Traffic Impact Analysis

Pine Ridge Commons
Planned Unit Development Amendment (PUDA)
Growth Management Plan Amendment (GMPA)

Collier County, FL
06/25/2017

Prepared for:

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Collier County Transportation Review Fee – Small Scale Study – No Fee

Statement of Certification

I certify that this Traffic Impact Analysis 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.
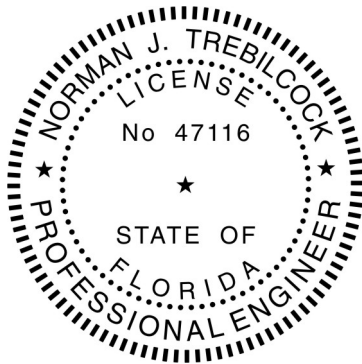
This item has been electronically signed and sealed by Norman J. Trebilcock, PE using a *SHA-1* authentication code.

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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Project Description

The Pine Ridge Commons project is an existing approved Planned Unit Development (PUD) pursuant to Collier County Ordinance No. 1999–94, as may be amended. The subject parcel has a total gross area of approximately 31 acres.

The project site is located on the northeast quadrant of the intersection of Goodlette-Frank Road (CR 851) and Pine Ridge Road (CR 896), approximately 0.5 miles east of US 41, in Section 10, Township 49 South, Range 25 East, Collier County.

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

Fig. 1 – Project Location Map
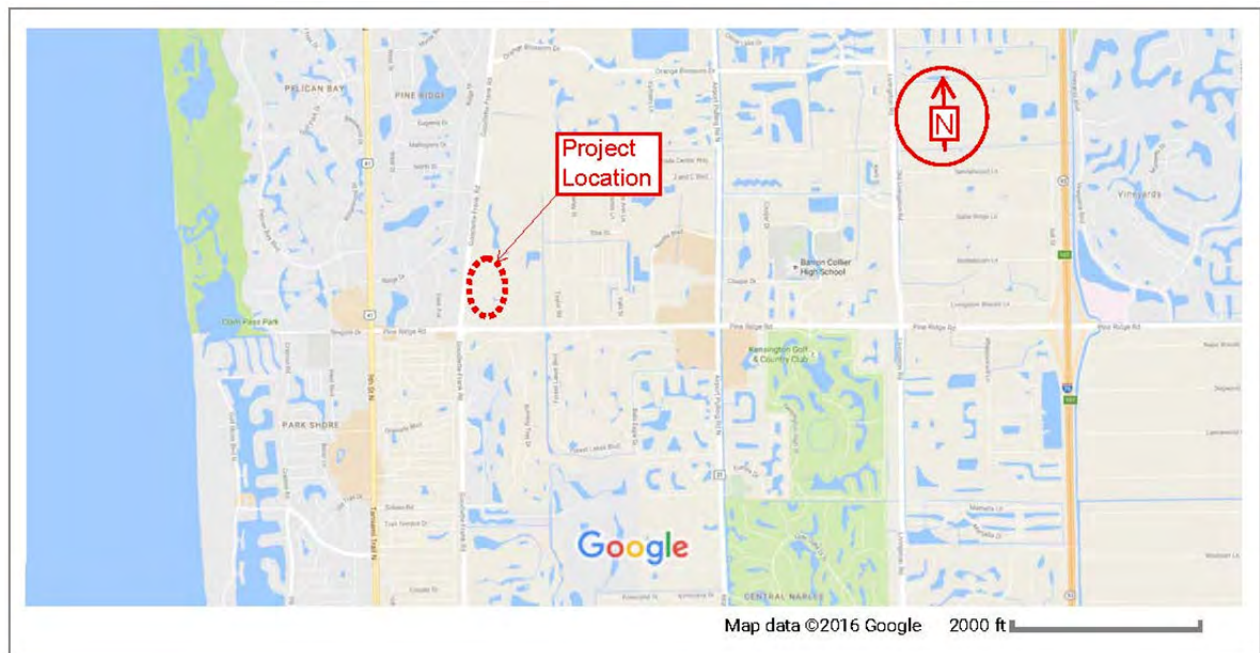
The Collier County approved ordinance currently allows the site to be developed for a maximum of 275,000 square feet of retail and commercial uses. Consistent with the approved Pine Ridge Commons PUD Traffic Impact Statement (TIS) prepared by Wilson Miller, dated August, 1999, the site is approved to be developed for up to a maximum 125,000sf gross leasable area of retail shopping and 150,000sf gross floor area of office financial institution space.

As this development has been under construction for a number of years, the built uses are as follows: Retail – 75,243sf, and General Office – 129,099sf (Office – 36,140sf, Valley National Bank – Out Parcel – 3,600sf, Naples Trust – Out Parcel – 6,000sf, Quarles & Brady office building – 43,993sf, and Premier Executive office building – 39,366sf).

The Pine Ridge Commons PUDA – GMPA proposes to retain the option to develop as currently allowed by zoning and add a potential development option consisting of existing developed commercial uses and 375 residential multi-family dwelling units.

The project provides the highest and best use scenario with respect to the project's proposed trip generation. For the purpose of this report, the Institute of Transportation Engineers (ITE) Land Use Code 220 – Apartments is utilized for the residential portion of this project. The development program is illustrated in **Table 1.**

Table 1
Development Program

Potential Development	ITE Land Use	ITE Land Use Code	Total Size
Approved PUD[1]	Shopping Center	820	125,000sf
	General Office Building	710	150,000sf
Proposed PUDA Scenario[2]	Shopping Center	820	75,243sf
	General Office Building	710	129,099sf
	Apartments	220	375 dwelling units

Note(s): [1] per approved Pine Ridge Commons PUD TIS, dated August, 1999. [2] Existing built to date conditions and proposed 375 apartments.

Access to the site is approved from both Goodlette-Frank Road and Pine Ridge Road. For the purposes of this rezone application, no changes to the previously approved accesses are requested.

Trip Generation

The project's site trip generation is based on the ITE <u>Trip Generation Manual, 9th Edition</u>, and the software program OTISS (Online Traffic Impact Study Software, most current version). The ITE rates and equations are used for the trip generation calculations, as applicable. The ITE – OTISS trip generation calculation worksheets are provided in **Appendix B: Trip Generation Calculations ITE 9th Edition**.

The residential associated common recreation amenities are considered passive incidental to residential use, and are not included in the trip generation analysis.

The **internal capture** accounts for a reduction in external traffic because of the interaction between the multiple land uses in a site. Per Collier County TIS Guidelines and Procedures, the

internal capture trips should be reasonable and should not exceed 20% of the total project trips.

For this project, the software program OTISS is used to generate associated internal capture trips. The OTISS process follows the trip balancing approach as recommended in the ITE Trip Generation Manual, 9th Edition (Volume 1): User's Guide and Handbook, Chapter 7 – procedure for estimating multi-use trip generation internal capture, aka "triangle method".

