APPENDIX B

TRAFFIC IMPACT STUDY (REVISED)

TRAFFIC IMPACT STUDY

PROGRESS ENERGY UPRATE
CRYSTAL RIVER ENERGY COMPLEX
Citrus County, Florida

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Submitted To:
FLORIDA DEPARTMENT OF TRANSPORTATION

Prepared For:
Progress Energy

REVISED

August 13, 2007

GOLAS00-07219

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INTRODUCTION

Trans Associates (TA) has completed a traffic impact study for the proposed capacity expansion of the existing Unit 3 at Crystal River Energy Complex (CREC) located on West Power Line Road approximately 3.7 miles west of US-19/US -98 in Citrus County, Florida. The CR3 Uprate project represents a modernization of the facility to allow it to produce additional electricity. The purpose of this study is to identify the potential traffic impacts from the construction and operation of the proposed expansion and to identify any necessary mitigation measures that will provide satisfactory access to the site while maintaining acceptable traffic operations within the study area.

The following sections of this report detail the methodology, project description, data collection of existing conditions, site traffic generation and distribution, existing and projected traffic volumes, traffic analysis, and conclusions/recommendations.

METHODOLOGY

The current traffic impact study report has been updated after the FDOT sufficiency comments dated July 11, 2007. The Progress Energy CR3 Uprate Project traffic impact study is prepared consistent with the Florida Department of Transportation study requirements towards the proposed full build-out year of 2012. The traffic impact study encompasses the following study elements:

- Trip Generation
- Transportation Study Impact Area
- Existing Conditions
- Background/Vested Traffic Projections
- Project Traffic Assignment
- Total Traffic Volumes and Conditions
- Report Documentation

PROJECT DESCRIPTION/DATA COLLECTION/EXISTING CONDITIONS

Project Description

As shown in **Figure 1**, the site is located on West Power Line Road approximately 3.7 miles west of US-19/US-98 in Citrus County, Florida. The Crystal River Energy Center (CREC) site currently has 1,400 employees and generates 125 daily truck trips. The numbers of employees, construction crews, and truck traffic is expected to vary between 2007 and 2011. At the conclusion of the Uprate project in 2012, no additional employees are anticipated.

Table 1 summarizes the anticipated variation in employment and truck traffic between 2007 – 2012. The 2009 represents the peak year. In 2009, 600 temporary employees are expected for the construction of the Crystal River Clean Air Project (CRCA) for Units 4 and 5 at the site along with 800 each required for construction associated with the CR3 Steam Generator Replacement Project and the normal refueling outage and 650 involved in the construction of the Power Upgrade project all of which are only during portions of the 3rd and 4th quarters. An additional 200 daily construction truck trips are also anticipated during the 2009 year. Therefore, for approximately between one-two months in 2009, the Crystal River Energy Complex (CREC) may have a combined daily total of 1,400

employees, 2,850 construction employees, 125 daily truck trips, and 200 daily construction truck trips spread over different shifts.

After completion of the Uprate project, the CREC will have a total of 1,400 permanent employees and 285 daily truck trips. The additional 160 truck trips projected are part of the CR4 and 5 Operations and are not part of the new CR3 Uprate project trips. These truck trips have been considered as background traffic for this analysis.

The following traffic demand management strategies will be implemented by Progress Energy to control the arrival/departure of the CREC site traffic:

- Utilizing Citrus County Sheriff Officers to monitor the intersection of US 19 & Power Line Road for major activities.
- Staging construction vehicles so that they do not all arrive to the facility at the same time, and to help spread out the peak influx of vehicles at the facility
- Coordinate construction and outage events so that they are scheduled at different times.

Quantitatively, the following traffic demand management strategies will be implemented to control the arrival/departure of site traffic:

- Approximately 5-6 of 7 every employee are expected on-site every day during outages; i.e., approximately 80% of the workers are expected to arrive on a typical day.
- The employee arrival will be split as 60/40 between days and nights; i.e., approximately 60% of the employees will arrive in the AM Peak Hour.
- Also, the peak traffic would be spread out over two hours as opposed to one hour; i.e. only 50% of the total peak hour traffic will arrive in the actual peak hour.

After combining the above three strategies, the net additional employee will be reduced to 24% (0.80*0.60*0.50 = 0.24) of the total additional employees. Therefore, 684 net, additional construction employees and 200 additional daily construction truck trips can be expected peak temporary condition in the year 2009. Traffic analyses have been performed for both the 2009 and the 2012 scenarios. The 2009 year represents the highest volume for traffic from the CREC, and the build-out (operational) year is 2012.

N SCALE: N.T.S.	Trans Associates Transportation Solutions for Today and Tomorrow Park Tower Suite 1140 / 400 North Tampa Street Tampa, Florida 33602 / (813) 386-3030	PROJECT NO. GOLA500-07199 PROJECT: Progress Energy Uprate TITLE: Proposed Site Location	FIGURE 1 D.B. M.A.S. C.B. M.A.R. REV. 08/13/07

TABLE 1

CREC EMPLOYEE DATA
(Permanent and Temporary)

	2007	2008	2009	2010	2011	2012
Existing project Information						
CREC	1,400	1,400	1,400	1,400	1,400	1,400
CR3 Refueling Outages[1]	800	--	800	--	800	--
CRCA Construction[2]	600	600	600	--	--	--
CR 4 and 5 Operations[3]	125	125	125	285	285	285
SGRP[4]	--	--	800	--	--	--
CR3 Uprate Project Information						
Uprate Projects	305	400	650	405	580	--
Uprate Project (construction trucks)[5]	--	--	200	200	200	--

1. *Employees anticipated onsite during 4Q only.*
2. *Construction employees associated with Clean Air Project (Icon, 2006).*
3. *Truck trips associated with operation of the CR 4 and 5.*
4. *Construction employees associated with Steam Generator Replacement Project during 3 and 4 Q only.*
5. *Construction trucks do not operate/arrive during outage periods.*

West Power Line Road is a two lane east-west roadway and provides the only public roadway access to the site. Thus, the traffic on West Power Line Road comes primarily to/from the CREC. Therefore, the site provides a good opportunity to obtain a trip generation rate for the existing CREC.

Data Collection

The intersection of US-19/US-98 & West Power Line Road has been studied as part of this traffic impact study in accordance with the Florida Department of Transportation requirements. Moreover, the US-19/US-98 roadway segment north and south of the US-19/US-98 & West Power Line Road intersection has also been studied for project impact.

A.M. as well as P.M. Peak Hour analysis has been conducted as part of the traffic impact study. Manual turning movement counts were performed at the existing study intersection for a three hour duration during a typical weekday between the hours of 6:00 – 9:00 A.M. and 3:00 - 6:00 P.M.

The raw turning movement counts were then multiplied by the FDOT seasonal adjustment factor. The seasonal adjustment factor as obtained from 2005 Florida Traffic Information System (FTIS) CD for the week when the count was performed is 1.03. The intersection peak hour (four consecutive 15-minute periods comprising the highest volume) as determined by the traffic counts occurred between 6:15 – 7:15 in the A.M. and between 4:45 – 5:45 in the

P.M. The 2007 existing peak hour traffic volumes are presented in **Figure 2** for the A.M. and P.M. peak hours. The manual turning movement counts are included in **Appendix A**.

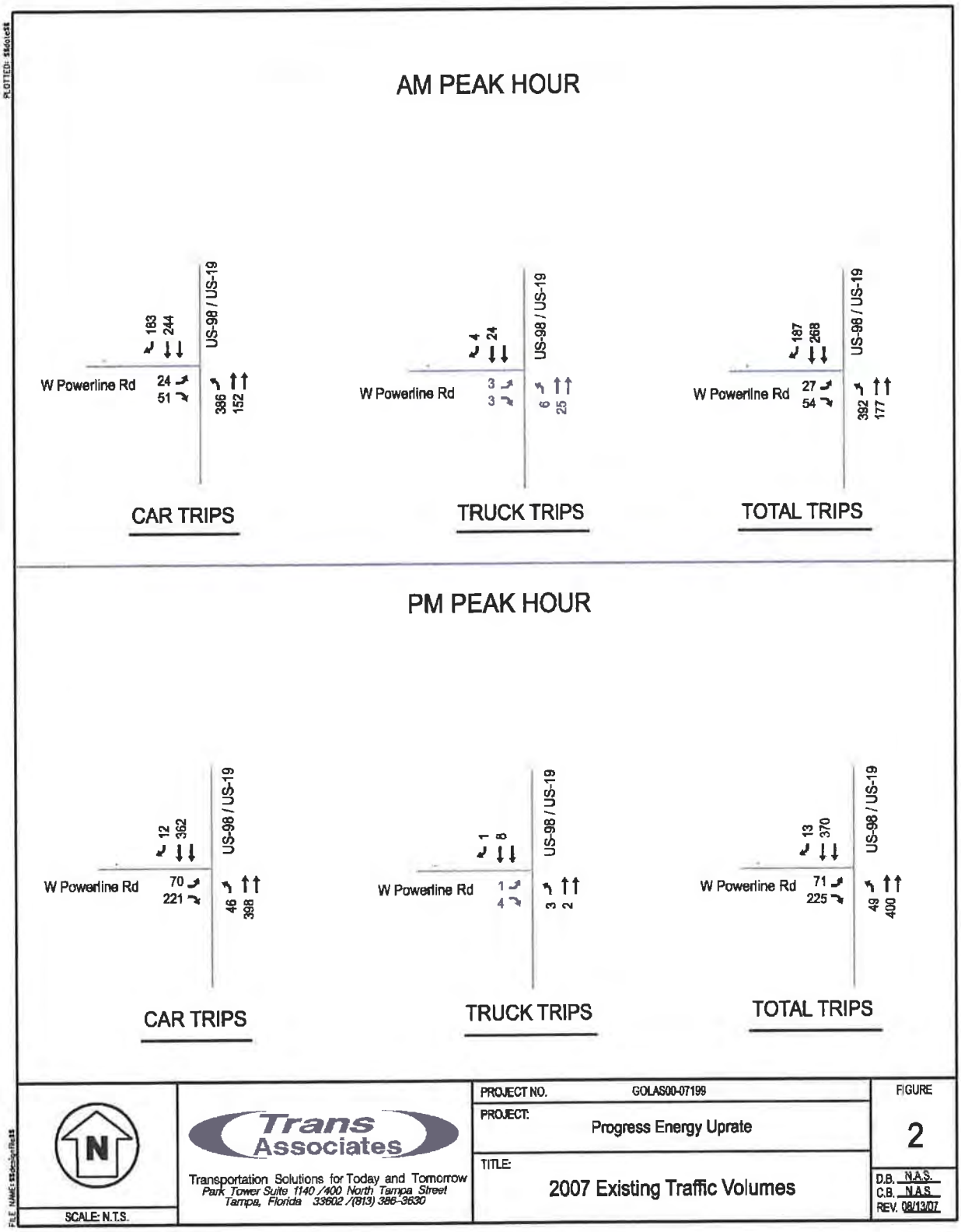
Existing Conditions

A field reconnaissance of the study area was conducted to obtain information on lane configurations, posted speed limits, traffic signal timings, and other pertinent features. The following provides a brief description of the study area roadways.

