PNC BANK – HALLANDALE BEACH BOULEVARD TRAFFIC ANALYSIS

Prepared For:

Bohler Engineering, LLC.
1000 Corporate Drive, Suite 250
Fort Lauderdale, FL 33334

Prepared By:

McMahon Associates, Inc.
5500 Village Boulevard, Suite 103
West Palm Beach, FL 33407

7/21/11

Natalia Thais Lercari, P.E.
Professional Engineer
License No. 68205
State of Florida, Board of Professional Engineers
Certificate of Authorization No. 4908

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1.0 INTRODUCTION

McMahon Associates, Inc. (McMahon) has prepared a traffic analysis for the PNC Bank proposed to be located on the south side of the intersection of Hallandale Beach Boulevard and Three Islands Boulevard, in the City of Hallandale Beach. The site is currently vacant. The previous land use for the site, demolished in December 2006, included a 40,000 square-foot nursing home facility. The proposed development, with an anticipated buildout year of 2012, will include a 4,171 square-foot PNC Bank with four (4) drive-through lanes.

Figure 1 graphically depicts the study location and the surrounding roadway network.

This traffic analysis evaluates the traffic impacts associated with the proposed development on the surrounding roadway network for three scenarios:

- Existing (2011) traffic volumes.
- Background (2012) traffic volumes.
- Total (2012) traffic volumes (background traffic plus project trips).