The resulting internal capture rates are below the county limits.

The **pass-by trips** account for traffic that is already on the external roadway network and stops at the project on the way to a primary trip destination.

It should be noted that the driveway volumes are not reduced as a result of the pass-by reduction, only the traffic added to the surrounding streets and intersections. As such, pass-by trips are not deducted for operational-access analysis (all external traffic is accounted for).

Consistent with Collier County TIS Guidelines and Procedures, shopping center pass-by rates should not exceed 25% for the peak hour and the daily capture rates are assumed 10% lower than the peak hour capture rate. This analysis calculates Shopping Center LUC 820 pass-by daily rates at 15% and AM and PM peak hour rates at 25%.

The new PUDA – GMPA development scenario trip generation is illustrated in **Table 2A**. The trip generation analysis based on approved conditions is shown in **Table 2B**. The net new proposed trip generation (**Table 2C**) shows total proposed conditions versus existing allowed (the difference between **Table 2A** and **Table 2B**).

Table 2A
Trip Generation (Proposed PUDA Conditions) – Average Weekday

Development	24 Hour Two-Way Volume	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Proposed PUDA[1]	9,635	325	228	**553**	422	520	**942**
Total Internal	1,556	18	18	**36**	68	68	**136**
Total External	8,079	307	210	**517**	354	452	**806**
Total Pass-By	732	18	11	**29**	53	55	**108**
Total Net External	**7,347**	289	199	**488**	301	397	**698**

Note(s): [1] Existing built to date and proposed 375 apartments.

Table 2B
Trip Generation (Approved PUD Allowed) – Average Weekday

Development	24 Hour Two-Way Volume	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Approved PUD	9,638	344	100	**444**	376	566	**942**
Total Internal	550	4	4	**8**	18	18	**36**
Total External	9,088	340	96	**436**	358	548	**906**
Total Pass-By	1,136	27	17	**44**	82	88	**170**
Total Net External	7,952	313	79	**392**	276	460	**736**

In agreement with the Collier County TIS guidelines, significantly impacted roadways are identified based on the proposed project highest peak hour trip generation and consistent with the peak hour of the adjacent street traffic. Based on the information contained in Collier County 2016 Annual Update and Inventory Report (AUIR), the peak hour for adjacent roadway network is PM.

For the purpose of this report, the potential project's traffic impact is analyzed based on projected PM peak hour net external trips generated as a result of the proposed PUDA-GMPA (as shown in **Table 2C**).

Table 2C
Trip Generation (Proposed Net New Traffic) – Average Weekday

Development	24 Hour Two-Way Volume	PM Peak Hour		
		Enter	Exit	Total
Proposed PUDA (Net External Traffic)	**7,347**	301	397	**698**
Approved PUD (Net External Traffic)	**7,952**	276	460	**736**
Proposed New Net External Traffic Net Increase /(Net Decrease)	**(605)**	**25**	**(63)**	**(38)**

As illustrated in **Table 2C**, from a traffic stand point, the proposed rezone development scenario is less intensive when compared to the maximum allowed under current zoning conditions.

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

As requested by staff, additional trip distribution and assignment analysis provided to better understand project imacts.

Trip Distribution and Assignment

The external traffic generated by the proposed PUDA project is empirically assigned to the adjacent roadways using the knowledge of the area.

The site-generated trip distribution is shown in **Table 3A, Traffic at Build-out Conditions – Distribution for Peak Hour** and is graphically depicted on the next page in **Fig. 2 – Build-out Conditions – Distribution by Percentage and By PM Peak Hour**.

Table 3A
Traffic at Build-out Conditions – Distribution for Peak Hour

Roadway Link	Collier County Link No.	Roadway Link Location	Distribution of Project Traffic	PM Peak Hour Project Volume*	
				Enter	Exit
Goodlette - Frank Road	24.2	Orange Blossom to Pine Ridge Rd	30%	SB - 106	**NB – 136**
Goodlette - Frank Road	25.0	Pine Ridge Rd to Golden Gate Pkwy	30%	**NB - 106**	SB – 136
Pine Ridge Road	64.0	US 41 to Goodlette-Frank Rd	20%	**EB – 71**	WB – 90
Pine Ridge Road	65.0	Goodlette-Frank Rd to Shirley Street	20%	**WB - 71**	EB – 90

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

Fig. 2 – Build-out Conditions – Distribution by Percentage and By PM Peak Hour
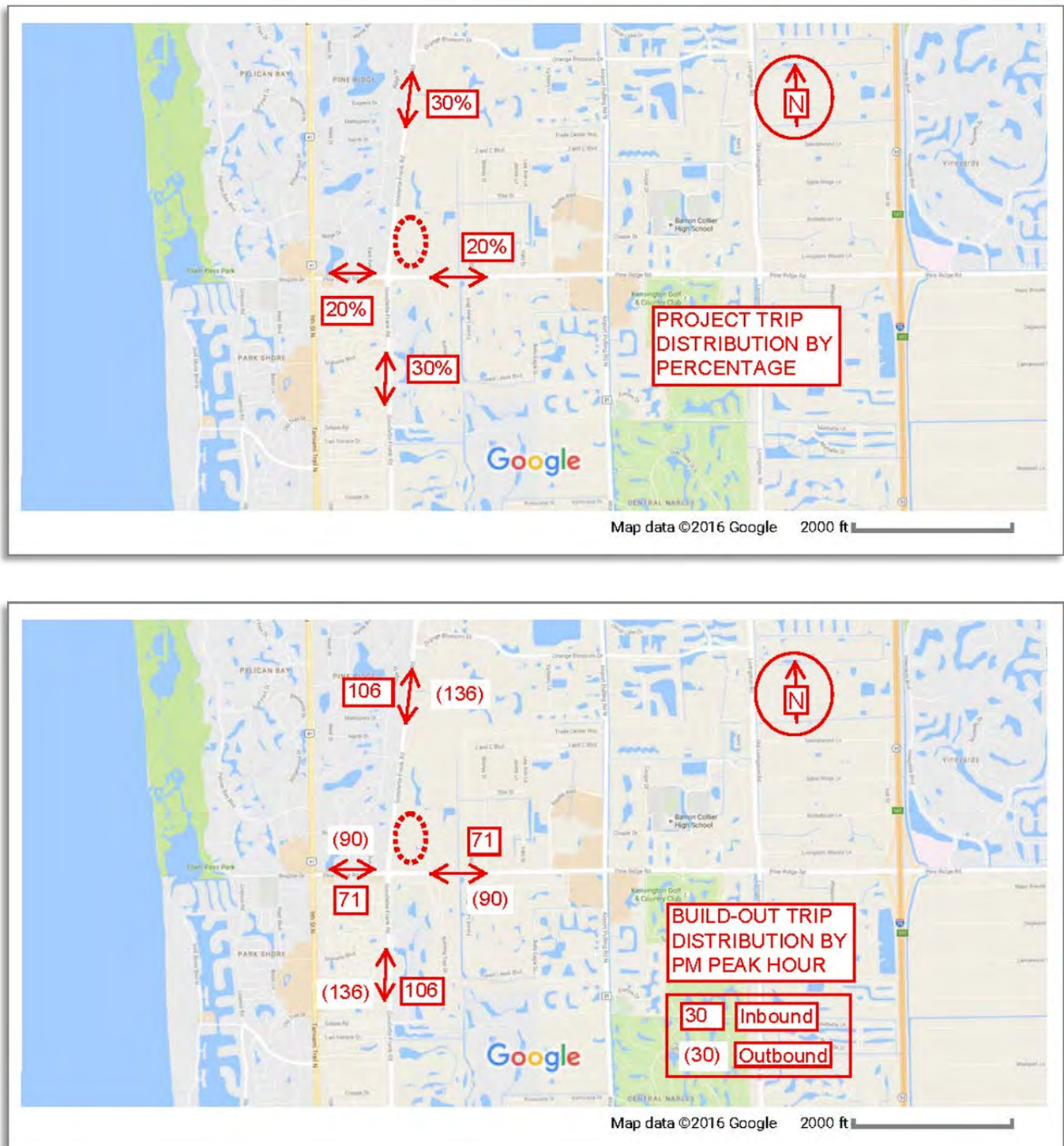
As illustrated in **Table 3B** which follows, concurrency analysis is calculated based on net new external traffic at PM peak hour period: trips generated at build-out conditions versus existing built conditions generated traffic (background traffic).