US-19 / US-98 is a state maintained, northbound-southbound principal rural arterial. Within the study area the roadway has a posted speed limit of 60 miles per hour (mph). At the intersection with West Power Line Road, the US 19/US-98 northbound approach consists of one exclusive left turn lane, and two through lanes. The southbound approach consists of two through lanes and one dedicated right turn lane. The traffic signal control at the intersection with West Power Line Road is actuated-uncoordinated with a variable cycle length.

West Power Line Road is an eastbound-westbound roadway and is used for access to and from the existing power plant. Within the study area West Power Line Road has a 55 mph posted speed limit. At the intersection with US-19/US-98, the West Power Line Road eastbound approach consists of one left turn lane and one right turn lane. The traffic signal control at the intersection with US-19/US-98 is actuated-uncoordinated with a variable cycle length.

It was observed during data collection that approximately half of the eastbound right turning vehicles made a right turn on red as large gaps in southbound traffic on US-19/US-98 are available. The intersection is designed as a three leg approach intersection.


AM PEAK HOUR
US-98 / US-19
W Powerline Rd
183
244
24
51
386
152
CAR TRIPS
4
24
3
3
6
25
TRUCK TRIPS
187
268
27
54
392
177
TOTAL TRIPS
PM PEAK HOUR
12
362
70
221
46
398
CAR TRIPS
1
8
1
4
3
2
TRUCK TRIPS
13
370
71
225
49
400
TOTAL TRIPS
N
SCALE: N.T.S.
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PROJECT NO. GOLAS00-07199
PROJECT: Progress Energy Uprate
TITLE: 2007 Existing Traffic Volumes
FIGURE 2
D.B. N.A.S.
C.B. N.A.S.
REV. 08/13/07

SITE TRAFFIC GENERATION AND DISTRIBUTION

Vehicle Trip Generation

As per the *Trip Generation, 7th Edition*, published by the Institute of Transportation Engineers (ITE), none of the available land use categories accurately describe the characteristics of an energy plant. Thus, trip generation rates based on the existing traffic and number of employees was used for the current analysis. As presented in the report titled *"Progress Energy Crystal River Energy Complex: Traffic Access Analysis Clean Air Project"* prepared in April 2006, the site currently has 1,400 employees. The total peak hour passenger car trips obtained from field data collection were divided by the total number of employees (1,400) to obtain the passenger car trip generation rates which were used to forecast the total number of passenger car trips resulting from the proposed expansion. In addition, the total peak hour truck trips obtained from field data collection were divided by the total number of daily truck trips (125) to obtain the truck trip generation rates which were used to forecast the total number of truck trips resulting from the proposed increase in truck activity. A summary of the existing and future trip generation calculations are presented in **Table 2**.

After completion of the Uprate project, the CREC will have a total of 1,400 permanent employees and 285 daily truck trips. The additional 160 truck trips projected as part of the CR4 and 5 Operations are not part of the new CR3 Uprate project trips and are considered background traffic for this analysis. Therefore, for the 2012 buildout conditions, no additional, new external site-generated trips are projected from the CR3 Uprate as compared to the 2007 existing conditions.

TABLE 2: TRIP GENERATION SUMMARY

TIME PERIOD	Existing Passenger Car Trips (1,400 employees)		Trip Rates (trips/employee)		2009 Additional CR3 Project Generated Trips (684 net, additional construction employees compared to existing conditions)		2012 Additional CR3 Project Generated Trips (No additional employees compared to existing conditions)	
	Entering	*Exiting*	*Entering*	*Exiting*	*Entering*	*Exiting*	*Entering*	*Exiting*
A.M. PEAK HOUR	569	75	0.406	0.054	278	37	--	--
P.M. PEAK HOUR	58	291	0.041	0.208	28	142	--	--
TIME PERIOD	**Existing Truck Trips** (125 daily truck trips)		**Trip Rates** (trips/daily truck trips)		**2009 Additional CR3 Project Generated Trips** (200 new additional daily construction truck trips)		**2012 Additional Project Generated Background Trips for CR 4 & 5** (160 additional truck trips)*	
	Entering	*Exiting*	*Entering*	*Exiting*	*Entering*	*Exiting*	*Entering*	*Exiting*
A.M. PEAK HOUR	10	6	0.080	0.048	16	10	13	8
P.M. PEAK HOUR	4	5	0.032	0.040	6	8	5	6
TOTAL A.M. PEAK HOUR	579	81	--	--	294	47	13	8
TOTAL P.M. PEAK HOUR	62	296	--	--	34	150	5	6

*Note: The 160 additional truck trips for CR4 & 5 were included in the 2012 background traffic volumes. These trips are not associated with the CR3 Uprate project.

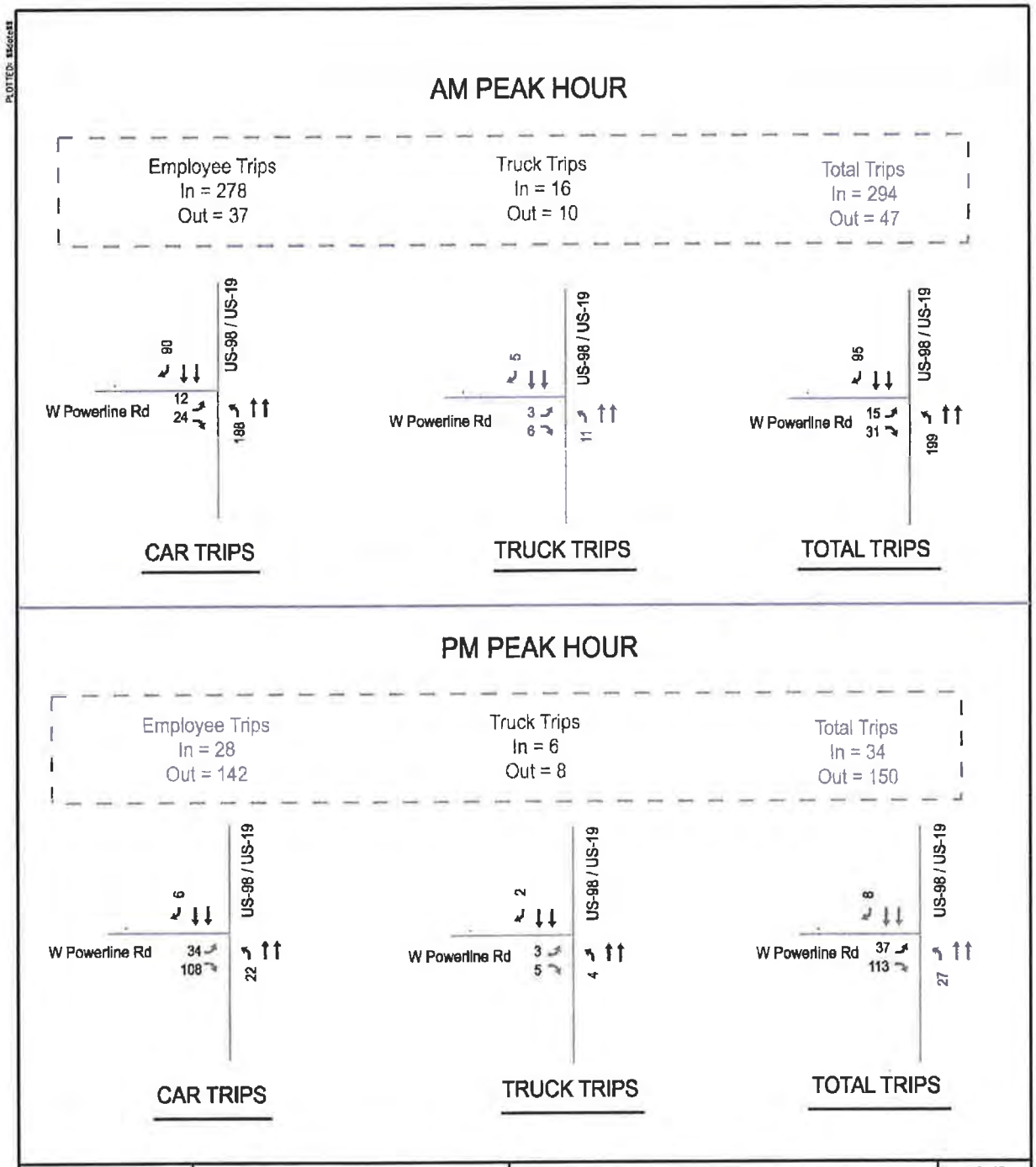
Site Traffic Distribution

The arrival/departure distribution of the project site traffic was based on the existing traffic volumes of the study area. The new project traffic arriving/departing has been distributed as follows:

TABLE 3: TOTAL PROJECT TRAFFIC ARRIVAL / DEPARTURE PATTERN

To/From	A.M. Peak Hour		P.M. Peak Hour	
	Arriving	*Departing*	*Arriving*	*Departing*
South on US-19/US-98	67.7%	66.7%	79.0%	76.0%
North on US-19/US-98	32.3%	33.3%	21.0%	24.0%
Total	100.0%	100.0%	100.0%	100.0%

The net external site generated trips are presented in **Figures 3**.



N	Trans Associates Transportation Solutions for Today and Tomorrow Park Tower Suite 1140 /400 North Tampa Street Tampa, Florida 33602 /(813) 386-3630	PROJECT NO. GOLAS00-07199 PROJECT: Progress Energy Uprate TITLE: 2009 Site-Generated Trips	FIGURE 3 D.B. N.A.S. C.B. N.A.S. REV. 08/13/07
SCALE: N.T.S.			

PROJECTED TRAFFIC VOLUMES

Traffic volumes were projected for the 2012 full build-out year and also during the 2009 when additional construction traffic is present. Existing 2007 traffic volumes were increased using a linear 3.1 percent annual growth rate, which was calculated based upon the previous five years (2002 – 2006) annual average daily traffic (AADT) volumes for the US-19/US-98. Data to identify the existing 2006 AADT came from the FDOT Central Office while historical AADT's were obtained from the most recent edition of the Florida DOT Florida Traffic Information (FTI) CD for counter #0250 located at SR55/US19, North of CR488/Dunnellon Rd in Citrus County. Background growth rate calculations are included in **Appendix B.**

2009 No Build Traffic Volumes

The 2009 no build (without project traffic) traffic volumes, shown in **Figure 4**, were derived by applying the aforementioned growth rate of 3.1% per year compounded to the 2007 existing traffic volumes (Figure 2).

