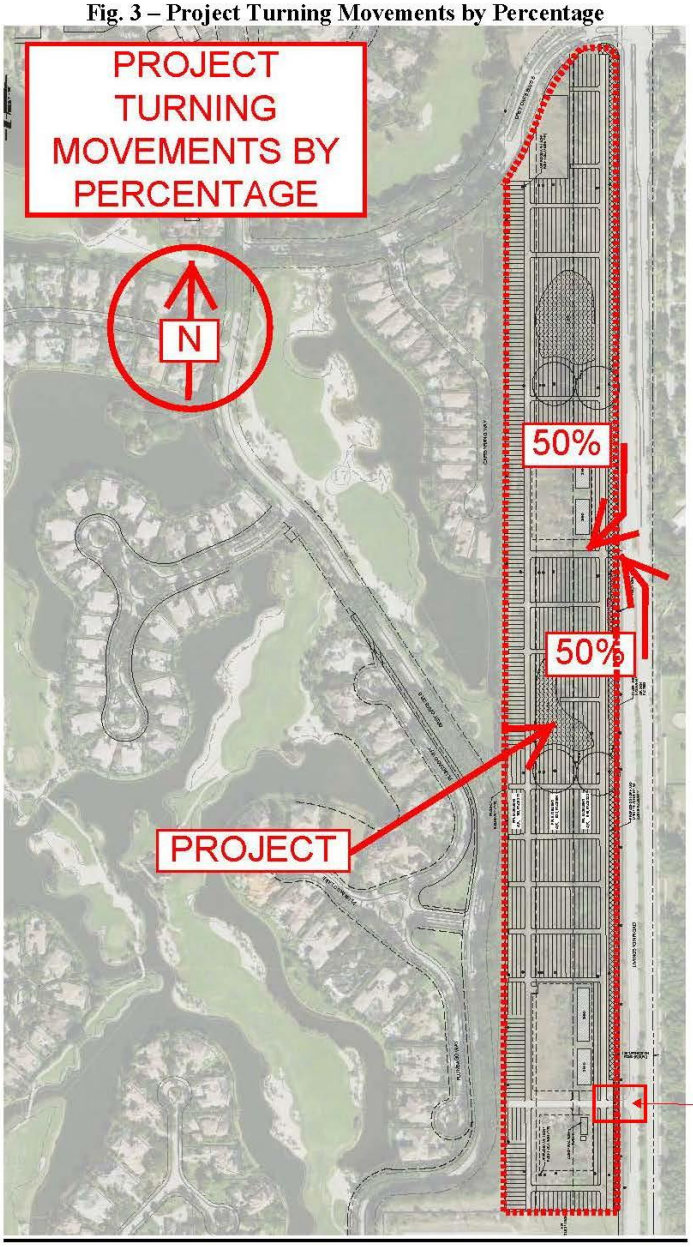


Fig. 3 – Project Turning Movements by Percentage



**TIS will need to discuss right turn lanes at both entrances at this Arterial has a raised median. there will also be some distribution to the southerly driveway.

Per Pre-App, this was to be considered as an exit. If project improved, a right turn lane is needed here. There is also no turning movements here. Applicant wanted to see if this could be right out only. This may be an FPL access road in which as shown would need a right turn lane.

Project will need a PUD amendment to allow for any access points off of Livingston. Not any shown on the Master Site Plan

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Special Features: (from preliminary study or prior experience)
Accidents locations: N/A
Sight distance: N/A
Queuing: N/A
Access location & configuration: N/A
Traffic control: MUTCD
Signal system location & progression needs: N/A
On-site parking needs: N/A
Data Sources: CC 2015 AUIR; CC Traffic Counts
Base maps: N/A
Prior study reports: N/A
Access policy and jurisdiction: N/A
Review process: N/A
Requirements: N/A
Miscellaneous: N/A

Small Scale Study – No Fee	X
Minor Study - $750.00	
Major Study - $1500.00	
Methodology Fee $500	X
Includes 0 intersections	
Additional Intersections - $500.00 each	

All fees will be agreed to during the Methodology meeting and must be paid to Transportation prior to our sign-off on the application.

==========

SIGNATURES

Norman Trebilcock
Study Preparer—Norman Trebilcock

_____
Reviewer(s)

_____
Applicant

Collier County

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Traffic Impact Study Review Fee Schedule

Fees will be paid incrementally as the development proceeds: Methodology Review, Analysis Review, and Sufficiency Reviews. Fees for additional meetings or other optional services are also provided below.

Methodology Review - $500 Fee
Methodology Review includes review of a submitted methodology statement, including review of submitted trip generation estimate(s), distribution, assignment, and review of a "Small Scale Study" determination, written approval/comments on a proposed methodology statement, and written confirmation of a re-submitted, amended methodology statement, and one meeting in Collier County, if needed.