Table 3B
Trip Generation (Build out Net New Traffic) – Average Weekday*

Development	PM Peak Hour		
	Enter	**Exit**	**Total**
Proposed Built-out Conditions **(Net External Traffic)**	301	397	**698**
Existing Built Conditions **(Net External Traffic)**	189	340	**529**
New Net External Traffic **Net Increase /(Net Decrease)**	**112**	**57**	**169**

Note(s):   *For trip generation calculations refer to **Appendix B**.

The new net external site-generated traffic distribution is shown in **Table 3C, Net New Traffic Conditions – Distribution for Peak Hour** and is graphically depicted in **Fig. 3 – Net New Traffic By PM Peak Hour**.

Table 3C
Net New Traffic Conditions – Distribution for Peak Hour

Roadway Link	Collier County Link No.	Roadway Link Location	Distribution of Project Traffic	PM Peak Hour Project Volume*	
				Enter	**Exit**
Goodlette - Frank Road	24.2	Orange Blossom to Pine Ridge Rd	30%	SB – 34	**NB – 17**
Goodlette - Frank Road	25.0	Pine Ridge Rd to Golden Gate Pkwy	30%	**NB – 34**	SB – 17
Pine Ridge Road	64.0	US 41 to Goodlette-Frank Rd	20%	**EB – 22**	WB – 12
Pine Ridge Road	65.0	Goodlette-Frank Rd to Shirley Street	20%	**WB - 22**	EB – 11

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

Fig. 3 – Net New Traffic By PM Peak Hour (at Build Out)
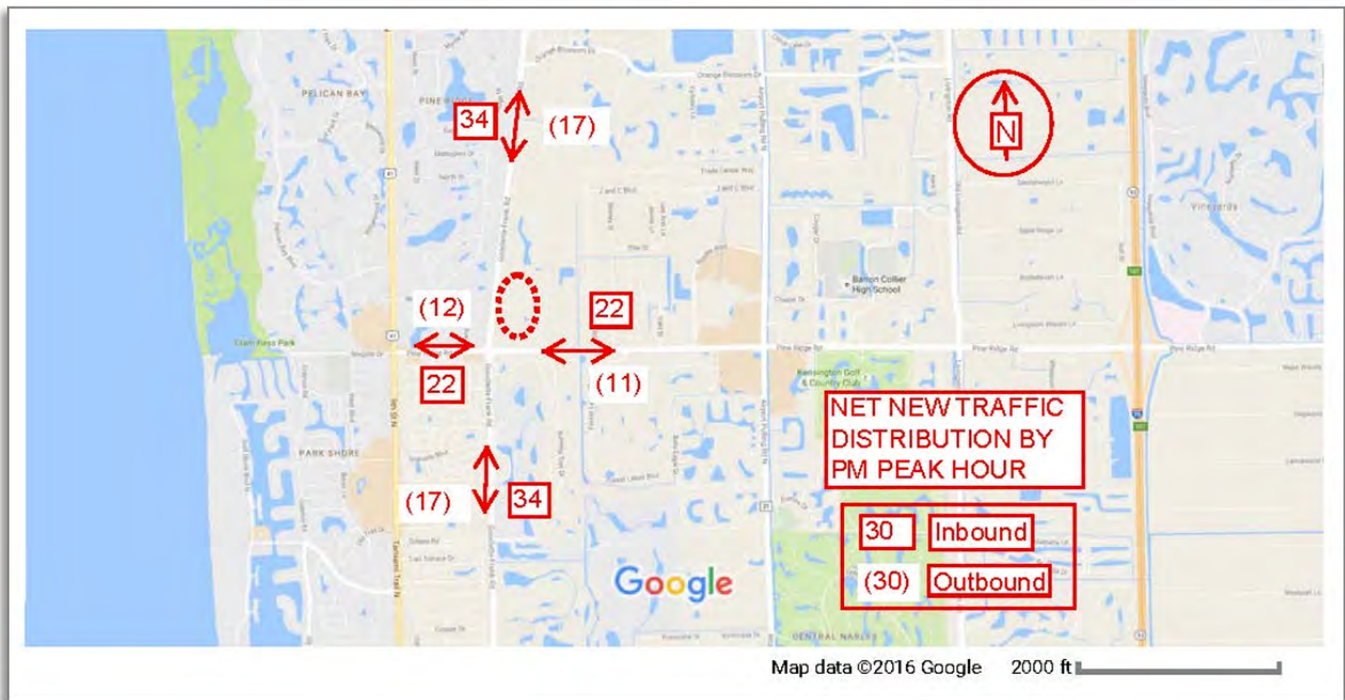
Background Traffic

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 2015), whichever is greater.

Another way to derive the background traffic is to use the 2016 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 2021.