2012 No Build Traffic Volumes

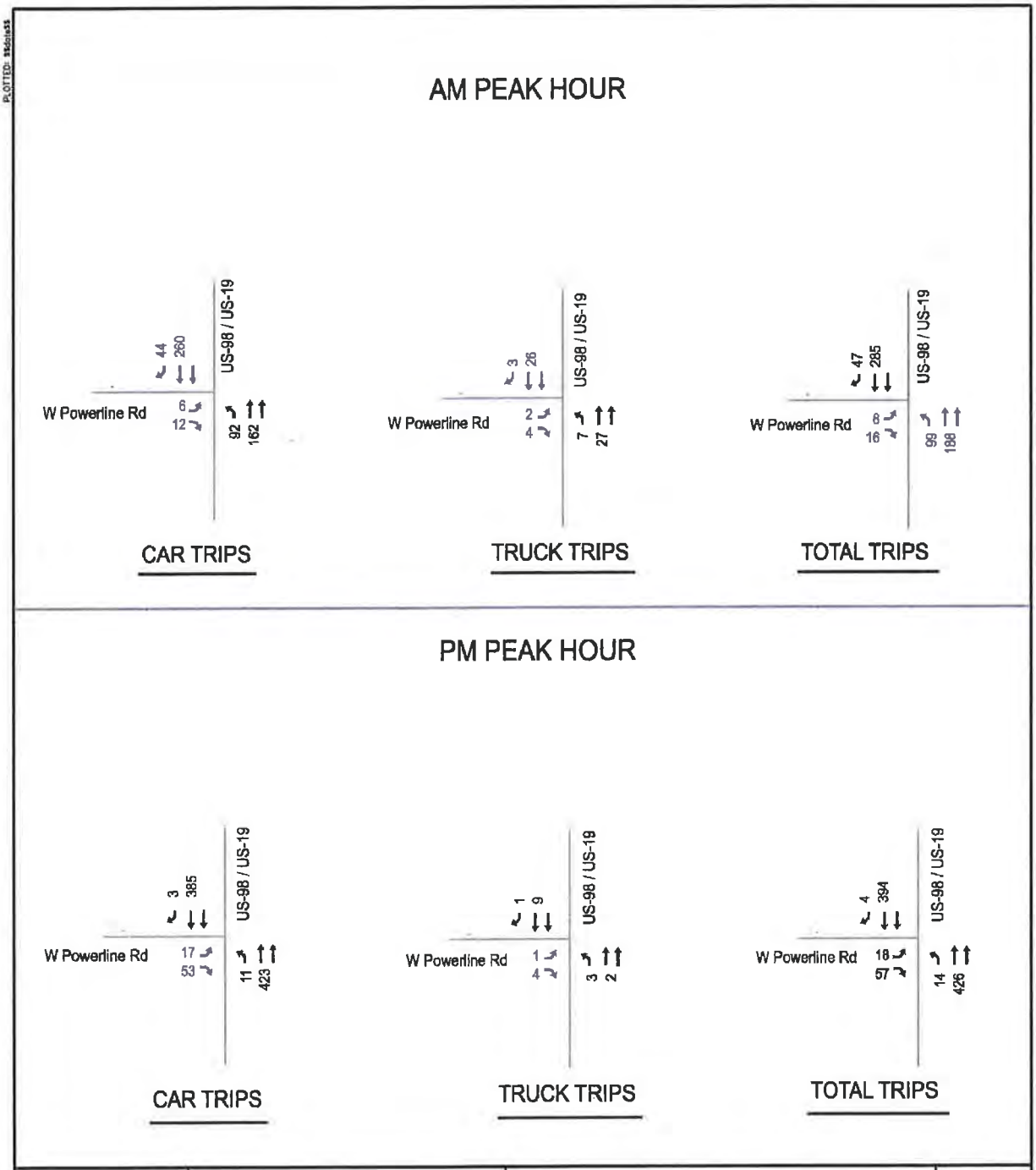
The 2012 no build (without project traffic) traffic volumes, shown in **Figure 5**, were derived by applying the aforementioned growth rate of 3.1% per year compounded to the 2007 existing traffic volumes and adding the trips from the construction of the already approved CR4 and 5 operations (Figure 2).

2009 Build Traffic Volumes

The 2009 build (with project traffic) traffic volumes, shown in **Figure 6**, were derived by adding the 2009 Progress Energy Uprate project generated trips (Figure 3) to the 2009 no build traffic volumes (Figure 4).

2012 Build Traffic Volumes

The 2012 build (with project traffic) traffic volumes, shown in **Figure 7,** result in the same traffic volumes as the 2012 No Build traffic volumes. This is due to the fact that after completion of the CR3 project, all temporary employees and construction employees will be gone, leaving only the original 1,400 permanent employees.



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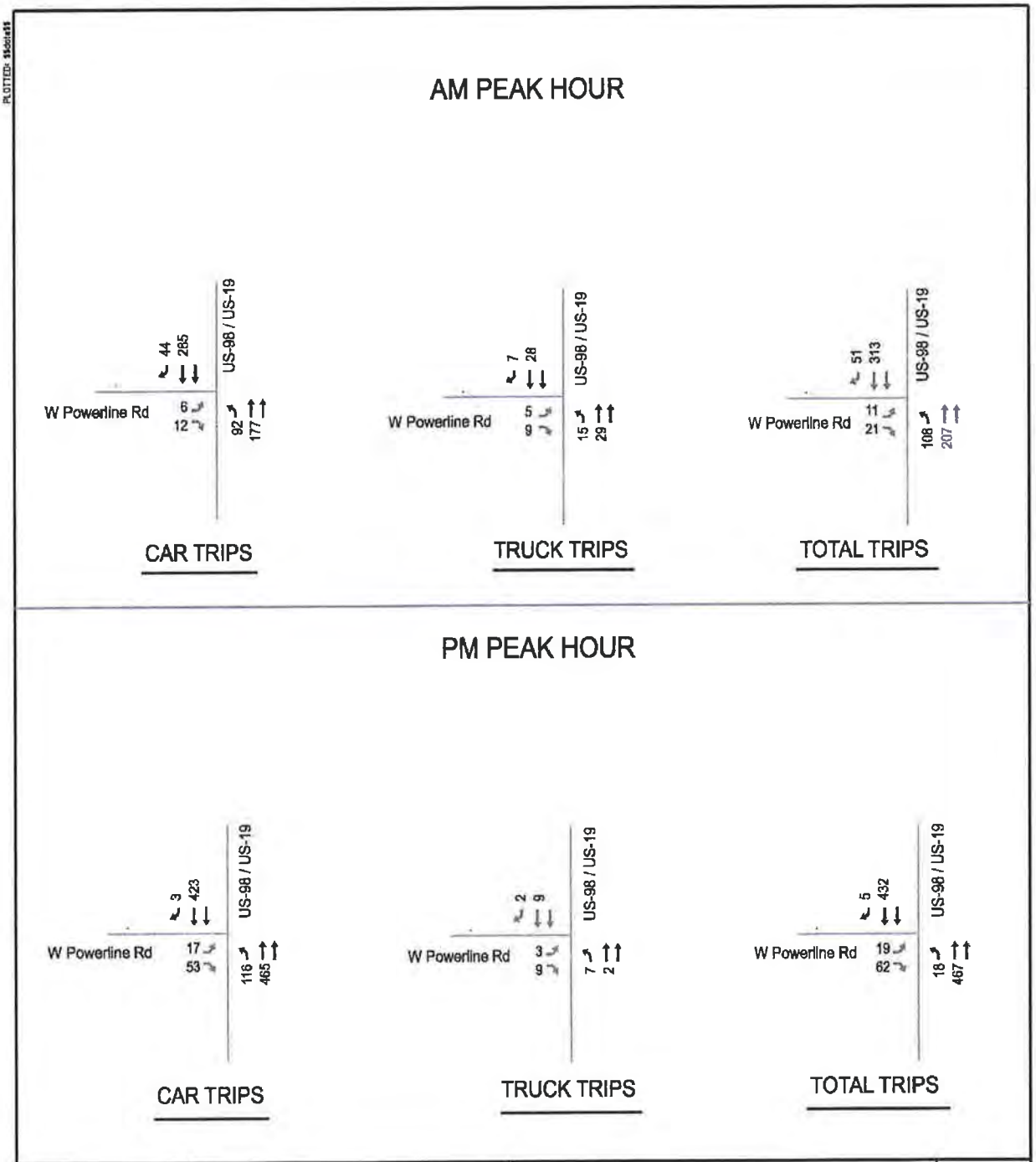
PROJECT NO.	GOLAS00-07199
PROJECT:	Progress Energy Uprate
TITLE:	2009 No-Build Traffic Volumes
FIGURE	4
D.B.	N.A.S.
C.B.	N.A.S.
REV.	08/13/07