"Small Scale Study" Review - No Additional Fee (Includes one sufficiency review)
Upon approval of the methodology review, the applicant may submit the study. The review includes: a concurrency determination, site access inspection and confirmation of the study compliance with trip generation, distribution and maximum threshold compliance.

"Minor Study Review" - $750 Fee (Includes one sufficiency review)
Review of the submitted traffic analysis includes: optional field visit to site, confirmation of trip generation, distribution, and assignment, concurrency determination, confirmation of committed improvements, review of traffic volume data collected/assembled, review of off-site improvements within the right-of-way, review of site access and circulation, and preparation and review of "sufficiency" comments/questions.

"Major Study Review" - $1,500 Fee (Includes two intersection analysis and two sufficiency reviews)
Review of the submitted traffic analysis includes: field visit to site, confirmation of trip generation, special trip generation and/or trip length study, distribution and assignment, concurrency determination, confirmation of committed improvements, review of traffic volume data collected/assembled, review of traffic growth analysis, review of off-site roadway operations and capacity analysis, review of site access and circulation, neighborhood traffic intrusion issues, any necessary improvement proposals and associated cost estimates, and preparation and review of up to two rounds of "sufficiency" comments/questions and/or recommended conditions of approval.

"Additional intersection Review" - $500 Fee
The review of additional intersections shall include the same parameters as outlined in the "Major Study Review" and shall apply to each intersection above the first two intersections included in the "Major Study Review"

"Additional Sufficiency Reviews" - $500 Fee
Additional sufficiency reviews beyond those initially included in the appropriate study shall require the additional Fee prior to the completion of the review.

Page **6** of **6**

Appendix C: Collier County Ordinance 2007-40 – Excerpt

THE GREY OAKS PUD

TABLE I
LAND USE SUMMARY

Northeast and Southeast Quadrants (Collier County)

	AMOUNT	ACREAGE
Residential units	1,311 D.U.	332.06 Ac.
Commercial (Total)	1,203,091 S.F.	70.4 +/- Ac.
Office (gross floor area)	593,453 S.F.	
Retail (gross leasable area)	609,638 S.F.	
Hotel	0 Rooms	0 Ac.
Golf Course/Recreation/ Park/Right of Way	54 Holes	614.31 Ac.
Lake/ Water Management		225.41 Ac.
Conservation		5.32 Ac.
Sub-Total		1,247.45 Ac.

Note: Native Vegetation Preserve in Northeast and Southeast Quadrants totals 79.36 acres.
(See attached Drawings E-1 through E-4 for locations).

Northwest Quadrant (City of Naples)

	AMOUNT	ACREAGE
Residential units	464 d.u.	100.71 +/- Ac.
Commercial (Total)	100,000 S.F.	14.4 +/- Ac.
Office (gross floor area)	60,000 S.F.	
Retail (gross leasable area)	40,000 S.F.	
Golf Course/Recreation/ Park/Right-of- Way	18 Holes	107.4 +/- Ac.
Lake/ Water Management		76.04 +/- Ac.
Conservation		55.34 +/- Ac.
Sub-Total		353.89 Ac.

Note: Native Vegetation Preserve in Northwest Quadrant totals 58.63 acres.
(See attached Drawings E- 1 through E-4 for locations).
Note: All acreages are digitized approximate acreages and are subject to change and variation.
Note: The Northeast Quadrant shall have a total commercial/office square footage of 1,203,091 S.F.

