

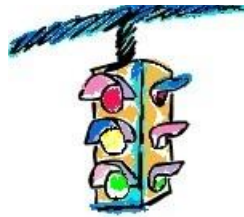
TRAFFIC STUDY

Dollar Tree Development

Okeechobee Road at Hartman Road (NEC)
City of Fort Pierce, Florida

Prepared for:
CDA Holdings, LLC

Prepared By:
TRUCKIN TRAFFIC, LLC



Submitted To:
City of Fort Pierce

September 25, 2017



Jane A. Caldera, P.E.
P.E. # 53116

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1. PROJECT LOCATION/DESCRIPTION

This Traffic Study has been prepared to support the Dollar Tree Development site plan approval. The site is located on the northeast corner of Okeechobee Road at Hartman Road. The Dollar Tree Store will have 9,977 SF of gross floor area on will be on a +/- 1.68 acre parcel. Adjacent parcel is +/- 1.31 acres and is planned to be developed in the future by a separate entity. For the purpose evaluating the turn lane requirements at the two site access driveways, a future outparcel development (Phase 2) will be assumed for the 1.31 acres outparcel. Since the future outparcel will be required to provide its' own stormwater retention area and its own parking, the same floor area ratio, as the Dollar Tree Store, will be used to estimate the size of the retail/commercial building on the future outparcel.

The site location and area roadway system is shown on Figure 1.

The methodology for this traffic study was reviewed and approved by City of Fort Pierce Planning Department. A copy of the approved methodology letter is contained in the Appendix.

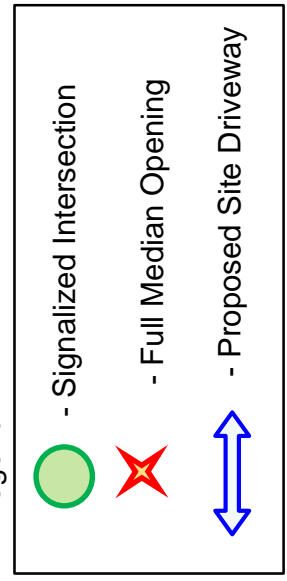
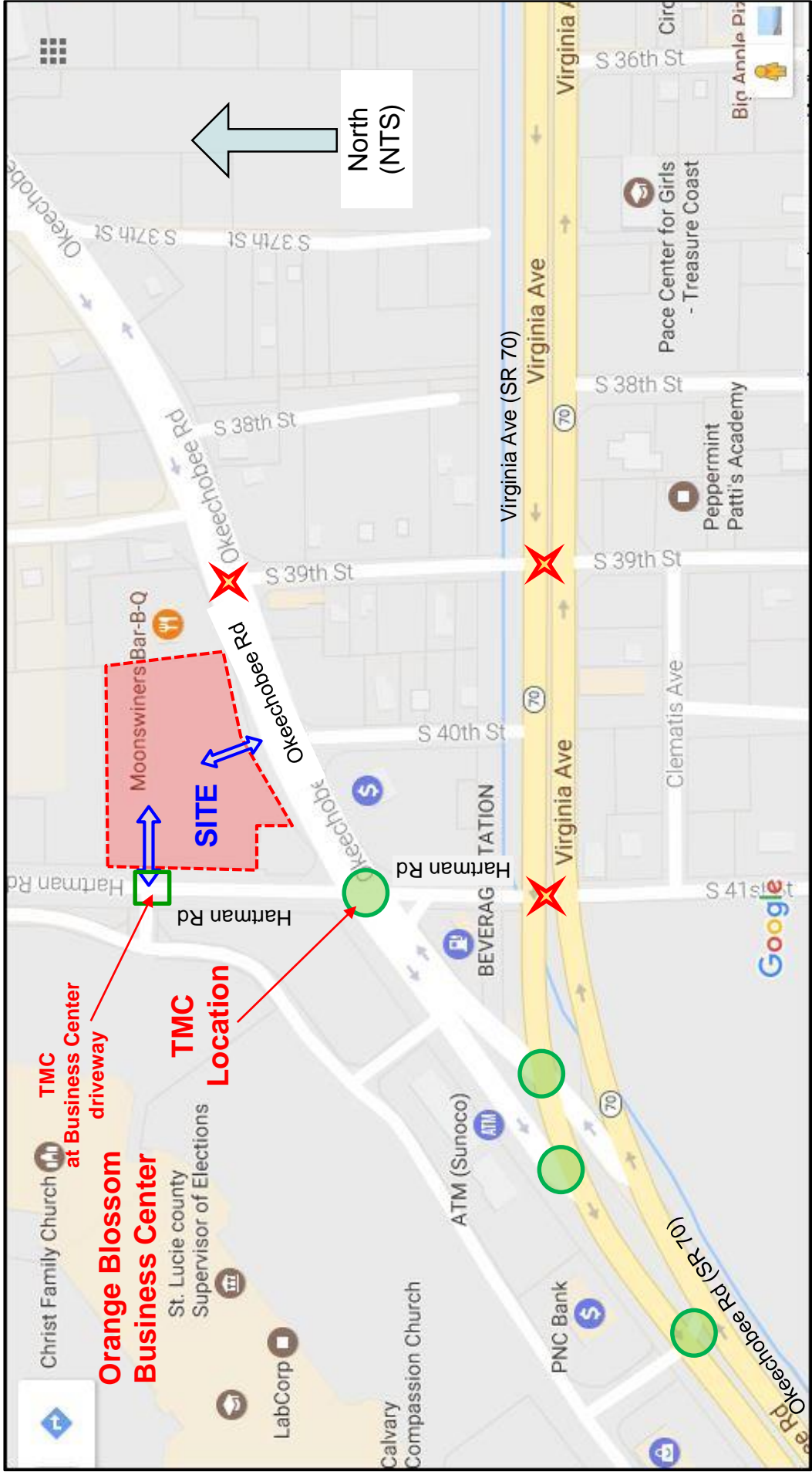


Figure 1
Site Location Map

2. PROJECT TRIP CHARACTERISTICS

Trip Generation

The Daily, AM and PM peak-hour trip generation estimates are based on the trip rates contained in the 9th Edition of the Institute of Transportation of Engineers (ITE) Trip Generation Manual. The ITE Trip Generation Handbook, 3rd Edition was used to estimate pass-by capture trips. Tables 1, 2, and 3 below contain the detailed trip generation calculations for the Daily, AM, and PM time periods.

TABLE 1
Daily Trip Generation Estimates

ITE Land-Use Category	ITE Land-Use (Code)	Indep. Var.	ITE Rate or Equation	Size	Total Trips	Pass-By Capture Rate	PASS-BY TRIPS			NET-NEW TRIPS		
							2-WAY	IN	OUT	2-WAY	IN	OUT
PROPOSED LAND-USE												
Variety Store	814	SF	64.03	9,977	639	34%	217	109	109	422	211	211

TABLE 2
AM Peak Hour Trip Generation Estimates

ITE Land-Use Category	ITE Land-Use (Code)	Indep. Var.	ITE Rate or Equation	Size	Total Trips	Pass-By Capture Rate	PASS-BY TRIPS			NET-NEW TRIPS		
							2-WAY	IN	OUT	2-WAY	IN	OUT
PROPOSED LAND-USE												
Variety Store	814	SF	3.81	9,977	38	34%	13	8	5	25	16	10

TABLE 3
PM Peak Hour Trip Generation Estimates

ITE Land-Use Category	ITE Land-Use (Code)	Indep. Var.	ITE Rate or Equation	Size	Total Trips	Pass-By Capture Rate	PASS-BY TRIPS			NET-NEW TRIPS		
							2-WAY	IN	OUT	2-WAY	IN	OUT
PROPOSED LAND-USE												
Variety Store	814	SF	6.82	9,977	68	34%	23	11	12	45	22	23

Based on trip rates contained in the 9th Edition of the ITE Trip Generation Manual, the proposed development is anticipated to generate approximately 38 two-way trips and 68 two way trips during the AM and PM peak hours, respectively.

Site Access Plan

The site (both parcels) has approximately 370 feet of frontage along Okeechobee Road. A 22 foot concrete driveway apron exists, approximately 90 feet of the eastern property line. This driveway will be closed in connection with the development of the Dollar Tree Site. This site has approximately 347 feet of frontage along Hartman Road. No driveways exist along the site frontage on Hartman Road.

This development project is requesting two driveway connections, one to Okeechobee Road and one to Hartman Road. The requested driveways will provide access to both parcels. The requested driveway connections are described below:

DW # 1 on Okeechobee Road

This driveway connection will be located on Okeechobee Road approximately, 290 feet east of the nearest edge of pavement on Hartman Road. The existing concrete driveway apron to the east of the new driveway will be closed. This driveway is planned to operate as a right in/out driveway. The presence of the raised median on Okeechobee Road will physically prevent left turn movements at this driveway.

DW # 2 on Hartman Road

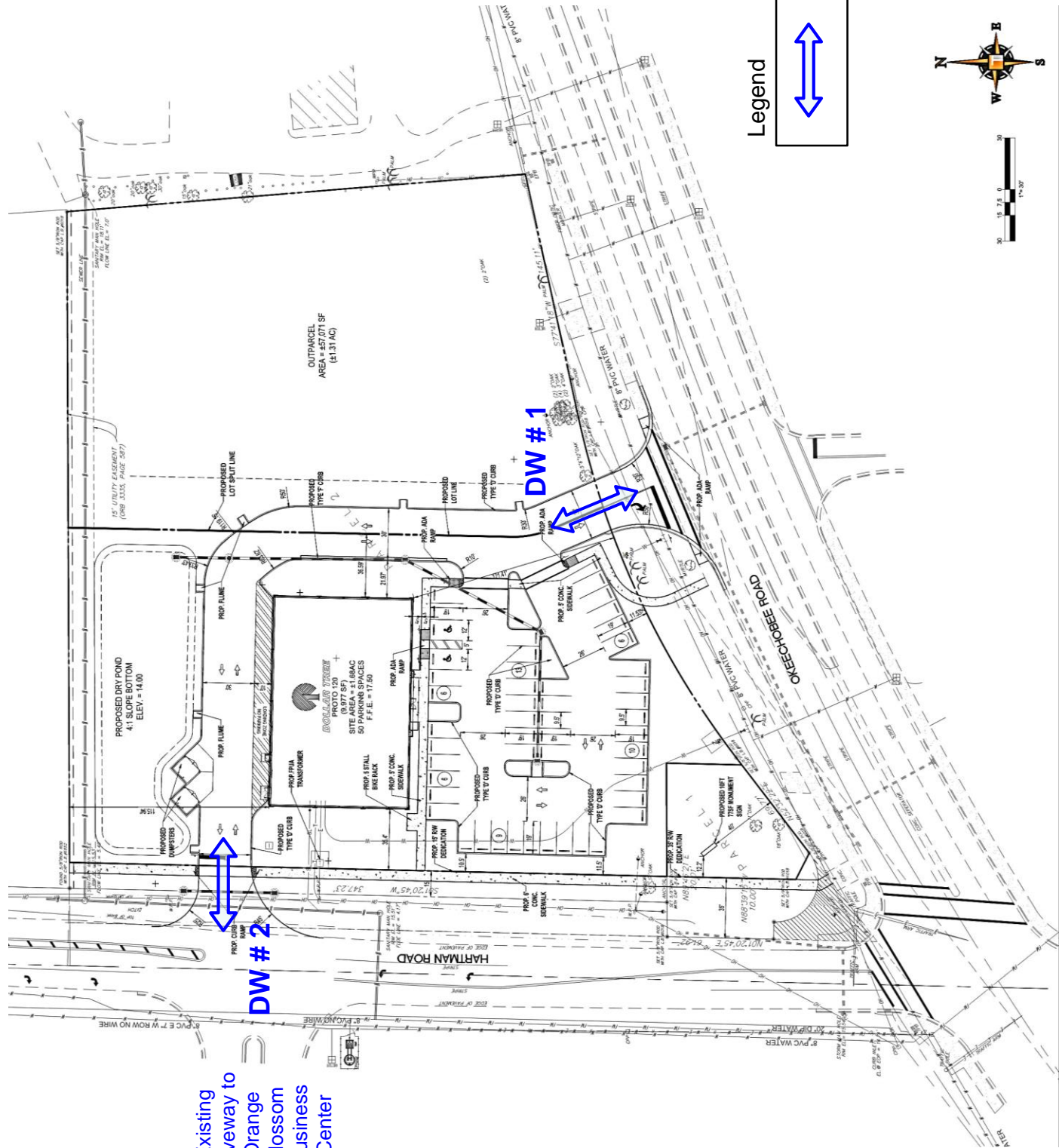
This driveway connection will be located on Hartman Road, approximately 360 feet north of the nearest edge of pavement on Okeechobee Road. This driveway will align opposite the existing driveway to the Orange Blossom Business Center. This driveway is planned to operate as a full access driveway.

The Site Access and Traffic Circulation Plan is shown on Figure 2.

Project Trip Distribution

The site traffic distribution was determined based on the existing travel patterns, the area roadway network and the location of the major employment hubs. The site traffic distribution for this project is displayed graphical on Figure 3.

The AM and PM peak hour site traffic assignment at the site access driveways and adjacent signalized intersection are shown graphically on Figure 4 and 5, respectively.



Existing Driveway to Orange Blossom Business Center

DW # 2

DW # 1

Legend

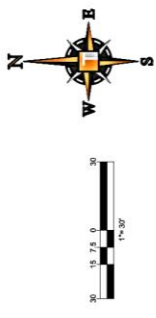


Figure 2
Site Access and Traffic
Circulation Plan

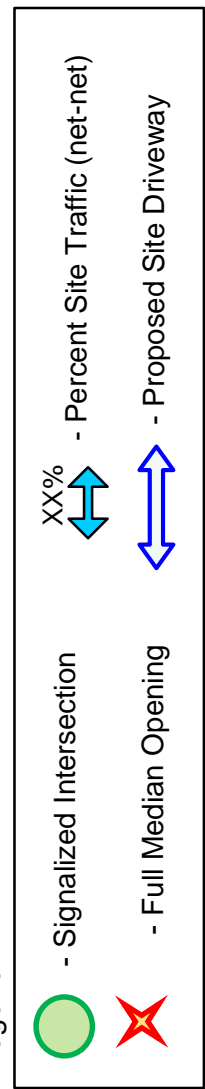
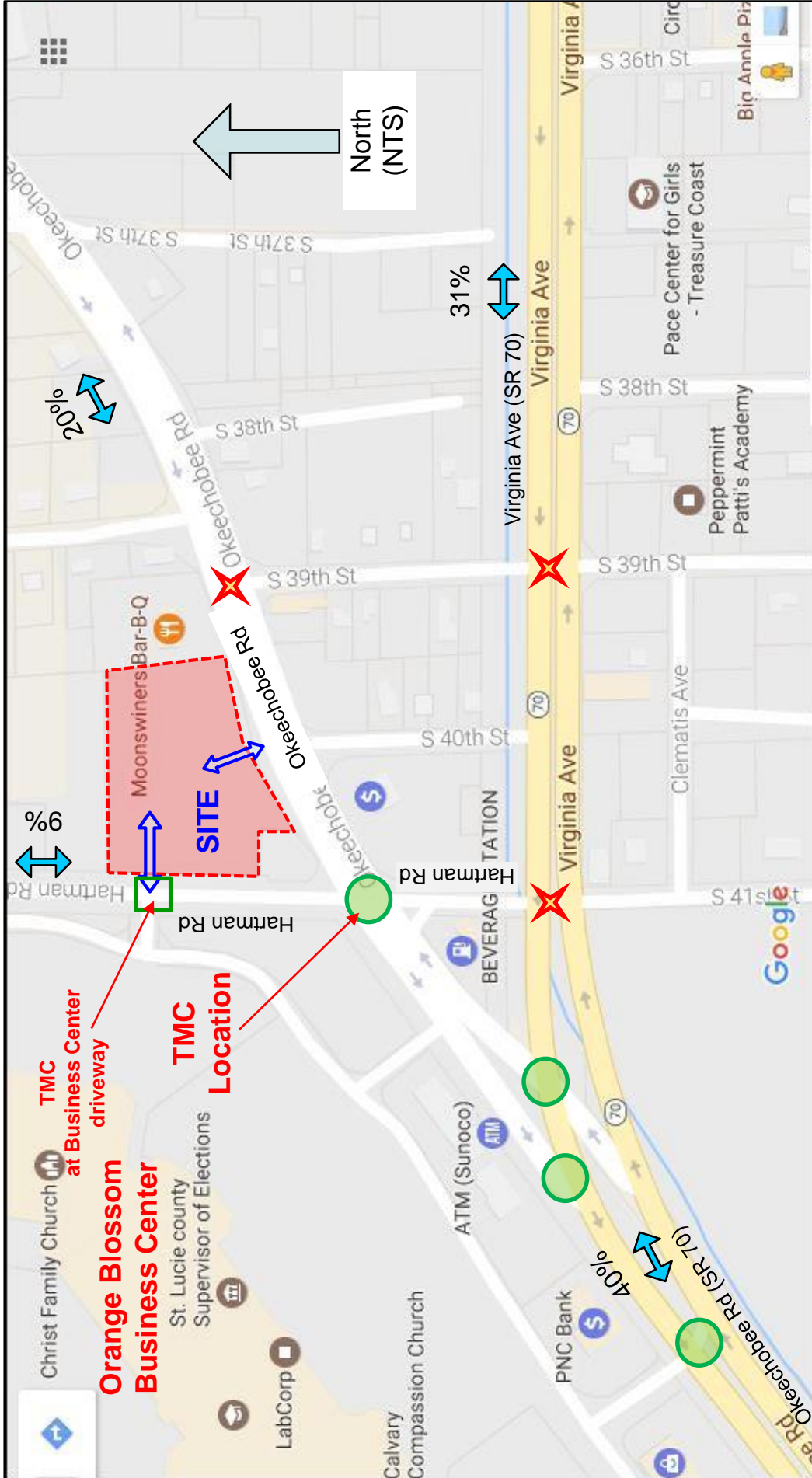