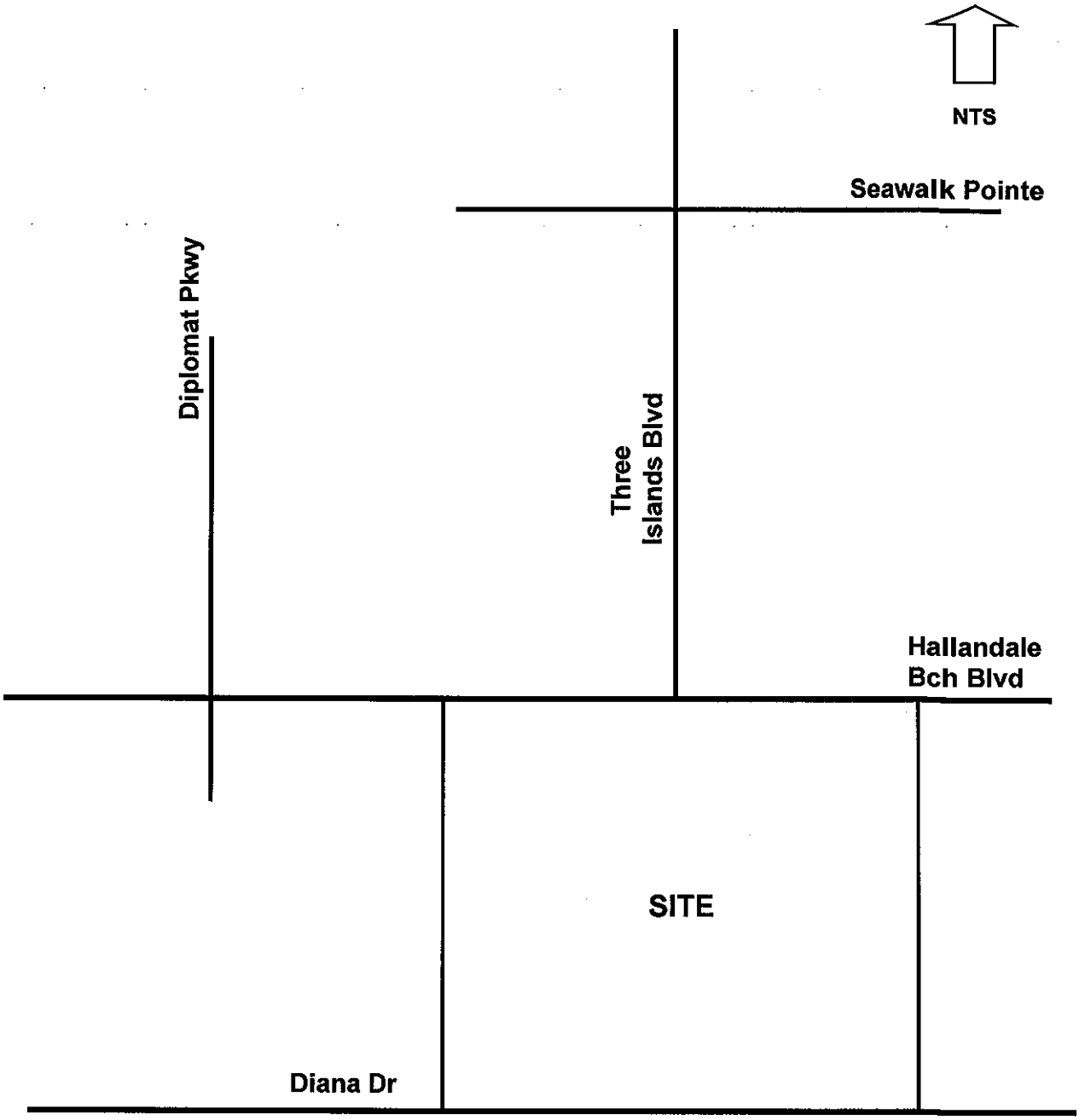

Figure 1
Study Area
PNC Bank – Hallandale Beach Boulevard Traffic Analysis
City of Hallandale Beach, Florida

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2.0 RADIUS OF INFLUENCE

2.1 Project Trip Generation

The existing site is currently vacant. The previous land use for the site, demolished in December 2006, included a 40,000 square-foot nursing home. The proposed development, with an anticipated buildout year of 2012, will include a 4,171 square-foot PNC Bank with four (4) drive-through lanes. Daily, AM and PM peak hour trips generated by the previous and proposed land uses for the site, summarized in **Table 1,** were estimated based on trip generation rates and equations published in the Institute of Transportation Engineers (ITE), *Trip Generation* Manual, 8th Edition. Results of the analysis indicate that the proposed use is anticipated to generate 25 daily, six (6) AM peak hour and 27 PM peak hour, net new trips in addition to the trips generated by the previous land use for the site. Excerpts from the manuals are included in **Appendix A.**

2.2 Study Area

Based on Policy 1.3.7 of the City of Hallandale Beach Comprehensive Plan, Section 3.0 – Transportation Element, "...The study will address overcapacity roadway links and intersections within the City within one (1) mile of the subject site where impact exceeds de minimis levels. Although the study will be required to address improvements to over capacity links and/or intersections, the study shall not be limited by this approach....For projects generating in total less than 100 average net daily trips per day, a traffic statement may be provided assessing conditions within 1,000 feet of the subject site, unless otherwise required by the City."

Based on the net new daily trip increase of 25 trips, the study area for this traffic analysis includes roadways located within 1,000 feet of the project site.

2.3 Analysis Time Period

Based on coordination with City staff on previously approved projects, the City recognizes the afternoon peak period as the worst case traffic conditions for this area. Therefore, analysis was performed for PM peak hour traffic conditions.

TABLE 1
TRIP GENERATION ANALYSES
PNC BANK - HALLANDALE BEACH BOULEVARD TRAFFIC ANALYSIS

DAILY

LAND USE	ITE CODE	INTENSITY		TRIP GENERATION RATE (1)	IN	OUT	TOTAL TRIPS IN	TOTAL TRIPS OUT	TOTAL TRIPS TOTAL	PASS-BY (2)		NEW TRIPS IN	NEW TRIPS OUT	NEW TRIPS TOTAL
PREVIOUS LAND USE														
Nursing Home	620	40,000	SF	T = 7.58 (X)	50%	50%	152	151	303	0	0%	152	151	303
PROPOSED LAND USE														
Drive-In Bank	912	4,171	SF	T = 148.15 (X)	50%	50%	309	309	618	290	47%	164	164	328
NET DIFFERENCE							157	158	315	290		12	13	25

