



# Traffic Impact Statement

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## O'Donnell Nursery Planned Unit Development Amendment (PUDA)

**Collier County, Florida  
03/12/2018**

Prepared for:

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

Prepared by:

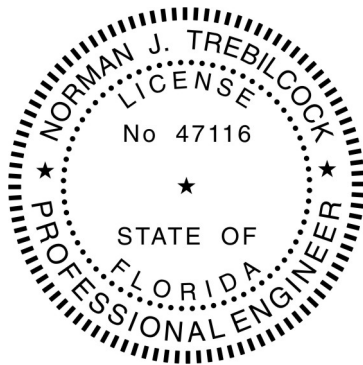
Trebilcock Consulting Solutions, PA  
1205 Piper Boulevard, Suite 202  
Naples, FL 34110  
Phone: 239-566-9551  
Email: [ntrebilcock@trebilcock.biz](mailto:ntrebilcock@trebilcock.biz)

Collier County Transportation Methodology Fee – \$500.00 Fee  
Collier County Transportation Review Fee – Small Scale Study – No Fee

## Statement of Certification

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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.



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.

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Norman J. Trebilcock, AICP, P.E.  
FL Registration No. 47116  
Trebilcock Consulting Solutions, PA  
1205 Piper Boulevard, Suite 202  
Naples, FL 34110  
Company Cert. of Auth. No. 27796

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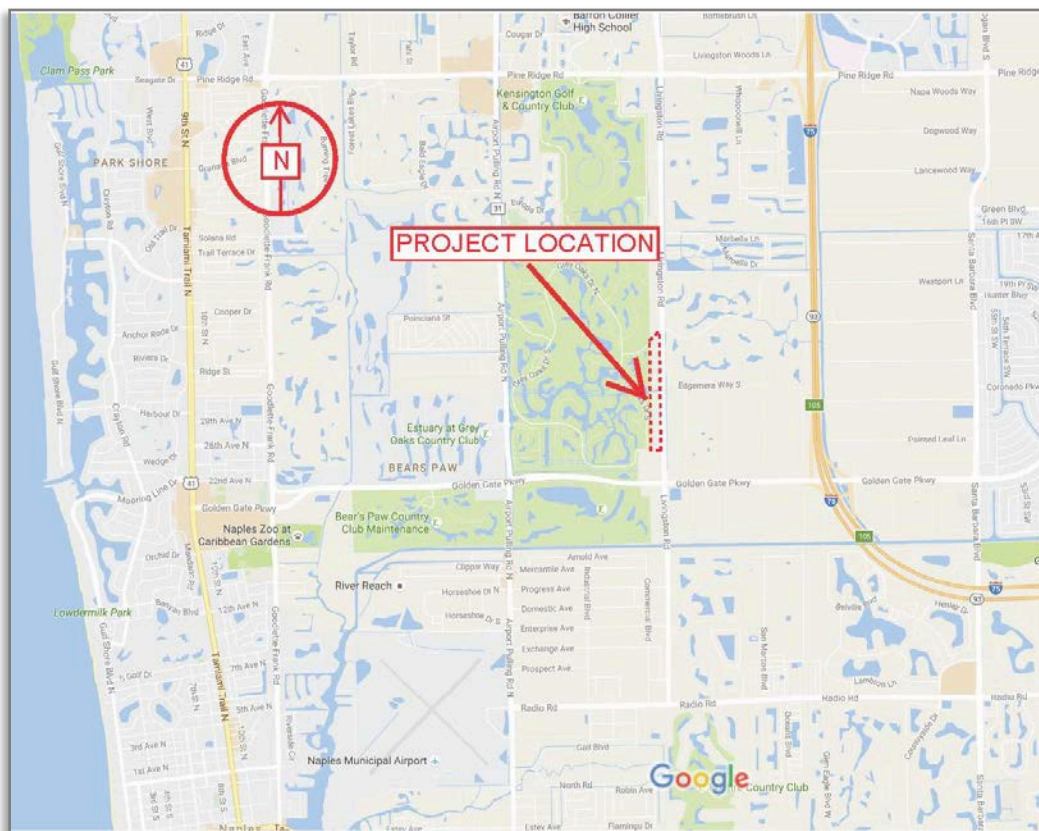
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## Project Description

The O'Donnell Nursery 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 **Fig. 1 – Project Location Map**, which follows and **Appendix A: Project Master Site Plan**.

**Fig. 1 – Project Location Map**



The subject site consists of 2 parcels totaling approximately 31 acres in size, is currently zoned as Planned Unit Development (PUD) and is a 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 commercial landscaping, 2.75 acres of retail nursery and 1.25 acres of farmer's market. The retail nursery is comprised of a 7,500sf outdoor sales and display area.

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)**).