Figure 3
Site Traffic Distribution

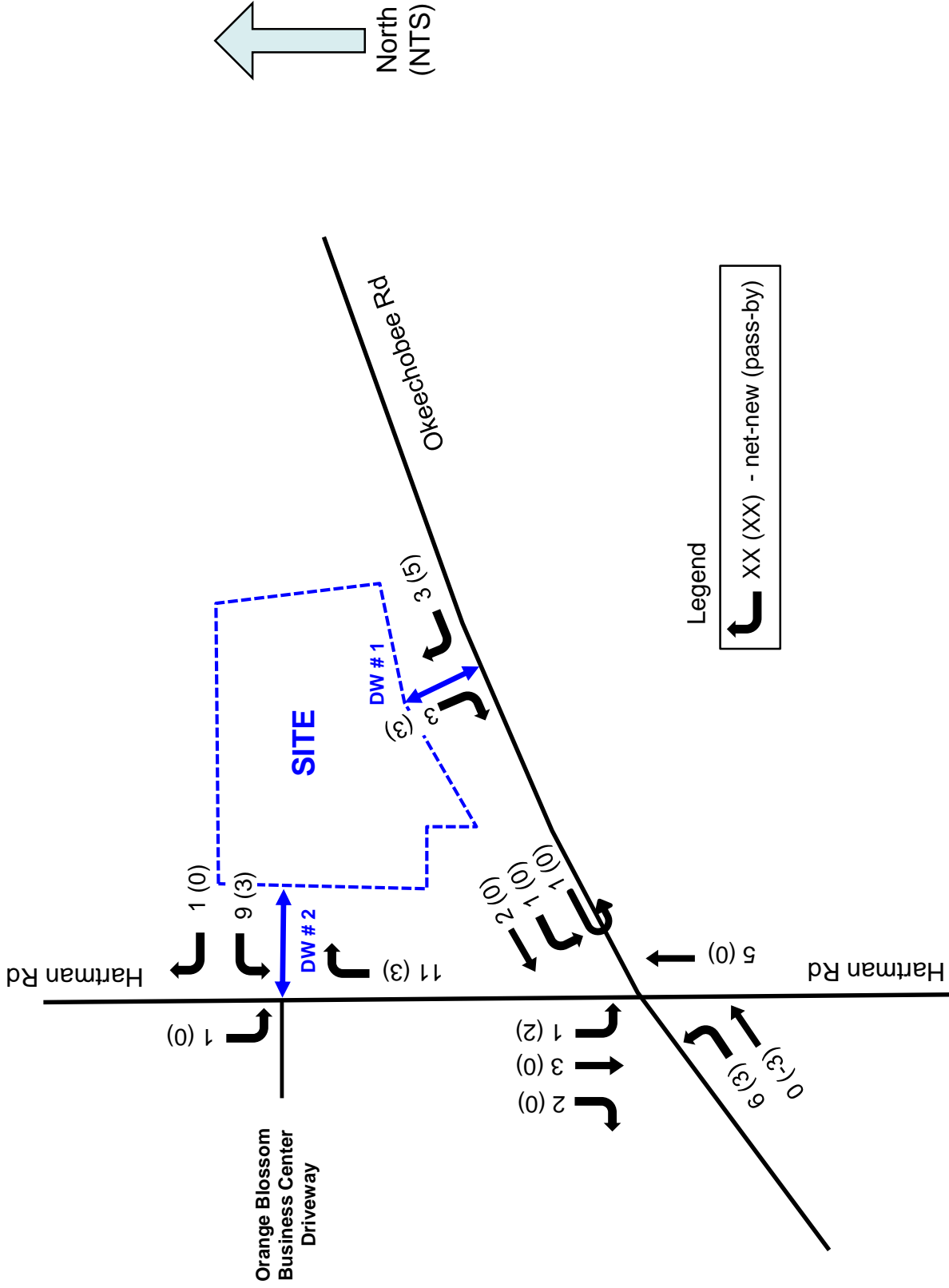


Figure 4
 Site Traffic Assignment
 (AM Peak-Hour)

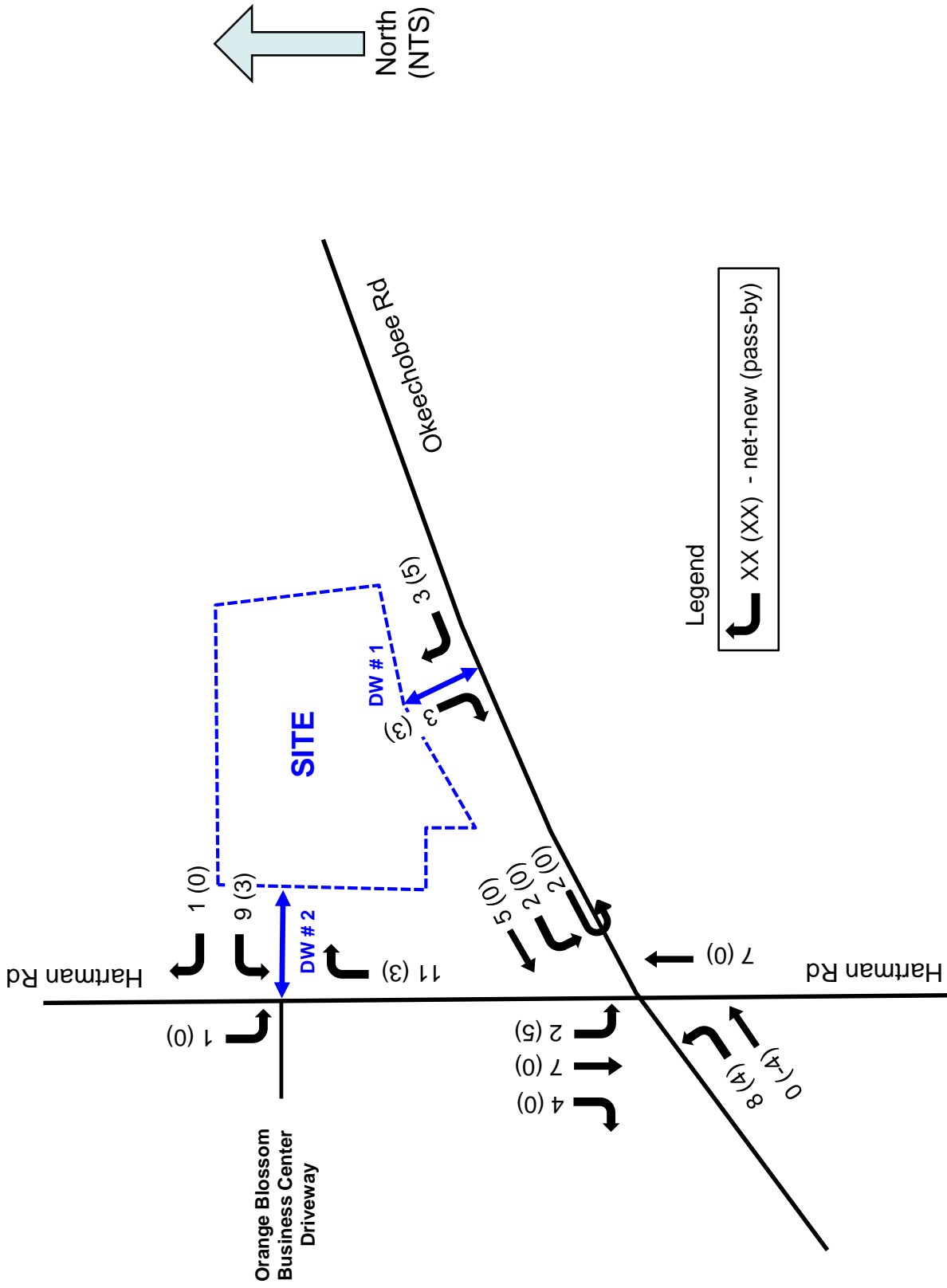


Figure 5
 Site Traffic Assignment
 (PM Peak-Hour)

3. EXISTING TRAFFIC CONDITIONS

New AM and PM peak period intersection turning movement counts (TMC) were conducted at the intersection of Okeechobee Road and Hartman Road and the intersection of Hartman Road at the driveway to the Orange Blossom Business Center. A copy of the new TMC's can be found in the Appendix.

The new peak hour TMC's were adjusted by factor of 1.12 to represent peak season conditions. The peak season factor was obtained from the Florida Department of Transportation (FDOT) 2016 Peak Season Factor Report for St Lucie. Figure 6 displays the AM and PM peak-hour, peak season, existing traffic volumes.

Table 4 below contains the roadway data used to evaluate the roadway level of service.

TABLE 4 - EXISTING ROADWAY LEVEL OF SERVICE (PM Peak-Hour)

Road Name	Limits	Station ID	Functional Class (1)	No. of Lanes	Speed Limit (MPH)	LOS STD (2)	2-Way PK-HR Capacity MSV (3)	2-Way PK-HR Volume (raw data)	2-Way PK-HR Volume (peak-season)	V/C Ratio at LOS Std
Okeechobee Road	Hartman Rd to Site DW # 1	689	Urban Minor Arterial	4D	35	D	2,628	908	1,017	0.39
Okeechobee Road	Site DW # 1 to 35th Street	689	Urban Minor Arterial	4D	35	D	2,628	908	1,017	0.39
Hartman Road	Okeechobee Rd to Site DW # 2	670	<i>roadway not listed</i>	2LU	35	D	1,197	426	477	0.40
Hartman Road	Site DW # 2 to Peterson Rd	670	<i>roadway not listed</i>	2LU	35	D	1,197	434	486	0.41

(1) St Lucie County Comprehensive Plan, Transportation Element, Map TRN-3

(2) St Lucie County Comprehensive Plan, Transportation Element, Table 2-4

(3) FDOT Generalized Peak-Hour Two-Way Maximum Service Volumes, Table 4 (2012) - with 10% reduction of non-state roadway

(4) Based on the new peak hour TMC's with an adjustment factor of 1.12 to represent peak season conditions.

As indicated in Table 4 above, the adjacent roadway links are currently operating at an acceptable level of service.

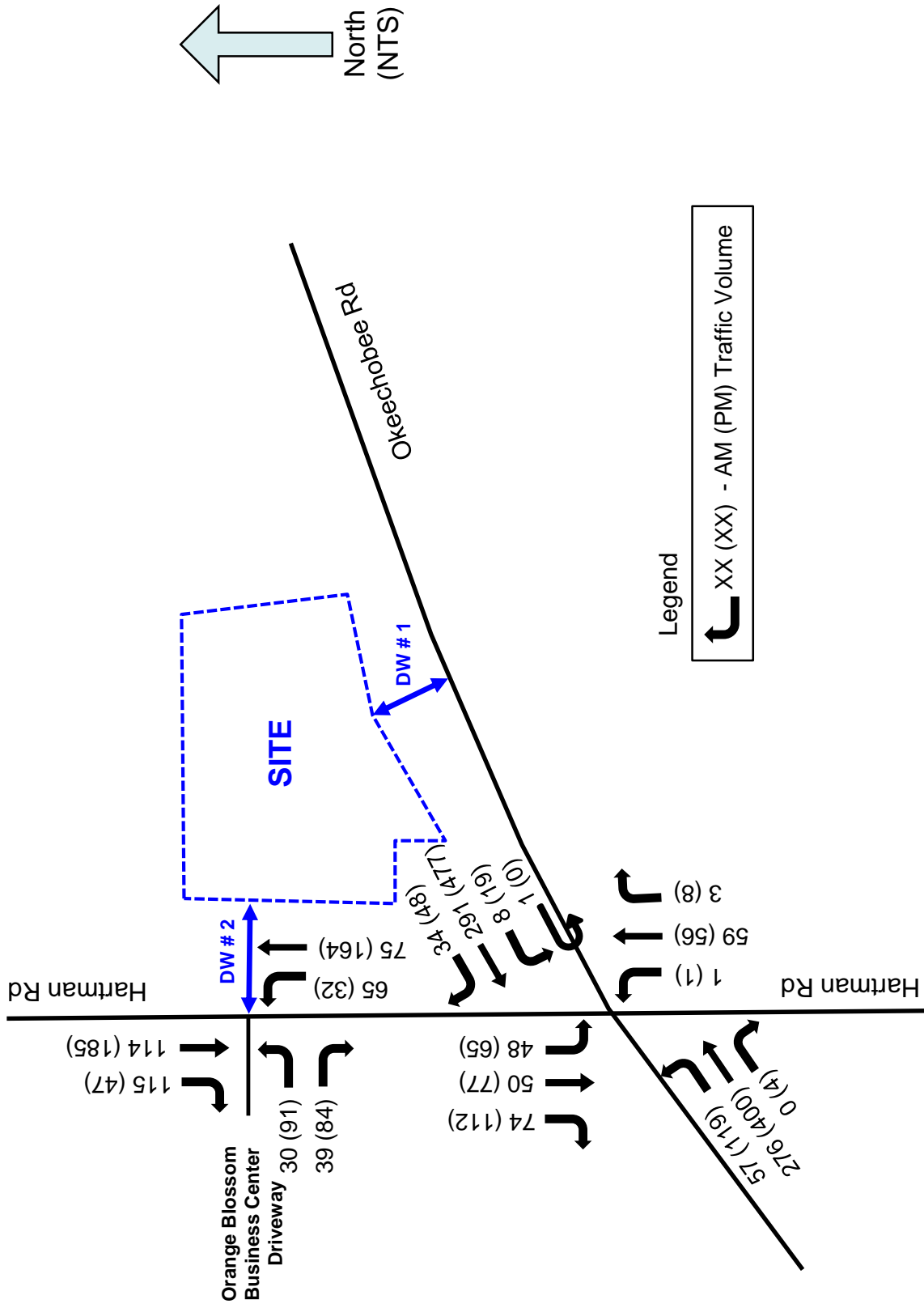


Figure 6
 Existing Traffic Volumes
 (Peak-Season)

The Highway Capacity Manual software was used to determine the existing Level of Service (LOS) for the two study intersections. The results of the intersection capacity analyses is summarized in Table 5.

Table 5
INTERSECTION CAPACITY ANALYSIS RESULTS (EXISTING CONDITIONS, PM PEAK-HOUR)

Unsignalized Intersection	Delay (secs./veh.)/ LOS NB LEFT	Delay (secs./veh.)/ LOS EB LEFT/RIGHT
Hartman Rd at Orange Blossom Business Ctr Driveway	1.3/A	13.4/B
Signalized Intersection	Overall Delay (secs./veh.)	Overall LOS
Okeechobee Rd at Hartman Rd	16.8	B

As indicated in Table 5 above, the two study intersection are currently operating at an acceptable level of service. The HCS reports are contained in the Appendix.