Table 4
Background Traffic without Project (2016 - 2021)

Roadway Link	CC AUIR Link ID #	Roadway Link Location	2016 AUIR Pk Hr, Pk Dir Background Traffic Volume (trips/hr)	Projected Traffic Annual Growth Rate (%/yr)*	Growth Factor	2021 Projected Pk Hr, Peak Dir Background Traffic Volume w/out Project (trips/hr) Growth Factor**	Trip Bank	2021 Projected Pk Hr, Peak Dir Background Traffic Volume w/out Project (trips/hr) Trip Bank***
Goodlette - Frank Road	24.2	Orange Blossom to Pine Ridge Rd	1,530	2.0%	1.1041	**<u>1,689</u>**	0	1,530
Goodlette - Frank Road	25.0	Pine Ridge Rd to Golden Gate Pkwy	1,850	2.0%	1.1041	**<u>2,043</u>**	0	1,850
Pine Ridge Road	64.0	US 41 to Goodlette-Frank Rd	1,870	2.0%	1.1041	**<u>2,065</u>**	37	1,907
Pine Ridge Road	65.0	Goodlette-Frank Rd to Shirley Street	1,940	2.0%	1.1041	**<u>2,142</u>**	5	1,945

Note(s):   *Annual Growth Rate - from 2016 AUIR, 2% minimum. **Growth Factor = (1+Annual Growth Rate) [5]. 2021 Projected Volume= 2016 AUIR Volume x Growth Factor. ***2021 Projected Volume= 2016 AUIR Volume + Trip Bank. The projected 2021 Peak Hour – Peak Direction Background Traffic is the greater of the Growth Factor or Trip Bank calculation, which is **<u>underlined</u>** and **bold** as applicable.

Existing and Future Roadway Network

The existing roadway conditions are extracted from the 2016 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 2016 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
Goodlette - Frank Road	24.2	Orange Blossom to Pine Ridge Rd	6D	E	2,400 (NB)	6D
Goodlette - Frank Road	25.0	Pine Ridge Rd to Golden Gate Pkwy	6D	E	3,000 (NB)	6D
Pine Ridge Road	64.0	US 41 to Goodlette-Frank Rd	6D	E	2,800 (EB)	6D
Pine Ridge Road	65.0	Goodlette-Frank Rd to Shirley Street	6D	E	2,800 (WB)	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 year 2021.   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 any significant and adverse impacts to the area roadway network. **Table 6, Roadway Link Level of Service** illustrates the LOS impacts of the project on the roadway network closest to the project. All analyzed roadway links are projected to operate above the adopted LOS standard with or without the project at 2021 future build-out conditions.

As illustrated in Collier County Land Development Code (LDC), Chapter 6.02.02 – M.2., once traffic from a development has been shown to be less than significant on any segment using Collier County TIS criterion, the development's impact is not required to be analyzed further on any additional segments.

Table 6
Roadway Link Level of Service (LOS) – With Project in the Year 2021

Roadway Link	CC AUIR Link ID #	Roadway Link Location	2016 Peak Dir, Peak Hr Capacity Volume	Roadway Link, Peak Dir, Peak Hr (Project Vol Added)*	2021 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
Goodlette - Frank Road	24.2	Orange Blossom to Pine Ridge Rd	2,400 (NB)	NB – 17	**1,706**	0.71%	No	No
Goodlette - Frank Road	25.0	Pine Ridge Rd to Golden Gate Pkwy	3,000 (NB)	NB – 34	**2,077**	1.13%	No	No
Pine Ridge Road	64.0	US 41 to Goodlette- Frank Rd	2,800 (EB)	EB – 22	**2,087**	0.79%	No	No
Pine Ridge Road	65.0	Goodlette- Frank Rd to Shirley Street	2,800 (WB)	WB - 22	**2,164**	0.79%	No	No

Note(s): *Refer to **Table 3C** from this report. **2021 Projected Volume= 2021 background (refer to **Table 4**) + Project Volume added.

In agreement with the Collier County Growth Management Plan – Transportation Element – Policy 5.2, project traffic that is 1% or less of the adopted peak hour service volume represents a de minimis impact. As illustrated in **Table 6**, the projected traffic impact is de minimis for the purposes of this PUDA application.

The analyzed Pine Ridge Road and Goodlette-Frank Road (north of Pine Ridge Road) links are located within the Northwest Transportation Concurrency Management Area (TCMA). The TCMAs designation is provided in Policy 5.6 of the Transportation Element.

In agreement with Policy 5.7 of the Transportation Element, the TCMA concurrency is measured on a system-wide basis such that each TCMA shall maintain 85% of its lane miles at or above the LOS standards. Based on the information contained in 2016 AUIR, the Northwest TCMA percent lane miles meeting standard is 100.0%.

As illustrated in Policy 5.8(d) – Transportation Element, no impact will be de minimus if it exceeds the adopted LOS standard of any affected designated hurricane evacuation routes within a TCMA. Any impact to a hurricane evacuation route within a TCMA shall require a proportionate share congestion mitigation payment provided the remaining LOS requirements of the TCMA are maintained. As illustrated in **Table 6**, no LOS deficiencies are expected for the analyzed roadway network.

Improvement Analysis

Based on the link analysis and trip distribution, the additional net new traffic is not a significant and adverse traffic generator for the roadway network at this location.

As illustrated in our analysis, the projected traffic impact is not significant, or adverse for the purposes of this application. The Northwest TCMA contains sufficient capacity to maintain 85% of its lane miles at or above the LOS standard (as required in Policy 5.7 of the Transportation Element).

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

Based on the results of this analysis, the development may be limited to 942 unadjusted two-way PM weekday peak hour external trips.

Mitigation of Impact

The developer proposes to pay the appropriate Collier County Road Impact Fee as building permits are issued for the project.

Appendix A: PUD Master Plan
(1 Sheet)

