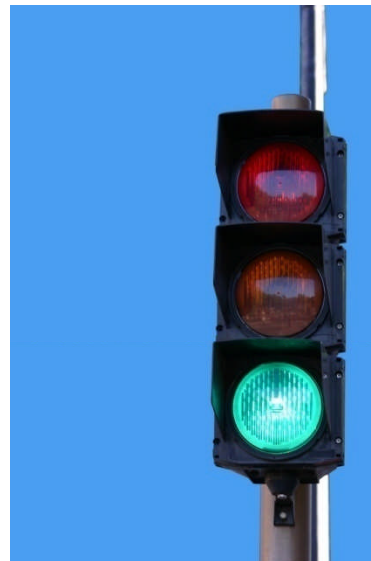
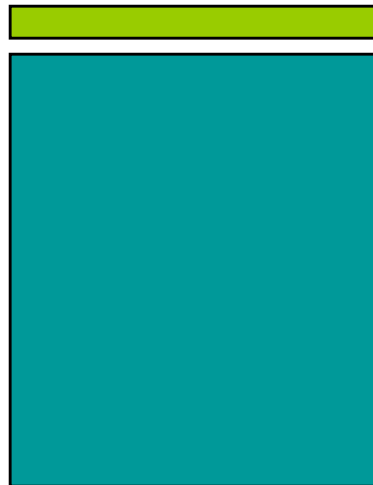


Turkey Point Plant Operations Analysis

traffic study



prepared for:
Golder Associates, Inc.

Traf Tech
ENGINEERING, INC.

June 2009

June 16, 2009

Ms. Kerri J. Kitchen
Senior Planner
Golder Associates, Inc.
5100 W. Lemon Street, Suite 114
Tampa, Florida 33609

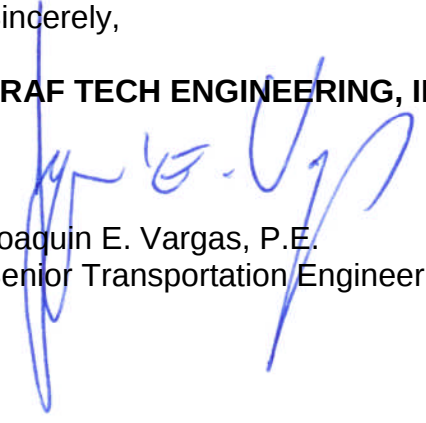
Re: **Turkey Point Plant – Operations Traffic Study**

Dear Kerri:

Traf Tech Engineering is pleased to provide you with the results of the traffic study associated with the operation of Units 6 & 7 at the Turkey Point Plant located at the easternmost point of SW 344th Street (Palm Drive) in south Miami-Dade County, Florida. It has been a pleasure serving Golder Associates, Inc. on this project.

Sincerely,

TRAF TECH ENGINEERING, INC.



Joaquin E. Vargas, P.E.
Senior Transportation Engineer

INTRODUCTION

Traf Tech Engineering, Inc. has been retained by Golder Associates, Inc. to perform a traffic study in connection with the operation of Units 6 & 7 at the existing Turkey Point Plant located at the easternmost point of SW 344th Street (Palm Drive) in south Miami-Dade County, Florida. Figure 1 shows the location of the project site and its relationship to the immediate transportation network. This traffic study addresses Miami-Dade County's Traffic Concurrency Management System and the future operating conditions of the transportation network located in the vicinity of the project site, for two scenarios. Scenario 1 evaluates traffic conditions during normal operations of Units 6 & 7 while Scenario 2 analyzes the traffic impacts created during outages of both units. For both scenarios, only one access roadway (SW 344th Street) was assumed for this traffic evaluation. The following is a summary of the report's findings.

EXISTING AND FUTURE PERSONNEL

The existing Turkey Point Plant facility (Units 1 through 5) currently has approximately 1,467 employees including operation, maintenance, and engineering personnel. The new employees associated with Units 6 & 7 are estimated at 806. These 806 workers are in addition to the existing employees currently working at the subject plant.