AM PEAK HOUR

LAND USE	ITE CODE	INTENSITY		TRIP GENERATION RATE (1)	IN	OUT	TOTAL TRIPS IN	TOTAL TRIPS OUT	TOTAL TRIPS TOTAL	PASS-BY (2)		NEW TRIPS IN	NEW TRIPS OUT	NEW TRIPS TOTAL
PREVIOUS LAND USE														
Nursing Home	620	40,000	SF	T = 0.55 (X)	71%	29%	16	6	22	0	0%	16	6	22
PROPOSED LAND USE														
Drive-In Bank	912	4,171	SF	T = 12.35 (X)	56%	44%	29	23	52	24	47%	17	11	28
NET DIFFERENCE							13	17	30	24		1	5	6

PM PEAK HOUR

LAND USE	ITE CODE	INTENSITY		TRIP GENERATION RATE (1)	IN	OUT	TOTAL TRIPS IN	TOTAL TRIPS OUT	TOTAL TRIPS TOTAL	PASS-BY (2)		NEW TRIPS IN	NEW TRIPS OUT	NEW TRIPS TOTAL
PREVIOUS LAND USE														
Nursing Home	620	40,000	SF	T = 0.74 (X)	52%	48%	16	14	30	0	0%	16	14	30
PROPOSED LAND USE														
Drive-In Bank	912	4,171	SF	T = 25.82 (X)	50%	50%	54	54	108	51	47%	29	28	57
NET DIFFERENCE							38	40	78	51		13	14	27

(1) Source: ITE Trip Generation Manual, 8th Edition.
(2) Source: ITE Trip Generation Handbook, June 2004 Edition.

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3.0 EXISTING (2011) CONDITIONS ANALYSIS

3.1 Roadway Characteristics

Field reviews were conducted to obtain roadway characteristics for the following locations:

Roadway Segments

- Hallandale Beach Boulevard between Golden Isles Drive and Diplomat Parkway
- Hallandale Beach Boulevard between Diplomat Parkway and Three Islands Boulevard
- Hallandale Beach Boulevard between Three Islands Boulevard and Intracoastal Waterway
- Diplomat Parkway north of Hallandale Beach Boulevard
- Three Islands Boulevard north of Hallandale Beach Boulevard

Intersections

- Hallandale Beach Boulevard at Three Islands Boulevard
- Hallandale Beach Boulevard at Diplomat Parkway
- Three Islands Boulevard at Sea Walk Pointe/Walmart

3.2 Data Collection

Volumes for the study area roadways were based on counts obtained by McMahon in April 2009 and March 2010 for the Walmart Expansion Traffic Study completed in August 2010. The traffic count data is attached in **Appendix B**. From the turning movement data, it was determined that the common PM peak hour for the study roadways occurs between 4:00 PM and 5:00 PM. Table B-1 summarizes the peak hour determination and is included in Appendix B.

3.3 Existing, Peak Season Conditions Analysis

In order to provide a conservative analysis, a Peak Season Conversion Factor (PSCF) was applied to existing turning movement counts to simulate peak season data. The PSCF was obtained from the *2010 FDOT Peak Season Factor Category Report*, included in Appendix B.

3.4 Growth Analysis

A growth factor was applied to Year 2009 and 2010 counts to simulate Existing (2011) traffic conditions. Five-year, historical counts, included in Appendix B, were obtained from the FDOT and Broward County for the following count stations:

- Station 5029: Hallandale Beach Boulevard east of US-1
- Station 349: Hallandale Beach Boulevard west of ICWW Bridge

Review of historical counts indicates negative growth. Consistent with recent studies approved by the City of Hallandale, one (1) percent compound growth rate (CGR) was used for analysis. Manual balancing of volumes was performed where no opportunity exists for vehicles to increase/decrease between intersections. Table C-1, included in **Appendix C**, summarizes the existing volume calculations. **Figure 2** graphically depicts the Existing (2011) PM peak hour, peak season traffic volumes.