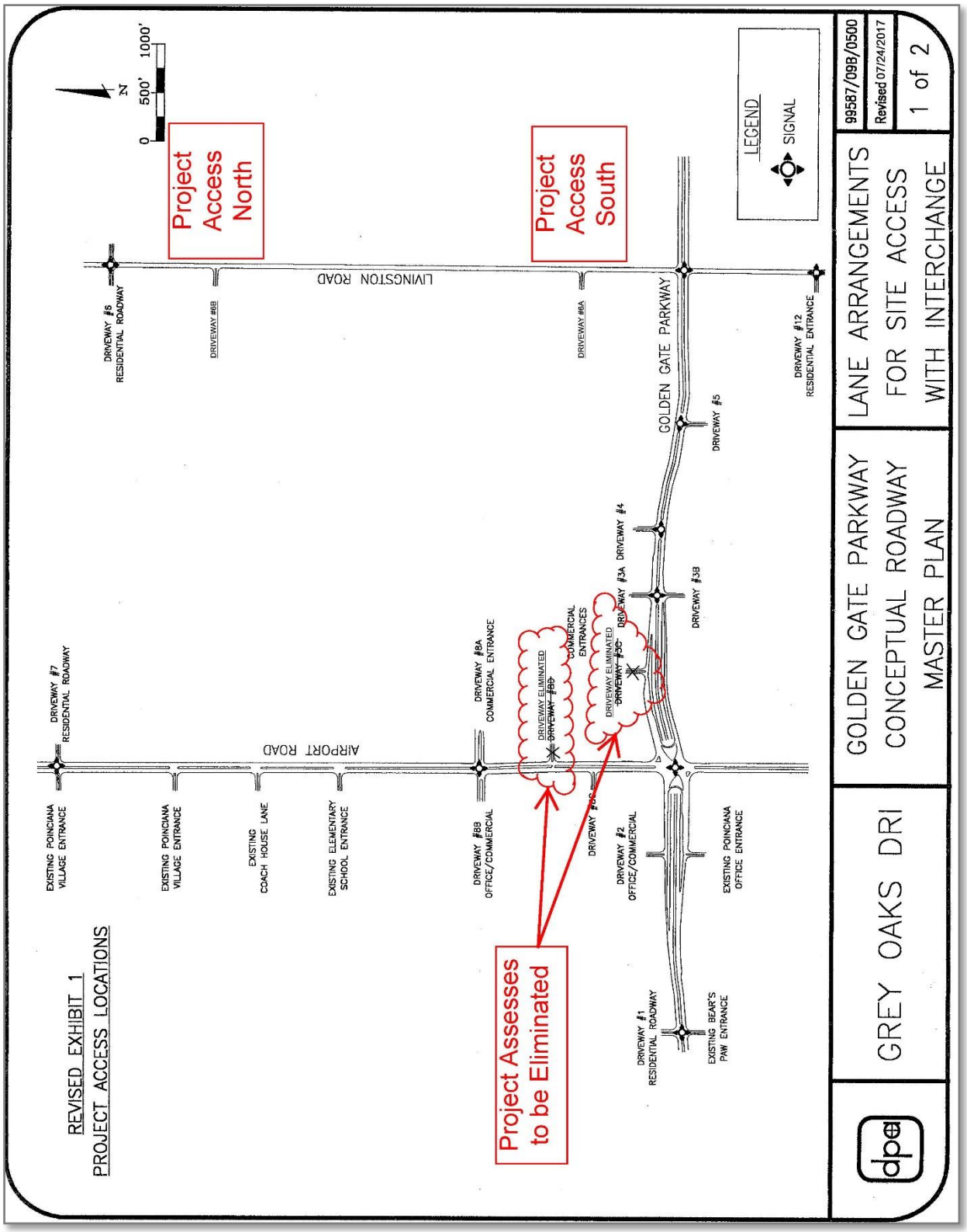
(Revised 4/11/07) 15

Appendix D: Collier County PUD Monitoring Report – Excerpt

PLANNED UNIT DEVELOPMENTS

NAME	AKA	STATUS	Ord. #	(EX) (SRA) Resol. #	Date App'd	Est. Buildout	A/C	CMTY	LOCATION S/T/R	TOTAL SIZE ACRES	COMM. TOTAL ACRES	COMM. TOTAL SQFT	COMM. DEV. ACRES	COMM. DEV. SQFT	IND. TOTAL ACRES	IND. TOTAL SQFT	IND. DEV. ACRES	IND. DEV. SQFT	RES. SF TOTAL	RES. SF DEV	RES. MF TOTAL	RES. MF DEV.	OTHER UNITS HMRV TOTAL	OTHER UNITS HMRV DEV.	ACLF HOSP TOTAL	ACLF HOSP DEV.	TOTAL RES. UNITS	GROSS DENSITY	GOLF COURSE ACRES	GOLF COURSE HOLES	CONS. ACR.
FAKAHATCHEE PLAZA		ACTIVE	10-01		01/12/10	2014			6-49-28	5.46		25,000																			0.39
FALLING WATERS		BUILTOUT	03-50		09/23/03	2006	6	SN	8-50-26	161.54	3.99										799	786					799	5.07			50.59
FALLING WATERS BEACH RESORT**	Woodfield Lakes	BUILTOUT	01-68		11/27/01	2003	18	RF	3-51-26	74.37	4.05	73,000		69,239							451	430					451	6.50			2.00
FALLS OF NAPLES**	Pine Ridge Crossing	BUILTOUT	02-67		12/17/02	2003	13	CN	14-49-25	35.40	32.50	280,000		270,812																	
FIRST ASSY. MINST. EDU. & REHAB	Bayshore Methodist Church - 951	ACTIVE	15-55		07/22/08	2020		RF	14-50-26	69.10		10,866	Church								296		25		249		296	7.98			12.00
FIRST BAPTIST CHURCH OF NAPLES		ACTIVE	99-78		11/09/99	11/9/2004		NN	1-49-25	100.00		240,000		90,724											50						
FORD TEST CENTER**		BUILTOUT	98-9		02/03/98	1995		RF	22,27,34-49-	530.37		47,207		47,207	530																
FOREST GLEN OF NAPLES	Naples Golf Estates	ACTIVE	99-69		10/12/99	2008	9	RF	2-50-26	635.00	10.00	100,000									310		489				799	1.26	90.00	18	340.00
FOREST LAKE HOMES**		CLOSED OUT	76-50		11/16/76	1989		CN	14-49-25	64.65									182	182							182	2.82			
FOUNDER'S PLAZA		ACTIVE	02-68		12/17/02	2005		GG	28-49-26	13.33	13.33	47,050		54,550		16,000	Church	16,000													
FOUNTAIN PARK**		CLOSED OUT	99-5		01/26/99	2004	11	NN	2-49-25	10.14	10.14	72,000		71,400																	
FOXFIRE (DRI)**	Bridal Path at Foxfire	BUILTOUT	93-31		09/09/93	1993		EN	6-50-26 & 1-	384.21									231	227	704	704					935	2.43	223.70	27	16.41
FP&L**		BUILTOUT	82-73		09/24/82	1995		UE	15-49-26	12.15	12.15	12,261	12	12,261																	