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PROJECT NO. GOLAS00-07199

PROJECT: Progress Energy Uprate

TITLE: 2012 No-Build Traffic Volumes

FIGURE 5

D.B. N.A.S.
C.B. N.A.S.
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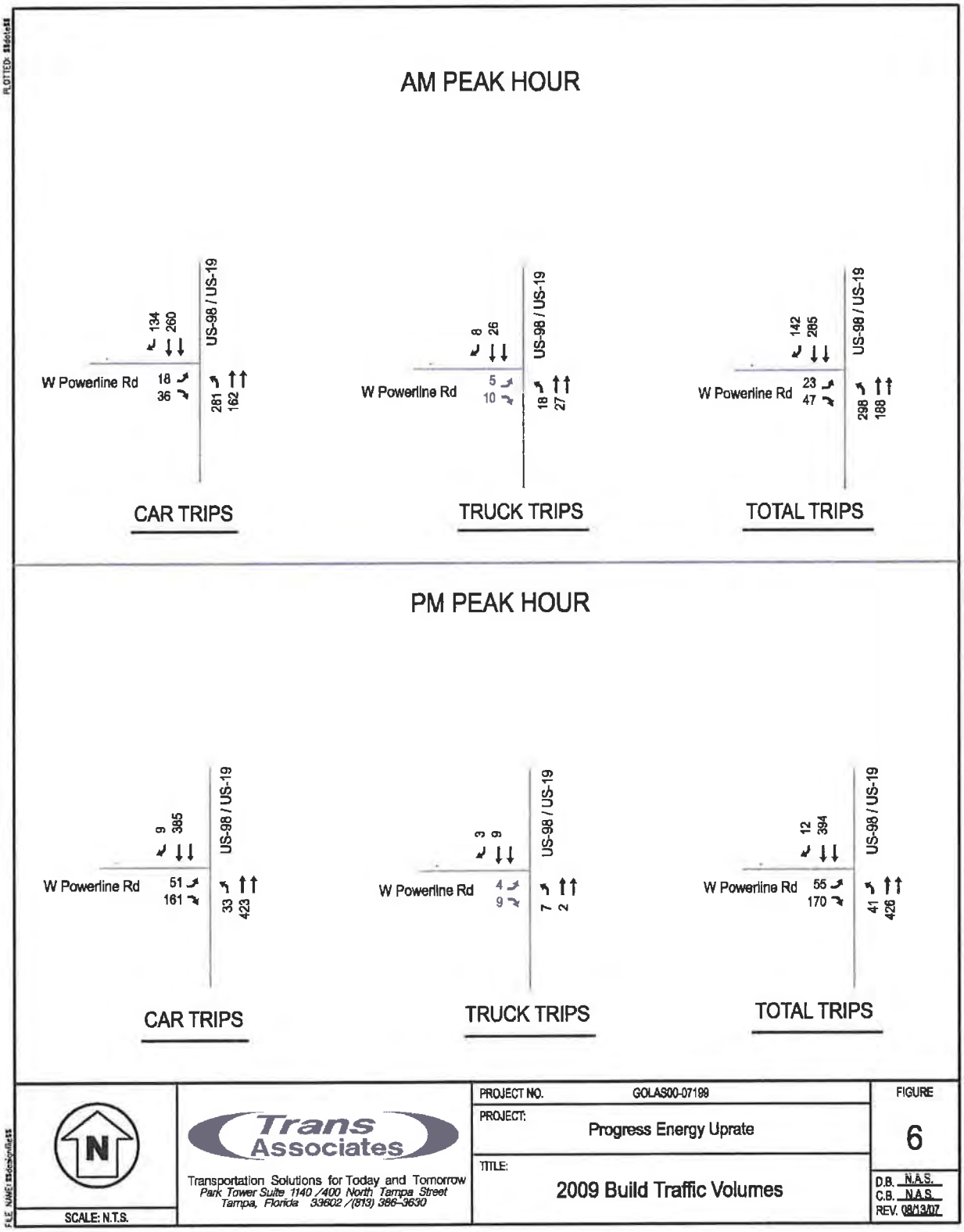
AM PEAK HOUR
US-98 / US-19
W Powerline Rd
134
260
18
36
281
162
CAR TRIPS
8
26
5
10
18
27
TRUCK TRIPS
142
285
23
47
298
188
TOTAL TRIPS
PM PEAK HOUR
9
385
51
161
33
423
CAR TRIPS
3
9
4
9
7
2
TRUCK TRIPS
12
394
55
170
41
426
TOTAL TRIPS
N
SCALE: N.T.S.
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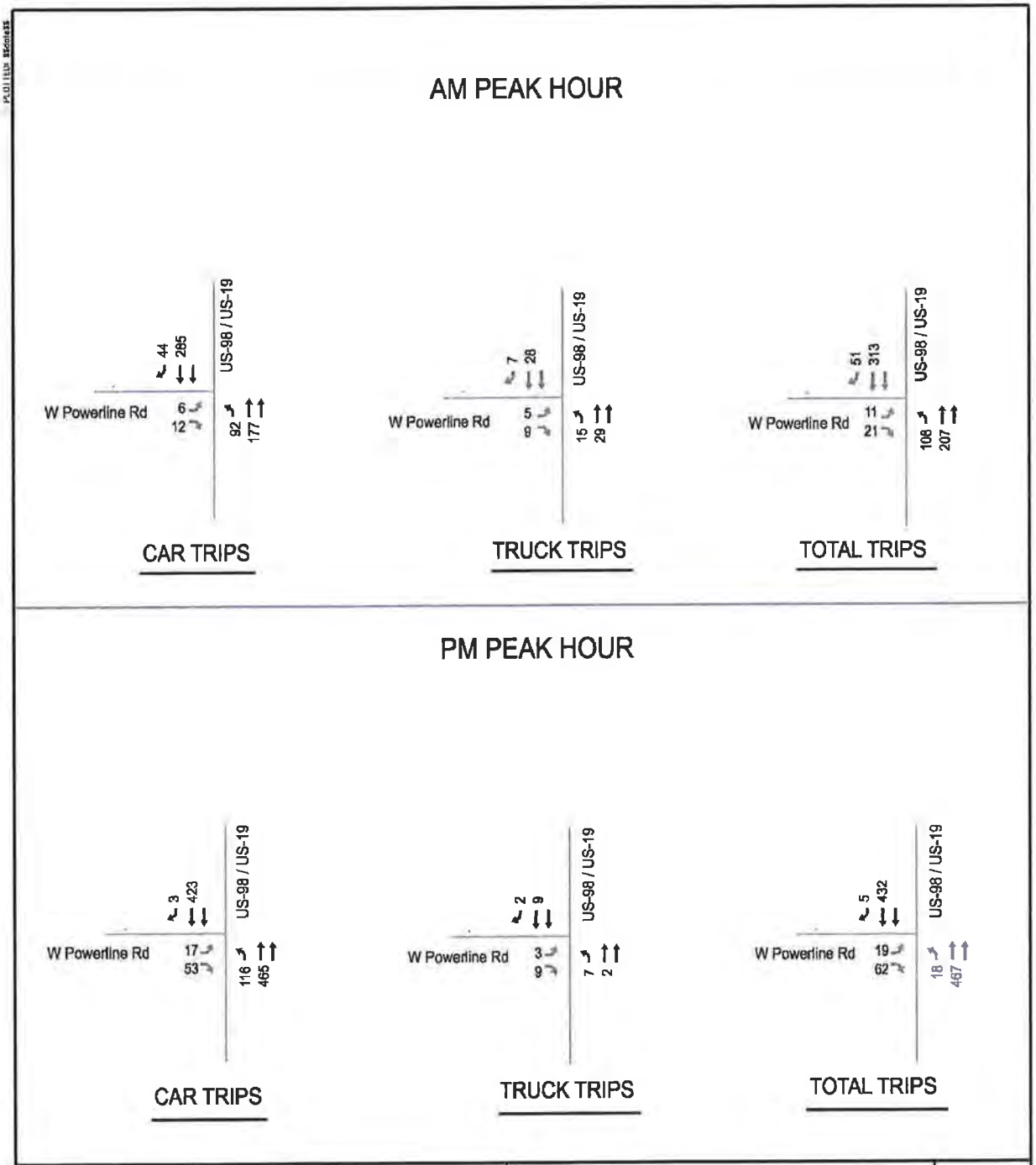
PROJECT NO. GOLAS00-07199
PROJECT: Progress Energy Uprate
TITLE: 2009 Build Traffic Volumes
FIGURE
6
D.B. N.A.S.
C.B. N.A.S.
REV. 08/13/07



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PROJECT NO. GOLAS00-07199

PROJECT: Progress Energy Uprate

TITLE: 2012 Build Traffic Volumes

FIGURE 7

D.B. N.A.S.
C.B. N.A.S.
REV. 08/13/07

TRAFFIC ANALYSIS

The analyses performed included a capacity analysis of the study intersections, roadway capacity analysis, and turn lane length calculations at the US-19/US-98 & West Power Line Road intersection.

Intersection Capacity Analysis

Intersection capacity analyses were performed for the following five conditions:

- 2007 existing conditions
- 2009 no build conditions without project traffic
- 2012 no build conditions without project traffic
- 2009 build conditions with project traffic
- 2012 build conditions with project traffic

Levels of Service (LOS) were determined at the study intersections using the methodologies contained in the 2000 Highway Capacity Manual and the latest version of the supporting Highway Capacity Software (HCS+). LOS A through F are determined as a ranking system for the operations with LOS A representing short delays and LOS F representing long delays.

Table 4 summarizes the A.M. and P.M. peak hour LOS for the study intersection for each of the study conditions.

2007 Existing Conditions - Existing intersection geometry, traffic volumes (Figure 3), and signal timings (without optimization) were used for this analysis. The intersection is found to currently operate at LOS of B during the A.M. peak hour as well as during the P.M. peak hour. Moreover, all the movements are observed to operate at LOS D or better and at volume/capacity (v/c) ratio of less than 1.0 in both analysis periods. The LOS for each scenario is presented in Table 4. Capacity analysis printouts for the 2007 existing condition are included in Appendix C.

2009 No Build Conditions Without Proposed CR3 Uprate - Existing intersection geometry, signal timings, and the forecasted traffic volumes from Figure 4 were used for this analysis. As determined by the analyses performed, the intersection is projected to operate at LOS B during both the analysis scenarios. Moreover, all the movements are observed to operate at LOS D or better and v/c ratio of less than 1.0 in both analysis periods. The LOS for the 2009 no build conditions without the proposed project expansion are presented in Table 4. Capacity analysis printouts for the 2009 no build conditions are included in Appendix C.

2012 No Build Conditions Without Proposed CR3 Uprate - Existing intersection geometry, optimized signal timings, and the forecasted traffic volumes from Figure 5 were used for this analysis. The additional 160 truck trips projected as part of the CR4 and 5 Operations (which is already approved) were included in the 2012 No Build scenario traffic volumes since they are not part of the CR3 Uprate. As determined by the analyses performed, the intersection is projected to operate at LOS B during the A.M. peak hour as well as the P.M. peak hour. Moreover, all the movements are observed to operate at LOS D or better and have a v/c ratio of less than 1.0 in both analysis periods. The LOS for the 2012 no build conditions without the proposed project expansion are presented in Table 4. Capacity analysis printouts for the 2012 no build conditions are included in Appendix C.

2009 Build Conditions With Proposed CR3 Uprate – This condition represents the greatest demand at the signalized intersection, but also represents a temporary condition due to construction. 600 construction employees as part of the Crystal River Clean Air Project will be finishing up their work during this year. Moreover, 800 construction employees associated with the CR3 Steam Generator Replacement Project will occur only during the 3rd and 4th quarters of 2009 in addition to 800 employees due to the normal refueling outage scheduled for the year 2009. These conditions are expected for a one-two month duration in 2009. Existing intersection geometry, signal timings, and forecasted traffic volumes from Figure 6 were used for this analysis. As determined by the analyses performed, the intersection is projected to operate at LOS D during the A.M. peak hour as well as during the P.M. peak hour. Moreover, all the movements are observed to operate at LOS D or better in both analysis periods. Capacity analysis results are summarized in Table 4. Detailed HCS+ capacity analysis results for 2009 build conditions are provided in Appendix C.

2012 Build Conditions With Proposed CR3 Uprate – This condition represents the total build-out condition. Existing intersection geometry, signal timings, and forecasted traffic volumes from Figure 7 were used for this analysis. After completion of the Uprate project, the CREC will have a total of 1,400 permanent employees and 285 daily truck trips. The additional 160 truck trips are projected as part of the CR4 and 5 Operations (which is already approved). These truck trips, however, are not included in the new CR3 Uprate project trips and are considered background traffic (2012 No Build) for this analysis. Therefore, for the 2012 conditions, no new external site-generated trips are projected as compared to the 2007 existing conditions. As determined by the analyses performed, the intersection is projected to operate at LOS B during the A.M. peak hour as well as during the P.M. peak hour. Moreover, all the movements are observed to operate at LOS D or better and have a v/c less than1.0 in both analysis periods. Capacity analysis results are summarized in Table 4. Detailed HCS+ capacity analysis results for 2012 build conditions are provided in Appendix C.

TABLE 4: INTERSECTION CAPACITY ANALYSIS SUMMARY

US-19 / US-98 & W Power Line Rd				
	AM PEAK HOUR		PM PEAK HOUR	
	LOS	*Delay (sec)*	*LOS*	*Delay (sec)*
2007 Existing	B	18.8	B	14.4
2009 No-Build	B	17.7	B	13.7
2012 No- Build	B	18.4	B	13.9
2009 Build	B	18.1	B	14.4
2012 Build	B	18.4	B	13.9

Roadway Capacity Analysis

The identification of the peak hour site traffic impact to the study roadway network was completed following the LOS D capacity methodologies presented in Table 4-9 of the Florida Department of Transportation 2002 Q/LOS Manual. Trips generated by the project in the A.M. peak hour are expected to be more than the P.M. Peak Hour. Thus, the roadway capacity analysis has been based on the A.M. peak hour trips. In the future 2009 build scenario the Progress Energy CR3 Uprate project is anticipated to generate a total of 312 temporary trips to the roadway network in the A.M. peak hour. In the future 2012 full build-out scenario, the Progress Energy CR3 Uprate project is anticipated to be completed with no additional trips on the roadway network. Results of Progress Energy CR3 Uprate total project build-out impact on the peak direction study network is presented in **Table 5**.