EXISTING CONDITIONS

According to Miami-Dade County Concurrency Management System, there are three (3) traffic concurrency stations in the vicinity of the project, as illustrated in Figure 1. The available capacities on the three concurrency stations are documented in Table 1. The information presented in Table 1 was obtained from Miami-Dade County's Concurrency Management System (refer to Appendix A).

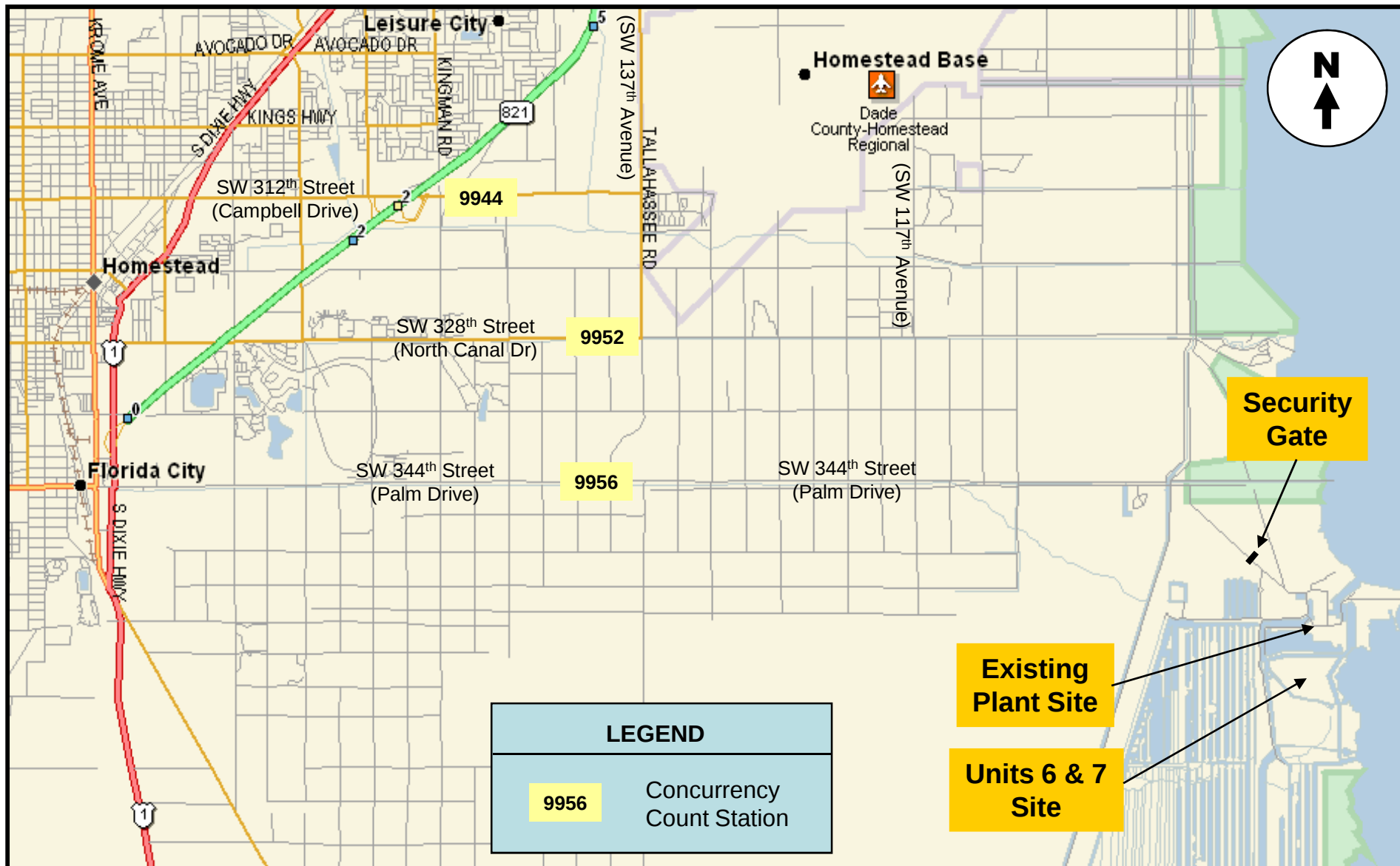
TABLE 1 RESERVE CAPACITY Turkey Point Plant				
Station No.	Location	Peak Hour Capacity¹	Peak Hour Trips²	Available Peak Hour Capacity³
9956	SW 344 St. W. of SW 137 th Ave/Tallahassee Road	3,030	231	2,799
9952	SW 328 th St. W. of SW 137 th Ave/Tallahassee Road	2,600	254	2,346
9944	SW 312 th St. E. of HEFT ⁴	3,350	2,061	1,289

¹ Maximum level of service capacity.