3.5 Link Capacity Analysis – Existing Traffic

Link capacity analysis was performed for the study area roadways. Level of Service (LOS) D standard was based on information obtained from the City of Hallandale Beach Comprehensive Plan. The LOS D capacity thresholds were based on Table 4 of the *2009 FDOT Quality Level of Service Handbook*, attached in Appendix B. Hallandale Beach Boulevard is classified under "State Signalized Arterials", with a Class III/IV designation. Diplomat Parkway is classified under "Other Signalized Roadways". A Class II designation was assumed for this roadway based on information obtained from the City of Hallandale Beach Comprehensive Plan. Three Islands Boulevard is classified under "Other Signalized Roadways". A Class II designation was assumed for this roadway based on information obtained from the City of Hallandale Beach Comprehensive Plan. Results of the existing conditions link analysis, summarized in **Table 2**, indicate that the study roadways currently operate at an acceptable LOS.

3.6 Intersection Capacity Analysis – Existing Traffic

Intersection capacity analysis was performed using Synchro software, version 7.0. Existing peak hour factors and truck factors were based on the collected data. Where truck factors were below the default standard of two percent, two percent was used for analysis purpose. Existing lane geometries were utilized in the existing intersection analyses. **Figure 3** graphically depicts the existing intersection geometries for the study area intersections. Existing signal timing sheets were obtained from Broward County Traffic Engineering Division (BCTED) and are provided in **Appendix D**. Results of the existing conditions intersection capacity analysis, summarized in **Table 3**, indicate that the study intersections currently operate at an acceptable LOS. Analysis worksheets are attached in **Appendix E**.