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, 1,303,091sf 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	1,159 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 2 new driveway access locations from Livingston Road to serve the proposed O'Donnell Nursery project; one directional left-in/right-in/right-out access onto southbound Livingston Road (north access) and one right-out only access onto southbound Livingston Road (south access). For details, see **Appendix E: Grey Oaks DRI – Conceptual Roadway Master Plan**.

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

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
O'Donnell Nursery	Nursery – Retail	817	7,500sf*
Farmers Market	Farmers Market	858	1.25 acres

\*7,500sf outdoor sales and display area located on 2.75 acres.

## Trip Generation – Traffic Conversion Analysis

The project's site trip generation is based on the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10<sup>th</sup> 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 commercial landscaping services. In order to account for this increased demand, a supplemental calculation was performed for anticipated additional traffic from the landscaping service. 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 maintenance 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 trips are assumed to occur, conservatively, during the AM and PM peak hour time periods as applicable.

In order to account for the reduced availability of the retail nursery when the farmers market is operating, a 50% reduction of the retail nursery traffic was included and is reflected in the trip generation. Based on ITE recommendations, no internal capture or pass-by reductions have been taken into consideration.

The proposed PUDA development trip generation is illustrated in **Table 2A**. Detailed calculations can be found in **Appendix F: Trip Generation Calculations ITE 10<sup>th</sup> 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	2	10	12
Nursery – Retail*	7,500sf	4	5	9	13	13	26
Farmers Market	1.25 acres	110	109	219	108	117	225
Commercial Landscaping**	N/A	150	50	200	50	150	200
<b>Total External</b>		<b>269</b>	<b>166</b>	<b>435</b>	<b>173</b>	<b>290</b>	<b>463</b>

\*7,500sf outdoor sales and display area located on 2.75 acres. Includes 50% reduction due to Farmers Market operation.

\*\*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 conversion equivalency 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 traffic impact of the project and provides guidance as to the amount of retail square footage required for conversion. The ITE LUC 820, shopping center, was used to model the trip generation for the retail portion of the DRI. Based on the results of the trip generation, 80,500sf of undeveloped shopping center will be converted to the proposed PUDA development land uses, as illustrated in **Table 2B**.

**Table 2B**  
**Trip Generation Conversion – PM Peak Hour**

Development		PM Peak Hour		
	Size	Enter	Exit	Total
<b>Proposed PUD Development</b>	Per Table 2A	173	290	463
<b>Proposed Retail Conversion</b>	80,500sf	222	241	463
<b>Net Difference</b>	1.25 acres	(49)	49	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 trips 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 **Fig. 2 – Project Distribution by Percentage and By PM Peak Hour**.