TABLE 5: ROADWAY CAPACITY ANALYSIS SUMMARY

Road Name	From/To	Lanes	Peak Hour Directional Service Volume LOS D	2009 Peak Hour Directional Project Volume	2009 Temporary Percent Impact	2012 Peak Hour Directional Project Volume	2012 Percent Impact
US-19/US-98	Northbound	2	2,830	199	7.03%	0	0.00 %
	Southbound	2	2,830	95	3.36%	0	0.00%
West Power Line Road	Eastbound	1	650	340	52.31%	0	0.00%

(1) Level of Service D Capacity obtained from Table 4-9 of the Florida Department of Transportation 2002 Q/LOS Manual.
(2) 2009 represents a temporary condition expected to last one-two months.

According to the State of Florida Department of Transportation 2002 Quality/Level of Service Handbook, **Table 4-9**, a two lane divided uninterrupted flow highway for a LOS A has a peak hour one-way traffic volume of 940 vehicles. **Table 6** presents the directional traffic volumes for US-19/US-98 within the study area. As presented in **Table 6**, US-19/US-98 operates below the 940 directional peak hour traffic volume established by FDOT for a LOS A two lane divided uninterrupted flow highway.

TABLE 6: PEAK HOUR DIRECTIONAL TRAFFIC VOLUMES SUMMARY

US-19/US-98 at Power Line Road				
Scenario	Direction	FDOT Generalized LOS A Peak Hour Directional Traffic Volume	Peak Hour Directional Traffic Volume	
			AM PEAK HOUR	PM PEAK HOUR
2009 No-Build	Northbound	940	288	440
	Southbound	940	332	397
2012 No-Build	Northbound	940	314	485
	Southbound	940	364	437
2009 Build	Northbound	940	487	466
	Southbound	940	427	405
2012 Build	Northbound	940	314	485
	Southbound	940	364	437

Project Turn Lane Analysis

SimTraffic Traffic Simulation Software, Version 7, was utilized to determine the queue length of the eastbound right turn lane, southbound right turn lane and the northbound left turn lane at the US-19/US-98 & W Power Line Rd intersection. A summary of the queue lengths observed during the different analysis scenarios is presented in **Table 7.** SimTraffic analysis printout for the intersection of US-19/US-98 & W Power Line Rd is included in **Appendix D**.

TABLE 7: PROJECT TURN LANE ANALYSIS SUMMARY

QUEUE LENGTH (feet) US-19 / US-98 & W Power Line Rd						
	AM PEAK HOUR			PM PEAK HOUR		
	EBR	*NBL*	*SBR*	*EBR*	*NBL*	*SBR*
2007 Existing	37	272	104	67	83	28
2009 No-Build	40	100	38	42	51	3
2012 No-Build	47	125	46	59	66	7
2009 Build	48	246	88	64	79	22
2012 Build	46	125	49	59	66	7

CONCLUSIONS/RECOMMENDATIONS

The purpose of this study was to determine the traffic impacts associated with the proposed Progress Energy CR3 Uprate project and, if necessary, to develop mitigation measures providing satisfactory access to the site while maintaining acceptable traffic operations within the study area. The CR3 Uprate project represents a modernization of the existing CREC. The Progress Energy CR3 Uprate Traffic Impact Study is prepared consistent with the Florida Department of Transportation study requirements towards a proposed build-out year of 2012.

Results of the 2009 temporary construction build scenario represent the greatest demand. This is due to the expected construction activities associated with the CRCA, CR3, 4 and 5 projects, and represents a temporary condition. The 2009 capacity analyses demonstrate that the intersection is anticipated to perform at LOS B in both the A.M. peak hour and the P.M. peak hour. The sections of US-19/US-98 north and south of West Power Line Road are expected to operate at a LOS A. Due to the temporary and fluctuating conditions expected in 2009 Progress Energy will consider the following Travel Demand Management techniques to help facilitate peak operating conditions:

- Utilizing Citrus County Sheriff Officers to monitor the intersection of US 19 & Power Line Road for major activities.
- Staging construction vehicles so that they do not all arrive to the facility at the same time, and to help spread out the peak influx of vehicles at the facility
- Coordinate construction and outage events so that they are scheduled at different times.

Quantitatively, the following traffic demand management strategies will be implemented to control the arrival/departure of site traffic:

- Approximately 5-6 of 7 every employee are expected on-site every day during outages; i.e., approximately 80% of the workers are expected to arrive on a typical day.
- The employee arrival will be split as 60/40 between days and nights; i.e., approximately 60% of the additional employees will be arriving in the AM Peak Hour.
- Also, the peak traffic would be spread out over two hours as opposed to one; i.e. only 50% of the total peak hour traffic will arrive in the actual peak hour.

Results of the 2012 build scenario capacity analyses demonstrate that the intersection is anticipated to perform at a LOS B in the A.M. peak hour and the P.M. peak hour. The roadway segments of US-19/US-98 north and south of West Power Line Road are expected to operate at LOS A for the build-out condition. The CR3 Uprate project is expected to represent no additional trips upon project buildout and all roadway Level of Service conditions are expected to be maintained with the proposed project.

APPENDIX A
MANUAL TURNING MOVEMENT COUNTS

A.M. Peak Hour Total Traffic Volumes

Trans Associates Engineering Consultants, Inc.

Transportation Solutions for today and tomorrow

US-19 / US-98 & W Power Line Road
Crystal River, Florida
06:00 A.M. to 09:00 A.M.

File Name : 042507 6-9 am US19-98 & power line
Site Code : 00000003
Start Date : 4/25/2007
Page No : 1

Weather: Clear

Groups Printed- Trucks

	Southbound					Westbound					Northbound					Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
Factor	1.03	1.03	1.03	1.03		1.03	1.03	1.03	1.03		1.03	1.03	1.03	1.03		1.03	1.03	1.03	1.03		
06:00 AM	0	2	0	0	2	0	0	0	0	0	0	9	0	0	9	1	0	1	0	2	13
06:15 AM	0	6	2	0	8	0	0	0	0	0	0	6	0	0	6	0	0	3	0	3	17
06:30 AM	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	5
06:45 AM	0	7	1	1	9	0	0	0	0	0	1	9	0	0	10	0	0	0	0	0	19
Total	0	18	3	1	22	0	0	0	0	0	1	26	0	0	27	1	0	4	0	5	54
07:00 AM	0	8	0	0	8	0	0	0	0	0	5	8	0	0	13	3	0	0	0	3	24
07:15 AM	0	9	0	0	9	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	15
07:30 AM	0	3	1	1	5	0	0	0	0	0	2	10	0	0	12	0	0	0	0	0	17
07:45 AM	0	9	2	0	11	0	0	0	0	0	2	2	0	0	4	0	0	0	1	1	16
Total	0	29	3	1	33	0	0	0	0	0	10	25	0	0	35	3	0	0	1	4	72
08:00 AM	0	4	1	0	5	0	0	0	0	0	2	2	0	0	4	5	0	1	3	9	18
08:15 AM	0	5	0	0	5	0	0	0	0	0	0	5	0	0	5	2	0	1	1	4	14
08:30 AM	0	4	1	1	6	0	0	0	0	0	5	5	0	0	10	1	0	2	1	4	20
08:45 AM	0	4	0	0	4	0	0	0	0	0	2	6	0	0	8	2	0	0	1	3	15
Total	0	17	2	1	20	0	0	0	0	0	9	18	0	0	27	10	0	4	6	20	67
Grand Total	0	64	8	3	75	0	0	0	0	0	20	69	0	0	89	14	0	8	7	29	193
Apprch %	0	85.3	10.7	4		0	0	0	0		22.5	77.5	0	0		48.3	0	27.6	24.1		
Total %	0	33.2	4.1	1.6	38.9	0	0	0	0	0	10.4	35.8	0	0	46.1	7.3	0	4.1	3.6	15	

	Southbound					Westbound					Northbound					Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:45 AM																					
06:45 AM	0	7	1	1	9	0	0	0	0	0	1	9	0	0	10	0	0	0	0	0	19
07:00 AM	0	8	0	0	8	0	0	0	0	0	5	8	0	0	13	3	0	0	0	3	24
07:15 AM	0	9	0	0	9	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	15
07:30 AM	0	3	1	1	5	0	0	0	0	0	2	10	0	0	12	0	0	0	0	0	17
Total Volume	0	27	2	2	31	0	0	0	0	0	9	32	0	0	41	3	0	0	0	3	75
% App. Total	0	87.1	6.5	6.5		0	0	0	0		22	78	0	0		100	0	0	0		
PHF	.000	.750	.500	.500	.861	.000	.000	.000	.000	.000	.450	.800	.000	.000	.788	.250	.000	.000	.000	.250	.781

P.M. Peak Hour Total Traffic Volumes

Trans Associates Engineering Consultants, Inc.

Transportation Solutions for today and tomorrow

US-19 / US-98 & W Power Line Road
Crystal River, Florida
03:00 P.M. to 06:00 P.M.

File Name : 042407 3-6 PM US19-98 & Power Line Rd
Site Code : 00000001
Start Date : 4/24/2007
Page No : 1

Weather: Clear

Groups Printed- Cars - Trucks

	Southbound					Westbound					Northbound					Eastbound					
Start Time	Left	Thru	Right	RTOR	App Total	Left	Thru	Right	RTOR	App Total	Left	Thru	Right	RTOR	App Total	Left	Thru	Right	RTOR	App Total	Int. Total
Factor	1.03	1.03	1.03	1.03		1.03	1.03	1.03	1.03		1.03	1.03	1.03	1.03		1.03	1.03	1.03	1.03		
03:00 PM	0	84	2	0	86	0	0	0	0	0	4	93	0	0	97	23	4	33	29	89	272
03:15 PM	0	102	2	0	104	1	0	0	0	1	2	106	3	0	111	21	0	40	35	96	312
03:30 PM	0	92	0	0	92	0	0	2	0	2	5	119	0	0	124	18	0	14	32	64	282
03:45 PM	1	92	2	1	96	0	0	0	0	0	4	107	0	0	111	8	0	13	12	33	240
Total	1	370	6	1	378	1	0	2	0	3	15	425	3	0	443	70	4	100	108	282	1106
04:00 PM	0	97	0	0	97	0	0	0	0	0	4	124	0	0	128	10	0	16	26	52	277
04:15 PM	0	81	0	0	81	1	0	0	0	1	8	106	0	0	114	6	0	21	12	39	235
04:30 PM	0	94	1	0	95	0	0	0	0	0	0	95	0	0	95	19	0	31	28	78	268
04:45 PM	0	99	2	0	101	0	0	0	0	0	12	97	0	0	109	8	0	18	35	61	271
Total	0	371	3	0	374	1	0	0	0	1	24	422	0	0	446	43	0	86	101	230	1051
05:00 PM	0	96	1	0	97	0	0	0	0	0	15	114	0	0	129	11	0	19	34	64	290
05:15 PM	0	80	4	0	84	0	0	0	0	0	16	101	0	0	117	29	0	44	22	95	296
05:30 PM	0	95	3	3	101	0	0	0	0	0	6	88	0	0	94	23	1	30	23	77	272
05:45 PM	0	80	2	1	83	0	0	0	0	0	6	87	0	0	93	8	0	10	21	39	215
Total	0	351	10	4	365	0	0	0	0	0	43	390	0	0	433	71	1	103	100	275	1073
Grand Total	1	1092	19	5	1117	2	0	2	0	4	82	1237	3	0	1322	184	5	289	309	787	3230
Apprch %	0.1	97.8	1.7	0.4		50	0	50	0		6.2	93.6	0.2	0		23.4	0.6	36.7	39.3		
Total %	0	33.8	0.6	0.2	34.6	0.1	0	0.1	0	0.1	2.5	38.3	0.1	0	40.9	5.7	0.2	8.9	9.6	24.4	
Cars	1	1059	15	5	1080	2	0	2	0	4	68	1214	3	0	1285	179	5	282	300	766	3135
% Cars	100	97	78.9	100	96.7	100	0	100	0	100	82.9	98.1	100	0	97.2	97.3	100	97.6	97.1	97.3	97.1
Trucks	0	33	4	0	37	0	0	0	0	0	14	23	0	0	37	5	0	7	9	21	95
% Trucks	0	3	21.1	0	3.3	0	0	0	0	0	17.1	1.9	0	0	2.8	2.7	0	2.4	2.9	2.7	2.9