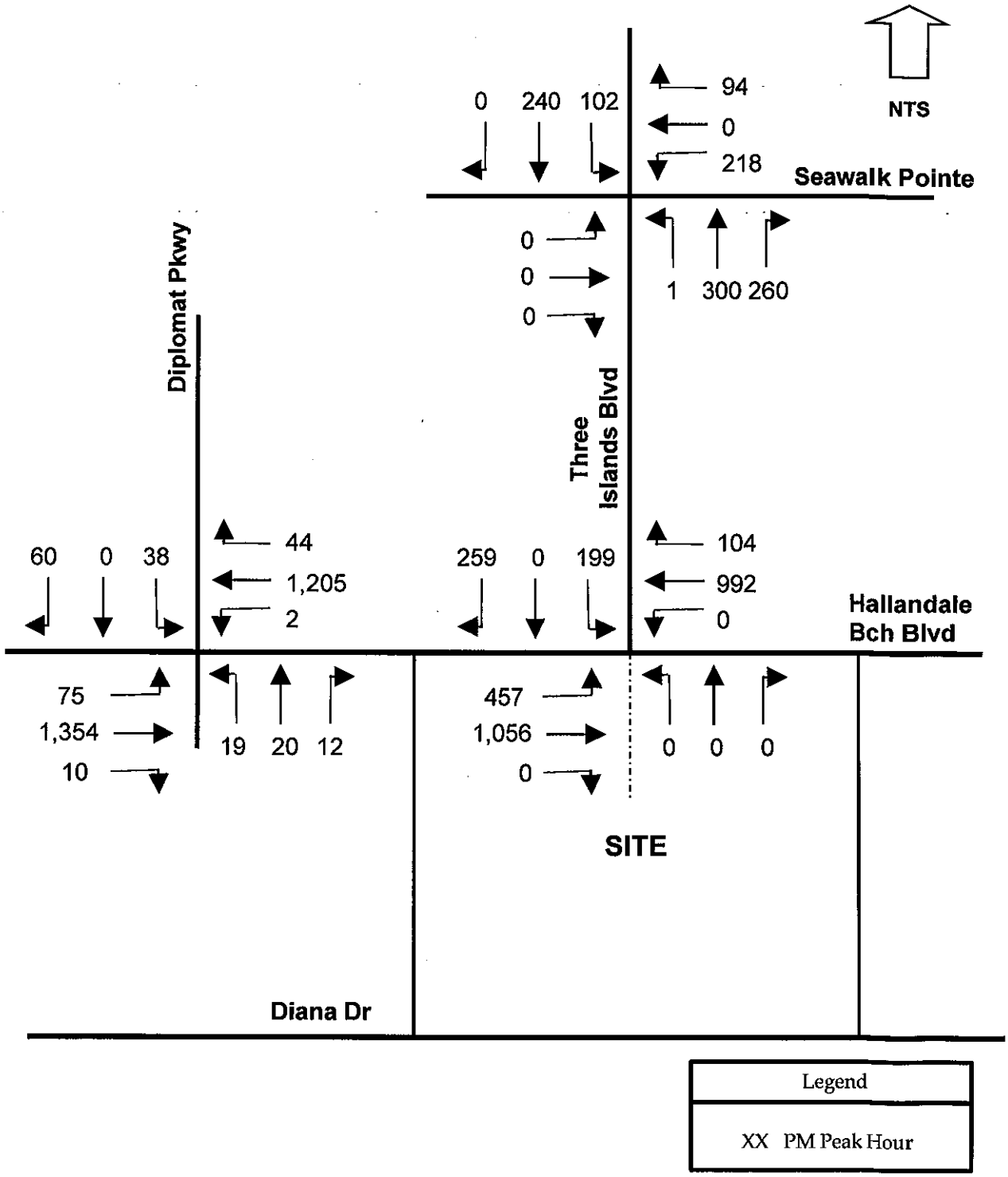

Figure 2
Existing (2011) Peak Hour, Peak Season Traffic Volumes
PNC Bank – Hallandale Beach Boulevard
Traffic Analysis
City of Hallandale Beach, Florida

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TABLE 2
EXISTING (2011) PM PEAK HOUR LINK CAPACITY ANALYSIS
PNC BANK - HALLANDALE BEACH BOULEVARD TRAFFIC ANALYSIS

ROADWAY	SEGMENT		NO. OF LANES	ADOPTED LOS "D" THRESHOLD[1]	EXISTING (2011) CONDITIONS	
	FROM	TO			PEAK-SEASON VOLUMES	LEVEL OF SERVICE
Hallandale Beach Blvd	Golden Isles Drive	Diplomat Parkway	6	4,240	2,723	D
	Diplomat Parkway	Three Islands Blvd	6	4,240	2,764	D
	Three Islands Blvd	Intracoastal Waterway	6	4,240	2,351	D
Three Islands Blvd	Hallandale Beach Blvd	North of Hallandale Beach	6	3,172	1,019	C
Diplomat Parkway	Hallandale Beach Blvd	North of Hallandale Beach	2	1,040	237	B

(1) Adopted LOS "D" threshold based on 2009 FDOT Quality Level of Service Handbook, Table 4.