² Existing traffic volumes plus peak hour trips associated with approved, but not built, developments.

³ Total peak hour trips minus peak hour capacity (reserved trips).

⁴ Homestead Extension of Florida's Turnpike.



The available capacities shown in Table 1 reflect existing traffic as well as traffic associated with approved developments, but not yet built and/or fully occupied. As indicated in Table 1, all nearby traffic concurrency stations have sufficient peak hour capacity to accommodate additional development within south Miami-Dade County.

TRIP GENERATION (Existing)

Due to the unique nature of the land uses associated with this project, the trip generation for the existing plant (Units 1 through 5) was determined using employees as the independent variable.

The trip generation associated with the existing Turkey Point Plant was based on the results of traffic counts conducted at the entrance/exit driveway to and from the subject plant. The traffic counts consisted of seven-day machine traffic counts recorded near the security gate located at the Turkey Point Plant. The machine traffic counts were undertaken during the peak season (March 27 through April 2, 2007). The results of the traffic counts are contained in Appendix B.

Table 2 summarizes the results of the 7-day machine traffic counts recorded at the Turkey Point Power Plant.

TABLE 2 EXISTING TRAFFIC COUNT SUMMARY Turkey Point Plant		
Day of Week	Daily Traffic Volume	PM Peak Hour Volume
Monday	2,786	445
Tuesday	2,977	445
Wednesday	3,077	451
Thursday	3,053	433
Friday	2,141	249
Weekday Average	2,807	405
Saturday	959	101
Sunday	713	90
Weekend Average	836	96

Source: Crossroads Engineering Data, Inc.

As indicated in Table 2, the existing plant (Units 1 through 5) generated approximately 2,800 vehicles per day and approximately 400 trips during the typical afternoon peak hour (PM peak), during the week of March 27, 2007. On weekends, the daily and peak hour trips drop to approximately 836 and 96 trips, respectively. During the week of the traffic counts, the subject plant had approximately 940 workers.

TRIP GENERATION – Scenario 1 (Normal Operation Units 6 & 7))

Based on information provided by FPL, Units 6 & 7 will add approximately 806 new personnel to the Turkey Point Plant. The 806 additional employees assigned to the subject plant represent approximately 86% of the trip generation recorded during the week of March 27, 2007 (for 940 employees). The 86% increase in employment population was applied⁵ to the existing traffic counts recorded at the study intersections during the week of March 27 in order to develop total traffic volumes for the study area.

TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENT

The trip distribution and traffic assignment associated with Units 6 & 7 were based on existing traffic patterns associated with the current employees assigned to the subject plant. Appendix C contains the traffic assignment associated with the new employees assigned to Units 6 & 7.

LINK ANALYSIS – Scenario 1 (Normal Operation Units 6 & 7)

The new trips associated with Units 6 & 7 were combined with the traffic concurrency information documented in Table 1 to develop future conditions analysis. The resulting future conditions analysis is summarized in Table 3. As indicated in Table 3, the transportation network located in the vicinity of the project site has sufficient capacity to absorb the traffic impacts generated by Units 6 & 7.

TABLE 3 LINK ANALYSIS (Normal Operation of Units 6 & 7) Turkey Point Plant				
Station No.	Location	Previous Peak Hour Capacity	Units 6 & 7 New Trips	Available Peak Hour Capacity
9956	SW 344 St. W. of SW 137 th Ave/Tallahassee Road	2,799	126	2,673
9952	SW 328 th St. W. of SW 137 th Ave/Tallahassee Road	2,346	18	2,328
9944	SW 312 th St. E. of HEFT	1,289	36	1,253

Source: Miami-Dade County and Traf Tech Engineering, Inc.