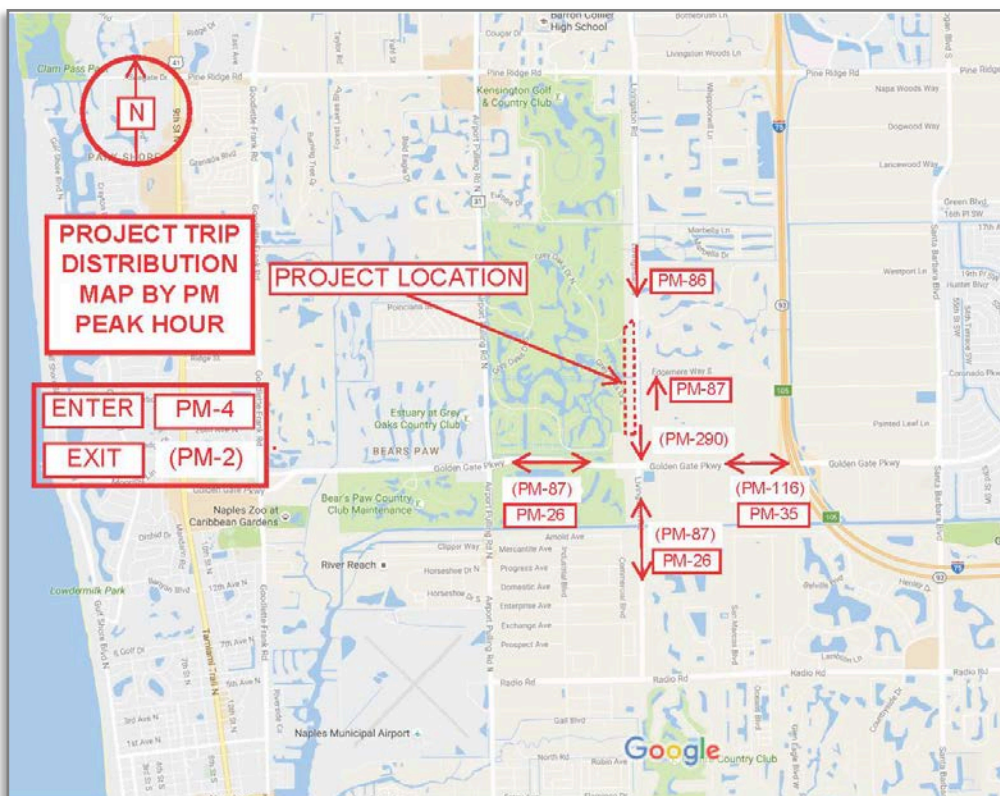
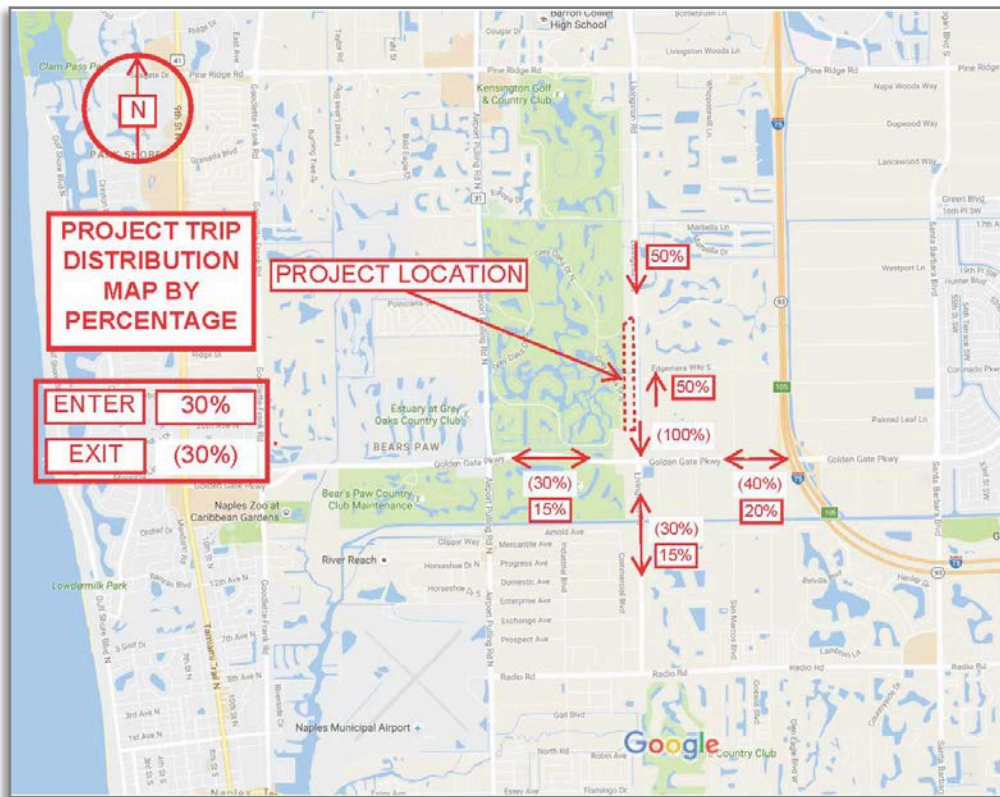
**Table 3**  
**Project Traffic Distribution for PM Peak Hour**

Roadway Link	Collier County Link No.	Roadway Link Location	Distribution of Project Traffic Enter/(Exit)	PM Peak Hour Project Vol.*	
				Enter	Exit
<b>Livingston Road</b>	54.0	South of project to Golden Gate Parkway	50%/(100%)	<b><u>NB – 87</u></b>	SB – 290
<b>Livingston Road</b>	54.0	North of project to Pine Ridge Road	50%/(N/A)	SB – 86	N/A
<b>Livingston Road</b>	55.0	Golden Gate Parkway to Radio Road	15%/(30%)	<b><u>NB – 26</u></b>	SB – 87
<b>Golden Gate Parkway</b>	20.2	Livingston Road to I-75	20%/(40%)	WB – 35	<b><u>EB – 116</u></b>
<b>Golden Gate Parkway</b>	20.1	Livingston Road to Airport Road	15%/(30%)	<b><u>EB – 26</u></b>	WB – 87

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



**Fig. 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	<u>1,656</u>	34	1,504
Livingston Road	54.0	North of project to Pine Ridge Road	1,470	2.0%	1.1262	<u>1,656</u>	34	1,504
Livingston Road	55.0	Golden Gate Parkway to Radio Road	1,270	2.0%	1.1262	<u>1,431</u>	39	1,309
Golden Gate Parkway	20.2	Livingston Road to I-75	2,770	2.0%	1.1262	<u>3,120</u>	1	2,771
Golden Gate Parkway	20.1	Livingston Road to Airport Road	2,200	2.0%	1.1262	<u>2,478</u>	0	2,200