4. POST DEVELOPMENT CONDITIONS

The future traffic projections were developed by adding the site traffic to the existing peak-season traffic volumes. Figures 7 displays the PM peak-hour, peak season, Post Development Traffic Projections for the site access driveways and the adjacent signalized intersection. The detailed assigned spreadsheets for the two site driveways and adjacent signalized intersection are contained in the Appendix.

Table 6 below indicates that the adjacent roadway segments have adequate available capacity to accommodate the site traffic.

TABLE 6 - POST DEVELOPMENT ROADWAY LEVEL OF SERVICE (PM Peak-Hour, 2-way)

Road Name	Limits	Station ID	Functional Class (1)	No. of Lanes	Speed Limit (MPH)	LOS STD (2)	PK-HR Capacity MSV (3)	Ext Volume (peak-season)	Site Traffic Dist.	Net New Trips	Post Dev Volume (peak-season)	Post Dev. V/C Ratio
Okeechobee Road	Hartman Rd to Site DW # 1	689	Urban Minor Arterial	4D	35	D	2,628	1,017	27%	12	1,029	0.39
Okeechobee Road	Site DW # 1 to 35th Street	689	Urban Minor Arterial	4D	35	D	2,628	1,017	20%	9	1,026	0.39
Hartman Road	Okeechobee Rd to Site DW # 2	670	<i>roadway not listed</i>	2LU	35	D	1,197	477	62%	28	505	0.42
Hartman Road	Site DW # 2 to Peterson Rd	670	<i>roadway not listed</i>	2LU	35	D	1,197	486	9%	4	490	0.41

(1) St Lucie County Comprehensive Plan, Transportation Element, Map TRN-3

2-Way, Net-Net, PM Peak-Hour Trips = 45

(2) St Lucie County Comprehensive Plan, Transportation Element, Table 2-4

(3) FDOT Generalized Peak-Hour Two-Way Maximum Service Volumes, Table 4 (2012) - with 10% reduction of non-state roadway

(4) Based on the new peak hour TMC's with an adjustment factor of 1.12 to represent peak season conditions.

The Highway Capacity Manual software was used to determine the post development Level of Service (LOS) for the two site driveways and the adjacent signalized intersection. The results of the intersection capacity analyses is summarized in Table 7.

Table 7

INTERSECTION CAPACITY ANALYSIS RESULTS (POST DEVELOPMENT CONDITIONS, PM PEAK-HOUR)

Unsignalized Intersection	Delay (secs./veh.)/ LOS NB LEFT	Delay (secs./veh.)/ LOS EB LEFT/RIGHT	Delay (secs./veh.)/ LOS SB LEFT/TH	Delay (secs./veh.)/ LOS WB LEFT/RIGHT
Hartman Rd at Orange Blossom Business Ctr Driveway/DW # 2	1.2/A	13.9/B	0.1/A	9.9/B
Unsignalized Intersection	Delay (secs./veh.)/ LOS SB RIGHT	---	---	---
Okeechobee Rd at DW # 1	10.4/B	---	---	---
Signalized Intersection	Overall Delay (secs./veh.)	Overall LOS		
Okeechobee Rd at Hartman Rd	17.1	B		

As indicated in Table 7 above, the two site driveways and the adjacent signalized intersection are anticipated to continue to operate at an acceptable level of service. The HCS summary reports for the post development conditions are contained in the Appendix.

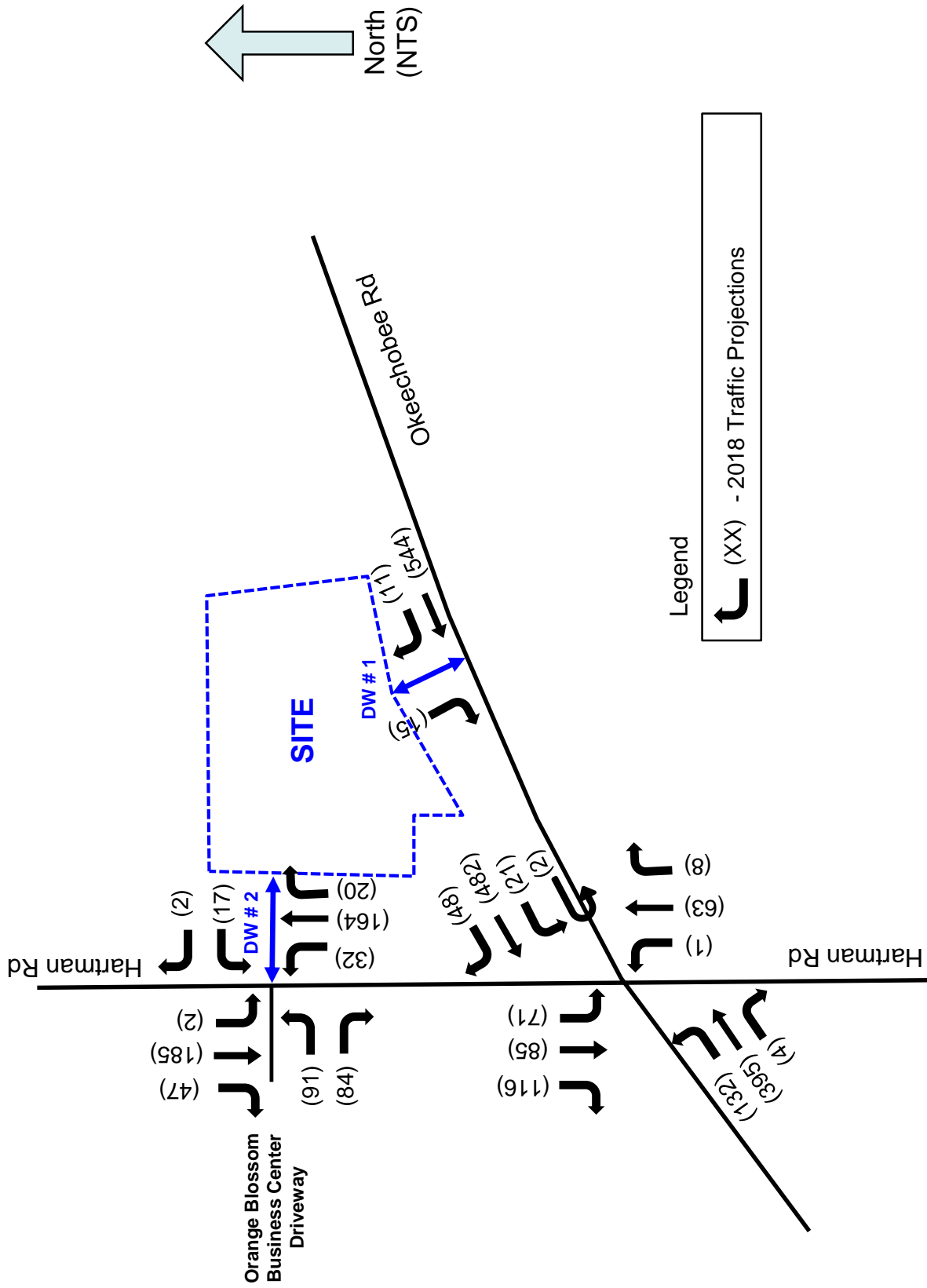


Figure 7
 2018 Post Development Traffic Projections
 (PM Peak-Hour, Peak-Season)

Turn Lane Evaluation at Site Access Driveways

In addition to the operational analyses at the site access driveways, the site access connections were evaluated to determine if turn lanes are required.

The Florida Department of Transportation's Driveway Handbook (March 2005), was utilized to determine the need for right turn lane(s) at the site access driveways. The National Cooperative Highway Research Program (NCHRP) Report 279 Intersection Channelization Design Guide, was utilized to determine the need for left turn lane(s) at the site access driveways. If required, the deceleration length shall be based on Index 301 of FDOT's Design Standards. The storage length shall be based on 95th percentile queue estimates provided by the software used in the level of service computation.

For the purpose evaluating the turn lane requirements at the two site access driveways, a future outparcel development (Phase 2) will be assumed for the 1.31 acres outparcel. The adjacent parcel is planned to be developed in the future by a separate entity. Since the future outparcel will be required to provide its' own stormwater retention area and its own parking, the same floor area ratio, as the Dollar Tree Store, will be used to estimate the size of the retail/commercial building on the future outparcel.

Tables 8 and 9 below contained the AM and PM peak-hour trip generation estimates for the both parcels.

TABLE 8
AM Peak Hour Trip Generation Estimates (Site Buildout)

ITE Land-Use Category	ITE Land-Use (Code)	Indep. Var.	ITE Rate or Equation	Size	Total Trips	Pass-By Capture Rate	PASS-BY TRIPS			NET-NEW TRIPS		
							2-WAY	IN	OUT	2-WAY	IN	OUT
PROPOSED LAND-USES												
Variety Store	814	SF	3.81	9,977	38	34%	13	8	5	25	16	10
Fast-Food Restarunt with DT (future)	934	SF	45.42	4,000	182	50%	91	46	45	91	46	45
Sub Total:					220		104	54	49	116	62	54

TABLE 9
PM Peak Hour Trip Generation Estimates (Site Buildout)

ITE Land-Use Category	ITE Land-Use (Code)	Indep. Var.	ITE Rate or Equation	Size	Total Trips	Pass-By Capture Rate	PASS-BY TRIPS			NET-NEW TRIPS		
							2-WAY	IN	OUT	2-WAY	IN	OUT
PROPOSED LAND-USES												
Variety Store	814	SF	6.82	9,977	68	34%	23	11	12	45	22	23
Fast-Food Restarunt with DT (future)	934	SF	32.65	4,000	131	50%	66	34	31	66	34	31
Sub Total:					199		89	45	43	110	56	55

The detailed assigned spreadsheets for the two site driveways based on the development (buildout) of both parcels are contained in the Appendix.

Right Turn Lane Evaluation

Based on the buildout traffic projections for both parcels, right turn lanes are not warranted at either site driveways. Tables 10 and 11 below provide the pertinent information uses for the right turn lane evaluations.

TABLE 10 - RIGHT TURN LANE EVALUATION (Site Driveway # 1 on Okeechobee Road)

Recommended Guidelines for Exclusive Right Turn Lanes to Unsignalized Driveway		
Westbound Right Turn Warrant Criteria	Number of Right Turns per Hour (1)	
	Low Range	High Range
Posted speed limit 45 mph or less	80	125
Posted speed limit over 45 mph	35	55
Posted Speed Limit (mph)	35	
Projected peak hour right turning movement (AM/PM)	46 / 39	
Major roadway vehicles per hour per lane	167 / 272	
Number of through lanes (WB)	2	
Entry Radius Size 50 feet or greater	YES	
Right Turn Lane Warranted?	No	

(1) FDOT Warrant Criteria per FDOT Driveway Information Guide, 2008, Exhibit 44

TABLE 11 - RIGHT TURN LANE EVALUATION (Site Driveway # 2 on Hartman Rd)

Recommended Guidelines for Exclusive Right Turn Lanes to Unsignalized Driveway		
Westbound Right Turn Warrant Criteria	Number of Right Turns per Hour (1)	
	Low Range	High Range
Posted speed limit 45 mph or less	80	125
Posted speed limit over 45 mph	35	55
Posted Speed Limit (mph)	35	
Projected peak hour right turning movement (AM/PM)	65 / 57	
Major roadway vehicles per hour per lane	75 / 164	
Number of through lanes (NB)	1	
Entry Radius Size 50 feet or greater	YES	
Right Turn Lane Warranted?	No	

(1) FDOT Warrant Criteria per FDOT Driveway Information Guide, 2008, Exhibit 44

The relevant pages from the FDOT Driveway Handbook (March 2005) are contained in the Appendix.

Left Turn Lane Warrant Evaluation

The site traffic volumes projected to make a left turn at the proposed site driveway on Hartman Road are shown below:

Hartman Rd at Site DW # 2

SB Left - 6 vph (AM)

SB Left - 5 vph (PM)

The Left Turn Lane Installation Guidelines report (*prepared by Kay Fitzpatrick a Research Engineer from the Texas Transportation Institute, which was present at the 2nd Urban Street Symposium Sponsored by Transportation Research Board, July, 2003*) recommends use of the interactive spreadsheet from the National Corporate Highway Research Program (NCHRP) Report 457. Specifically, Figure 2.5, A Guideline for Determining the Need for a Major-Road Left Turn Bay at a Two-Way Stop Controlled Intersection.

The interactive spreadsheet (Figure 2.5) contained in the Appendix of the NCHRP 457 Report allows the assumptions to be changed to match those at the intersection of interest or to reflect more recent research findings on critical gap, time to make left turn, and a time to clear (i.e. calibration constraint variables).

The input variables in Figure 2.5 from the NCHRP Report 457, were changed to match the anticipated traffic volumes for the site access driveway on Hartman Road. The calibration constraint variables in the interactive spreadsheet were left as is.

Exhibits 1 and 2 on the following pages show the results of left turn lane warrant evaluation based on the NCHRP Report 457, Figure 2.5.

As indicated in the charts contained within Exhibits 1 and 2, the $V_{(L)}$, $V_{(O)}$ and $V_{(A)}$ for this development falls into the no left turn treatment required section of the chart. Based on the NCHRP Guidelines, a left turn lane is not warranted at site driveway on Hartman Road.

Exhibit 1 Hartman Rd at Site DW # 2 SB Left Turn Check (AM PEAK HOUR)

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

2-lane roadway (English)

INPUT

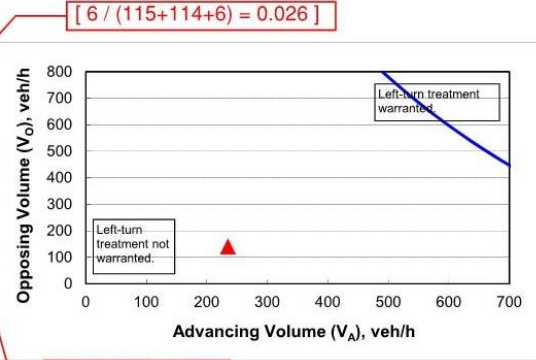
Variable	Value
85 th percentile speed, mph:	35
Percent of left-turns in advancing volume (V _A), %:	3%
Advancing volume (V _A), veh/h:	235
Opposing volume (V _O), veh/h:	140

OUTPUT

Variable	Value
Limiting advancing volume (V _A), veh/h:	980
Guidance for determining the need for a major-road left-turn bay:	Left-turn treatment NOT warranted.

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9



$[6 / (115+114+6) = 0.026]$

$115+114+6 = 235$

$75+65 = 140$

Exhibit 2 Hartman Rd at Site DW # 2 SB Left Turn Check (PM PEAK HOUR)

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

2-lane roadway (English)

INPUT

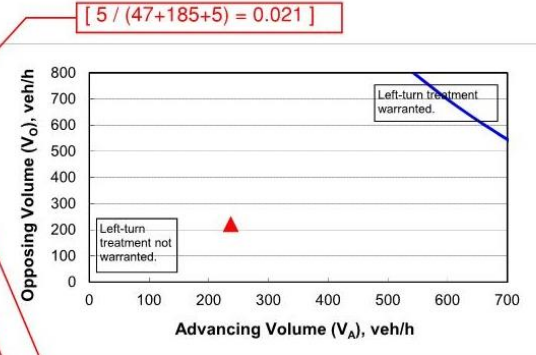
Variable	Value
85 th percentile speed, mph:	35
Percent of left-turns in advancing volume (V _A), %:	2%
Advancing volume (V _A), veh/h:	237
Opposing volume (V _O), veh/h:	221

OUTPUT

Variable	Value
Limiting advancing volume (V _A), veh/h:	990
Guidance for determining the need for a major-road left-turn bay:	Left-turn treatment NOT warranted.

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9



$[5 / (47+185+5) = 0.021]$

$47+185+5 = 237$

$164+57 = 221$

5. CONCLUSIONS

- The proposed development is anticipated to generate approximately 38 two-way trips during the AM peak hour and 68 two-way trips during the PM peak hour.
- The adjacent roadway segments have adequate available capacity to accommodate the site traffic.
- The future traffic conditions (post development) at the site access driveways are anticipated to operate at an acceptable level of service during the PM peak hour.
- The future traffic conditions (post development) at the adjacent signalized intersection are anticipated to operate at an acceptable level of service during the PM peak hour.
- The traffic projections for the anticipated buildout of the both parcels do not warrant exclusive left or right turn lanes at either of the proposed site access driveways.
- No safety or operational issues are anticipated to occur as a result of this development.