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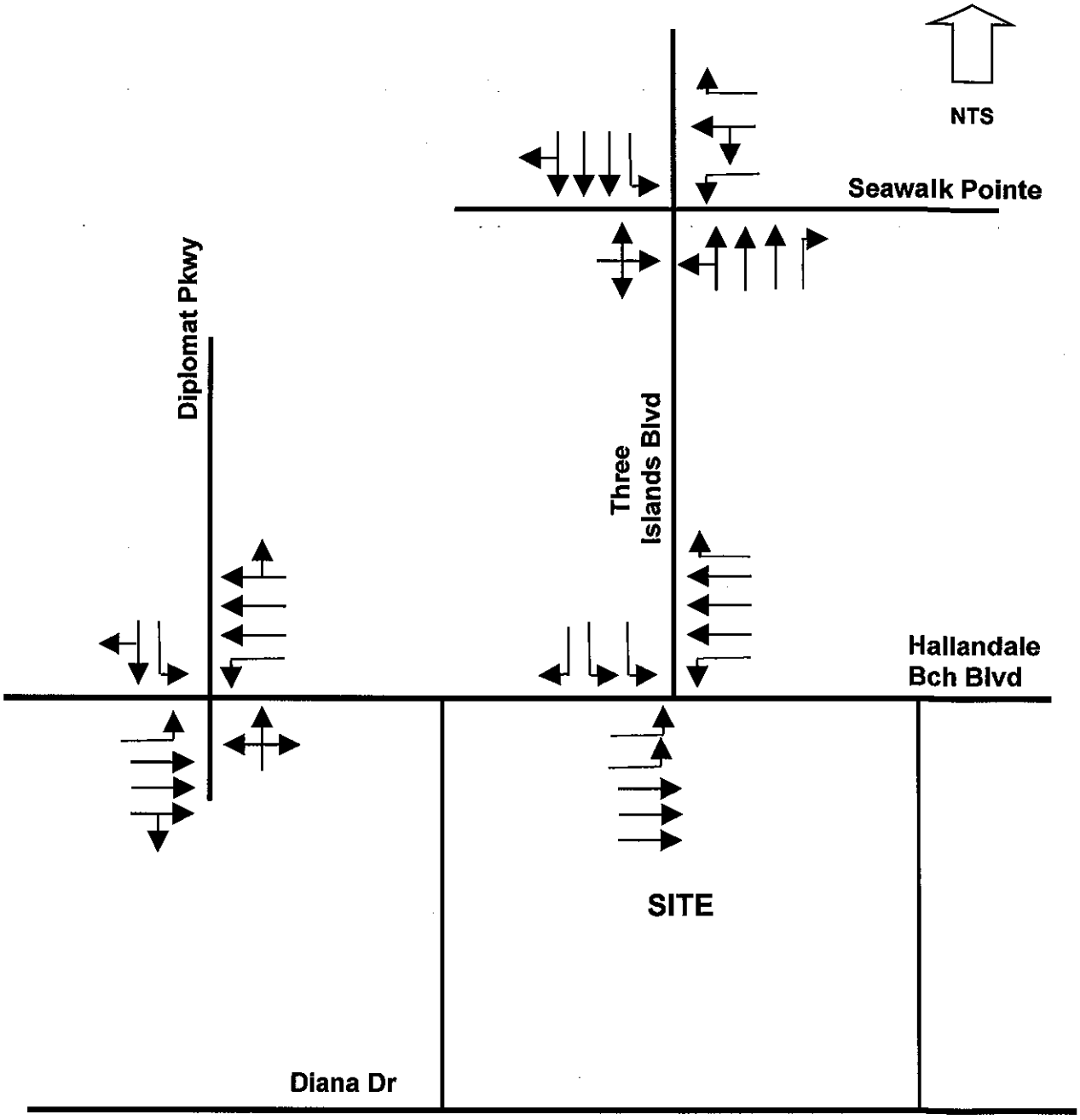

Figure 3
Existing Roadway Geometry
PNC Bank – Hallandale Beach Boulevard Traffic Analysis
City of Hallandale Beach, Florida

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TABLE 3
EXISTING (2011) INTERSECTION CAPACITY ANALYSIS SUMMARY
PNC BANK - HALLANDALE BEACH BOULEVARD TRAFFIC ANALYSIS

INTERSECTION		OVERALL		EB		WB		NB		SB	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
HALLANDALE BEACH BOULEVARD AT THREE ISLANDS BOULEVARD	PM	24.7	C	20.1	C	15.9	B	N/A	N/A	63.5	E
HALLANDALE BEACH BOULEVARD AT DIPLOMAT PKWY	PM	10.6	B	8.7	A	4.8	A	78.7	E	71.9	E
THREE ISLANDS BOULEVARD AT SEAWALK POINTE	PM	14.3	B	0.0	A	38.6	D	7.3	A	3.1	A

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4.0 BACKGROUND (2012) CONDITIONS ANALYSIS

4.1 Background Growth Analysis

As previously mentioned, a CGR of one (1) percent was used for the analysis of study area roadways and intersections. Therefore, a one (1) percent CGR was applied to Existing (2011) PM peak hour, peak season traffic volumes to determine background traffic conditions for the buildout of the project, Year 2012.

4.2 Committed Development Traffic

Extensive coordination occurred between McMahon and City staff regarding committed development projects for the Walmart Expansion Traffic Study, completed by McMahon in August 2010. City staff was contacted for this project to determine if any additional committed developments should be included. Staff indicated that no additional committed developments were required to be included for this analysis. Committed development traffic for this project was, therefore, a sum of the committed development trips from the Walmart Expansion Traffic Study, and the project trips from the Walmart expansion. Excerpts from the Walmart Expansion Traffic Study are attached in **Appendix F.** Table C-2, included in Appendix C, summarizes the background volume calculations. **Figure 4** graphically depicts the background (2012) PM peak hour, peak season background traffic volumes.