Note(s): \*Annual Growth Rate - from 2017 AUIR, 2% minimum. \*\*Growth Factor =  $(1 + \text{Annual Growth Rate})^6$ . 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 create a significant impact on Livingston Road south of the project to Golden Gate Parkway and on Golden Gate Parkway from Livingston Road to I-75. The impact on the remaining analyzed links is not significant. 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 – 87	1,743	2.81%	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 – 26	1,457	0.87%	No	No
Golden Gate Parkway	20.2	Livingston Road to I-75	3,300 (EB)	EB – 116	3,236	3.52%	No	No
Golden Gate Parkway	20.1	Livingston Road to Airport Road	3,300 (EB)	EB – 26	2,504	0.79%	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

Connection to subject project is proposed via one directional left-in/right-in/right-out access onto southbound Livingston Road (north access) and one right-out only access onto southbound Livingston Road (south access). For details, refer to **Appendix A: Project Master Site 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; and (b) multi-lane divided roadways – right turn lanes shall always be provided; 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**.

#### **Main Site Entrance – Livingston Road – North Access**

A dedicated southbound right-turn lane is warranted as the project meets the multi-lane criteria. The proposed project is expected to generate 135 and 87vph right-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, a 260 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 134 and 86vph left-turning movements during the AM and PM peak hour, respectively. At the minimum, the turn lane should be 310 feet long (which includes a minimum of 125 feet of storage). As such, the existing 550 foot left-turn lane is adequate 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 conversion 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 proposed project's impact is significant on Livingston Road south of the project to Golden Gate Parkway, and significant on Golden Gate Parkway between Livingston Road and I-75. Projected traffic does not create any significant impacts on the other 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, a 260 foot right-turn lane is 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**

(1 Sheet)







## **Appendix B: Initial Meeting Checklist (Methodology Meeting)**

(6 Sheets)

### 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

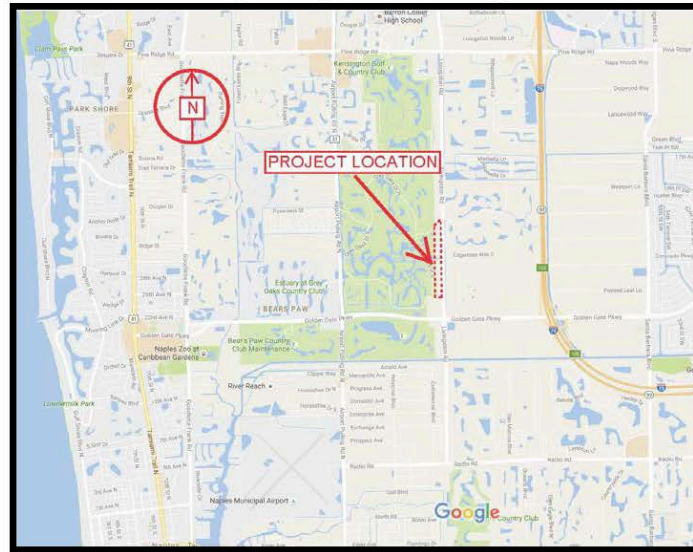
Location: West of Livingston Road, east of Grey Oaks and approximately 970 feet north of Golden Gate Parkway (Refer to Fig.1).

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.

**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.

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 9<sup>th</sup> 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 9<sup>th</sup> 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**