NOTES:
THIS PLAN IS CONCEPTUAL IN NATURE AND IS SUBJECT
TO MINOR MODIFICAIOTN DUE TO AGENCY PERMITTING
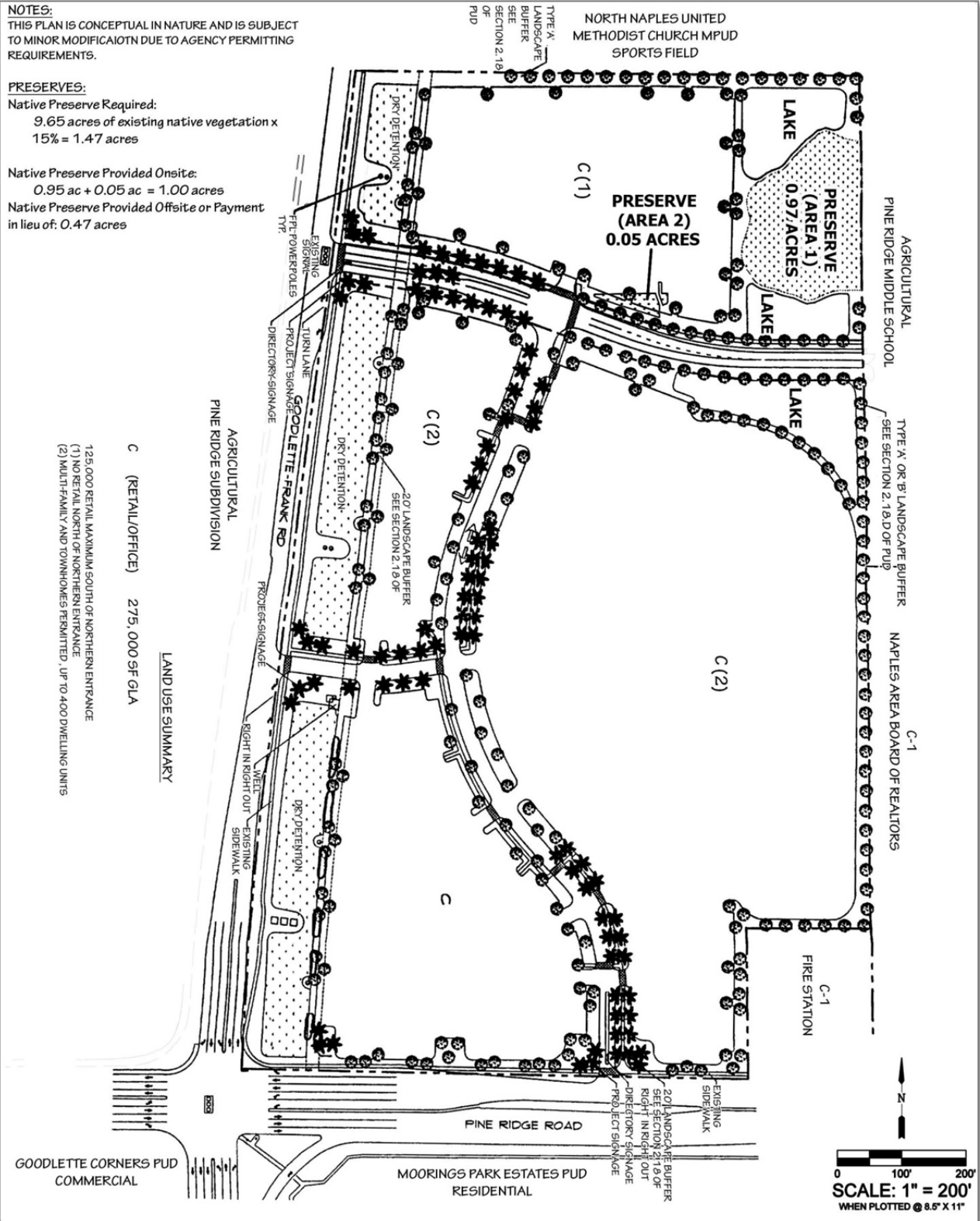REQUIREMENTS.

PRESERVES:
Native Preserve Required:
9.65 acres of existing native vegetation x
15% = 1.47 acres

Native Preserve Provided Onsite:
0.95 ac + 0.05 ac = 1.00 acres
Native Preserve Provided Offsite or Payment
in lieu of: 0.47 acres

Appendix B: Trip Generation Calculations
ITE 9th Edition

(11 Sheets)

Project Name: Pine Ridge Commons - Zoning Allowed
Date: 10/21/2016
State/Province:
Country:
Analyst's Name:

No:
City:
Zip/Postal Code:
Client Name:
Edition: ITE-TGM 9th Edition

LAND USE	SIZE	WEEKDAY		AM PEAK HOUR		PM PEAK HOUR	
		Entry	Exit	Entry	Exit	Entry	Exit
820 - Shopping Center	125 (1)	3926	3925	111	68	334	362
Reduction		0	0	0	0	0	0
Internal		157	118	2	2	7	11
Pass-by		565	571	27	17	82	88
Non-pass-by		3204	3236	82	49	245	263
710 - General Office Building	150 (2)	894	893	233	32	42	204
Reduction		0	0	0	0	0	0
Internal		118	157	2	2	11	7
Pass-by		0	0	0	0	0	0
Non-pass-by		776	736	231	30	31	197
Total		4820	4818	344	100	376	566
Total Reduction		0	0	0	0	0	0
Total Internal		275	275	4	4	18	18
Total Pass-by		565	571	27	17	82	88
Total Non-pass-by		3980	3972	313	79	276	460

(1) 1000 Sq. Feet Gross Leasable Area
(2) 1000 Sq. Feet Gross Floor Area

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: PINE RIDGE COMMONS - ZONING ALLOWED

ANALYSIS NAME: Weekday

LAND USE	INDEPENDENT VARIABLE	SIZE	TIME PERIOD	METHOD	ENTRY	EXIT	TOTAL
🔍 820 - Shopping Center	1000 Sq. Feet Gros ▾	125	Weekday ▾	Best Fit (LOG) ▾ ✅ Ln(T) = 0.65Ln(X) + 5.83	3926	3925	7851
🔍 710 - General Office Building	1000 Sq. Feet Gros ▾	150	Weekday ▾	Best Fit (LOG) ▾ ✅ Ln(T) = 0.76Ln(X) + 3.68	894	893	1787

TRAFFIC REDUCTIONS

INTERNAL TRIPS

Specify the percentage of trips that occur between the Land Use on the left and the Land Use on the right. The table below displays the total number of trips that have been reduced from a particular Land Use. The total number of Internal Trips for each Land Use will be deducted from the adjusted Entry Trips and Exit Trips from the previous section. To record any notes, click the ✎ icon above. For recommended values see the ITE Handbook or NCHRP 684.

820 - Shopping Center   **710 - General Office Building**

Exit 3925	Demand Exit: 3 % (118)	Balanced: 118	Demand Entry: 15 % (134)	Entry 894
Entry 3926	Demand Entry: 4 % (157)	Balanced: 157	Demand Exit: 22 % (196)	Exit 893

820 - Shopping Center

	TOTAL TRIPS	INTERNAL TRIPS		EXTERNAL TRIPS
		710 - General Office Building	**Total**	
Entry	3926 (100%)	157 (4%)	157 (4%)	3769 (96%)
Exit	3925 (100%)	118 (3%)	118 (3%)	3807 (97%)
Total	7851 (100%)	275 (4%)	275 (4%)	7576 (96%)

710 - General Office Building

	TOTAL TRIPS	INTERNAL TRIPS		EXTERNAL TRIPS
		820 - Shopping Center	**Total**	
Entry	894 (100%)	118 (13%)	118 (13%)	776 (87%)
Exit	893 (100%)	157 (18%)	157 (18%)	736 (82%)
Total	1787 (100%)	275 (15%)	275 (15%)	1512 (85%)

EXTERNAL TRIPS

Specify the percentage of Pass-by Trips for each Land Use. The percentage will be reduced from the total number of External Trips from the previous section. To record any notes, click ✎ Add Notes above.

The ✅ icon preceding the Pass-by% value indicates data provided by ITE. Clicking the icon changes a custom Pass-by% value to data provided by ITE.