4.3 Link Capacity Analysis – Background Traffic

Link capacity analysis was performed for the study area roadways for background traffic conditions. Results of the background conditions link analysis, summarized in **Table 4**, indicate that the study roadways will continue to operate at an acceptable LOS.

4.4 Intersection Capacity Analysis – Background Traffic

Intersection capacity analysis was performed using Synchro software, version 7.0. Peak hour factors and truck factors were based on the collected data. Where truck factors were below the default standard of two percent, two percent was used for analysis purpose. Signal timings were optimized. Results of the background conditions intersection capacity analysis, summarized in **Table 5**, indicate that the study intersections will continue to operate at an acceptable LOS. Analysis worksheets are attached in **Appendix G.**

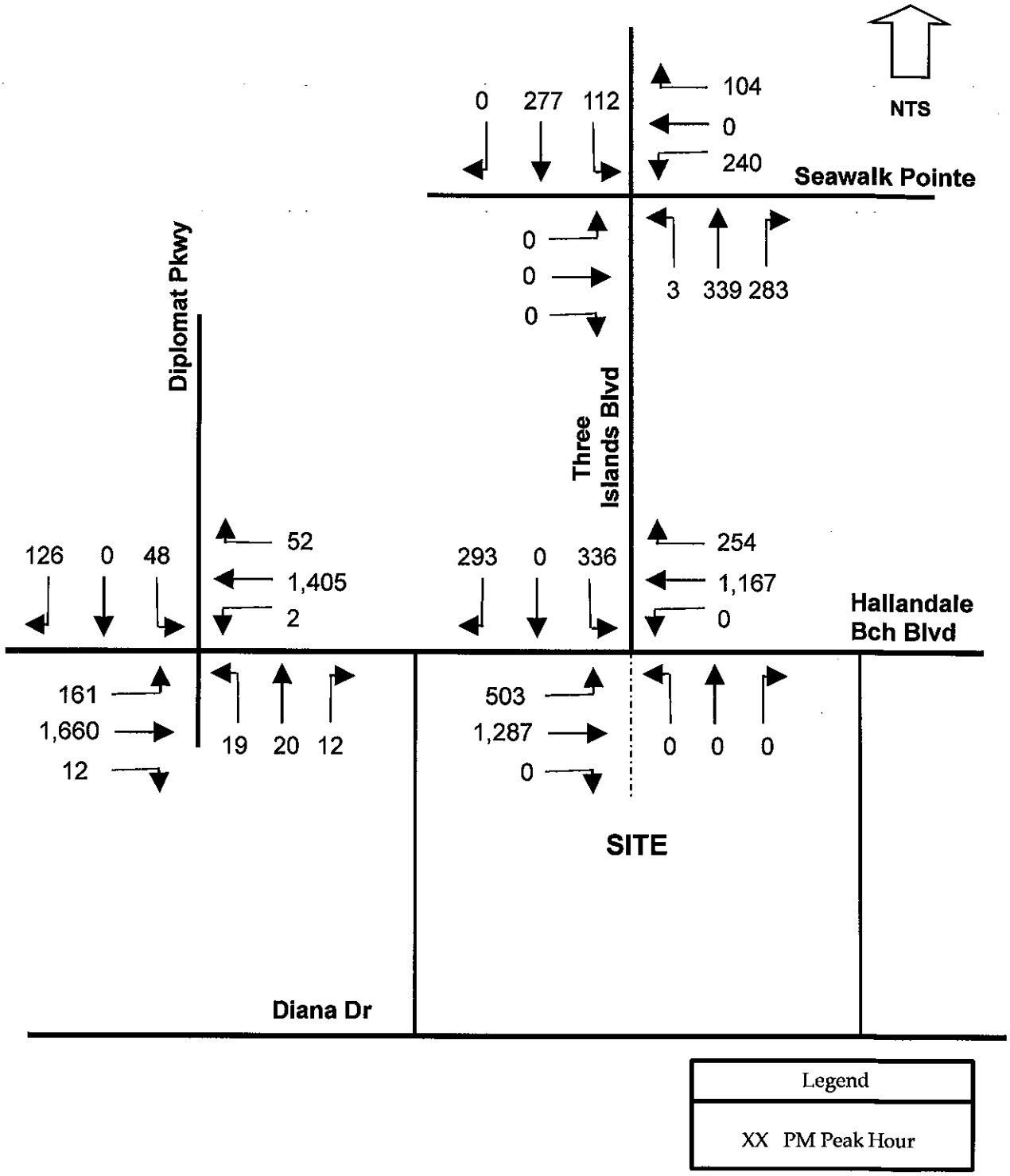

Figure 4
Background (2012) Peak Hour, Peak Season Traffic Volumes
PNC Bank – Hallandale Beach Boulevard
Traffic Analysis
City of Hallandale Beach, Florida