FREESTATE		ACTIVE	08-39		07/22/08	2013		SN	8-50-26	16.80		150,000		15,573																	2.50
GALLMAN OLDS DEALERSHIP	Bo German Chevrolet Dealers	CLOSED OUT	86-06		02/04/86	1996		EN	3-50-26	10.28	6.00	22,290	6.00	22,290																	
GARDEN LAKE APARTMENTS**		CLOSED OUT	89-09		02/14/89	1991		IMM	32-46-29	7.29											66	66					66	9.00			
GARDENWALK VILLAGE		ACTIVE	96-4		02/13/96	2003		IMM	11-47-29	17.06											204						204	11.96			
GASPAR STATION	Stiles	ACTIVE	07-75		11/27/07	11/27/2017	4	UE	30-48-26	17.70				9,373																	2.40
GERMAIN HONDA		ACTIVE	15-43		07/07/15	7/12/1905		NN	12-49-25	10.47		60,000		40,068																	
GERMAIN TOYOTA	German Automotive	ACTIVE	08-60		10/14/08	2013	20	NN	16-48-25	13.05	13.05	130,000		123,654																	1.95
GLEN EDEN ON THE BAY		CLOSED OUT	99-3		01/26/99	2004		NN	8-48-25	40.93									94	94							94	2.30			12.10
GOLDEN GATE COMMERCE PARK	G.G. Health Park	ACTIVE	00-41	07-242	03/14/00	03/14/2015		GG	34-49-26	74.20	25.30	270,000									264	264	26				343	7.01			5.40
GOLDEN GATE FIRE DISTRICT STATION		BUILTOUT	04-67		10/12/04	2007		UE	34-48-26	9.38	5.40	50,000		28,477					16	16							16	4.00			0.30
GOLDEN GATE VILLAS**	Meadowood Club	CLOSED OUT	84-40		09/05/84	1990		GG	22, 27-49-26	18.05											288	288					288	15.96			
GOLF CLUB OF THE EVERGLADES		ACTIVE	15-21		06/10/14	6/10/2019		RE	31-48-27 & 36-48-26	845.68										120							750	0.89			173.87
GOOD TURN CENTER		ACTIVE	09-53		10/13/09	2014		RF	14-50-26	9.50		100,000													200						0.42
GOODLETTE CORNERS		BUILTOUT	04-40		09/22/04	2005		NN	15-49-25	8.52	8.52	383,328	8.52	8.52																	
GRANADA SHOPPES		BUILTOUT	16-36		03/27/01	2004	2	NN	27-48-25	39.23	39.23	390,000		306,637									175					0.52			
GREEN BLVD.**		CLOSED OUT	85-23	08-318	09/04/85	2002		GG	15-16-49-26	83.45											912	912					912	10.93			
GREEN HERON (DRI-83-1)	Sapphire Lakes	ACTIVE	95-30		04/18/95	2005		GG	33-49-26	221.00	5.00										1,188	1,152					1,188	5.40			
GREEN TREE CENTER**		CLOSED OUT	81-58		10/20/81	2001	1	NN	26-48-25	40.00	27.28	213,518	27.28	213,518							86	86					86	6.76			
GREY OAKS (DRI-89-1)	Habitat	ACTIVE	07-40		09/27/00	1/21/2021	8	CN	24,25, 26-49	1,601.00	84.80	1,303,091								1,341		INCL IN SF				176	1,775	1.11	721.71	72	60.66