Based on the foregoing analysis, the new trips generated by Units 6 & 7 (normal operations) of the existing Turkey Point Plant located east of Florida City meets Miami-Dade County's Traffic Concurrency Standards.

⁵ Assuming the auto occupancy (carpool percentage) anticipated for the future personnel assigned to Units 6 & 7 is similar to the existing carpool percentage associated with Units 1 through 5.

INTERSECTION ANALYSIS – Scenario 1 (Normal Operation Units 6 & 7)

The two most critical intersections (SW 117th Avenue/SW 344th Street and SW 117th Avenue/SW 328th Street) were evaluated for normal operation of Units 6 & 7. The intersection analyses were undertaken following the capacity/level of service procedures outlined in the Highway Capacity Manual (HCS+ Version 5.2). The results of the capacity analyses are summarized in Table 4. As indicated in Table 4, the two most impacted intersections are currently operating well and will continue to operate adequately with the additional traffic generated by Units 6 & 7 during normal operation.

TABLE 4 INTERSECTION ANALYSIS (Normal Operation of Units 6 & 7) Turkey Point Plant		
Intersection	Existing Conditions	With Units 6 & 7 Includes Improvements
SW 344 th St & SW 117 th Ave	A (C)	B (B)
SW 328 th St & SW 117 th Ave	A (B)	A (B)

Source: Highway Capacity Software. LEGEND: AM Peak Hour (PM Peak Hour)

It is important to mention that the future conditions analyses (with Units 6 & 7) assumes that the majority of the intersection improvements identified as part of the peak construction traffic study conducted by Traf Tech Engineering (report dated April 2009) are provided at the two study intersections. The intersection improvements assumed to be in place for normal operations are described below:

SW 328th Street/North Canal Drive and SW 117th Avenue

- o All-way stopped control (no need for signalization or police control)⁶
- o One separate northbound left-turn lane (no need for dual lefts)⁷
- o Construct one eastbound right-turn lane⁸

SW 344th Street/Palm Drive and SW 117th Avenue⁹

- o All-way stopped control (no need for signalization or police control)¹⁰
- o Construct one eastbound left-turn lane
- o Construct one westbound right-turn lane
- o Construct one southbound left-turn lane

⁶ If traffic signals were installed for the peak construction period and are still operational, the signals should operate on “flashing” mode during normal operation.

⁷ One of the dual left-turn lanes should be striped-out.

⁸ The eastbound center lane should be designated as a through-only lane (the shared right-turn arrow required for peak construction activities should be eliminated).

⁹ All peak construction improvements associated with the extension of SW 117th Avenue/, south of SW 344th Street/Palm Drive, are not required for normal operations.

¹⁰ Refer to Footnote 6.

The future turning movement volumes are contained in Appendix C, including existing intersection counts and peak season adjustment factors, while the computer printouts of the intersection capacity analyses are presented in Appendix D.

TRIP GENERATION – Scenario 2 (Outages on Units 6 & 7))

Based on information provided by FPL, Outages associated with Units 6 & 7 will add up to 2,000 new personnel (in addition to the 806 new workers associated with Units 6 & 7) to the Turkey Point Plant. The 2,000 additional employees represent approximately 213% of the trip generation recorded during the week of March 27, 2007 (for 940 employees). The 213% increase in employment population was applied¹¹ to the existing traffic counts recorded at the study intersections during the week of March 27 in order to develop total traffic volumes for the study area.

LINK ANALYSIS – Scenario 2 (Outages on Units 6 & 7)

The project traffic assignment described in the preceding section was combined with the traffic concurrency information documented in Table 1 to develop future conditions analysis (with the additional traffic generated by outages associated with Units 6 & 7). The resulting future conditions analysis is summarized in Table 5. As indicated in Table 5, the transportation network located in the vicinity of the project site has sufficient capacity to absorb the traffic impacts generated by outages on Units 6 & 7.