APPENDIX



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August 11, 2017

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Senior Planner - Planning Department
Economic Development Team
City of Fort Pierce
100 N. U.S. Highway 1
Fort Pierce, Florida 34950

**Reference: Dollar Tree Development
Okeechobee Road at Hartman Road (NEC)
Traffic Study Methodology Letter**

Dear Kori,

This Traffic Impact Study Methodology letter has been prepared to document the procedures and assumptions for the Dollar Tree Development that is planned to be located on the northeast corner of Okeechobee Road and Hartman Road, in the City of Fort Pierce.

INTRODUCTION

The Dollar Tree Store will be located on the hard corner of the signalized intersection of Okeechobee Road and Hartman Road. The Dollar Tree Store will have 9,977 SF of gross floor area on will be on a +/- 1.68 acre parcel. Adjacent parcel is +/- 1.31 acres and is planned to be developed in the future by a separate entity. For the purpose evaluating the turn lane requirements at the two site access driveways, a future outparcel development (Phase 2) will be assumed for the 1.31 acres outparcel. Since the future outparcel will be required to provide its' own stormwater retention area and its own parking, the same floor area ratio, as the Dollar Tree Store, will be used to estaimie the future size of the retail/commercial building on the future outparcel.

Figure 1 displays the site location and the area roadways.

ANALYSIS PERIOD/BUILDOUT YEAR

This study will include analysis of the PM peak-hour conditions. A one year buildout is proposed for the Dollar Tree Store, therefore the buildout year will be Year 2018 and no growth rate will be applied.

TRUCKIN  TRAFFIC, LLC

TRIP GENERATION

The Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition will be utilized to determine the trip generation for the proposed land-use(s). The ITE Trip Generation Handbook, 3rd Edition will be used to estimate pass-by capture trips for each land-use(s). Tables 1, 2 and 3 show the detailed trip generation calculations for Daily, AM and PM peak-hours, respectively.

TABLE 1
Daily Trip Generation Estimates

ITE Land-Use Category	ITE Land-Use (Code)	Indep. Var.	ITE Rate or Equation	Size	Total Trips	Pass-By Capture Rate	PASS-BY TRIPS			NET-NEW TRIPS		
							2-WAY	IN	OUT	2-WAY	IN	OUT
PROPOSED LAND-USE												
Variety Store	814	SF	64.03	9,977	639	34%	217	109	109	422	211	211

TABLE 2
AM Peak Hour Trip Generation Estimates

ITE Land-Use Category	ITE Land-Use (Code)	Indep. Var.	ITE Rate or Equation	Size	Total Trips	Pass-By Capture Rate	PASS-BY TRIPS			NET-NEW TRIPS		
							2-WAY	IN	OUT	2-WAY	IN	OUT
PROPOSED LAND-USE												
Variety Store	814	SF	3.81	9,977	38	34%	13	8	5	25	16	10

TABLE 3
PM Peak Hour Trip Generation Estimates

ITE Land-Use Category	ITE Land-Use (Code)	Indep. Var.	ITE Rate or Equation	Size	Total Trips	Pass-By Capture Rate	PASS-BY TRIPS			NET-NEW TRIPS		
							2-WAY	IN	OUT	2-WAY	IN	OUT
PROPOSED LAND-USE												
Variety Store	814	SF	6.82	9,977	68	34%	23	11	12	45	22	23

(1) The Trip Generation Rates were obtained from ITE Trip Generation Manual, 9th Edition.
(2) The Pass-By Capture Rate was based on the recommended rates for shopping centers, per ITE Trip Generation Handbook, 3rd Edition.

The pass-by capture threshold of 10 of the total background traffic is shown below.

pass by 10% check	
14314	2016 ADT Okeechobee, east of Hartman
5859	2016 ADT Hartman, north of Okee
20,173	Adjacent Street ADT Total
2,017	10% of Adjacent Street ADT
217	daily 2-way pass by trips at 34%
ok 217 vpd is less than 2,017 vpd	

SITE ACCESS PLAN

The site (both parcels) has approximately 370 feet of frontage along Okeechobee Road. A 22 foot concrete driveway apron exists, approximately 90 feet of the eastern property line. This driveway will be closed in connection with the development of the Dollar Tree Site. This site has approximately 347 feet of frontage along Hartman Road. No driveways exist along the site frontage on Hartman Road.

This development project is requesting two driveway connections, one to Okeechobee Road and one to Hartman Road. The requested driveways will provide access to both parcels. The requested driveway connections are described below:

DW # 1 on Okeechobee Road

This driveway connection will be located on Okeechobee Road approximately, 290 feet east of the nearest edge of pavement on Hartman Road. The existing concrete driveway apron to the east of the new driveway will be closed. This driveway is planned to operate as a right in/out driveway. The presence of the raised median on Okeechobee Road will physically prevent left turn movements at this driveway.

DW # 2 on Hartman Road

This driveway connection will be located on Hartman Road, approximately 360 feet north of the nearest edge of pavement on Okeechobee Road. This driveway will align opposite the existing driveway to the Orange Blossom Business Center. This driveway is planned to operate as a full access driveway.

The Site Access and Traffic Circulation Plan is on Figure 2.

TRIP DISTRIBUTION AND ASSIGNMENT

The site traffic distribution was determined based on the existing travel patterns, the area roadway network and the location of the major employment hubs. The site traffic distribution for this project is displayed graphical on Figure 3.

The percentage of PM peak-hour (two-way) net-new site traffic, with respect to the maximum service volumes (MSV) of the area roadways within the 0.5 mile radius of influence, were evaluated to determine the study area. The table below shows the net-new two-way PM peak-hour site traffic as a percentage of two-way peak hour MVS at Level of Service "D".

DETERMINATION OF STUDY AREA (SEGMENTS WITH 0.5 MILE RADIUS OF INFLUENCE)

Road Name	Limits	Station ID	Functional Class (1)	No. of Lanes	Speed Limit (MPH)	LOS STD (2)	2-Way PK-HR Capacity MSV (3)	Site Traffic Dist.	Net New Trips (2-way)	Site Traffic as % of MSV at LOS STD	Significant Impact Threshold	Significant Impact
Okeechobee Rd/SR 70	McNeil Rd to Virginia Ave	940742	Urban Principal Arterial	6D	45	D	5,390	40%	18	0.3%	>= 5%	no
Okeechobee Road	Virginia Ave to Hartman Rd	688	Urban Minor Arterial	4D	35	D	2,628	40%	18	0.7%	>= 5%	no
Okeechobee Road	Hartman Rd to Site DW # 1	689	Urban Minor Arterial	4D	35	D	2,628	27%	12	0.5%	>= 1%	no
Okeechobee Road	Site DW # 1 to 35th Street	689	Urban Minor Arterial	4D	35	D	2,628	20%	9	0.3%	>= 1%	no
Hartman Road	Virginia Ave to Okeechobee Rd	670	<i>roadway not listed</i>	2LU	35	D	1,197	36%	16	1.3%	>= 5%	no
Hartman Road	Okeechobee Rd to Site DW # 2	670	<i>roadway not listed</i>	2LU	35	D	1,197	62%	28	2.3%	>= 1%	yes
Hartman Road	Site DW # 2 to Peterson Rd	670	<i>roadway not listed</i>	2LU	35	D	1,197	9%	4	0.3%	>= 1%	no
Virginia Ave/SR 70	Okeechobee Rd to Hartman Rd	940030	Urban Principal Arterial	6D	45	D	5,390	0%	0	0.0%	>= 5%	no
Virginia Ave/SR 70	Hartman Rd to 35th Street	940030	Urban Principal Arterial	6D	45	D	5,390	31%	14	0.3%	>= 5%	no

2-Way, Net-Net, PM Peak-Hour Trips = 45

(1) St Lucie County Comprehensive Plan, Transportation Element, Map TRN-3
(2) St Lucie County Comprehensive Plan, Transportation Element, Table 2-4
(3) FDOT Generalized Peak-Hour Two-Way Maximum Service Volumes, Table 4 (2012) - with 10% reduction of non-state roadway

As indicated in the table above, only one roadway segment within the radius of influence is significantly impacted by the proposed Dollar Tree development. The adjacent roadway segment of Hartman Road (between Okeechobee Road and Site DW # 2/Orange Blossom Business Center) exceeds the 1% threshold test for significant impact. Therefore, the intersections on each end of the impacted roadway segment will be included in the study area.

The study area will include the following intersections and roadway segments:

Study Intersections

1. Hartman Road at Okeechobee Road (signalized)
2. Hartman Road at Site DW # 2/Orange Blossom Business Center (unsignalized)
3. Okeechobee Road at Site DW # 1 (unsignalized)

Study Roadway Segments

4. Okeechobee Road ((Hartman Rd to 35th Street) ID # 689
5. Hartman Road (Okeechobee Rd to Peterson Road) ID # 670

EXISTING TRAFFIC CONDITIONS

New PM peak-hour turning movement counts will be conducted at the study intersections listed above. The latest FDOT peak season factor will be applied to the raw traffic data adjust to peak season conditions. The truck percent utilized in the intersection capacity analyses will be two percent.

Signalized intersection capacity analysis will be conducted for the adjacent signalized intersection and the two site access driveways based on the procedures contained in the Highway Capacity Manual. Roadway link volume to capacity analysis capacity (PM peak-hour, two-way) will be preformed of the 2 roadway segments identified above. The link analysis will be based on the results of the new PM peak-hour traffic counts and the latest version of the FDOT Generalized MSV Tables.

POST DEVELOPMENT TRAFFIC CONDITIONS

The post development future traffic projections will be determine by adding the site traffic to the existing peak-season traffic volumes. Signalized intersection capacity analysis will be conducted for the adjacent signalized intersection and the two site access driveways based on the procedures contained in the Highway Capacity Manual. Roadway link volume to capacity analysis capacity (PM peak-hour, two-way) will be preformed of the 2 roadway segments identified above. The link analysis will be based on the results of the new PM peak-hour traffic counts and the latest version of the FDOT Generalized MSV Tables.

TURN LANE NEED AND LENGTH DETERMINATION

As mentioned in the Introduction section of this methodology letter, the traffic from the future outparcel development will be used to determine the need for exclusive turn lanes at the site access driveways.

The Florida Department of Transportation's Driveway Handbook (March 2005), will be utilized to determine the need for right turn lane(s) at the site access driveways. The National Cooperative Highway Research Program (NCHRP) Report 279 Intersection Channelization Design Guide, will be utilized to determine the need for left turn lane(s) at the site access driveways. If required, the deceleration length shall be based on Index 301 of FDOT's Design Standards. The storage length shall be based on 95th percentile queue estimates provided by the software used in the level of service computation.

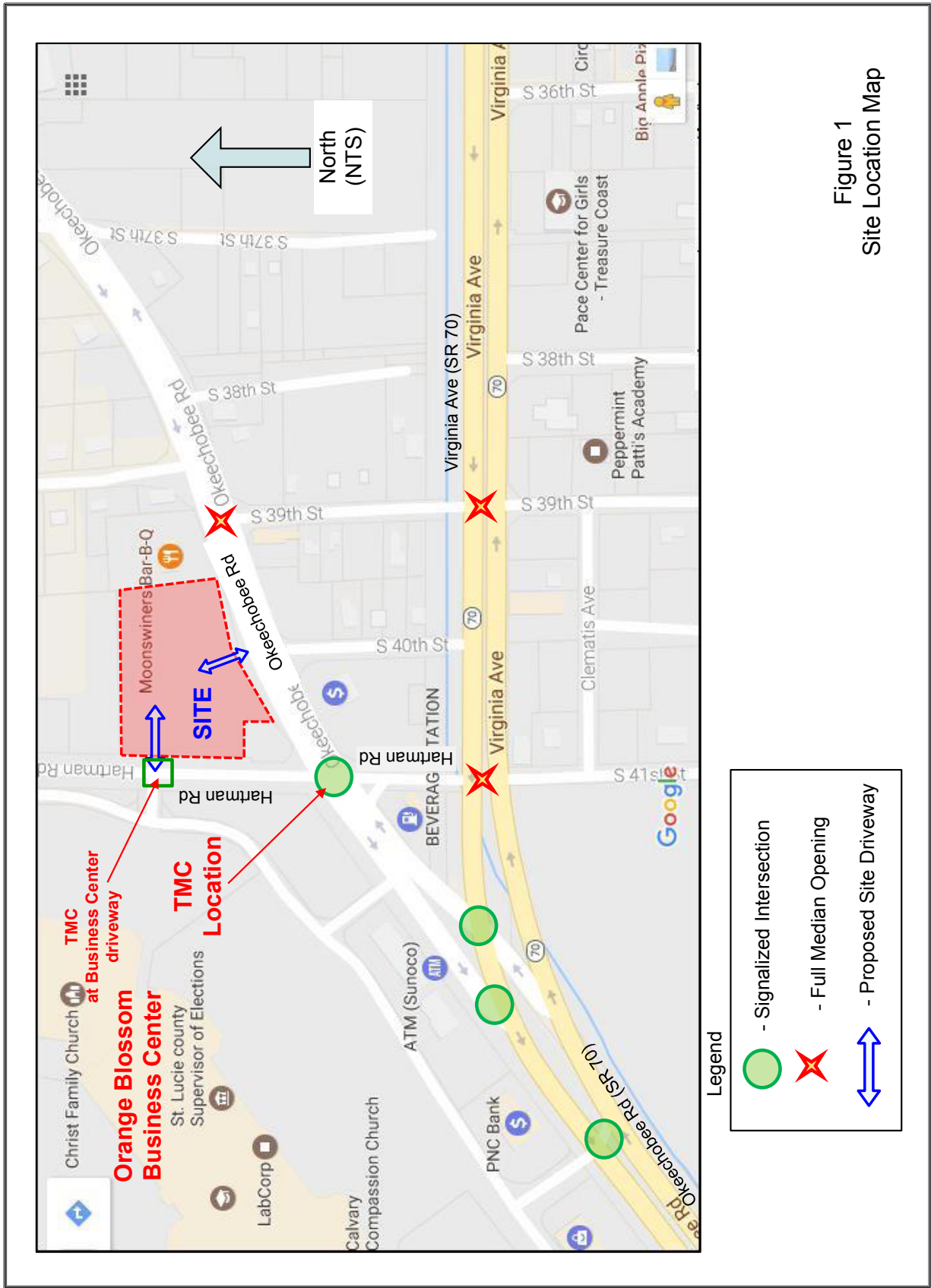
Please contact me if you have questions or comments regarding this letter.