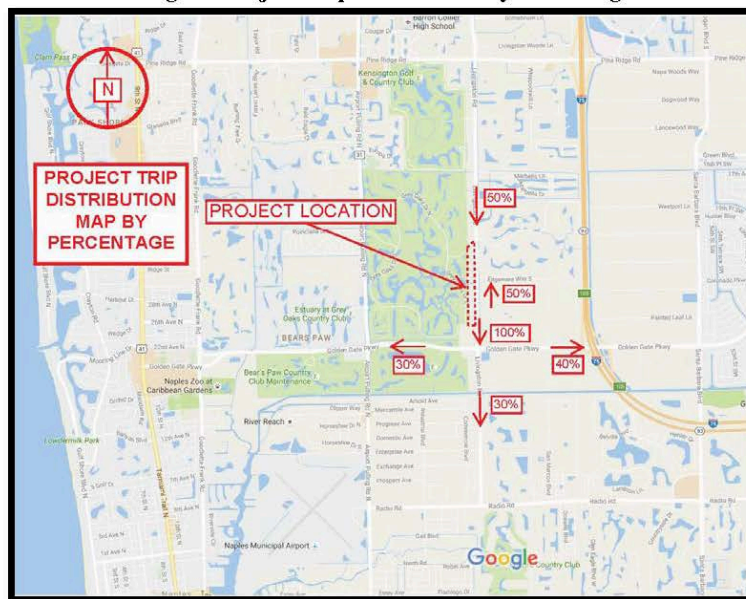
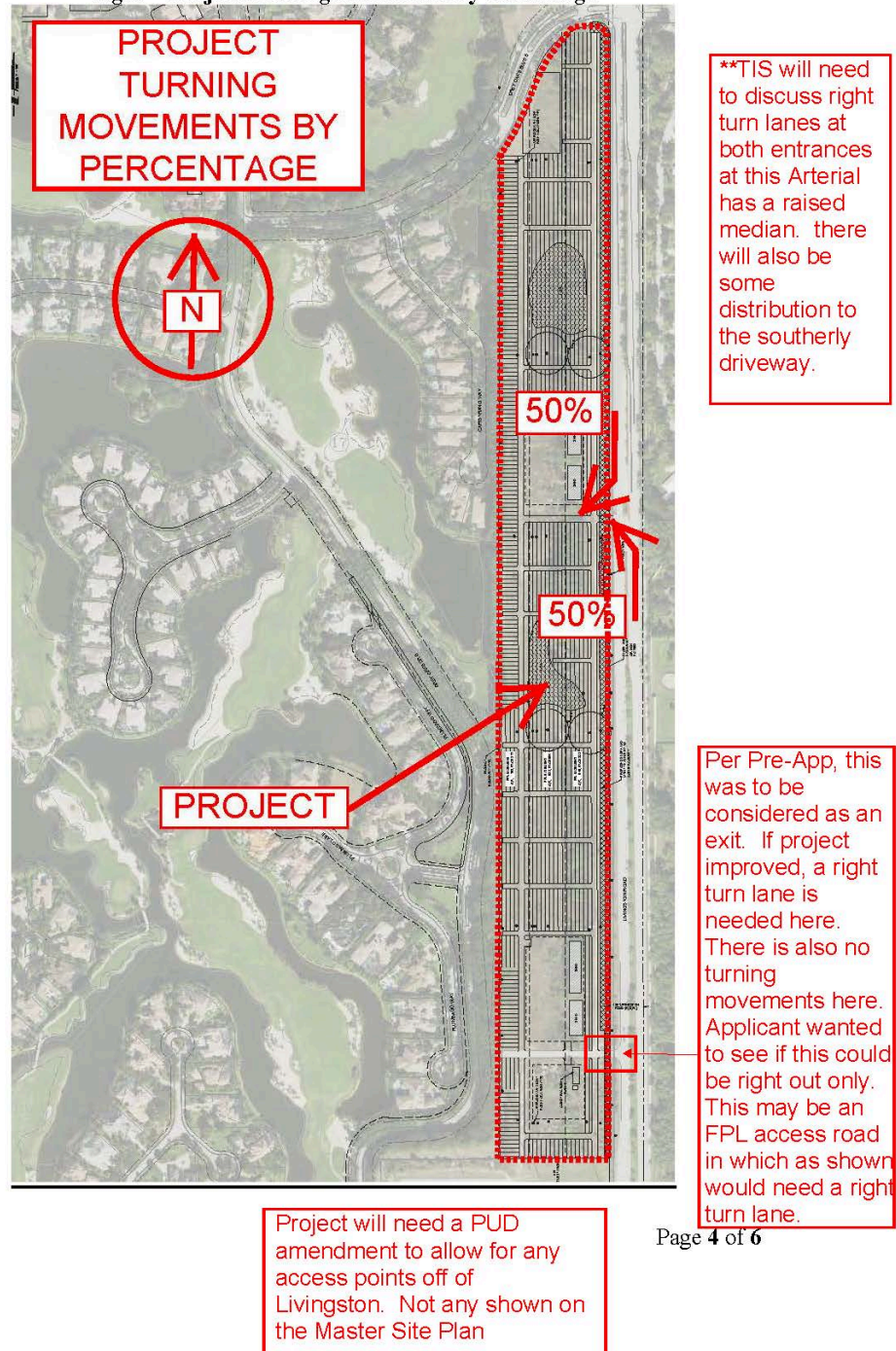


Fig. 3 – Project Turning Movements by Percentage



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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

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

*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.

**Appendix C: Collier County Ordinance 2007-40  
– Excerpt**  
(1 Sheet)



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.
<b>Sub-Total</b>		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.
<b>Sub-Total</b>		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)