	Southbound					Westbound					Northbound					Eastbound					
Start Time	Left	Thru	Right	RTOR	App Total	Left	Thru	Right	RTOR	App Total	Left	Thru	Right	RTOR	App Total	Left	Thru	Right	RTOR	App Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	99	2	0	101	0	0	0	0	0	12	97	0	0	109	8	0	18	35	61	271
05:00 PM	0	96	1	0	97	0	0	0	0	0	15	114	0	0	129	11	0	19	34	64	290
05:15 PM	0	80	4	0	84	0	0	0	0	0	16	101	0	0	117	29	0	44	22	95	296
05:30 PM	0	95	3	3	101	0	0	0	0	0	6	88	0	0	94	23	1	30	23	77	272
Total Volume	0	370	10	3	383	0	0	0	0	0	49	400	0	0	449	71	1	111	114	297	1129
% App. Total	0	96.6	2.6	0.8		0	0	0	0		10.9	89.1	0	0		23.9	0.3	37.4	38.4		
PHF	.000	.934	.625	.250	.948	.000	.000	.000	.000	.000	.766	.877	.000	.000	.870	.612	.250	.631	.914	.782	.954
Cars	0	362	9	3	374	0	0	0	0	0	48	398	0	0	444	70	1	110	111	292	1110
% Cars	0	97.8	90.0	100	97.7	0	0	0	0	0	93.9	99.5	0	0	98.9	98.6	100	99.1	97.4	98.3	98.3
Trucks	0	8	1	0	9	0	0	0	0	0	3	2	0	0	5	1	0	1	3	5	19
% Trucks	0	2.2	10.0	0	2.3	0	0	0	0	0	6.1	0.5	0	0	1.1	1.4	0	0.9	2.6	1.7	1.7

APPENDIX B
BACKGROUND GROWTH RATE CALCULATION

GROWTH RATE CALCULATION

Year	AADT	Growth
2002	8,900	
2003	9,100	2.2%
2004	6,900	-24.2%
2005	10,100	46.4%
2006	8,900	-11.9%
Average		**3.1%**

*Traffic Count Site #0250 – SR 55/US 19, North of CR 488 / Dunellon Road

Growth Factor = (1 + 3.1 / 100)^5

= **1.165**

Source: 2006 Traffic Counts obtained from FDOT Central Office
2002 – 2005 Traffic Counts obtained from 2005 Florida Traffic Information System CD.

APPENDIX C
HCS+ CAPACITY ANALYSIS SUMMARY
2007 EXISTING

Short Report

SHORT REPORT

General Information		Site Information	
Analyst	NAS	Intersection	US19/98 & Powerline Rd
Agency or Co.	TA	Area Type	All other areas
Date Performed	08/13/2007	Jurisdiction	Citrus County
Time Period	AM PEAK HOUR	Analysis Year	2007 Existing

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1		1				1	2			2	1
Lane Group	L		R				L	T			T	R
Volume (vph)	27		54				392	177			268	187
% Heavy Vehicles	11		6				2	14			9	2
PHF	0.71		0.71				0.84	0.84			0.82	0.82
Pretimed/Actuated (P/A)	A		A				A	A			A	A
Startup Lost Time	2.0		2.0				2.0	2.0			2.0	2.0
Extension of Effective Green	2.0		2.0				2.0	2.0			2.0	2.0
Arrival Type	4		4				4	4			4	4
Unit Extension	3.0		3.0				3.0	3.0			3.0	3.0
Ped/Bike/RTOR Volume	0	0	22				0	0		0	0	99
Lane Width	12.0		12.0				12.0	12.0			12.0	12.0
Parking/Grade/Parking	N	0	N				N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0		0				0	0			0	0
Minimum Pedestrian Time		3.2						3.2			3.2	

Phasing	EB Only	02	03	04	NB Only	Thru & RT	07	08
Timing	G = 13.0	G = 0.0	G = 0.0	G = 0.0	G = 48.0	G = 25.0	G = 0.0	G = 0.0
	Y = 4	Y = 0	Y = 0	Y = 0	Y = 5	Y = 5	Y = 0	Y = 0

Duration of Analysis (hrs) = 0.25 Cycle Length C = 100.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	38		45				467	211			327	107
Lane Group Capacity	211		991				850	2475			830	396
v/c Ratio	0.18		0.05				0.55	0.09			0.39	0.27
Green Ratio	0.13		0.65				0.48	0.78			0.25	0.25
Uniform Delay d_1	38.8		6.3				18.4	2.6			31.2	30.2
Delay Factor k	0.11		0.11				0.15	0.11			0.11	0.11
Incremental Delay d_2	0.4		0.0				0.8	0.0			0.3	0.4
PF Factor	1.000		0.438				0.796	0.261			1.000	1.000
Control Delay	39.2		2.8				15.4	0.7			31.5	30.5
Lane Group LOS	D		A				B	A			C	C
Approach Delay	19.4						10.8			31.3		
Approach LOS	B						B			C		
Intersection Delay	18.8			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	NAS	Intersection	US19/98 & Powerline Rd
Agency or Co.	TA	Area Type	All other areas
Date Performed	08/13/2007	Jurisdiction	Citrus County
Time Period	PM PEAK HOUR	Analysis Year	2007 Existing

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1		1				1	2			2	1
Lane Group	L		R				L	T			T	R
Volume (vph)	71		225				49	400			370	13
% Heavy Vehicles	1		2				6	1			2	8
PHF	0.78		0.78				0.87	0.87			0.95	0.95
Pretimed/Actuated (P/A)	A		A				A	A			A	A
Startup Lost Time	2.0		2.0				2.0	2.0			2.0	2.0
Extension of Effective Green	2.0		2.0				2.0	2.0			2.0	2.0
Arrival Type	4		4				4	4			4	4
Unit Extension	3.0		3.0				3.0	3.0			3.0	3.0
Ped/Bike/RTOR Volume	0	0	114				0	0		0	0	3
Lane Width	12.0		12.0				12.0	12.0			12.0	12.0
Parking/Grade/Parking	N	0	N				N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0		0				0	0			0	0
Minimum Pedestrian Time		3.2						3.2			3.2	

Phasing	EB Only	02	03	04	NB Only	Thru & RT	07	08
Timing	G = 33.0	G = 0.0	G = 0.0	G = 0.0	G = 16.0	G = 37.0	G = 0.0	G = 0.0
	Y = 4	Y = 0	Y = 0	Y = 0	Y = 5	Y = 5	Y = 0	Y = 0

Duration of Analysis (hrs) = 0.25 Cycle Length C = 100.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	91		142				56	460			389	11
Lane Group Capacity	590		839				272	2078			1312	553
v/c Ratio	0.15		0.17				0.21	0.22			0.30	0.02
Green Ratio	0.33		0.53				0.16	0.58			0.37	0.37
Uniform Delay d_1	23.6		12.1				36.5	10.1			22.3	20.0
Delay Factor k	0.11		0.11				0.11	0.11			0.11	0.11
Incremental Delay d_2	0.1		0.1				0.4	0.1			0.1	0.0
PF Factor	0.961		0.718				1.000	0.621			0.925	0.925
Control Delay	22.9		8.8				36.9	6.3			20.7	18.5
Lane Group LOS	C		A				D	A			C	B
Approach Delay	14.3						9.6			20.7		
Approach LOS	B						A			C		
Intersection Delay	14.4			Intersection LOS						B		

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HCS+ CAPACITY ANALYSIS SUMMARY
2009 NO-BUILD

Short Report

SHORT REPORT

General Information		Site Information	
Analyst	NAS	Intersection	US19/98 & Powerline Rd
Agency or Co.	TA	Area Type	All other areas
Date Performed	08/13/2007	Jurisdiction	Citrus County
Time Period	AM PEAK HOUR	Analysis Year	2009 No-Build

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1		1				1	2			2	1
Lane Group	L		R				L	T			T	R
Volume (vph)	8		16				99	188			285	47
% Heavy Vehicles	25		25				7	14			9	7
PHF	0.95		0.95				0.95	0.95			0.95	0.95
Pretimed/Actuated (P/A)	A		A				A	A			A	A
Startup Lost Time	2.0		2.0				2.0	2.0			2.0	2.0
Extension of Effective Green	2.0		2.0				2.0	2.0			2.0	2.0
Arrival Type	4		4				4	4			4	4
Unit Extension	3.0		3.0				3.0	3.0			3.0	3.0
Ped/Bike/RTOR Volume	0	0	7				0	0		0	0	23
Lane Width	12.0		12.0				12.0	12.0			12.0	12.0
Parking/Grade/Parking	N	0	N				N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0		0				0	0			0	0
Minimum Pedestrian Time		3.2						3.2			3.2	

Phasing	EB Only	02	03	04	NB Only	Thru & RT	07	08
Timing	G = 13.0	G = 0.0	G = 0.0	G = 0.0	G = 48.0	G = 25.0	G = 0.0	G = 0.0
	Y = 4	Y = 0	Y = 0	Y = 0	Y = 5	Y = 5	Y = 0	Y = 0

Duration of Analysis (hrs) = 0.25 Cycle Length C = 100.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	8		9				104	198			300	25
Lane Group Capacity	188		840				810	2475			830	649
v/c Ratio	0.04		0.01				0.13	0.08			0.36	0.04
Green Ratio	0.13		0.65				0.48	0.78			0.25	0.43
Uniform Delay d_1	38.1		6.2				14.4	2.6			30.9	16.5
Delay Factor k	0.11		0.11				0.11	0.11			0.11	0.11
Incremental Delay d_2	0.1		0.0				0.1	0.0			0.3	0.0
PF Factor	1.000		0.438				0.796	0.261			1.000	0.861
Control Delay	38.1		2.7				11.5	0.7			31.2	14.2
Lane Group LOS	D		A				B	A			C	B
Approach Delay	19.4						4.4			29.9		
Approach LOS	B						A			C		
Intersection Delay	17.7			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	NAS	Intersection	US19/98 & Powerline Rd
Agency or Co.	TA	Area Type	All other areas
Date Performed	08/13/2007	Jurisdiction	Citrus County
Time Period	PM PEAK HOUR	Analysis Year	2009 No-Build