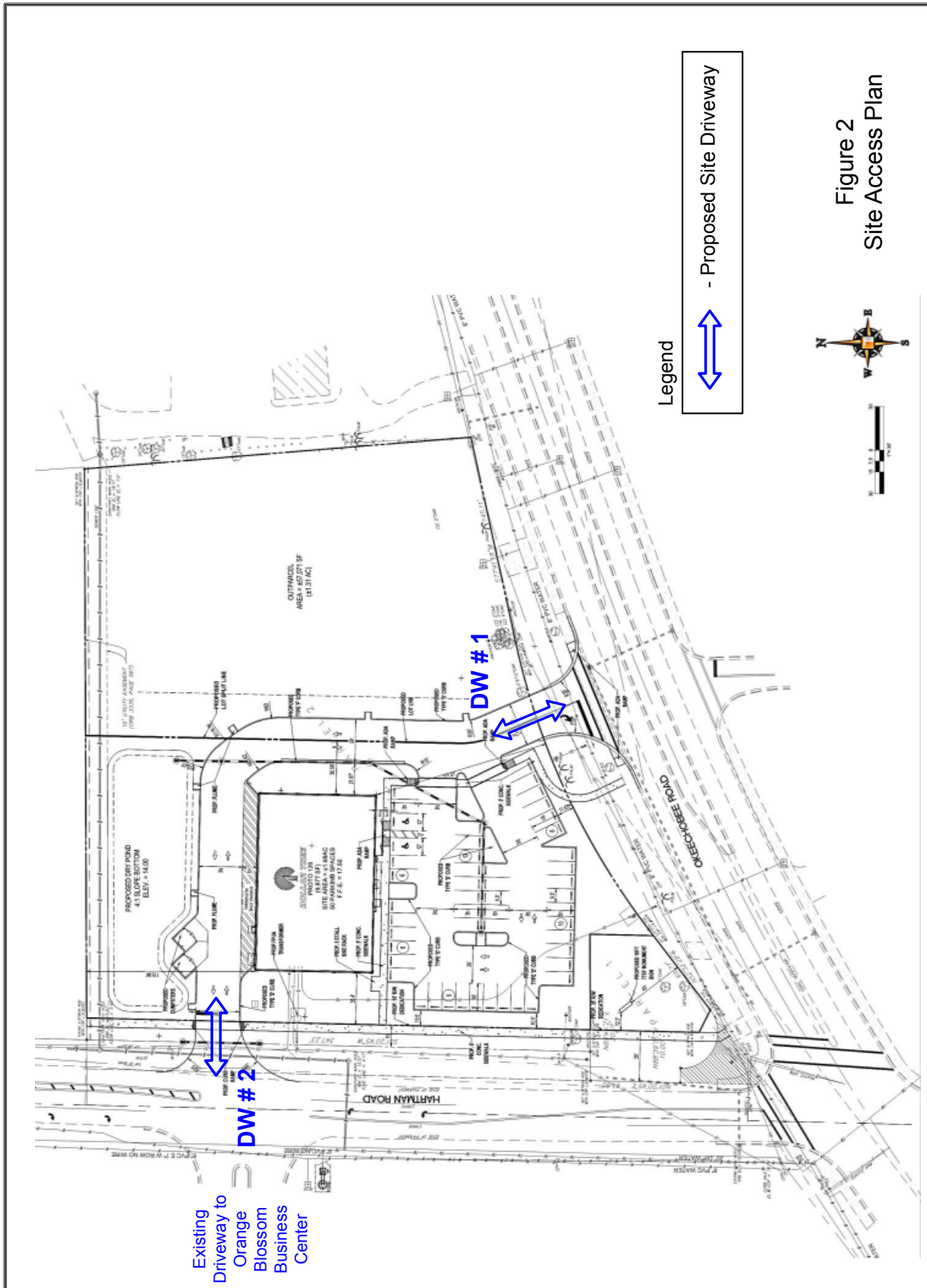
Sincerely,
TRUCKIN TRAFFIC, LLC



Jane A. Caldera, P.E.
Principal Traffic Engineer

CC: Jason Gunther - Thomas Engineering Group
Richard Bushey - CDA Holdings, LLC





Dollar Tree – Okeechobee Road at Hartman Road (NEC)

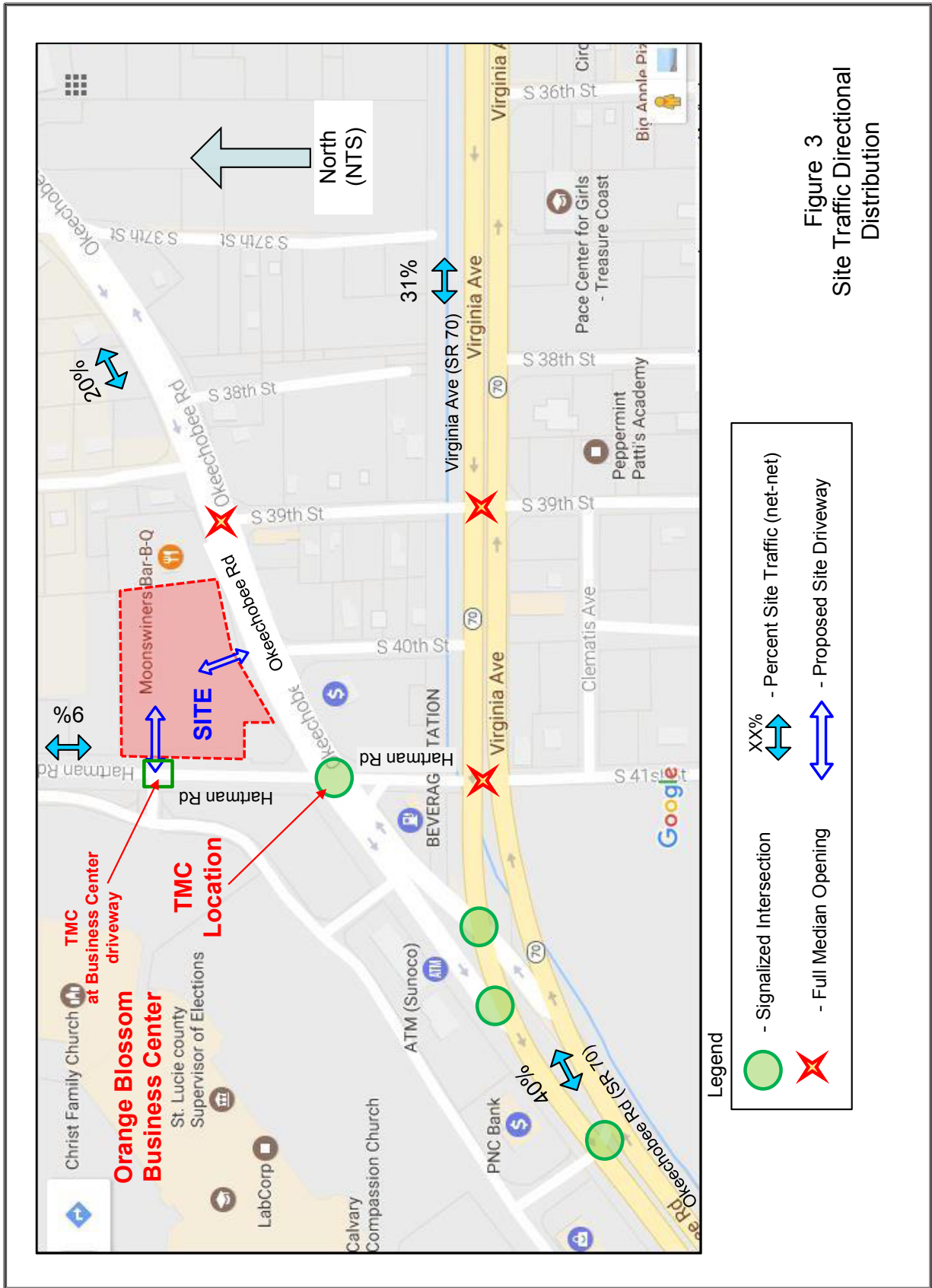


Figure 3
Site Traffic Directional
Distribution

Jane Caldera

From: Kori Benton <KBenton@City-FtPierce.Com>
Sent: Monday, August 21, 2017 8:56 AM
To: Jane Caldera
Subject: RE: Dollar Tree - Traffic Study (Methodology Letter)
Attachments: Okee at Hartman_new TMC.pdf; Hartman at Business Ctr Driveway_new TMC.pdf; FDOT peak season factor report St Lucie County 2016.pdf

Good morning,

Thank you for your patience. There's been no presented concern with use of the attached methodology for the proposed Traffic Analysis.

Thank you for your coordination with our team.

Best,
Kori

Kori Benton, MPA | Senior Planner | Planning Department

Economic Development Team
Phone: 772.467.3739 • Fax: 772.467.5808 • 100 North U.S. 1 Fort Pierce, FL 34950

[Website](#) | [Facebook](#) | [Survey](#)



From: "Jane Caldera" <janecaldera07@gmail.com>
To: "Kori Benton" <KBenton@City-FtPierce.Com>
Date: 08/14/2017 02:43 PM
Subject: RE: Dollar Tree - Traffic Study (Methodology Letter)

Kori,

I forgot that I had the new TMC's performed last month (on 7/8/17). I was trying to have the traffic study ready for Thomas's 1st submittal. I would like to use these TMC's and increase them by 1.12estaima peak season traffic conditions.

I have attached the new TMC's and the 2016 FDOT 2016 peak season factor category report for the this area for you review and consideration.

Please let me know if this is acceptable to the City.

Thanks, Jane

Regards,

Jane A. Caldera, P.E.

Truckin Traffic, LLC

Traffic Engineering / Transportation Planning

721 Gulf Boulevard, Suite 200

Indian Rocks Beach, Florida 33785

(727) 647-8196

Janecaldera07@gmail.com

From: Kori Benton [<mailto:KBenton@City-FtPierce.Com>]

Sent: Monday, August 14, 2017 1:15 PM

To: Jane Caldera <janecaldera07@gmail.com>

Cc: 'Eddie McDonald' <emcdonald@Thomaseg.com>; 'Jason M. Gunther' <jgunther@thomaseg.com>

Subject: RE: Dollar Tree - Traffic Study (Methodology Letter)

Good afternoon,

Thank you very much for the preparation and transmittal over to our team. We'll review and provide guidance accordingly. I hope to have a response by Thursday, or Friday at the latest.

Best,
Kori

Kori Benton, MPA | Senior Planner | Planning Department

Economic Development Team

Phone: 772.467.3739 • Fax: 772.467.5808 • 100 North U.S. 1 Fort Pierce, FL 34950

[Website](#) | [Facebook](#) | [Survey](#)



From: "Jane Caldera" <janecaldera07@gmail.com>
To: "Kori Benton" <KBenton@City-FtPierce.Com>
Cc: "Jason M. Gunther" <jgunther@thomaseg.com>, "Eddie McDonald" <emcdonald@Thomaseg.com>
Date: 08/14/2017 12:07 PM
Subject: RE: Dollar Tree - Traffic Study (Methodology Letter)

Kori,

Attached please find my methodology letter for the traffic study.

I am sending this letter to you directly, in hopes that I can get the methodology letter approved this week, so that I can get the required new traffic counts conducted next week.

A copy of this letter will also be included in the formal resubmittal that you will be receiving from Thomas Engineering.

Thanks, Jane

Regards,

Jane A. Caldera, P.E.

Truckin Traffic, LLC
Traffic Engineering / Transportation Planning
721 Gulf Boulevard, Suite 200
Indian Rocks Beach, Florida 33785
(727) 647-8196
Janecaldera07@gmail.com

From: Jane Caldera [<mailto:janecaldera07@gmail.com>]

Sent: Thursday, August 03, 2017 11:31 AM

To: 'Kori Benton' <KBenton@City-FtPierce.Com>

Cc: Jason M. Gunther <jgunther@thomaseg.com>; Eddie McDonald <emcdonald@Thomaseg.com>

Subject: RE: Dollar Tree - Traffic Study

Kori,

Thanks for sparking with me this morning regarding the traffic study.

Because there is a K-12 school located in the Orange Blossom Business Center (St James Christian Academy), which begins their new school year on August 21st, we will wait until August 22, 23, or 24 to perform the new traffic counts.

As we discussed, we will include the detailed traffic study methodology statement with our resubmit package. Then I will follow up with the completed traffic study the 1st week in Sept.

The traffic study will look at the traffic impacts for both parcels (Dollar Tree + future outparcel).

I speak with Jason at Thomas about FDOT comments.

Please let me know if you have any questions.

Thanks, Jane

Regards,

Jane A. Caldera, P.E.

Truckin Traffic, LLC
Traffic Engineering / Transportation Planning
721 Gulf Boulevard, Suite 200
Indian Rocks Beach, Florida 33785
(727) 647-8196
Janecaldera07@gmail.com

From: Kori Benton [<mailto:KBenton@City-FtPierce.Com>]

Sent: Thursday, August 03, 2017 11:00 AM

To: JaneCaldera07@gmail.com

Subject: Dollar Tree

Larry:

I would recommend requiring the cross access agreement with the outparcel for the joint use driveway and most important closing all existing driveways along the entire frontage of the site on Okeechobee Road. The site plan shows the existing driveways but does not show the curb being restored. The outparcel driveway should be closed, it is too close to the main driveway. Also, I would ask why the driveway's outbound radius is so large.

Thank you,

Dalila Fernandez, PE

District Traffic Access Manager
Marlin Engineering, FDOT District 4
3400 West Commercial Blvd
Fort Lauderdale, FL 33309-3421
(954) 777-4363

Kori Benton, MPA | Senior Planner | Planning Department

Economic Development Team
Phone: 772.467.3739 • Fax: 772.467.5808 • 100 North U.S. 1 Fort Pierce, FL 34950

[Website](#) | [Facebook](#) | [Survey](#)



Please Note: Florida has very broad public records laws. Under Florida law, e-mail addresses are public records. If you do not want your e-mail address released in response to a public-records request, do not send electronic mail to this entity. Your e-mail communications will be subject to public disclosure unless an exemption applies to the communication. If you received this email in error, please immediately notify the sender by reply e-mail and delete the e-mail and any associated materials from all devices.

Please Note: Florida has very broad public records laws. Under Florida law, e-mail addresses are public records. If you do not want your e-mail address released in response to a public-records request, do not send electronic mail to this entity. Your e-mail communications will be subject to public disclosure unless an exemption applies to the communication. If you received this email in error, please immediately notify the sender by reply e-mail and delete the e-mail and any associated materials from all devices.

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ITM Peak Hour Summary

Prepared by:

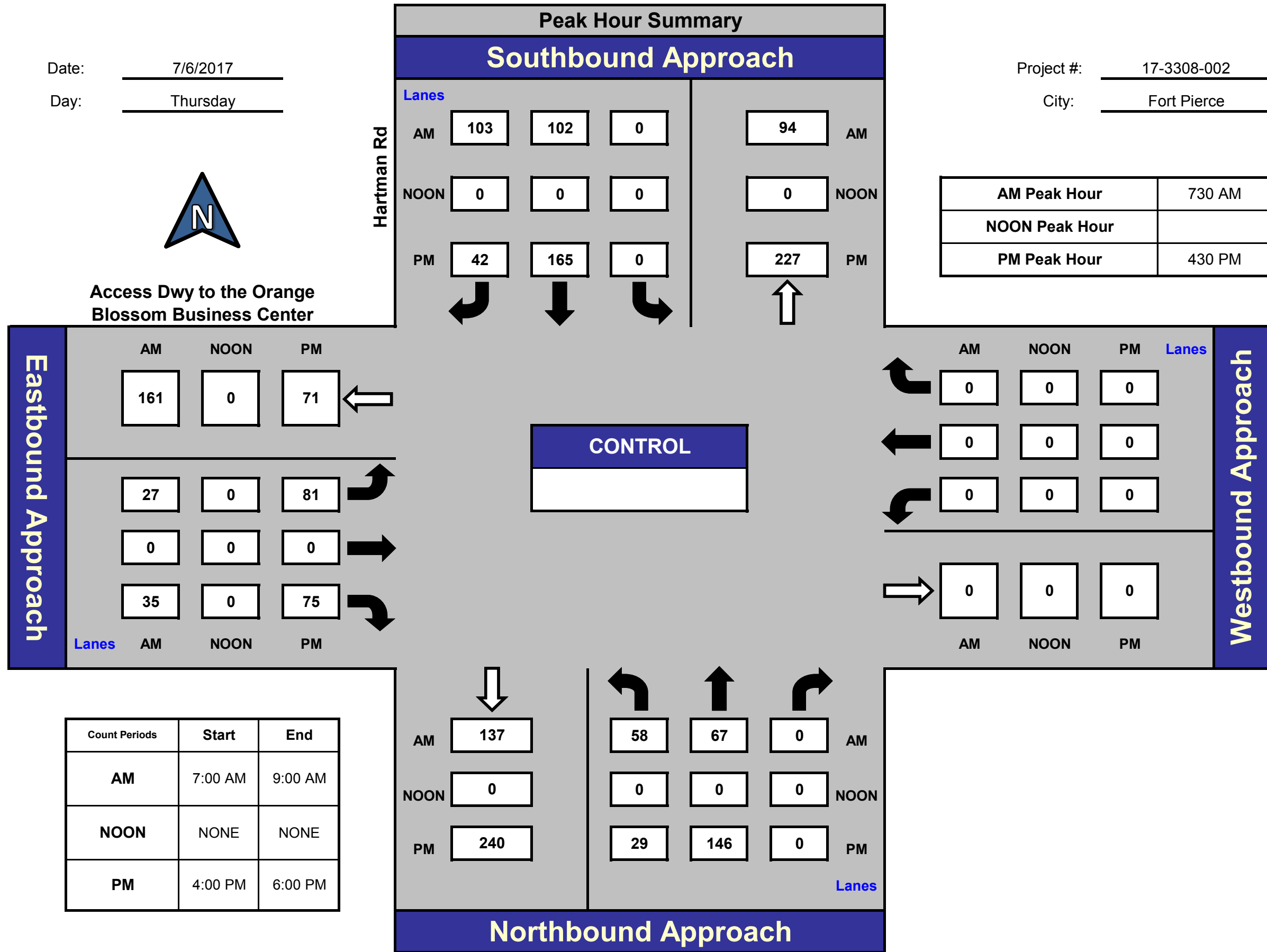


National Data & Surveying Services

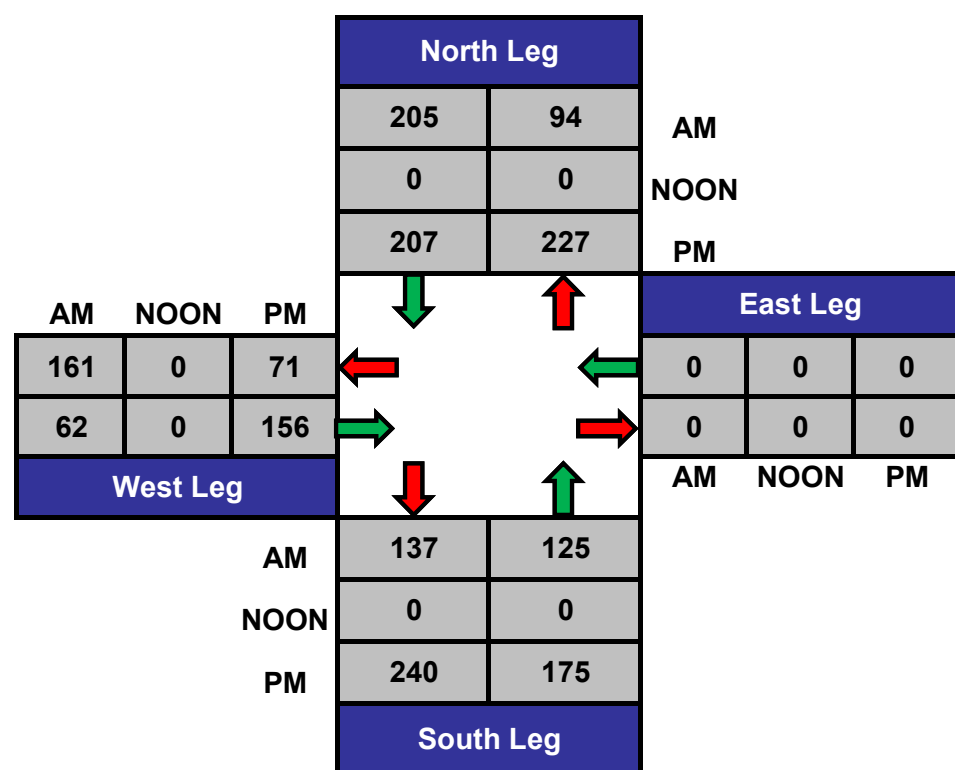
Hartman Rd and Access Dwy to the Orange Blossom Business Center, Fort Pierce

Date: 7/6/2017
Day: Thursday

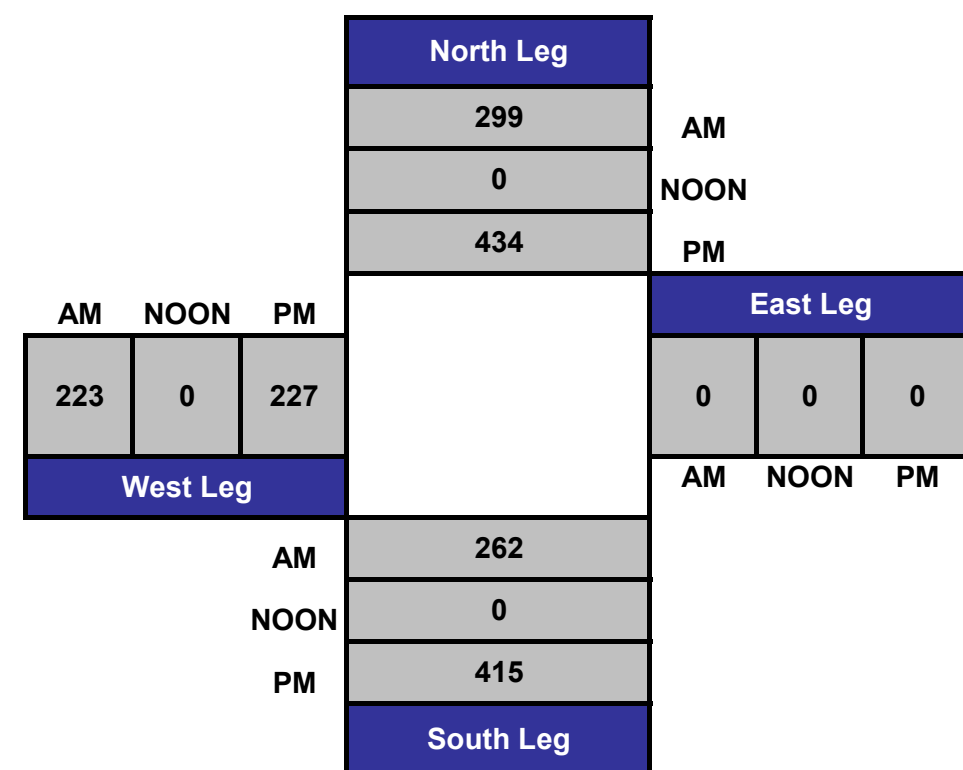
Project #: 17-3308-002
City: Fort Pierce

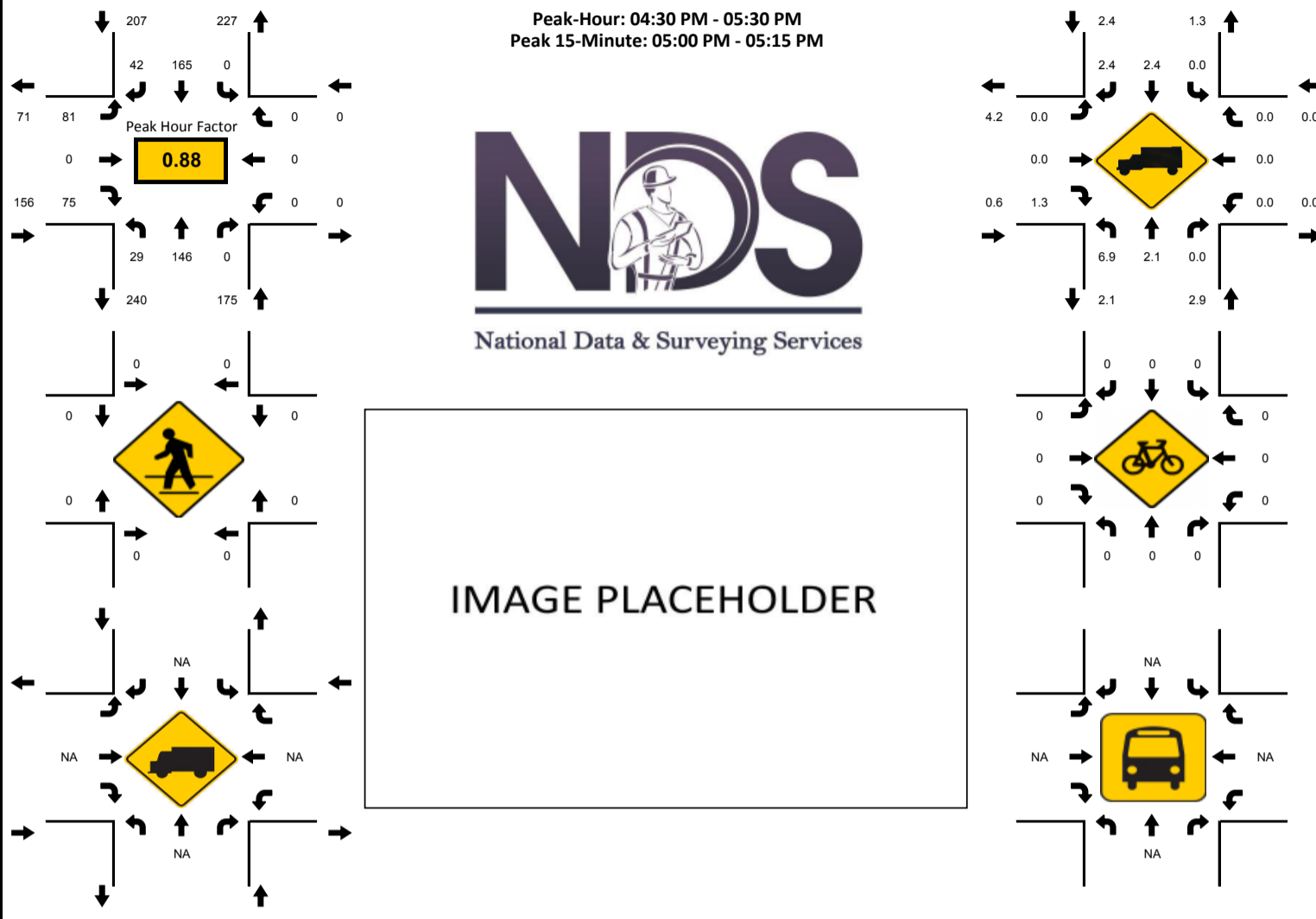


Total Ins & Outs



Total Volume Per Leg





15-Min Count Period Beginning At	Hartman Rd Northbound					Hartman Rd Southbound					Access Dwy to the Orange Blossom Business Center Eastbound					Access Dwy to the Orange Blossom Business Center Westbound					Total	Hourly Total
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
04:00 PM	0	42	0	0		0	34	9	0		18	0	17	0		0	0	0	0		120	495
04:15 PM	3	42	0	0		0	36	7	0		12	0	6	0		0	0	0	0		106	528
04:30 PM	6	34	0	0		0	40	15	0		31	0	23	0		0	0	0	0		149	538
04:45 PM	7	39	0	0		0	34	10	0		10	0	20	0		0	0	0	0		120	530
05:00 PM	9	40	0	0		0	46	8	0		28	0	22	0		0	0	0	0		153	526
05:15 PM	7	33	0	0		0	45	9	0		12	0	10	0		0	0	0	0		116	373
05:30 PM	10	53	0	0		0	35	15	0		13	0	15	0		0	0	0	0		141	257
05:45 PM	4	47	0	0		0	35	7	0		12	0	11	0		0	0	0	0		116	116
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
All Vehicles	36	160	0	0		0	184	60	0		124	0	92	0		0	0	0	0		656	
Heavy Trucks	8	4	0			0	8	4			0	0	4			0	0	0			28	
Pedestrians		0					0					0					0				0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																						
Stopped Buses																						

ITM Peak Hour Summary

Prepared by:

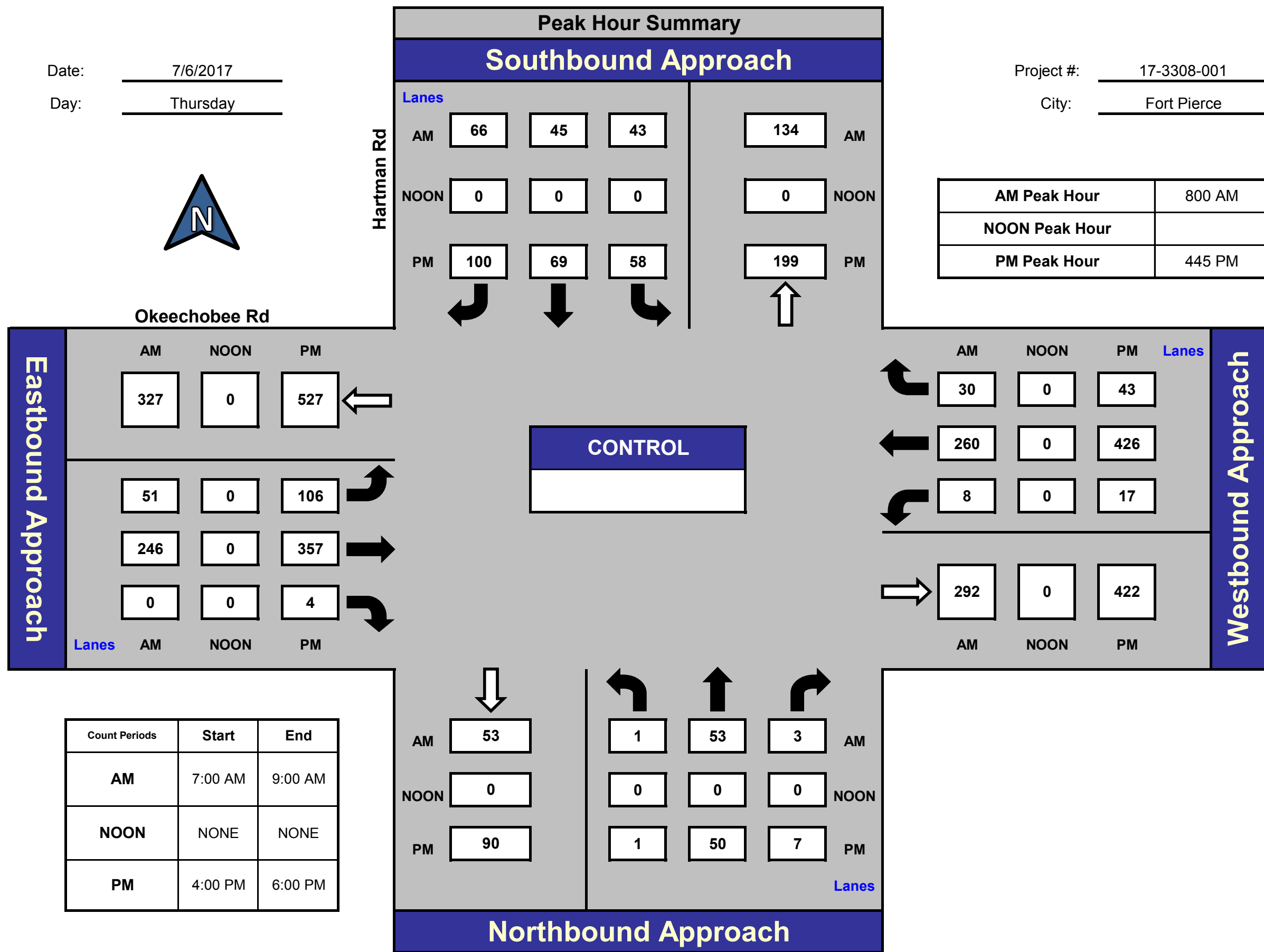


National Data & Surveying Services

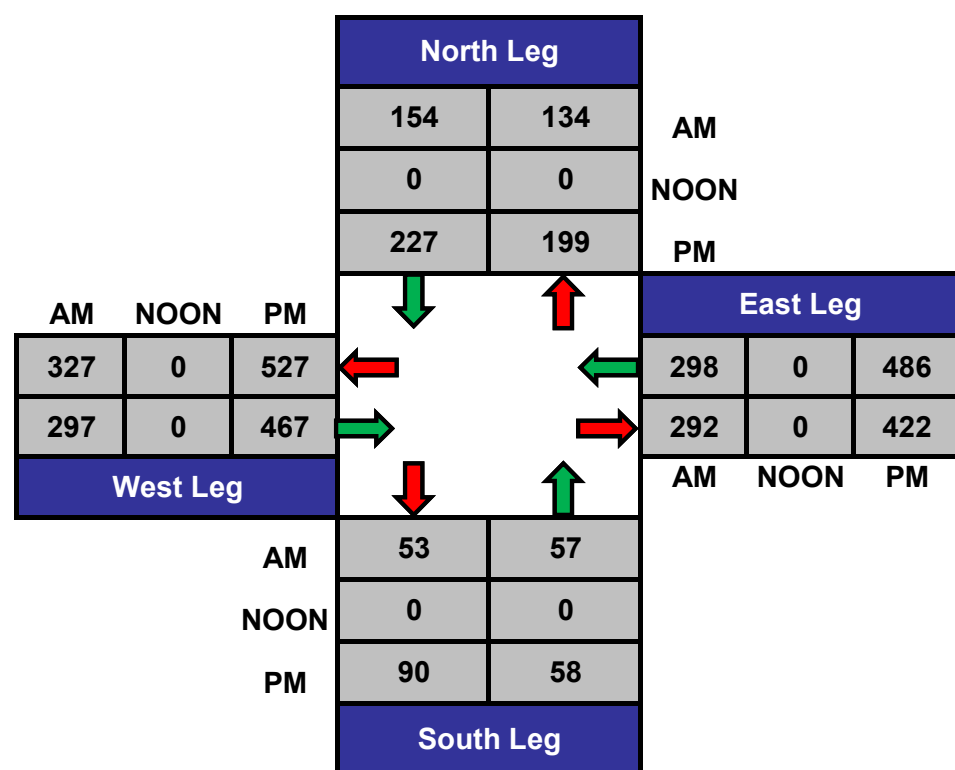
Hartman Rd and Okeechobee Rd , Fort Pierce