Appendix E: Grey Oaks DRI – Conceptual Roadway Master Plan


Project Access North
Project Access South
Project Assesses to be Eliminated
LEGEND
SIGNAL
0 500' 1000'
N
LIVINGSTON ROAD
AIRPORT ROAD
GOLDEN GATE PARKWAY
DRIVEWAY #5 RESIDENTIAL ROADWAY
DRIVEWAY #6B
DRIVEWAY #6A
DRIVEWAY #12 RESIDENTIAL ENTRANCE
DRIVEWAY #7 RESIDENTIAL ROADWAY
DRIVEWAY #8A COMMERCIAL ENTRANCE
DRIVEWAY ELIMINATED DRIVEWAY #8B
DRIVEWAY ELIMINATED DRIVEWAY #3C
COMMERCIAL ENTRANCES
DRIVEWAY #3A
DRIVEWAY #4
DRIVEWAY #3B
DRIVEWAY #5
EXISTING POINCIANA VILLAGE ENTRANCE
EXISTING POINCIANA VILLAGE ENTRANCE
EXISTING COACH HOUSE LANE
EXISTING ELEMENTARY SCHOOL ENTRANCE
DRIVEWAY #8B OFFICE/COMMERCIAL
DRIVEWAY #2 OFFICE/COMMERCIAL
EXISTING POINCIANA OFFICE ENTRANCE
DRIVEWAY #1 RESIDENTIAL ROADWAY
EXISTING BEAR'S PAW ENTRANCE
REVISED EXHIBIT 1
PROJECT ACCESS LOCATIONS
GREY OAKS DRI
GOLDEN GATE PARKWAY
CONCEPTUAL ROADWAY
MASTER PLAN
LANE ARRANGEMENTS
FOR SITE ACCESS
WITH INTERCHANGE
99587/09B/0500
Revised 07/24/2017
1 of 2

Appendix F: Trip Generation Calculations ITE 10th Edition

Project Information	
Project Name:	O Donnell Nursery - Proposed
No:	
Date:	09/18/2018
City:	
State/Province:	
Zip/Postal Code:	
Country:	
Client Name:	
Analyst's Name:	
Edition:	ITE-TGM 10th Edition

Land Use	Size	Weekday		AM Peak Hour		PM Peak Hour	
		Entry	Exit	Entry	Exit	Entry	Exit
818 - Nursery (Wholesale) (General Urban/Suburban)	27 Acres	264	263	5	2	3	9
Reduction		0	0	0	0	0	0
Internal		0	0	0	0	0	0
Pass-by		0	0	0	0	0	0
Non-pass-by		264	263	5	2	3	9
Total		264	263	5	2	3	9
Total Reduction		0	0	0	0	0	0
Total Internal		0	0	0	0	0	0
Total Pass-by		0	0	0	0	0	0
Total Non-pass-by		264	263	5	2	3	9

PERIOD SETTING

Analysis Name :	Weekday		
Project Name :	O Donnell Nursery - Proposed	**No :**	
Date:	9/18/2018	**City:**	
State/Province:		**Zip/Postal Code:**	
Country:		**Client Name:**	
Analyst's Name:		**Edition:**	ITE-TGM 10th Edition

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
818 - Nursery (Wholesale) (General Urban/Suburban)	Acres	27(0)	Weekday	Average 19.5	264(1) 50%	263(1) 50%	527(1)

(0) indicates size out of range.
(1) indicates small sample size, use carefully.

PERIOD SETTING

Analysis Name :	AM Peak Hour		
Project Name :	O Donnell Nursery - Proposed	**No :**	
Date:	9/18/2018	**City:**	
State/Province:		**Zip/Postal Code:**	
Country:		**Client Name:**	
Analyst's Name:		**Edition:**	ITE-TGM 10th Edition

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
818 - Nursery (Wholesale) (General Urban/Suburban)	Acres	27	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Average 0.26	5 0%	2 * 0%	7(0)

(0) indicates directional distribution was not provided in the source document. This study cannot be used for trip distribution.

* Directional distribution was not available for this land use. A 75%/25% directional distribution was assumed for the AM peak hour.

PERIOD SETTING

Analysis Name :	PM Peak Hour		
Project Name :	O Donnell Nursery - Proposed	**No :**	
Date:	9/18/2018	**City:**	
State/Province:		**Zip/Postal Code:**	
Country:		**Client Name:**	
Analyst's Name:		**Edition:**	ITE-TGM 10th Edition

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
818 - Nursery (Wholesale) (General Urban/Suburban)	Acres	27	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Average 0.45	3 0%	9 * 0%	12(0)

(0) indicates directional distribution was not provided in the source document. This study cannot be used for trip distribution.

* Directional distribution was not available for this land use. A 25%/75% directional distribution was assumed for the PM peak hour.

Project Information	
Project Name:	Grey Oaks - Retail Conversion
No:	
Date:	09/18/2018
City:	
State/Province:	
Zip/Postal Code:	
Country:	
Client Name:	
Analyst's Name:	
Edition:	ITE-TGM 10th Edition

Land Use	Size	Weekday		AM Peak Hour		PM Peak Hour	
		Entry	Exit	Entry	Exit	Entry	Exit
820 - Shopping Center (General Urban/Suburban)	70.5 1000 Sq. Ft. GLA	2370	2370	116	71	202	218
Reduction		0	0	0	0	0	0
Internal		0	0	0	0	0	0
Pass-by		0	0	0	0	0	0
Non-pass-by		2370	2370	116	71	202	218
Total		2370	2370	116	71	202	218
Total Reduction		0	0	0	0	0	0
Total Internal		0	0	0	0	0	0
Total Pass-by		0	0	0	0	0	0
Total Non-pass-by		2370	2370	116	71	202	218