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1		1				1	2			2	1
Lane Group	L		R				L	T			T	R
Volume (vph)	18		57				14	426			394	4
% Heavy Vehicles	7		7				22	1			2	22
PHF	0.95		0.95				0.95	0.95			0.95	0.95
Pretimed/Actuated (P/A)	A		A				A	A			A	A
Startup Lost Time	2.0		2.0				2.0	2.0			2.0	2.0
Extension of Effective Green	2.0		2.0				2.0	2.0			2.0	2.0
Arrival Type	4		4				4	4			4	4
Unit Extension	3.0		3.0				3.0	3.0			3.0	3.0
Ped/Bike/RTOR Volume	0	0	28				0	0		0	0	2
Lane Width	12.0		12.0				12.0	12.0			12.0	12.0
Parking/Grade/Parking	N	0	N				N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0		0				0	0			0	0
Minimum Pedestrian Time		3.2						3.2			3.2	

Phasing	EB Only	02	03	04	NB Only	Thru & RT	07	08
Timing	G = 33.0	G = 0.0	G = 0.0	G = 0.0	G = 16.0	G = 37.0	G = 0.0	G = 0.0
	Y = 4	Y = 0	Y = 0	Y = 0	Y = 5	Y = 5	Y = 0	Y = 0

Duration of Analysis (hrs) = 0.25 Cycle Length C = 100.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	19		31				15	448			415	2
Lane Group Capacity	557		800				237	2078			1312	490
v/c Ratio	0.03		0.04				0.06	0.22			0.32	0.00
Green Ratio	0.33		0.53				0.16	0.58			0.37	0.37
Uniform Delay d_1	22.7		11.3				35.6	10.1			22.5	19.9
Delay Factor k	0.11		0.11				0.11	0.11			0.11	0.11
Incremental Delay d_2	0.0		0.0				0.1	0.1			0.1	0.0
PF Factor	0.961		0.718				1.000	0.621			0.925	0.925
Control Delay	21.8		8.1				35.8	6.3			20.9	18.4
Lane Group LOS	C		A				D	A			C	B
Approach Delay	13.3						7.3			20.9		
Approach LOS	B						A			C		
Intersection Delay	13.7			Intersection LOS						B		

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HCS+ CAPACITY ANALYSIS SUMMARY
2012 NO-BUILD

SHORT REPORT

General Information		Site Information	
Analyst	NAS	Intersection	US19/98 & Powerline Rd
Agency or Co.	TA	Area Type	All other areas
Date Performed	08/13/2007	Jurisdiction	Citrus County
Time Period	AM PEAK HOUR	Analysis Year	2012 No-Build

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1		1				1	2			2	1
Lane Group	L		R				L	T			T	R
Volume (vph)	11		21				108	207			313	51
% Heavy Vehicles	43		43				14	4			9	14
PHF	0.95		0.95				0.95	0.95			0.95	0.95
Pretimed/Actuated (P/A)	A		A				A	A			A	A
Startup Lost Time	2.0		2.0				2.0	2.0			2.0	2.0
Extension of Effective Green	2.0		2.0				2.0	2.0			2.0	2.0
Arrival Type	4		4				4	4			4	4
Unit Extension	3.0		3.0				3.0	3.0			3.0	3.0
Ped/Bike/RTOR Volume	0	0	10				0	0		0	0	25
Lane Width	12.0		12.0				12.0	12.0			12.0	12.0
Parking/Grade/Parking	N	0	N				N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0		0				0	0			0	0
Minimum Pedestrian Time		3.2						3.2			3.2	

Phasing	EB Only	02	03	04	NB Only	Thru & RT	07	08
Timing	G = 13.0	G = 0.0	G = 0.0	G = 0.0	G = 48.0	G = 25.0	G = 0.0	G = 0.0
	Y = 4	Y = 0	Y = 0	Y = 0	Y = 5	Y = 5	Y = 0	Y = 0

Duration of Analysis (hrs) = 0.25 Cycle Length C = 100.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	12		12				114	218			329	27
Lane Group Capacity	164		734				760	2713			830	354
v/c Ratio	0.07		0.02				0.15	0.08			0.40	0.08
Green Ratio	0.13		0.65				0.48	0.78			0.25	0.25
Uniform Delay d_1	38.2		6.2				14.6	2.6			31.2	28.7
Delay Factor k	0.11		0.11				0.11	0.11			0.11	0.11
Incremental Delay d_2	0.2		0.0				0.1	0.0			0.3	0.1
PF Factor	1.000		0.438				0.796	0.261			1.000	1.000
Control Delay	38.4		2.7				11.7	0.7			31.5	28.8
Lane Group LOS	D		A				B	A			C	C
Approach Delay	20.6						4.5			31.3		
Approach LOS	C						A			C		
Intersection Delay	18.4			Intersection LOS						B		

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Short Report

SHORT REPORT

General Information		Site Information	
Analyst	NAS	Intersection	US19/98 & Powerline Rd
Agency or Co.	TA	Area Type	All other areas
Date Performed	08/13/2007	Jurisdiction	Citrus County
Time Period	PM PEAK HOUR	Analysis Year	2012 No-Build

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1		1				1	2			2	1
Lane Group	L		R				L	T			T	R
Volume (vph)	19		62				18	467			432	5
% Heavy Vehicles	14		14				40	1			2	40
PHF	0.95		0.95				0.95	0.95			0.95	0.95
Pretimed/Actuated (P/A)	A		A				A	A			A	A
Startup Lost Time	2.0		2.0				2.0	2.0			2.0	2.0
Extension of Effective Green	2.0		2.0				2.0	2.0			2.0	2.0
Arrival Type	4		4				4	4			4	4
Unit Extension	3.0		3.0				3.0	3.0			3.0	3.0
Ped/Bike/RTOR Volume	0	0	31				0	0		0	0	2
Lane Width	12.0		12.0				12.0	12.0			12.0	12.0
Parking/Grade/Parking	N	0	N				N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0		0				0	0			0	0
Minimum Pedestrian Time		3.2						3.2			3.2	

Phasing	EB Only	02	03	04	NB Only	Thru & RT	07	08
Timing	G = 33.0	G = 0.0	G = 0.0	G = 0.0	G = 16.0	G = 37.0	G = 0.0	G = 0.0
	Y = 4	Y = 0	Y = 0	Y = 0	Y = 5	Y = 5	Y = 0	Y = 0

Duration of Analysis (hrs) = 0.25 Cycle Length C = 100.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	20		33				19	492			455	3
Lane Group Capacity	522		751				206	2078			1312	427
v/c Ratio	0.04		0.04				0.09	0.24			0.35	0.01
Green Ratio	0.33		0.53				0.16	0.58			0.37	0.37
Uniform Delay d_1	22.7		11.3				35.8	10.2			22.8	19.9
Delay Factor k	0.11		0.11				0.11	0.11			0.11	0.11
Incremental Delay d_2	0.0		0.0				0.2	0.1			0.2	0.0
PF Factor	0.961		0.718				1.000	0.621			0.925	0.925
Control Delay	21.9		8.1				36.0	6.4			21.2	18.4
Lane Group LOS	C		A				D	A			C	B
Approach Delay	13.3						7.5			21.2		
Approach LOS	B						A			C		
Intersection Delay	13.9			Intersection LOS						B		

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HCS+ CAPACITY ANALYSIS SUMMARY
2009 BUILD

Short Report

SHORT REPORT

General Information		Site Information	
Analyst	NAS	Intersection	US19/98 & Powerline Rd
Agency or Co.	TA	Area Type	All other areas
Date Performed	08/13/2007	Jurisdiction	Citrus County
Time Period	AM PEAK HOUR	Analysis Year	2009 Build

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1		1				1	2			2	1
Lane Group	L		R				L	T			T	R
Volume (vph)	23		47				298	188			285	142
% Heavy Vehicles	22		22				6	14			9	6
PHF	0.95		0.95				0.95	0.95			0.95	0.95
Pretimed/Actuated (P/A)	A		A				A	A			A	A
Startup Lost Time	2.0		2.0				2.0	2.0			2.0	2.0
Extension of Effective Green	2.0		2.0				2.0	2.0			2.0	2.0
Arrival Type	4		4				4	4			4	4
Unit Extension	3.0		3.0				3.0	3.0			3.0	3.0
Ped/Bike/RTOR Volume	0	0	23				0	0		0	0	71
Lane Width	12.0		12.0				12.0	12.0			12.0	12.0
Parking/Grade/Parking	N	0	N				N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0		0				0	0			0	0
Minimum Pedestrian Time		3.2						3.2			3.2	

Phasing	EB Only	02	03	04	NB Only	Thru & RT	07	08
Timing	G = 13.0	G = 0.0	G = 0.0	G = 0.0	G = 48.0	G = 25.0	G = 0.0	G = 0.0
	Y = 4	Y = 0	Y = 0	Y = 0	Y = 5	Y = 5	Y = 0	Y = 0

Duration of Analysis (hrs) = 0.25 Cycle Length C = 100.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	24		25				314	198			300	75
Lane Group Capacity	192		861				817	2475			830	381
v/c Ratio	0.13		0.03				0.38	0.08			0.36	0.20
Green Ratio	0.13		0.65				0.48	0.78			0.25	0.25
Uniform Delay d_1	38.5		6.2				16.6	2.6			30.9	29.6
Delay Factor k	0.11		0.11				0.11	0.11			0.11	0.11
Incremental Delay d_2	0.3		0.0				0.3	0.0			0.3	0.3
PF Factor	1.000		0.438				0.796	0.261			1.000	1.000
Control Delay	38.8		2.7				13.5	0.7			31.2	29.8
Lane Group LOS	D		A				B	A			C	C
Approach Delay	20.4						8.5			30.9		
Approach LOS	C						A			C		
Intersection Delay	18.1			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	NAS	Intersection	US19/98 & Powerline Rd
Agency or Co.	TA	Area Type	All other areas
Date Performed	08/13/2007	Jurisdiction	Citrus County
Time Period	PM PEAK HOUR	Analysis Year	2009 Build

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1		1				1	2			2	1
Lane Group	L		R				L	T			T	R
Volume (vph)	55		170				41	426			394	12
% Heavy Vehicles	7		5				18	1			2	25
PHF	0.95		0.95				0.95	0.95			0.95	0.95
Pretimed/Actuated (P/A)	A		A				A	A			A	A
Startup Lost Time	2.0		2.0				2.0	2.0			2.0	2.0
Extension of Effective Green	2.0		2.0				2.0	2.0			2.0	2.0
Arrival Type	4		4				4	4			4	4
Unit Extension	3.0		3.0				3.0	3.0			3.0	3.0
Ped/Bike/RTOR Volume	0	0	85				0	0		0	0	6
Lane Width	12.0		12.0				12.0	12.0			12.0	12.0
Parking/Grade/Parking	N	0	N				N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0		0				0	0			0	0
Minimum Pedestrian Time		3.2						3.2			3.2	

Phasing	EB Only	02	03	04	NB Only	Thru & RT	07	08
Timing	G = 33.0	G = 0.0	G = 0.0	G = 0.0	G = 16.0	G = 37.0	G = 0.0	G = 0.0
	Y = 4	Y = 0	Y = 0	Y = 0	Y = 5	Y = 5	Y = 0	Y = 0