LAND USE	EXTERNAL TRIPS	PASS-BY%	PASS-BY TRIPS	NON-PASS-BY TRIPS
820 - Shopping Center	7576	15 %	1136	6440
710 - General Office Building	1512	0 %	0	1512

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: PINE RIDGE COMMONS - ZONING ALLOWED

ANALYSIS NAME: AM Peak Hour

LAND USE	INDEPENDENT VARIABLE	SIZE	TIME PERIOD	METHOD	ENTRY	EXIT	TOTAL
🔍 820 - Shopping Center	1000 Sq. Feet Gross ▾	125	Weekday, Peak Hou ▾	Best Fit (LOG) ▾ ✓ Ln(T) = 0.61Ln(X) + 2.24	111	68	179
🔍 710 - General Office Building	1000 Sq. Feet Gross ▾	150	Weekday, A.M. Pea ▾	Best Fit (LOG) ▾ ✓ Ln(T) = 0.8Ln(X) + 1.57	233	32	265

🛡 The time periods do not match

TRAFFIC REDUCTIONS

INTERNAL TRIPS

Specify the percentage of trips that occur between the Land Use on the left and the Land Use on the right. The table below displays the total number of trips that have been reduced from a particular Land Use. The total number of Internal Trips for each Land Use will be deducted from the adjusted Entry Trips and Exit Trips from the previous section. To record any notes, click the ✎ icon above. For recommended values see the ITE Handbook or NCHRP 684.

820 - Shopping Center   **710 - General Office Building**

Exit 68	Demand Exit: 3 % (2)	Balanced: 2	Demand Entry: 31 % (72)	Entry 233
Entry 111	Demand Entry: 2 % (2)	Balanced: 2	Demand Exit: 23 % (7)	Exit 32

820 - Shopping Center

	TOTAL TRIPS	INTERNAL TRIPS		EXTERNAL TRIPS
		710 - General Office Building	Total	
Entry	111 (100%)	2 (2%)	2 (2%)	109 (98%)
Exit	68 (100%)	2 (3%)	2 (3%)	66 (97%)
Total	179 (100%)	4 (2%)	4 (2%)	175 (98%)

710 - General Office Building

	TOTAL TRIPS	INTERNAL TRIPS		EXTERNAL TRIPS
		820 - Shopping Center	Total	
Entry	233 (100%)	2 (1%)	2 (1%)	231 (99%)
Exit	32 (100%)	2 (6%)	2 (6%)	30 (94%)
Total	265 (100%)	4 (2%)	4 (2%)	261 (98%)

EXTERNAL TRIPS

Specify the percentage of Pass-by Trips for each Land Use. The percentage will be reduced from the total number of External Trips from the previous section. To record any notes, click ✎ Add Notes above.

The ✓ icon preceding the Pass-by% value indicates data provided by ITE. Clicking the icon changes a custom Pass-by% value to data provided by ITE.

LAND USE	EXTERNAL TRIPS	PASS-BY%	PASS-BY TRIPS	NON-PASS-BY TRIPS
820 - Shopping Center	175	25 %	44	131
710 - General Office Building	261	0 %	0	261

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: PINE RIDGE COMMONS - ZONING ALLOWED

ANALYSIS NAME: [PM Peak Hour]

LAND USE	INDEPENDENT VARIABLE	SIZE	TIME PERIOD	METHOD	ENTRY	EXIT	TOTAL
🔍 820 - Shopping Center	1000 Sq. Feet Gros ▼	125	Weekday, Peak Hou ▼	Best Fit (LOG) ▼ ✓ Ln(T) = 0.67Ln(X) + 3.31	334	362	696
🔍 710 - General Office Building	1000 Sq. Feet Gros ▼	150	Weekday, P.M. Peal ▼	Best Fit (LIN) ▼ ✓ T = 1.12(X) + 78.45	42	204	246

🛡 The time periods do not match

TRAFFIC REDUCTIONS

INTERNAL TRIPS

Specify the percentage of trips that occur between the Land Use on the left and the Land Use on the right. The table below displays the total number of trips that have been reduced from a particular Land Use. The total number of Internal Trips for each Land Use will be deducted from the adjusted Entry Trips and Exit Trips from the previous section. To record any notes, click the ✎ icon above. For recommended values see the ITE Handbook or NCHRP 684.

820 - Shopping Center   **710 - General Office Building**

| Exit | 362 | Demand Exit | 3 % (11) | Balanced 11 | Demand Entry | 31 % (13) | Entry 42 |
| Entry | 334 | Demand Entry | 2 % (7) | Balanced 7 | Demand Exit | 23 % (47) | Exit 204 |

820 - Shopping Center

	TOTAL TRIPS	INTERNAL TRIPS		EXTERNAL TRIPS
		710 - General Office Building	Total	
Entry	334 (100%)	7 (2%)	7 (2%)	327 (98%)
Exit	362 (100%)	11 (3%)	11 (3%)	351 (97%)
Total	696 (100%)	18 (3%)	18 (3%)	678 (97%)

710 - General Office Building

	TOTAL TRIPS	INTERNAL TRIPS		EXTERNAL TRIPS
		820 - Shopping Center	Total	
Entry	42 (100%)	11 (26%)	11 (26%)	31 (74%)
Exit	204 (100%)	7 (3%)	7 (3%)	197 (97%)
Total	246 (100%)	18 (7%)	18 (7%)	228 (93%)

EXTERNAL TRIPS

Specify the percentage of Pass-by Trips for each Land Use. The percentage will be reduced from the total number of External Trips from the previous section. To record any notes, click ✎ Add Notes above.

The ✓ icon preceding the Pass-by% value indicates data provided by ITE. Clicking the icon changes a custom Pass-by% value to data provided by ITE.

LAND USE	EXTERNAL TRIPS	PASS-BY%	PASS-BY TRIPS	NON-PASS-BY TRIPS
820 - Shopping Center	678	♡ [25] %	170	508
710 - General Office Building	228	[0] %	0	228

Project Name: Pine Ridge Commons - Proposed
Date: 5/26/2017
State/Province:
Country:
Analyst's Name:

No:
City:
Zip/Postal Code:
Client Name:
Edition: ITE-TGM 9th Edition

LAND USE	SIZE	WEEKDAY		AM PEAK HOUR		PM PEAK HOUR	
		Entry	Exit	Entry	Exit	Entry	Exit
820 - Shopping Center	75.243 (1)	2823	2822	81	50	238	257
Reduction		0	0	0	0	0	0
Internal		367	395	9	8	26	39
Pass-by		368	364	18	11	53	55
Non-pass-by		2088	2063	54	31	159	163
710 - General Office Building	129.1 (2)	797	797	207	28	38	185
Reduction		0	0	0	0	0	0
Internal		85	129	2	3	8	8
Pass-by		0	0	0	0	0	0
Non-pass-by		712	668	205	25	30	177
220 - Apartment	375 (3)	1198	1198	37	150	146	78
Reduction		0	0	0	0	0	0
Internal		326	254	7	7	34	21
Pass-by		0	0	0	0	0	0
Non-pass-by		872	944	30	143	112	57
Total		4818	4817	325	228	422	520
Total Reduction		0	0	0	0	0	0
Total Internal		778	778	18	18	68	68
Total Pass-by		368	364	18	11	53	55
Total Non-pass-by		3672	3675	289	199	301	397