PERIOD SETTING

Analysis Name :	Weekday		
Project Name :	Grey Oaks - Retail Conversion	**No :**	
Date:	9/18/2018	**City:**	
State/Province:		**Zip/Postal Code:**	
Country:		**Client Name:**	
Analyst's Name:		**Edition:**	ITE-TGM 10th Edition

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
820 - Shopping Center (General Urban/Suburban)	1000 Sq. Ft. GLA	70.5	Weekday	Best Fit (LOG) Ln(T) = 0.68Ln(X) +5.57	2370 50%	2370 50%	4740

PERIOD SETTING

Analysis Name :	AM Peak Hour		
Project Name :	Grey Oaks - Retail Conversion	**No :**	
Date:	9/18/2018	**City:**	
State/Province:		**Zip/Postal Code:**	
Country:		**Client Name:**	
Analyst's Name:		**Edition:**	ITE-TGM 10th Edition

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
820 - Shopping Center (General Urban/Suburban)	1000 Sq. Ft. GLA	70.5	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Best Fit (LIN) T = 0.5 (X)+151.78	116 62%	71 38%	187

PERIOD SETTING

Analysis Name :	PM Peak Hour		
Project Name :	Grey Oaks - Retail Conversion	**No :**	
Date:	9/18/2018	**City:**	
State/Province:		**Zip/Postal Code:**	
Country:		**Client Name:**	
Analyst's Name:		**Edition:**	ITE-TGM 10th Edition

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
820 - Shopping Center (General Urban/Suburban)	1000 Sq. Ft. GLA	70.5	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Best Fit (LOG) Ln(T) = 0.74Ln(X) +2.89	202 48%	218 52%	420