Date: 7/6/2017
Day: Thursday

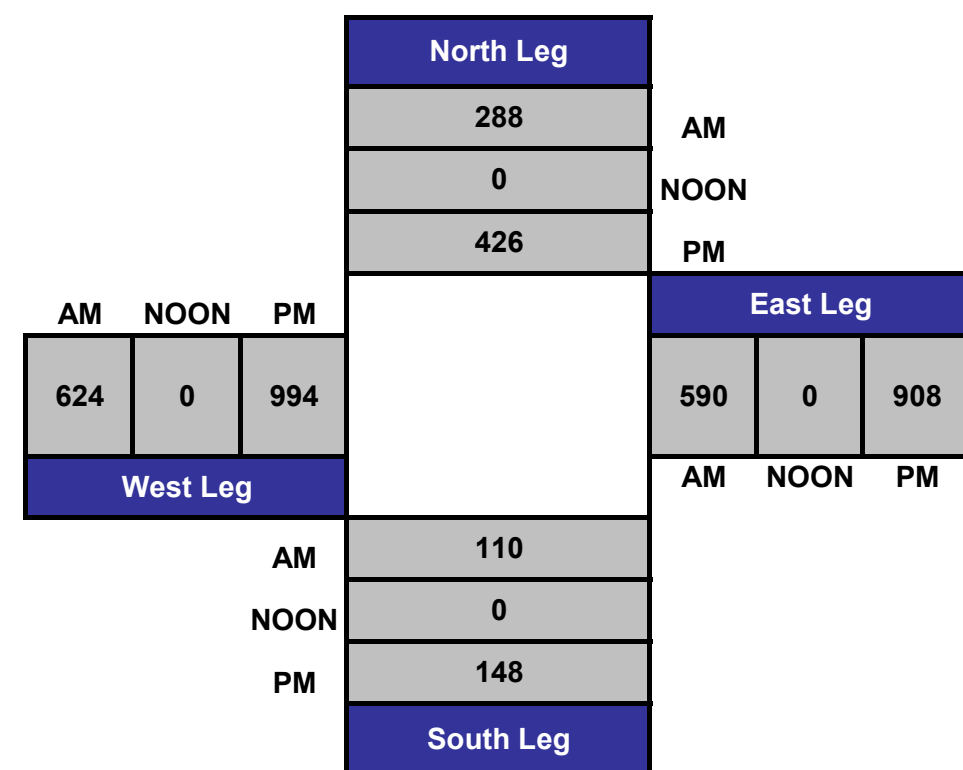
Project #: 17-3308-001
City: Fort Pierce



Total Ins & Outs



Total Volume Per Leg



2016 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
 CATEGORY: 9401 CEN.-W OF US1 TO I95

MOCF: 0.95
 PSCF

WEEK	DATES	SF	PSCF
1	01/01/2016 - 01/02/2016	0.97	1.02
2	01/03/2016 - 01/09/2016	0.99	1.04
3	01/10/2016 - 01/16/2016	1.00	1.05
4	01/17/2016 - 01/23/2016	0.99	1.04
* 5	01/24/2016 - 01/30/2016	0.97	1.02
* 6	01/31/2016 - 02/06/2016	0.96	1.01
* 7	02/07/2016 - 02/13/2016	0.94	0.99
* 8	02/14/2016 - 02/20/2016	0.93	0.98
* 9	02/21/2016 - 02/27/2016	0.93	0.98
*10	02/28/2016 - 03/05/2016	0.94	0.99
*11	03/06/2016 - 03/12/2016	0.94	0.99
*12	03/13/2016 - 03/19/2016	0.94	0.99
*13	03/20/2016 - 03/26/2016	0.95	1.00
*14	03/27/2016 - 04/02/2016	0.96	1.01
*15	04/03/2016 - 04/09/2016	0.96	1.01
*16	04/10/2016 - 04/16/2016	0.97	1.02
*17	04/17/2016 - 04/23/2016	0.98	1.03
18	04/24/2016 - 04/30/2016	1.00	1.05
19	05/01/2016 - 05/07/2016	1.01	1.06
20	05/08/2016 - 05/14/2016	1.03	1.08
21	05/15/2016 - 05/21/2016	1.04	1.09
22	05/22/2016 - 05/28/2016	1.04	1.09
23	05/29/2016 - 06/04/2016	1.05	1.11
24	06/05/2016 - 06/11/2016	1.05	1.11
25	06/12/2016 - 06/18/2016	1.05	1.11
26	06/19/2016 - 06/25/2016	1.05	1.11
27	06/26/2016 - 07/02/2016	1.06	1.12
28	07/03/2016 - 07/09/2016	1.06	1.12
29	07/10/2016 - 07/16/2016	1.06	1.12
30	07/17/2016 - 07/23/2016	1.06	1.12
31	07/24/2016 - 07/30/2016	1.05	1.11
32	07/31/2016 - 08/06/2016	1.05	1.11
33	08/07/2016 - 08/13/2016	1.04	1.09
34	08/14/2016 - 08/20/2016	1.04	1.09
35	08/21/2016 - 08/27/2016	1.04	1.09
36	08/28/2016 - 09/03/2016	1.05	1.11
37	09/04/2016 - 09/10/2016	1.05	1.11
38	09/11/2016 - 09/17/2016	1.05	1.11
39	09/18/2016 - 09/24/2016	1.04	1.09
40	09/25/2016 - 10/01/2016	1.02	1.07
41	10/02/2016 - 10/08/2016	1.01	1.06
42	10/09/2016 - 10/15/2016	0.99	1.04
43	10/16/2016 - 10/22/2016	0.99	1.04
44	10/23/2016 - 10/29/2016	0.99	1.04
45	10/30/2016 - 11/05/2016	1.00	1.05
46	11/06/2016 - 11/12/2016	1.00	1.05
47	11/13/2016 - 11/19/2016	1.00	1.05
48	11/20/2016 - 11/26/2016	0.99	1.04
49	11/27/2016 - 12/03/2016	0.99	1.04
50	12/04/2016 - 12/10/2016	0.98	1.03
51	12/11/2016 - 12/17/2016	0.97	1.02
52	12/18/2016 - 12/24/2016	0.99	1.04
53	12/25/2016 - 12/31/2016	1.00	1.05

peak season adjustment factor for
 Okeechobee Rd at Hartman Rd
 (Dollar Tree project)

* PEAK SEASON

21-FEB-2017 10:54:35

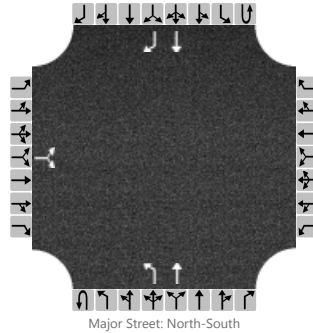
830UPD

4_9401_PKSEASON.TXT

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	JAC	Intersection	Hartman Rd
Agency/Co.	Truckin Traffic, LLC	Jurisdiction	Fort Pierce
Date Performed	9/25/17	East/West Street	Orange Blossom Bus Ctr
Analysis Year	2017	North/South Street	Hartman Rd
Time Analyzed	EXISTING PM PEAK HOUR	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Dollar Tree Development		

Lanes



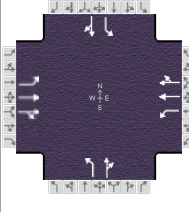
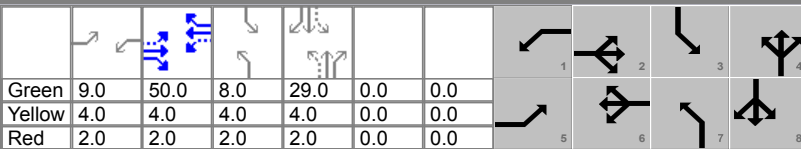
Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	1	1	0	0	0	1	1
Configuration			LR							L	T				T	R
Volume (veh/h)		84		91						32	164				185	47
Percent Heavy Vehicles		2		2						2						
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			198									36				
Capacity			626									1300				
v/c Ratio			0.32									0.03				
95% Queue Length			1.4									0.1				
Control Delay (s/veh)			13.4									7.8				
Level of Service (LOS)			B									A				
Approach Delay (s/veh)	13.4								1.3							
Approach LOS	B								A							

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information											
Agency	Truckin Traffic LLC			Duration, h	1.00										
Analyst	JAC	Analysis Date	Sep 25, 2017	Area Type	Other										
Jurisdiction	Fort Pierce	Time Period	PM PK-HR PK-SEASON	PHF	1.00										
Urban Street	Okeechobee Road	Analysis Year	2017	Analysis Period	1> 7:00										
Intersection	Hartman Road	File Name	Okee Hart EXT PM.xus												
Project Description	Dollar Tree Development														
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				119	400	4	19	477	48	1	56	8	65	77	112
Signal Information															
Cycle, s	120.0	Reference Phase	2												
Offset, s	0	Reference Point	End												
Uncoordinated	No	Simult. Gap E/W	On												
Force Mode	Float	Simult. Gap N/S	On												
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase				5	2	1	6	7	4	3	8				
Case Number				1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0				
Phase Duration, s				15.0	56.0	15.0	56.0	14.0	35.0	14.0	35.0				
Change Period, ($Y+R_c$), s				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Allow Headway (MAH), s				3.1	0.0	3.1	0.0	3.1	3.1	3.1	3.1				
Queue Clearance Time (g_s), s				5.1		1.6		1.0	4.2	4.0	8.8				
Green Extension Time (g_e), s				0.1	0.0	0.0	0.0	0.0	0.4	0.0	0.3				
Phase Call Probability				1.00		1.00		1.00	1.00	1.00	1.00				
Max Out Probability				0.38		0.00		0.00	0.00	0.27	0.00				
Movement Group Results				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				5	2	12	1	6	16	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h				119	202	202	19	265	260	1	64		65	144	
Adjusted Saturation Flow Rate (s), veh/h/ln				1810	1900	1896	1810	1900	1862	1810	1874		1810	1807	
Queue Service Time (g_s), s				4.1	4.5	4.5	0.6	6.3	6.4	0.0	3.2		3.0	7.8	
Cycle Queue Clearance Time (g_c), s				4.1	4.5	4.5	0.6	6.3	6.4	0.0	3.2		3.0	7.8	
Green Ratio (g/C)				0.51	0.42	0.42	0.51	0.42	0.42	0.32	0.25		0.32	0.25	
Capacity (c), veh/h				557	808	806	610	808	791	439	469		507	452	
Volume-to-Capacity Ratio (X)				0.213	0.250	0.251	0.031	0.328	0.329	0.002	0.137		0.128	0.319	
Available Capacity (c_a), veh/h				557	808	806	610	808	791	439	469		507	452	
Back of Queue (Q), veh/ln (50 th percentile)				1.6	1.9	1.9	0.2	2.6	2.5	0.0	1.5		1.3	3.4	
Queue Storage Ratio (RQ) (50 th percentile)				0.00	0.00	0.00	0.02	0.06	0.06	0.00	0.15		0.17	0.25	
Uniform Delay (d_1), s/veh				14.9	10.9	10.7	13.9	11.1	11.0	27.8	34.9		28.5	36.7	
Incremental Delay (d_2), s/veh				0.1	0.7	0.7	0.0	1.1	1.1	0.0	0.0		0.0	0.1	
Initial Queue Delay (d_3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh				15.0	11.6	11.5	13.9	12.2	12.1	27.8	35.0		28.5	36.8	
Level of Service (LOS)				B	B	B	B	B	B	C	C		C	D	
Approach Delay, s/veh / LOS				12.3		B	12.2		B	34.9		C	34.2		C
Intersection Delay, s/veh / LOS				16.8						B					
Multimodal Results				EB			WB			NB			SB		
Pedestrian LOS Score / LOS				2.3		B	2.3		B	2.8		C	2.8		C
Bicycle LOS Score / LOS				0.9		A	0.9		A	0.6		A	0.8		A

AM PEAK HOUR

Okeechobee Road at Hartman Road																					
Movement	SB RR	SB Th	SB Lt	SB UT	SB Tct.	WB Rt	WB Th	WB Lt	WB UT	WB Tct.	NB Rt	NB Th	NB Lt	NB UT	NB Tct.	EB Rt	EB Th	EB Lt	EB UT	EB Tct.	Int. Total
2017 AM PK - (Raw Data)	66	45	43	0	154	30	260	7	1	298	3	53	1	0	57	0	246	51	0	297	806
2017 AM Peak Season	74	50	48	0	172	34	291	8	1	334	3	59	1	0	64	0	276	57	0	333	903

Percent Distribution	19% out	31% out	7% out	0%	0%	20% out	7% out	7% out	0%	0%	0%	31% in	0%	0%	0%	0%	0%	39% in	0%	0%	0%	
Net-New	0%	0%	40% out	0%	0%	0%	0%	7% out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pass-By	2	3	1	0	0	2	1	1	0	0	0	5	0	0	0	0	0	6	0	0	0	20
Project Trips	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	(3)	3	0	0	0	2
Total Post Dev. Traffic	76	53	51	0	180	34	293	9	2	337	3	64	1	0	69	0	272	66	0	339	924	
Trip Generation						AM IN	AM OUT	TOT														
Site Traffic						16	10	25														
Net-New						8	5	13														
Pass-By																						

Peak Season Factor = 1.12

PM PEAK HOUR

Okeechobee Road at Hartman Road																					
Movement	SB Rt	SB Th	SB Lt	SB UT	SB Tot.	WB Rt	WB Th	WB Lt	WB UT	WB Tot.	NB Rt	NB Th	NB Lt	NB UT	NB Tot.	EB Rt	EB Th	EB Lt	EB UT	EB Tot.	Int. Total
2017 PM PK - (Raw Data)	100	69	58	0	227	43	426	17	0	486	7	50	1	0	58	4	357	106	0	467	1,238
2017 PM Peak Season	112	77	65	0	254	48	477	19	0	544	8	56	1	0	65	4	400	119	0	523	1,387

Percent Distribution	19% out	31% out	7% out	0%	0%	20% out	7% out	7% out	0%	0%	31% in	0%	0%	0%	0%	0%	0%	39% in	0%	0%	0%
Net-New	0%	0%	40% out	0%	0%	0%	0%	7% out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pass-By	4	7	2	0	0	5	2	2	0	0	7	0	0	0	0	0	0	8	0	0	36
Project Trips	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	(4)	4	0	0	5
Net-New	116	85	71	0	272	48	482	21	2	552	8	63	1	0	72	4	385	132	0	531	1,428
Total Post Dev. Traffic						PM IN	PM OUT	TOT													
Trip Generation						22	23	45													
Site Traffic																					
Net-New																					
Pass-By						11	12	23													
Pass-By																					

Peak Season Factor = 1.12

AM PEAK HOUR

DW # 1 at Okeechobee Rd Hartman Road																					
Movement	SB Rt	SB Th	SB Lt	SB UT	SB Tot.	WB Rt	WB Th	WB Lt	WB UT	WB Tot.	NB Rt	NB Th	NB Lt	NB UT	NB Tot.	EB Rt	EB Th	EB Lt	EB UT	EB Tot.	Int. Total
2017 AM PK - (Raw Data)	0	0	0	0	0	298	0	0	0	298	0	0	0	0	0	0	292	0	0	292	590
2017 AM Peak Season	0	0	0	0	0	334	0	0	0	334	0	0	0	0	0	0	327	0	0	327	661

Percent Distribution	34% out	0%	0%	0%	0%	21% in	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Net-New																						
Pass-By	60% out	0%	0%	0%	0%	60% in	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Project Trips																						
Net-New	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	
Pass-by	3	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
Total Post Dev. Traffic	6	0	0	0	0	8	334	0	0	342	0	0	0	0	0	0	327	0	0	327	675	
Trip Generation																						
Site Traffic						AM IN	AM OUT	TOT														
Net-New						16	10	25														
Pass-By						8	5	13														