Duration of Analysis (hrs) = 0.25 Cycle Length C = 100.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	58		89				43	448			415	6
Lane Group Capacity	557		815				245	2078			1312	478
v/c Ratio	0.10		0.11				0.18	0.22			0.32	0.01
Green Ratio	0.33		0.53				0.16	0.58			0.37	0.37
Uniform Delay d_1	23.2		11.7				36.3	10.1			22.5	19.9
Delay Factor k	0.11		0.11				0.11	0.11			0.11	0.11
Incremental Delay d_2	0.1		0.1				0.3	0.1			0.1	0.0
PF Factor	0.961		0.718				1.000	0.621			0.925	0.925
Control Delay	22.4		8.5				36.6	6.3			20.9	18.5
Lane Group LOS	C		A				D	A			C	B
Approach Delay	14.0						9.0			20.9		
Approach LOS	B						A			C		
Intersection Delay	14.4			Intersection LOS						B		

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HCS+ CAPACITY ANALYSIS SUMMARY
2012 BUILD

Short Report

SHORT REPORT

General Information		Site Information	
Analyst	NAS	Intersection	US19/98 & Powerline Rd
Agency or Co.	TA	Area Type	All other areas
Date Performed	08/13/2007	Jurisdiction	Citrus County
Time Period	AM PEAK HOUR	Analysis Year	2012 Build

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1		1				1	2			2	1
Lane Group	L		R				L	T			T	R
Volume (vph)	11		21				108	207			313	51
% Heavy Vehicles	43		43				14	14			9	14
PHF	0.95		0.95				0.95	0.95			0.95	0.95
Pretimed/Actuated (P/A)	A		A				A	A			A	A
Startup Lost Time	2.0		2.0				2.0	2.0			2.0	2.0
Extension of Effective Green	2.0		2.0				2.0	2.0			2.0	2.0
Arrival Type	4		4				4	4			4	4
Unit Extension	3.0		3.0				3.0	3.0			3.0	3.0
Ped/Bike/RTOR Volume	0	0	10				0	0		0	0	25
Lane Width	12.0		12.0				12.0	12.0			12.0	12.0
Parking/Grade/Parking	N	0	N				N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0		0				0	0			0	0
Minimum Pedestrian Time		3.2						3.2			3.2	

Phasing	EB Only	02	03	04	NB Only	Thru & RT	07	08
Timing	G = 13.0	G = 0.0	G = 0.0	G = 0.0	G = 48.0	G = 25.0	G = 0.0	G = 0.0
	Y = 4	Y = 0	Y = 0	Y = 0	Y = 5	Y = 5	Y = 0	Y = 0

Duration of Analysis (hrs) = 0.25 Cycle Length C = 100.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	12		12				114	218			329	27
Lane Group Capacity	164		734				760	2475			830	354
v/c Ratio	0.07		0.02				0.15	0.09			0.40	0.08
Green Ratio	0.13		0.65				0.48	0.78			0.25	0.25
Uniform Delay d_1	38.2		6.2				14.6	2.6			31.2	28.7
Delay Factor k	0.11		0.11				0.11	0.11			0.11	0.11
Incremental Delay d_2	0.2		0.0				0.1	0.0			0.3	0.1
PF Factor	1.000		0.438				0.796	0.261			1.000	1.000
Control Delay	38.4		2.7				11.7	0.7			31.5	28.8
Lane Group LOS	D		A				B	A			C	C
Approach Delay	20.6						4.5			31.3		
Approach LOS	C						A			C		
Intersection Delay	18.4			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	NAS	Intersection	US19/98 & Powerline Rd
Agency or Co.	TA	Area Type	All other areas
Date Performed	08/13/2007	Jurisdiction	Citrus County
Time Period	PM Peak Hour	Analysis Year	2012 Build

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1		1				1	2			2	1
Lane Group	L		R				L	T			T	R
Volume (vph)	19		62				18	467			432	5
% Heavy Vehicles	14		14				40	1			2	40
PHF	0.95		0.95				0.95	0.95			0.95	0.95
Pretimed/Actuated (P/A)	A		A				A	A			A	A
Startup Lost Time	2.0		2.0				2.0	2.0			2.0	2.0
Extension of Effective Green	2.0		2.0				2.0	2.0			2.0	2.0
Arrival Type	4		4				4	4			4	4
Unit Extension	3.0		3.0				3.0	3.0			3.0	3.0
Ped/Bike/RTOR Volume	0	0	31				0	0		0	0	2
Lane Width	12.0		12.0				12.0	12.0			12.0	12.0
Parking/Grade/Parking	N	0	N				N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0		0				0	0			0	0
Minimum Pedestrian Time		3.2						3.2			3.2	

Phasing	EB Only	02	03	04	NB Only	Thru & RT	07	08
Timing	G = 33.0	G = 0.0	G = 0.0	G = 0.0	G = 16.0	G = 37.0	G = 0.0	G = 0.0
	Y = 4	Y = 0	Y = 0	Y = 0	Y = 5	Y = 5	Y = 0	Y = 0

Duration of Analysis (hrs) = 0.25 Cycle Length C = 100.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	20		33				19	492			455	3
Lane Group Capacity	522		751				206	2078			1312	427
v/c Ratio	0.04		0.04				0.09	0.24			0.35	0.01
Green Ratio	0.33		0.53				0.16	0.58			0.37	0.37
Uniform Delay d_1	22.7		11.3				35.8	10.2			22.8	19.9
Delay Factor k	0.11		0.11				0.11	0.11			0.11	0.11
Incremental Delay d_2	0.0		0.0				0.2	0.1			0.2	0.0
PF Factor	0.961		0.718				1.000	0.621			0.925	0.925
Control Delay	21.9		8.1				36.0	6.4			21.2	18.4
Lane Group LOS	C		A				D	A			C	B
Approach Delay	13.3						7.5			21.2		
Approach LOS	B						A			C		
Intersection Delay	13.9			Intersection LOS						B		

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APPENDIX D
SIMTRAFFIC SIMULATION RESULTS
2007 EXISTING

Progress Energy CR3 Uprate Project
AM PEAK HOUR

2007 Existing
8/13/2007

Intersection: 2: Power Line Rd & US-19/US-98

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	R
Maximum Queue (ft)	71	49	270	290	115	116	129	138
Average Queue (ft)	21	15	173	32	11	42	52	52
95th Queue (ft)	53	37	272	190	62	88	105	104
Link Distance (ft)	274			329	329	351	351	
Upstream Blk Time (%)				0	0			
Queuing Penalty (veh)				0	0			
Storage Bay Dist (ft)		200	250					200
Storage Blk Time (%)			3					
Queuing Penalty (veh)			2					

Progress Energy CR3 Uprate Project
PM PEAK HOUR

2007 Existing
8/13/2007

Intersection: 7: Power Line Rd & US-19/US-98

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	R
Maximum Queue (ft)	97	97	97	68	79	86	88	44
Average Queue (ft)	40	37	40	17	31	32	41	6
95th Queue (ft)	79	67	83	50	68	73	79	28
Link Distance (ft)	289			366	366	296	296	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		200	250					200
Storage Blk Time (%)								
Queuing Penalty (veh)								

NAS
TA

SimTraffic Report
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SIMTRAFFIC SIMULATION RESULTS
2009 NO-BUILD

Progress Energy CR3 Uprate Project
AM PEAK HOUR

2009 No-Build
8/13/2007

Intersection: 2: Power Line Rd & US-19/US-98

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	R
Maximum Queue (ft)	59	63	112	20	47	62	80	54
Average Queue (ft)	9	12	58	1	5	18	36	10
95th Queue (ft)	37	40	100	11	27	53	74	38
Link Distance (ft)	274			329	329	351	351	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		200	250					200
Storage Blk Time (%)								
Queuing Penalty (veh)								

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TA

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Progress Energy CR3 Uprate Project
PM PEAK HOUR

2009 No-Build
8/13/2007

Intersection: 7: Power Line Rd & US-19/US-98

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	R
Maximum Queue (ft)	50	44	64	35	75	62	73	4
Average Queue (ft)	13	21	16	7	18	16	24	0
95th Queue (ft)	39	42	51	29	52	47	59	3
Link Distance (ft)	289			366	366	296	296	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		200	250					200
Storage Blk Time (%)								
Queuing Penalty (veh)								

SIMTRAFFIC SIMULATION RESULTS
2012 No-Build

Progress Energy CR3 Uprate Project
AM PEAK HOUR

2012 No-Build
8/13/2007

Intersection: 2: Power Line Rd & US-19/US-98

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	R
Maximum Queue (ft)	67	59	168	26	67	64	102	64
Average Queue (ft)	12	14	64	2	9	22	36	14
95th Queue (ft)	43	47	125	13	40	57	81	46
Link Distance (ft)	274			329	329	351	351	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		200	250					200
Storage Blk Time (%)								
Queuing Penalty (veh)								

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Progress Energy CR3 Uprate Project
PM PEAK HOUR

2012 No-Build
8/13/2007

Intersection: 7: Power Line Rd & US-19/US-98

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	R
Maximum Queue (ft)	62	82	86	59	70	68	76	15
Average Queue (ft)	18	26	24	13	26	22	31	0
95th Queue (ft)	49	59	66	42	64	56	68	7
Link Distance (ft)	289			366	366	296	296	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		200	250					200
Storage Blk Time (%)								
Queuing Penalty (veh)								

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2009 BUILD

Progress Energy CR3 Uprate Project
AM PEAK HOUR

2009 Build
8/13/2007

Intersection: 2: Power Line Rd & US-19/US-98

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	R
Maximum Queue (ft)	71	63	273	297	157	95	121	119
Average Queue (ft)	17	19	146	19	13	40	54	41
95th Queue (ft)	51	48	246	141	80	79	96	88
Link Distance (ft)	274			329	329	351	351	
Upstream Blk Time (%)				0	0			
Queuing Penalty (veh)				0	0			
Storage Bay Dist (ft)		200	250					200
Storage Blk Time (%)			1					
Queuing Penalty (veh)			1					

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Progress Energy CR3 Uprate Project
PM PEAK HOUR

2009 Build
8/13/2007

Intersection: 7: Power Line Rd & US-19/US-98

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	R
Maximum Queue (ft)	93	94	98	64	92	105	117	43
Average Queue (ft)	37	34	37	17	33	34	43	3
95th Queue (ft)	75	64	79	49	75	76	89	22
Link Distance (ft)	289			366	366	296	296	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		200	250					200
Storage Blk Time (%)								
Queuing Penalty (veh)								

SIMTRAFFIC SIMULATION RESULTS
2012 BUILD

Progress Energy CR3 Uprate Project
AM PEAK HOUR

2012 Build
8/13/2007

Intersection: 2: Power Line Rd & US-19/US-98

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	R
Maximum Queue (ft)	67	59	167	26	68	68	74	68
Average Queue (ft)	12	14	65	2	8	23	26	15
95th Queue (ft)	44	46	125	14	38	59	62	49
Link Distance (ft)	274			329	329	351	351	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		200	250					200
Storage Blk Time (%)								
Queuing Penalty (veh)								

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2012 Build
8/13/2007

Intersection: 7: Power Line Rd & US-19/US-98

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Maximum Queue (ft)	62	82	86	59	70	68	76	15
Average Queue (ft)	18	26	24	13	26	22	31	0
95th Queue (ft)	49	59	66	42	64	56	68	7
Link Distance (ft)	289			366	366	296	296	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		200	250					200
Storage Blk Time (%)								
Queuing Penalty (veh)								