Appendix G: Halstatt DRI Trip Generation Summary - Excerpt

TABLE 31.D.1 - 3 REVISED, Continued

HALSTATT DRI

ADJUSTED TRIP GENERATION SUMMARY

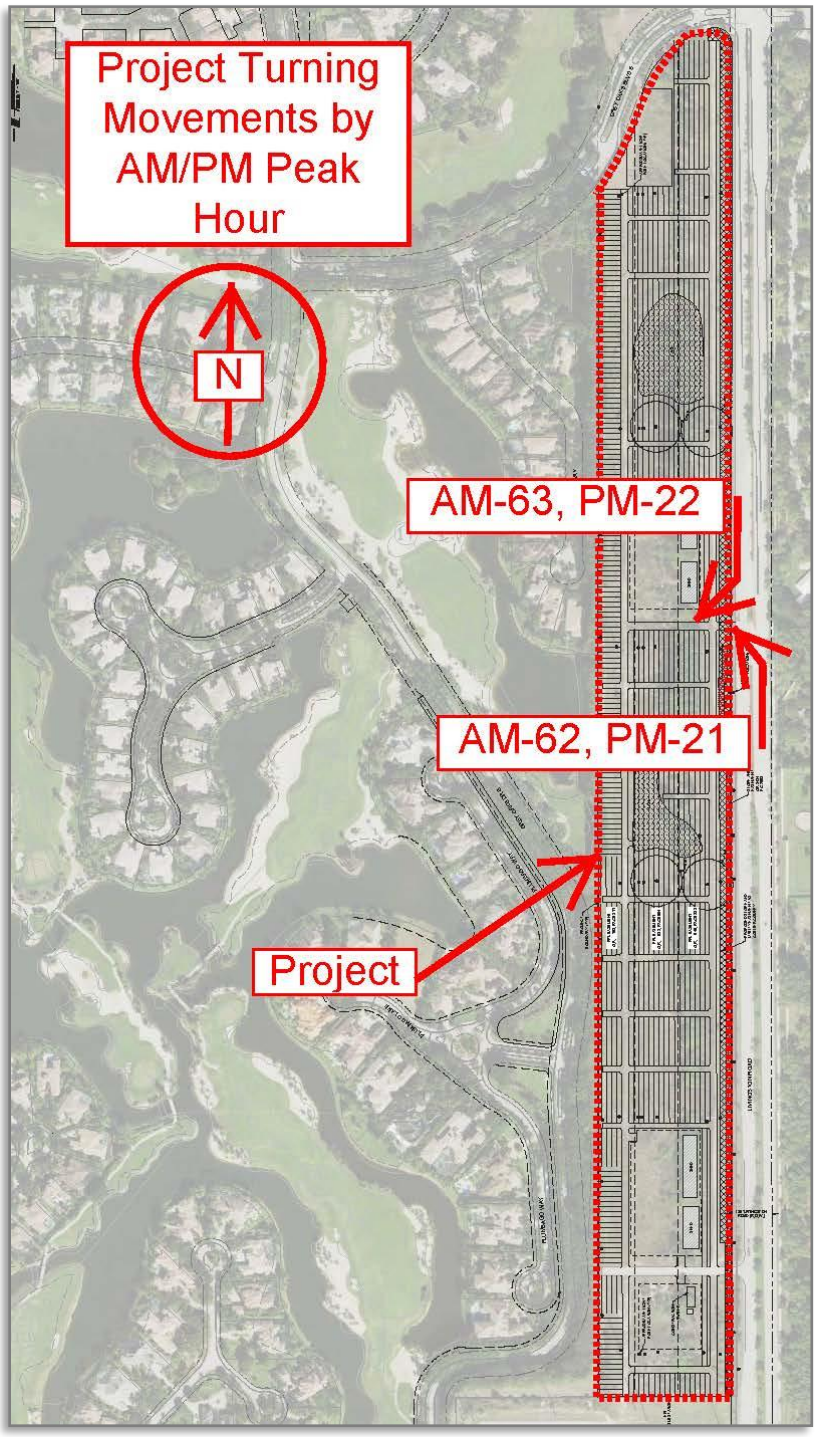
PHASE 3

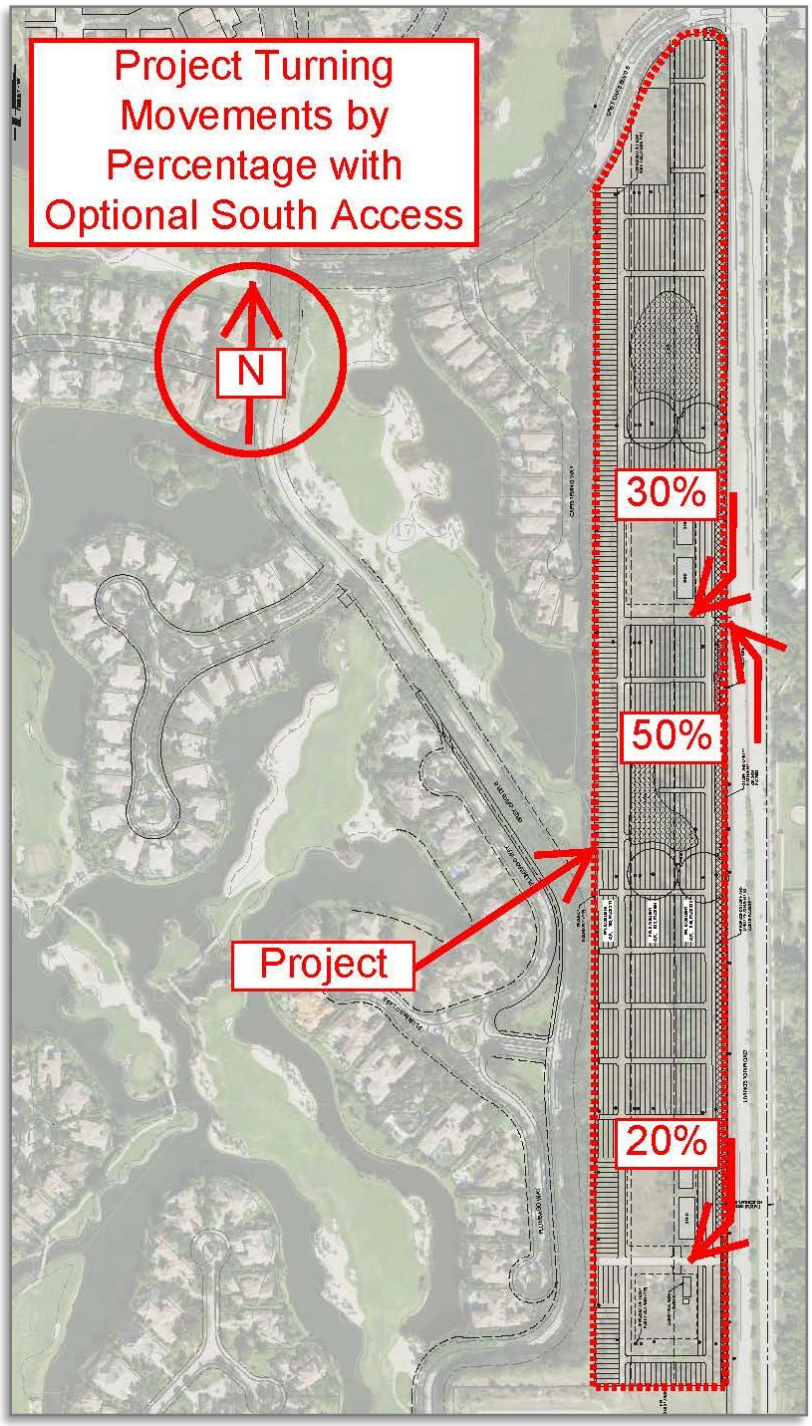
Office - (At Livingston Road)	290,436 sq. ft.					
	Total			76	401	477	3,052
	Internal			27	103	130	961
	External			49	298	347	2,091
Commercial (At Livingston Road)	171,300 sq. ft.			PM PEAK HOUR IN	OUT	TOTAL	
	Total			404	420	824	10,544
Pass-by	On Road	50% Two-way		171	171	342	3,374
	Internal	18% Two-way		98	48	146	1,137
	External			306	372	678	9,407
	Net New			135	201	336	6,033
Total							
	Total			2,981	3,616	6,597	71,659
	On Road			655	655	1,310	12,470
	Internal			799	825	1,624	17,160
	External			2,182	2,791	4,973	54,499
	Net New			1,527	2,136	3,663	42,029