Peak Season Factor = 1.12

PM PEAK HOUR

DW # 1 at Okeechobee Rd Hartman Road																					
Movement	SB Rt	SB Th	SB Lt	SB UT	SB Tot.	WB Rt	WB Th	WB Lt	WB UT	WB Tot.	NB Rt	NB Th	NB Lt	NB UT	NB Tot.	EB Rt	EB Th	EB Lt	EB UT	EB Tot.	Int. Total
2017 PM PK - (Raw Data)	0	0	0	0	0	0	486	0	0	486	0	0	0	0	0	0	422	0	0	422	908
2017 PM Peak Season	0	0	0	0	0	0	544	0	0	544	0	0	0	0	0	0	473	0	0	473	1,017

Percent Distribution	34% out	0%	0%	0%	0%	21% in	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Net-New																						
Pass-By	60% out	0%	0%	0%	0%	60% in	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Project Trips																						
Net-New	8	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	
Pass-by	7	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	
Total Post Dev. Traffic	15	0	0	0	15	11	544	0	0	556	0	0	0	0	0	0	473	0	0	473	1,043	
Trip Generation						PM IN	PM OUT	TOT														
Site Traffic						22	23	45														
Net-New																						
Pass-By						11	12	23														

Peak Season Factor = 1.12

AM PEAK HOUR

Movement	DW # 2 / Orange Blossom Bus. Ctr / Hartman Road																				
	SB Rt	SB Th	SB Lt	SB UT	SB Tot	WB Rt	WB Th	WB Lt	WB UT	WB Tot	NB Rt	NB Th	NB Lt	NB UT	NB Tot	EB Rt	EB Th	EB Lt	EB UT	EB Tot	Int. Total
2017 AM PK - (Raw Data)	103	102	0	0	205	0	0	0	0	0	0	67	68	0	125	35	0	27	0	62	392
2017 AM Peak Season	115	114	0	0	230	0	0	0	0	0	0	75	65	0	140	39	0	30	0	69	439

Percent Distribution	DW # 2 / Orange Blossom Bus. Ctr / Hartman Road																				
	SB Rt	SB Th	SB Lt	SB UT	SB Tot	WB Rt	WB Th	WB Lt	WB UT	WB Tot	NB Rt	NB Th	NB Lt	NB UT	NB Tot	EB Rt	EB Th	EB Lt	EB UT	EB Tot	Int. Total
Net-New	0%	0%	9%	in	0%	9%	out	0%	57%	out	0%	70%	in	0%	0%	0%	0%	0%	0%	0%	0%
Pass-By	0%	0%	0%	0%	0%	0%	0%	40%	out	0%	40%	in	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	1	0	0	1	0	9	0	0	11	0	0	0	0	0	0	0	0	0	22
Net-New	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	6
Pass-By	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Total Post Dev. Traffic	115	114	1	0	231	1	0	12	0	13	14	75	65	0	154	39	0	30	0	69	467
Trip Generation																					
Site Traffic						AM IN	AM OUT	TOT													
Net-New						16	10	25													
Pass-By						8	5	13													

Peak Season Factor = 1.12

PM PEAK HOUR

DW # 2 / Orange Blossom Bus. Ctr / Hartman Road																					
Movement	SB Rt	SB Th	SB Lt	SB UT	SB Tct.	WB Rt	WB Th	WB Lt	WB UT	WB Tct.	NB Rt	NB Th	NB Lt	NB UT	NB Tct.	EB Rt	EB Th	EB Lt	EB UT	EB Tct.	Int. Total
2017 PM PK - (Raw Data)	42	165	0	0	207	0	0	0	0	0	0	146	29	0	175	75	0	81	0	156	538
2017 PM Peak Season	47	185	0	0	232	0	0	0	0	0	0	164	32	0	196	84	0	91	0	175	603

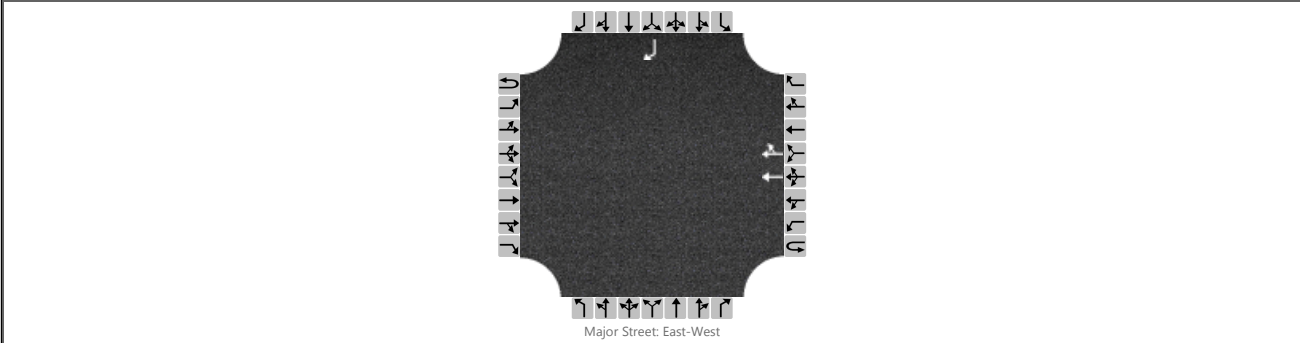
Percent Distribution	SB Rt	SB Th	SB Lt	SB UT	SB Tct.	WB Rt	WB Th	WB Lt	WB UT	WB Tct.	NB Rt	NB Th	NB Lt	NB UT	NB Tct.	EB Rt	EB Th	EB Lt	EB UT	EB Tct.	Int. Total	
Net-New	0%	0%	9%	in	0%	9%	out	0%	57%	out	0%	70%	in	0%	0%	0%	0%	0%	0%	0%	0%	
Pass-By	0%	0%	0%	0%	0%	0%	0%	40%	out	0%	40%	in	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Project Trips	0	0	2	0	0	2	0	12	0	0	15	0	0	0	0	0	0	0	0	0	31	
Net-New	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	9	
Pass-by	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	9	
Total Post Dev. Traffic	47	185	2	0	234	2	0	17	0	19	20	164	32	0	216	84	0	91	0	175	643	
Trip Generation																						
Site Traffic						PM IN	PM OUT	TOT														
Net-New						22	23	45														
Pass-By						11	12	23														

Peak Season Factor = 1.12

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	JAC	Intersection	Okeechobee Rd
Agency/Co.	Truckin Traffic, LLC	Jurisdiction	Fort Pierce
Date Performed	9/25/17	East/West Street	Okeechobee Rd
Analysis Year	2018	North/South Street	Site DW # 1
Time Analyzed	POST DEV PROJ - PM PK HR	Peak Hour Factor	0.88
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Dollar Tree Development		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	0	0	0	0	2	0		0	0	0		0	0	1
Configuration							T	TR								R
Volume (veh/h)							544	11								15
Percent Heavy Vehicles																3
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

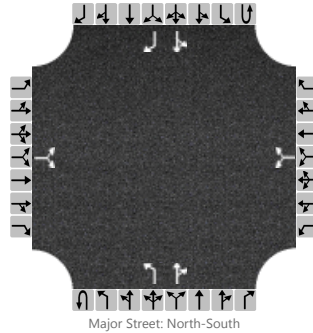
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)																	17
Capacity																	678
v/c Ratio																	0.03
95% Queue Length																	0.1
Control Delay (s/veh)																	10.4
Level of Service (LOS)																	B
Approach Delay (s/veh)													10.4				
Approach LOS													B				

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	JAC	Intersection	Hartman Rd
Agency/Co.	Truckin Traffic, LLC	Jurisdiction	Fort Pierce
Date Performed	9/25/17	East/West Street	Orange Blossom Bus Ctr
Analysis Year	2018	North/South Street	Hartman Rd
Time Analyzed	POST DEV PROJ - PM PK HR	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Dollar Tree Development		

Lanes



Vehicle Volumes and Adjustments

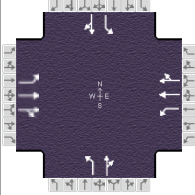
Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	0	0		0	0	0	0	1	1	0	0	0	1	1	
Configuration			LR				LR			L		TR		LT		R	
Volume (veh/h)		084		91		2		17		32	164	20		2	185	47	
Percent Heavy Vehicles		2		2		2		2		2				1			
Proportion Time Blocked																	
Right Turn Channelized	No				No				No				No				
Median Type	Undivided																
Median Storage																	

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			198				21			36				212			
Capacity			603				759			1300				1367			
v/c Ratio			0.33				0.03			0.03				0.16			
95% Queue Length			1.4				0.1			0.1				0.0			
Control Delay (s/veh)			13.9				9.9			7.8				7.6			
Level of Service (LOS)			B				A			A				A			
Approach Delay (s/veh)	13.9				9.9				1.2				0.1				
Approach LOS	B				A				A				A				

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Truckin Traffic LLC			Duration, h	1.00
Analyst	JAC	Analysis Date	Sep 25, 2017	Area Type	Other
Jurisdiction	Fort Pierce	Time Period	PM PK-HR PK-SEASON	PHF	1.00
Urban Street	Okeechobee Road	Analysis Year	2018 Post Dev Projections	Analysis Period	1 > 7:00
Intersection	Hartman Road	File Name	Okee Hart post PM.xus		
Project Description	Dollar Tree Development				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	132	395	4	23	482	48	1	63	8	71	85	116

Signal Information				Signal Timing (s)									
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	9.0	50.0	8.0	29.0	0.0	0.0			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	4.0	0.0	0.0			
Force Mode	Float	Simult. Gap N/S	On	Red	2.0	2.0	2.0	2.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	7	4	3	8
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	15.0	56.0	15.0	56.0	14.0	35.0	14.0	35.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	5.6		1.7		1.0	4.5	4.3	9.5
Green Extension Time (g_e), s	0.1	0.0	0.0	0.0	0.0	0.4	0.0	0.4
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.72		0.00		0.00	0.00	0.43	0.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	5	2	12	1	6	16	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	132	200	199	23	267	263	1	71		71	156	
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1900	1896	1810	1900	1863	1810	1877		1810	1809	
Queue Service Time (g_s), s	4.6	4.5	4.5	0.7	6.4	6.5	0.0	3.5		3.3	8.5	
Cycle Queue Clearance Time (g_c), s	4.6	4.5	4.5	0.7	6.4	6.5	0.0	3.5		3.3	8.5	
Green Ratio (g/C)	0.51	0.42	0.42	0.51	0.42	0.42	0.32	0.25		0.32	0.25	
Capacity (c), veh/h	555	808	806	612	808	792	429	469		501	452	
Volume-to-Capacity Ratio (X)	0.238	0.247	0.247	0.038	0.331	0.332	0.002	0.151		0.142	0.345	
Available Capacity (c_a), veh/h	555	808	806	612	808	792	429	469		501	452	
Back of Queue (Q), veh/ln (50 th percentile)	1.8	1.9	1.9	0.3	2.6	2.6	0.0	1.6		1.4	3.8	
Queue Storage Ratio (RQ) (50 th percentile)	0.00	0.00	0.00	0.03	0.07	0.06	0.00	0.16		0.18	0.27	
Uniform Delay (d_1), s/veh	15.0	10.9	10.7	14.0	11.2	11.0	27.8	35.1		28.6	36.9	
Incremental Delay (d_2), s/veh	0.1	0.7	0.7	0.0	1.1	1.1	0.0	0.1		0.0	0.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	15.1	11.6	11.4	14.0	12.3	12.1	27.8	35.1		28.6	37.1	
Level of Service (LOS)	B	B	B	B	B	B	C	D		C	D	
Approach Delay, s/veh / LOS	12.4		B	12.3		B	35.0		D	34.5		C
Intersection Delay, s/veh / LOS	17.1						B					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.3		B	2.3		B	2.8		C	2.8		C
Bicycle LOS Score / LOS	0.9		A	0.9		A	0.6		A	0.9		A

AM PEAK HOUR

DW # 1 at Okeechobee Rd Hartman Road																					
Movement	SB Rt	SB Th	SB Lt	SB UT	SB Tot.	WB Rt	WB Th	WB Lt	WB UT	WB Tot.	NB Rt	NB Th	NB Lt	NB UT	NB Tot.	EB Rt	EB Th	EB Lt	EB UT	EB Tot.	Int. Total
2017 AM PK - (Raw Data)	0	0	0	0	0	0	298	0	0	298	0	0	0	0	0	0	292	0	0	292	590
2017 AM Peak Season	0	0	0	0	0	0	334	0	0	334	0	0	0	0	0	0	327	0	0	327	661

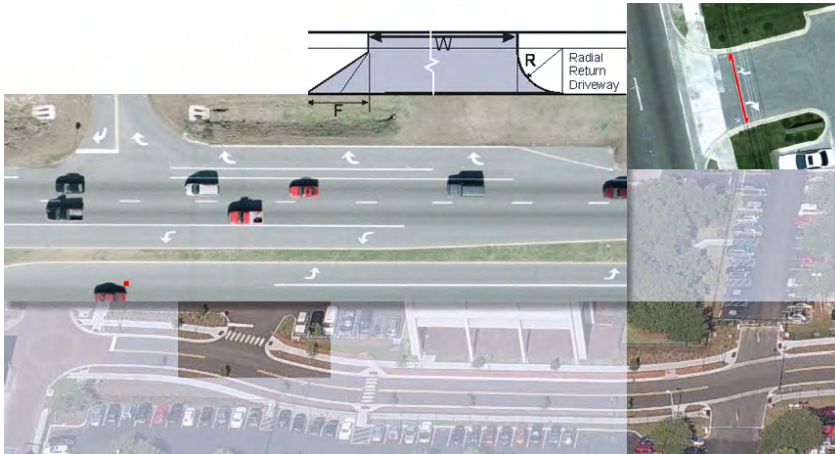
Percent Distribution	34% out	0%	0%	0%	0%	21% in	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Net-New																						
Pass-By	60% out	0%	0%	0%	0%	60% in	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Project Trips																						
Net-New	18	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	
Pass-by	30	0	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	
Total Post Dev. Traffic	48	0	0	0	48	46	334	0	0	379	0	0	0	0	0	0	327	0	0	327	755	
Trip Generation						AM IN	AM OUT	TOT														
Site Traffic						62	54	116														
Net-New																						
Pass-By						54	49	104														
Peak Season Factor = 1.12																						
TRIP GEN FOR BOTH PARCELS																						

Driveway Information Guide

FLORIDA DEPARTMENT OF TRANSPORTATION 2008

The purpose of this document is to guide the professional through the existing rules, standards and current accepted practice. The background behind the guidelines is also provided.

Unless stated otherwise or referenced, this is not a set of Department Standards but is a comprehensive guide to assist the professional in making better decisions for driveway placement and design.



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09/26/08

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Driveway Information Guide

7.2

WHEN SHOULD WE BUILD RIGHT TURN LANES?

Exhibit 44
Recommended Guidelines
for Exclusive Right Turn
Lanes to Unsignalized*
Driveway

Roadway Posted Speed Limit	Number of Right Turns Per Hour
45 mph or less	80-125 (see note 1)
Over 45 mph	35-55 (see note 2)

*May not be appropriate for signalized locations where signal phasing plays an important role in determining the need for right turn lanes.

1. The lower threshold of 80 right turn vehicles per hour would be most used for higher volume (greater than 600 vehicles per hour, per lane in one direction on the major roadway) or two-lane roads where lateral movement is restricted. The 125 right turn vehicles per hour upper threshold would be most appropriate on lower volume roadways, multilane highways, or driveways with a large entry radius (50 feet or greater).
2. The lower threshold of 35 right turn vehicles per hour would be most appropriately used on higher volume two-lane roadways where lateral movement is restricted. The 55 right turn vehicles per hour upper threshold would be most appropriate on lower volume roadways, multilane highways, or driveways with large entry radius (50 feet or greater).

Note: A posted speed limit of 45 mph may be used with these thresholds if the operating speeds are known to be over 45 mph during the time of peak right turn demand.

Note on Traffic projections: Projecting turning volumes is, at best, a knowledgeable estimate. Keep this in mind especially if the projections of right turns are close to meeting the guidelines. In that case, consider requiring the turn lane.