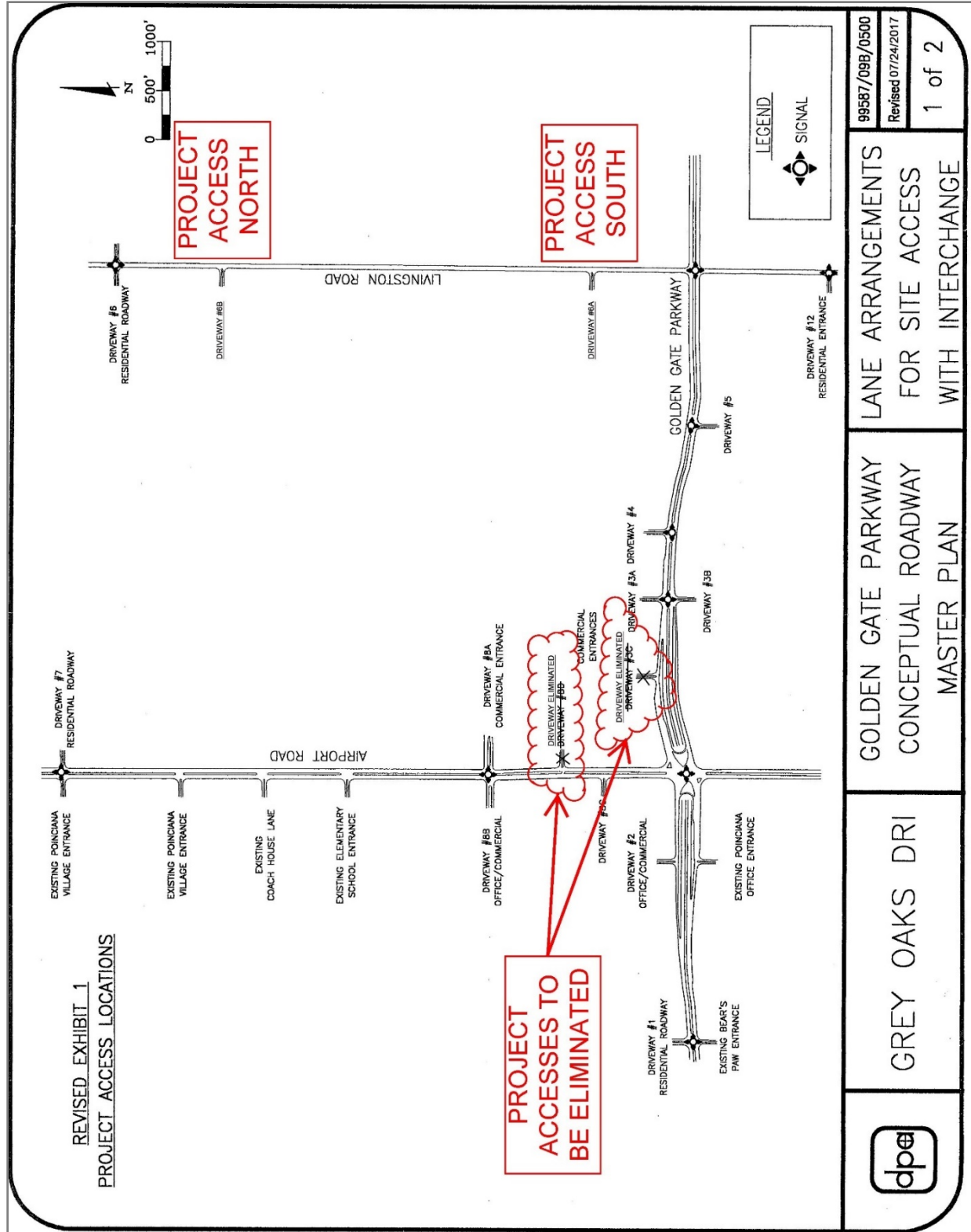
## **Appendix D: Collier County PUD Monitoring Report – Excerpt**

(1 Sheet)

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## **Appendix E: Grey Oaks DRI – Conceptual Roadway Master Plan**

(1 Sheet)



## **Appendix F: Trip Generation Calculations ITE 10th Edition**

(6 Sheets)

Project Name:		O Donnell Nursery - Proposed		No:				
Date:		2/22/2018		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 <sup>(1)</sup>	264	263	5	2	2	10
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	2	10
817 - Nursery (Garden Center) (General Urban/Suburban)		7.5 <sup>(2)</sup>	256	255	9	9	26	26
Reduction			128	127	5	4	13	13
Internal			0	0	0	0	0	0
Pass-by			0	0	0	0	0	0
Non-pass-by			128	128	4	5	13	13
858 - Farmers Market (General Urban/Suburban)		1.25 <sup>(2)</sup>	110	109	110	109	108	117
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			110	109	110	109	108	117
Total			630	627	124	120	136	153
Total Reduction			128	127	5	4	13	13
Total Internal			0	0	0	0	0	0
Total Pass-by			0	0	0	0	0	0
Total Non-pass-by			502	500	119	116	123	140

(1) Acres

(2) 1000 Sq. Ft. GFA

### PERIOD SETTING

Specify the Independent Variable, Time Period, and Calculation Method to be used in the calculation of the number of Trips generated in the analysis. To record any notes, click Add Notes above.