(1) 1000 Sq. Feet Gross Leasable Area
(2) 1000 Sq. Feet Gross Floor Area
(3) Dwelling Units

Analysis: Weekday

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 PINE RIDGE COMMONS - PROPOSED

ANALYSIS NAME Weekday

LAND USE	INDEPENDENT VARIABLE	SIZE	TIME PERIOD	METHOD	ENTRY	EXIT	TOTAL
🔍 820 - Shopping Center	1000 Sq. Feet Gross ▾	75.243	Weekday ▾	Best Fit (LOG) ▾ Ln(T) = 0.65Ln(X) + 5.83	2823	2822	5645
🔍 710 - General Office Building	1000 Sq. Feet Gross ▾	129.1	Weekday ▾	Best Fit (LOG) ▾ Ln(T) = 0.76Ln(X) + 3.68	797	797	1594
🔍 220 - Apartment	Dwelling Units ▾	375	Weekday ▾	Best Fit (LIN) ▾ T = 6.06(X) + 123.56	1198	1198	2396

TRAFFIC REDUCTIONS

INTERNAL TRIPS

Specify the percentage of trips that occur between the Land Use on the left and the Land Use on the right. The table below displays the total number of trips that have been reduced from a particular Land Use. The total number of Internal Trips for each Land Use will be deducted from the adjusted Entry Trips and Exit Trips from the previous section. To record any notes, click the ⬛ icon above. For recommended values see the ITE Handbook or NCHRP 684.

820 - Shopping Center   **710 - General Office Building**

Exit	2822	Demand Exit:	3 % (85)	Balanced: 85	Demand Entry:	15 % (120)	Entry 797
Entry	2823	Demand Entry:	4 % (113)	Balanced: 113	Demand Exit:	22 % (175)	Exit 797

820 - Shopping Center   **220 - Apartment**

Exit	2822	Demand Exit:	11 % (310)	Balanced: 310	Demand Entry:	33 % (395)	Entry 1198
Entry	2823	Demand Entry:	9 % (254)	Balanced: 254	Demand Exit:	38 % (455)	Exit 1198

710 - General Office Building   **220 - Apartment**

Exit	797	Demand Exit:	2 % (16)	Balanced: 16	Demand Entry:	3 % (36)	Entry 1198
Entry	797	Demand Entry:	0 % (0)	Balanced: 0	Demand Exit:	0 % (0)	Exit 1198

820 - Shopping Center

	TOTAL TRIPS	INTERNAL TRIPS			EXTERNAL TRIPS
		710 - General Office Building	220 - Apartment	Total	
Entry	2823 (100%)	113 (4%)	254 (9%)	367 (13%)	2456 (87%)
Exit	2822 (100%)	85 (3%)	310 (11%)	395 (14%)	2427 (86%)
Total	5645 (100%)	198 (4%)	564 (10%)	762 (13%)	4883 (87%)

710 - General Office Building

	TOTAL TRIPS	INTERNAL TRIPS			EXTERNAL TRIPS
		820 - Shopping Center	220 - Apartment	Total	
Entry	797 (100%)	85 (11%)	0 (0%)	85 (11%)	712 (89%)
Exit	797 (100%)	113 (14%)	16 (2%)	129 (16%)	668 (84%)
Total	1594 (100%)	198 (12%)	16 (1%)	214 (13%)	1380 (87%)

https://otisstraffic.com/projectstudy?projectid=17201&study=51569   6/8/2017

Pine Ridge Commons – PUDA – GMPA – TIA – June 2017

Analysis: Weekday

220 - Apartment

	TOTAL TRIPS	INTERNAL TRIPS			EXTERNAL TRIPS
		820 - Shopping Center	710 - General Office Building	Total	
Entry	1198 (100%)	310 (26%)	16 (1%)	326 (27%)	872 (73%)
Exit	1198 (100%)	254 (21%)	0 (0%)	254 (21%)	944 (79%)
Total	2396 (100%)	564 (24%)	16 (1%)	580 (24%)	1816 (76%)

EXTERNAL TRIPS

Specify the percentage of Pass-by Trips for each Land Use. The percentage will be reduced from the total number of External Trips from the previous section. To record any notes, click ✎ Add Notes above.

The ✅ icon preceding the Pass-by% value indicates data provided by ITE. Clicking the icon changes a custom Pass-by% value to data provided by ITE.

LAND USE	EXTERNAL TRIPS	PASS-BY%	PASS-BY TRIPS	NON-PASS-BY TRIPS
820 - Shopping Center	4883	15 %	732	4151
710 - General Office Building	1380	0 %	0	1380
220 - Apartment	1816	0 %	0	1816

(Print Preview)   (Save Analysis)

https://otisstraffic.com/projectstudy?projectid=17201&study=51569   6/8/2017

Analysis: AM Peak Hour   Page 1 of 2

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: PINE RIDGE COMMONS - PROPOSED

ANALYSIS NAME: AM Peak Hour

LAND USE	INDEPENDENT VARIABLE	SIZE	TIME PERIOD	METHOD	ENTRY	EXIT	TOTAL
🔍 820 - Shopping Center	1000 Sq. Feet Gros ▾	75.243	Weekday, Peak Hou ▾	Best Fit (LOG) ▾ Ln(T) = 0.61Ln(X) + 2.24	81	50	131
🔍 710 - General Office Building	1000 Sq. Feet Gros ▾	129.1	Weekday, A.M. Pea ▾	Best Fit (LOG) ▾ Ln(T) = 0.8Ln(X) + 1.57	207	28	235
🔍 220 - Apartment	Dwelling Units ▾	375	Weekday, Peak Hou ▾	Best Fit (LIN) ▾ T = 0.49(X) + 3.73	37	150	187

🛑 The time periods do not match.

TRAFFIC REDUCTIONS

INTERNAL TRIPS

Specify the percentage of trips that occur between the Land Use on the left and the Land Use on the right. The table below displays the total number of trips that have been reduced from a particular Land Use. The total number of Internal Trips for each Land Use will be deducted from the adjusted Entry Trips and Exit Trips from the previous section. To record any notes, click the ✎ icon above. For recommended values see the ITE Handbook or NCHRP 684.