TABLE 5 LINK ANALYSIS (Outages on Units 6 & 7) Turkey Point Plant				
Station No.	Location	Previous Peak Hour Capacity	Outages New Trips	Available Peak Hour Capacity
9956	SW 344 St. W. of SW 137 th Ave/Tallahassee Road	2,673	310	2,363
9952	SW 328 th St. W. of SW 137 th Ave/Tallahassee Road	2,328	45	2,283
9944	SW 312 th St. E. of HEFT	1,253	89	1,164

Source: Miami-Dade County and Traf Tech Engineering, Inc.

Based on the foregoing analysis, the additional trips generated by outages associated with Units 6 & 7 of the existing Turkey Point Plant located east of Florida City meets Miami-Dade County's Traffic Concurrency Standards.

¹¹ Assuming the auto occupancy (carpool percentage) anticipated for the additional personnel associated with outages is similar to the existing carpool percentage associated with Units 1 through 5.

INTERSECTION ANALYSIS – Scenario 2 (Outages on Units 6 & 7)

The two most critical intersections (SW 117th Avenue/SW 344th Street and SW 117th Avenue/SW 328th Street) were evaluated for outages on Units 6 & 7. The results of the capacity analyses are summarized in Table 6. As indicated in Table 6, both study intersections are projected to operate at a good level of service during outages at Units 6 & 7. However, both intersections should be controlled by a police officer (or traffic signals¹²) during outages in order for the intersections to function adequately.

TABLE 6 INTERSECTION ANALYSIS (Outages on Units 6 & 7) Turkey Point Plant		
Intersection	Normal Operation Units 6 & 7 With Improvements	Outages on Units 6 & 7 With Improvements
SW 344 th St & SW 117 th Ave	B (B)	B (B)
SW 328 th St & SW 117 th Ave	A (B)	C (B)

Source: Highway Capacity Software. LEGEND: AM Peak Hour (PM Peak Hour)

The future turning movement volumes for the outages scenario are contained in Appendix C while the computer printouts of the intersection capacity analyses are presented in Appendix D.

CONCLUSION AND RECOMMENDATIONS

The new trips generated by Units 6 & 7 (during normal operations) at the existing Turkey Point Plant located east of Florida City meets Miami-Dade County's Traffic Concurrency Standards. Furthermore, with the roadway improvements implemented as part of the peak construction activities associated with Units 6 & 7, the nearby intersections are projected to operate adequately for both normal operation and during outages of Units 6 & 7. For normal operation, the following improvements should be maintained at the two study intersections:

SW 328th Street/North Canal Drive and SW 117th Avenue

- o All-way stopped control (no need for signalization or police control)¹³
- o One separate northbound left-turn lane (no need for dual lefts)¹⁴
- o Construct one eastbound right-turn lane¹⁵

¹² If traffic signals were installed for the peak construction period and are still operational, the signals should be activated to "normal" mode during outages period.

¹³ If traffic signals were installed for the peak construction period and are still operational, the signals should operate under "flashing" mode during normal operation.

¹⁴ One of the dual left-turn lanes should be striped-out.

¹⁵ The eastbound center lane should be designated as a through-only lane (the shared right-turn arrow required for peak construction activities should be eliminated).

SW 344th Street/Palm Drive and SW 117th Avenue¹⁶

- o All-way stopped control (no need for signalization or police control)¹⁷
- o Construct one eastbound left-turn lane
- o Construct one westbound right-turn lane
- o Construct one southbound left-turn lane

In addition to the intersection improvements identified on the previous page, both study intersections (SW 328th Street-North Canal Drive/SW 117th Avenue and SW 344th Street-Palm Drive/SW 117th Avenue) should be controlled by police officers (or traffic signals¹⁸) during outages in order for the intersections to function adequately.

¹⁶ All peak construction improvements associated with the extension of SW 117th Avenue, south of SW 344th Street/Palm Drive, are not required for normal operations.

¹⁷ If traffic signals were installed for the peak construction period and are still operational, the signals should operate under “flashing” mode during normal operation.

¹⁸ If traffic signals were installed for the peak construction period and are still operational, the signals should be activated to “normal” mode during outages period.