PROJECT NAME: O'DONNELL NURSERY - PROPOSED

ANALYSIS NAME:

LAND USE	INDEPENDENT VARIABLE	SIZE	LOCATION	TIME PERIOD	METHOD	ENTRY	EXIT	TOTAL
818 - Nursery (Wholesale)	<input type="text" value="Acres"/>	<span style="color: red;">27<sup>(0)</sup></span>	General Urban/Suburban	<input type="text" value="Weekday"/>	Average 19.5	<span style="color: red;">264<sup>(1)</sup></span>	<span style="color: red;">263<sup>(1)</sup></span>	<span style="color: red;">527<sup>(1)</sup></span>
817 - Nursery (Garden Center)	<input type="text" value="1000 Sq. Ft. GFA"/>	7.5	General Urban/Suburban	<input type="text" value="Weekday"/>	Average 68.1	256	255	511
858 - Farmers Market	<input type="text" value="Acres"/>	<span style="color: red;">1.25<sup>(0)</sup></span>	General Urban/Suburban	<input type="text" value="Weekday, AM Peak"/>	Average 174.9	<span style="color: red;">110<sup>(1)</sup></span>	<span style="color: red;">109<sup>(1)</sup></span>	<span style="color: red;">219<sup>(1)</sup></span>

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

The time periods do not match.

### DATA PROVIDED BY ITE

### TRAFFIC REDUCTIONS

Specify a percentage by which the Entry Trip and Exit Trip will be reduced for each Land Use. This reduction is applied to the Entry Trip and Exit Trip from the previous section. To record any notes, click Add Notes above.

LAND USE	ENTRY REDUCTION	ADJUSTED ENTRY	EXIT REDUCTION	ADJUSTED EXIT
818 - Nursery (Wholesale)	<input type="text" value="0"/> %	264	<input type="text" value="0"/> %	263
817 - Nursery (Garden Center)	<input type="text" value="50"/> %	128	<input type="text" value="50"/> %	128
858 - Farmers Market	<input type="text" value="0"/> %	110	<input type="text" value="0"/> %	109



**PERIOD SETTING**

Specify the Independent Variable, Time Period, and Calculation Method to be used in the calculation of the number of Trips generated in the analysis. To record any notes, click Add Notes above.

PROJECT NAME: O'DONNELL NURSERY - PROPOSED

ANALYSIS NAME: AM Peak Hour

**DATA PROVIDED BY ITE**

LAND USE	INDEPENDENT VARIABLE	SIZE	LOCATION	TIME PERIOD	METHOD	ENTRY	EXIT	TOTAL
818 - Nursery (Wholesale)	Acres	27	General Urban/Suburban	Weekday, Peak Hr.	Average  0.26	<span style="border: 2px solid red; padding: 2px;">5</span>	<span style="border: 2px solid red; padding: 2px;">2</span> *	7 <sup>(0)</sup>
817 - Nursery (Garden Center)	1000 Sq. Ft. GFA	7.5	General Urban/Suburban	Weekday, Peak Hr.	Average  2.43	<span style="border: 2px solid red; padding: 2px;">9</span>	<span style="border: 2px solid red; padding: 2px;">9</span> **	18 <sup>(0)</sup>
858 - Farmers Market	Acres	1.25 <sup>(1)</sup>	General Urban/Suburban	Weekday, AM Peak	Average  174.9	110 <sup>(2)</sup>	109 <sup>(2)</sup>	219 <sup>(2)</sup>

<sup>(0)</sup> indicates directional distribution was not provided in the source document. ⚠ The time periods do not match.

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.

<sup>(1)</sup> indicates size out of range. \*\*Directional distribution was not available for this land use. A 50%/50% directional distribution was assumed for the AM Peak Hour.

<sup>(2)</sup> indicates small sample size, use carefully.

**TRAFFIC REDUCTIONS**

Specify a percentage by which the Entry Trip and Exit Trip will be reduced for each Land Use. This reduction is applied to the Entry Trip and Exit Trip from the previous section. To record any notes, click Add Notes above.

LAND USE	ENTRY REDUCTION	ADJUSTED ENTRY	EXIT REDUCTION	ADJUSTED EXIT
818 - Nursery (Wholesale)	0 %	<span style="border: 2px solid red; padding: 2px;">5</span>	0 %	<span style="border: 2px solid red; padding: 2px;">2</span>
817 - Nursery (Garden Center)	50 % ***	<span style="border: 2px solid red; padding: 2px;">4</span>	50 % ***	<span style="border: 2px solid red; padding: 2px;">5</span>
858 - Farmers Market	0 %	110	0 %	109

\*\*\* A 50% reduction is assumed for the Nursery (Garden Center) when the Farmers Market is operational.

### PERIOD SETTING

Specify the Independent Variable, Time Period, and Calculation Method to be used in the calculation of the number of Trips generated in the analysis. To record any notes, click Add Notes above.