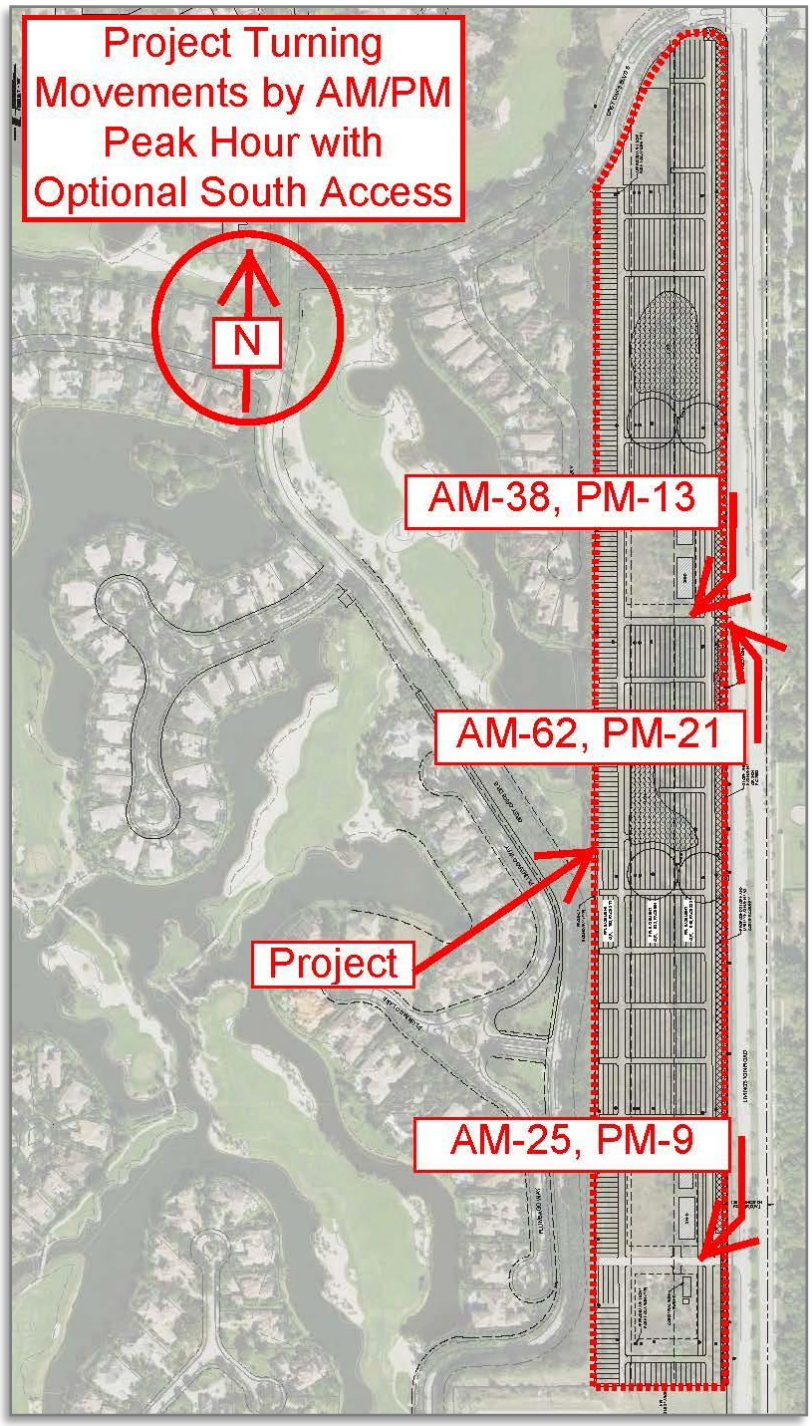
T31.D.1 - 8

Appendix H: Turning Movements Exhibit


Project Turning Movements by Percentage
N
50%
50%
Project
South Access is Right-Out Only


Project Turning Movements by AM/PM Peak Hour
N
AM-63, PM-22
AM-62, PM-21
Project


Project Turning Movements by Percentage with Optional South Access
N
30%
50%
Project
20%


Project Turning Movements by AM/PM Peak Hour with Optional South Access
N
AM-38, PM-13
AM-62, PM-21
Project
AM-25, PM-9