820 - Shopping Center   **710 - General Office Building**

| Exit | 50 | Demand Exit: | 3 | % | (2) | Balanced: 2 | Demand Entry: | 31 | % | (64) | Entry | 207 |
| Entry | 81 | Demand Entry: | 2 | % | (2) | Balanced: 2 | Demand Exit: | 23 | % | (6) | Exit | 28 |

820 - Shopping Center   **220 - Apartment**

| Exit | 50 | Demand Exit: | 12 | % | (6) | Balanced: 6 | Demand Entry: | 31 | % | (11) | Entry | 37 |
| Entry | 81 | Demand Entry: | 9 | % | (7) | Balanced: 7 | Demand Exit: | 53 | % | (80) | Exit | 150 |

710 - General Office Building   **220 - Apartment**

| Exit | 28 | Demand Exit: | 2 | % | (1) | Balanced: 1 | Demand Entry: | 2 | % | (1) | Entry | 37 |
| Entry | 207 | Demand Entry: | 0 | % | (0) | Balanced: 0 | Demand Exit: | 0 | % | (0) | Exit | 150 |

820 - Shopping Center

	TOTAL TRIPS	INTERNAL TRIPS			EXTERNAL TRIPS
		710 - General Office Building	220 - Apartment	Total	
Entry	81 (100%)	2 (2%)	7 (9%)	9 (11%)	72 (89%)
Exit	50 (100%)	2 (4%)	6 (12%)	8 (16%)	42 (84%)
Total	131 (100%)	4 (3%)	13 (10%)	17 (13%)	114 (87%)

710 - General Office Building

	TOTAL TRIPS	INTERNAL TRIPS			EXTERNAL TRIPS
		820 - Shopping Center	220 - Apartment	Total	
Entry	207 (100%)	2 (1%)	0 (0%)	2 (1%)	205 (99%)
Exit	28 (100%)	2 (7%)	1 (4%)	3 (11%)	25 (89%)
Total	235 (100%)	4 (2%)	1 (0%)	5 (2%)	230 (98%)

https://otisstraffic.com/projectstudy?projectid=17201&study=51570   6/8/2017

Analysis: AM Peak Hour   Page 2 of 2

220 - Apartment

| | TOTAL TRIPS | INTERNAL TRIPS | | | EXTERNAL TRIPS |
		820 - Shopping Center	710 - General Office Building	Total	
Entry	37 (100%)	6 (16%)	1 (3%)	7 (19%)	30 (81%)
Exit	150 (100%)	7 (5%)	0 (0%)	7 (5%)	143 (95%)
Total	187 (100%)	13 (7%)	1 (1%)	14 (7%)	173 (93%)

EXTERNAL TRIPS

Specify the percentage of Pass-by Trips for each Land Use. The percentage will be reduced from the total number of External Trips from the previous section. To record any notes, click ✎ Add Notes above.

The 🛡 icon preceding the Pass-by% value indicates data provided by ITE. Clicking the icon changes a custom Pass-by% value to data provided by ITE.

LAND USE	EXTERNAL TRIPS	PASS-BY%	PASS-BY TRIPS	NON-PASS-BY TRIPS
820 - Shopping Center	114	25 %	29	85
710 - General Office Building	230	0 %	0	230
220 - Apartment	173	0 %	0	173

[Print Preview]   [Save Analysis]

https://otisstraffic.com/projectstudy?projectid=17201&study=51570   6/8/2017

Analysis: PM Peak Hour   Page 1 of 2

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: PINE RIDGE COMMONS - PROPOSED

ANALYSIS NAME: PM Peak Hour

LAND USE	INDEPENDENT VARIABLE	SIZE	TIME PERIOD	METHOD	ENTRY	EXIT	TOTAL
🔍 820 - Shopping Center	1000 Sq. Feet Gros	75.243	Weekday, Peak Hou	Best Fit (LOG) $Ln(T) = 0.67Ln(X) + 3.31$	238	257	495
🔍 710 - General Office Building	1000 Sq. Feet Gros	129.1	Weekday, P.M. Pea	Best Fit (LIN) $T = 1.12(X) + 78.45$	38	185	223
🔍 220 - Apartment	Dwelling Units	375	Weekday, Peak Hou	Best Fit (LIN) $T = 0.55(X) + 17.65$	146	78	224

🛑 The time periods do not match.

TRAFFIC REDUCTIONS

INTERNAL TRIPS

Specify the percentage of trips that occur between the Land Use on the left and the Land Use on the right. The table below displays the total number of trips that have been reduced from a particular Land Use. The total number of Internal Trips for each Land Use will be deducted from the adjusted Entry Trips and Exit Trips from the previous section. To record any notes, click the ⬛ icon above. For recommended values see the ITE Handbook or NCHRP 684.

820 - Shopping Center   **710 - General Office Building**
Exit   257   Demand Exit: 3 % (8)   Balanced: 8   Demand Entry: 31 % (12)   Entry 38
Entry   238   Demand Entry: 2 % (5)   Balanced: 5   Demand Exit: 23 % (43)   Exit   185

820 - Shopping Center   **220 - Apartment**
Exit   257   Demand Exit: 12 % (31)   Balanced: 31   Demand Entry: 31 % (45)   Entry 146
Entry   238   Demand Entry: 9 % (21)   Balanced: 21   Demand Exit: 53 % (41)   Exit   78

710 - General Office Building   **220 - Apartment**
Exit   185   Demand Exit: 2 % (4)   Balanced: 3   Demand Entry: 2   % (3)   Entry 146
Entry   38   Demand Entry: 0 % (0)   Balanced: 0   Demand Exit: 0   % (0)   Exit   78

820 - Shopping Center

	TOTAL TRIPS	INTERNAL TRIPS			EXTERNAL TRIPS
		710 - General Office Building	220 - Apartment	Total	
Entry	238 (100%)	5 (2%)	21 (9%)	26 (11%)	212 (89%)
Exit	257 (100%)	8 (3%)	31 (12%)	39 (15%)	218 (85%)
Total	495 (100%)	13 (3%)	52 (11%)	65 (13%)	430 (87%)

710 - General Office Building

	TOTAL TRIPS	INTERNAL TRIPS			EXTERNAL TRIPS
		820 - Shopping Center	220 - Apartment	Total	
Entry	38 (100%)	8 (21%)	0 (0%)	8 (21%)	30 (79%)
Exit	185 (100%)	5 (3%)	3 (2%)	8 (4%)	177 (96%)
Total	223 (100%)	13 (6%)	3 (1%)	16 (7%)	207 (93%)

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220 - Apartment

	TOTAL TRIPS	INTERNAL TRIPS			EXTERNAL TRIPS
		820 - Shopping Center	710 - General Office Building	Total	
Entry	146 (100%)	31 (21%)	3 (2%)	34 (23%)	112 (77%)
Exit	78 (100%)	21 (27%)	0 (0%)	21 (27%)	57 (73%)
Total	224 (100%)	52 (23%)	3 (1%)	55 (25%)	169 (75%)

EXTERNAL TRIPS

Specify the percentage of Pass-by Trips for each Land Use. The percentage will be reduced from the total number of External Trips from the previous section. To record any notes, click ⊲ Add Notes above.

The ♥ icon preceding the Pass-by% value indicates data provided by ITE. Clicking the icon changes a custom Pass-by% value to data provided by ITE.

LAND USE	EXTERNAL TRIPS	PASS-BY%	PASS-BY TRIPS	NON-PASS-BY TRIPS
820 - Shopping Center	430	⛉ 25 %	108	322
710 - General Office Building	207	0 %	0	207
220 - Apartment	169	0 %	0	169

Print Preview   Save Analysis

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