PROJECT NAME: O'DONNELL NURSERY - PROPOSED

ANALYSIS NAME: PM Peak Hour

LAND USE	INDEPENDENT VARIABLE	SIZE	LOCATION	TIME PERIOD	METHOD	ENTRY	EXIT	TOTAL
818 - Nursery (Wholesale)	Acres	27	General Urban/Suburban	Weekday, Peak Hour	Average	3	9 *	12 <sup>(1)</sup>
817 - Nursery (Garden Center)	1000 Sq. Ft. GFA	7.5	General Urban/Suburban	Weekday, Peak Hour	Average	26	26 **	52 <sup>(1)</sup>
858 - Farmers Market	Acres	1.25 <sup>(1)</sup>	General Urban/Suburban	Weekday, PM Peak	Average	108 <sup>(2)</sup>	117 <sup>(2)</sup>	225 <sup>(2)</sup>

(1) 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. (1) indicates size out of range. (2) indicates small sample size, use carefully \*\*Directional distribution was not available for this land use. A 50%/50% directional distribution was assumed for the PM Peak Hour.

### TRAFFIC REDUCTIONS

Specify a percentage by which the Entry Trip and Exit Trip will be reduced for each Land Use. This reduction is applied to the Entry Trip and Exit Trip from the previous section. To record any notes, click Add Notes above.

LAND USE	ENTRY REDUCTION	ADJUSTED ENTRY	EXIT REDUCTION	ADJUSTED EXIT
818 - Nursery (Wholesale)	0 % ***	3	0 %	9
817 - Nursery (Garden Center)	50 %	13	50 %	13
858 - Farmers Market	0 %	108	0 %	117

**\*\*\* A 50% reduction is assumed for the Nursery (Garden Center) when the Farmers Market is operational.**

### DATA PROVIDED BY ITE

<b>Project Name:</b>	Grey Oaks - Retail Conversion	<b>No:</b>	
<b>Date:</b>	2/22/2018	<b>City:</b>	
<b>State/Province:</b>		<b>Zip/Postal Code:</b>	
<b>Country:</b>		<b>Client Name:</b>	
<b>Analyst's Name:</b>		<b>Edition:</b>	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)	80.5 <sup>(1)</sup>	2594	2594	119	73	222	241
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		2594	2594	119	73	222	241
<b>Total</b>		2594	2594	119	73	222	241
<b>Total Reduction</b>		0	0	0	0	0	0
<b>Total Internal</b>		0	0	0	0	0	0
<b>Total Pass-by</b>		0	0	0	0	0	0
<b>Total Non-pass-by</b>		2594	2594	119	73	222	241

(1) 1000 Sq. Ft. GLA

### PERIOD SETTING

#### DATA PROVIDED BY ITE

Specify the Independent Variable, Time Period, and Calculation Method to be used in the calculation of the number of Trips generated in the analysis. To record any notes, click  Add Notes above.

PROJECT NAME: GREY OAKS - RETAIL CONVERSION

ANALYSIS NAME:

Weekday

LAND USE	INDEPENDENT VARIABLE	SIZE	LOCATION	TIME PERIOD	METHOD	ENTRY	EXIT	TOTAL
820 - Shopping Center	1000 Sq. Ft. GLA	80.5	General Urban/Suburban	Weekday	Best Fit (LOG) $\ln(T) = 0.68\ln(X) + 5.57$	2594	2594	5188

PERIOD SETTING						DATA PROVIDED BY ITE
Specify the Independent Variable, Time Period, and Calculation Method to be used in the calculation of the number of Trips generated in the analysis. To record any notes, click  Add Notes above.						
PROJECT NAME: GREY OAKS - RETAIL CONVERSION						
ANALYSIS NAME: <b>AM Peak Hour</b>						
LAND USE	INDEPENDENT VARIABLE	SIZE	LOCATION	TIME PERIOD	METHOD	
820 - Shopping Center	1000 Sq. Ft. GLA	80.5	General Urban/Suburban	Weekday, Peak Hour	Best Fit (LIN) $T = 0.5(X) + 151.78$	
						ENTRY 119
						EXIT 73
						TOTAL 192

PERIOD SETTING						DATA PROVIDED BY ITE
Specify the Independent Variable, Time Period, and Calculation Method to be used in the calculation of the number of Trips generated in the analysis. To record any notes, click  Add Notes above.						
PROJECT NAME: GREY OAKS - RETAIL CONVERSION						
ANALYSIS NAME: <b>PM Peak Hour</b>						
LAND USE	INDEPENDENT VARIABLE	SIZE	LOCATION	TIME PERIOD	METHOD	
820 - Shopping Center	1000 Sq. Ft. GLA	80.5	General Urban/Suburban	Weekday, Peak Hour	Best Fit (LOG) $\ln(T) = 0.74\ln(X) + 2.88$	
						ENTRY 222
						EXIT 241
						TOTAL 463

## **Appendix G: Turning Movements Exhibit**

(2 Sheets)