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TABLE 4
BACKGROUND (2012) PM PEAK HOUR LINK CAPACITY ANALYSIS
PNC BANK - HALLANDALE BEACH BOULEVARD TRAFFIC ANALYSIS

ROADWAY	SEGMENT		NO. OF LANES	ADOPTED LOS "D" THRESHOLD[1]	BACKGROUND (2012) CONDITIONS	
	FROM	TO			PEAK-SEASON VOLUMES	LEVEL OF SERVICE
Hallandale Beach Blvd	Golden Isles Drive	Diplomat Parkway	6	4,240	3,383	D
	Diplomat Parkway	Three Islands Blvd	6	4,240	3,250	D
	Three Islands Blvd	Intracoastal Waterway	6	4,240	3,044	D
Three Islands Blvd	Hallandale Beach Blvd	North of Hallandale Beach	6	3,172	1,386	C
Diplomat Parkway	Hallandale Beach Blvd	North of Hallandale Beach	2	1,040	407	B

(1) Adopted LOS "D" threshold based on 2009 FDOT Quality Level of Service Handbook, Table 4.

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TABLE 5
BACKGROUND (2012) INTERSECTION CAPACITY ANALYSIS SUMMARY
PNC BANK - HALLANDALE BEACH BOULEVARD TRAFFIC ANALYSIS

INTERSECTION		OVERALL		EB		WB		NB		SB	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
HALLANDALE BEACH BOULEVARD AT THREE ISLANDS BOULEVARD	PM	28.1	C	22.0	C	20.1	C	N/A	N/A	65.9	E
HALLANDALE BEACH BOULEVARD AT DIPLOMAT PKWY	PM	18.3	B	12.1	B	6.1	A	331.4	F	74.1	E
THREE ISLANDS BOULEVARD AT SEAWALK POINTE	PM	13.8	B	0.0	A	35.2	D	8.3	A	3.4	A

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5.0 TOTAL (2012) CONDITIONS ANALYSIS

5.1 Project Trip Generation

As previously mentioned, the existing site is currently vacant. The previous land use for the site, demolished in December 2006, included a 40,000 square-foot nursing home. The proposed development, with an anticipated buildout year of 2012, will include a 4,171 square-foot PNC Bank with four (4) drive-through lanes. Daily, AM and PM peak hour trips generated by the previous and proposed land uses for the site, summarized in Table 1, were estimated based on trip generation rates and equations published in the Institute of Transportation Engineers (ITE), *Trip Generation* Manual, 8th Edition. Results of the analysis indicate that the proposed use is anticipated to generate 25 daily, six (6) AM peak hour and 27 PM peak hour, net new trips in addition to the trips generated by the previous land use for the site.

5.2 Project Trip Distribution

The project trip distribution for the project site was determined based on a review of existing travel patterns for the roadways surrounding the project site. Results of the analysis indicate the following general distribution:

- 30 percent to/from the east along Hallandale Beach Boulevard
- 45 percent to/from the west along Hallandale Beach Boulevard
- 15 percent to/from the north along Three Islands Boulevard
- 5 percent to/from the north along Diplomat Parkway
- 5 percent to/from the south along Golden Isles Drive

The proposed development will have one full access connection to Hallandale Beach Boulevard and will align with the intersection of Hallandale Beach Boulevard and Three Islands Boulevard. A right-in/right-out access will also be provided to Diana Drive on the southwest corner of the site, as well as a right-out only access to Diana Drive on the southeast corner of the site. The project distribution is graphically shown on **Figure 5**.

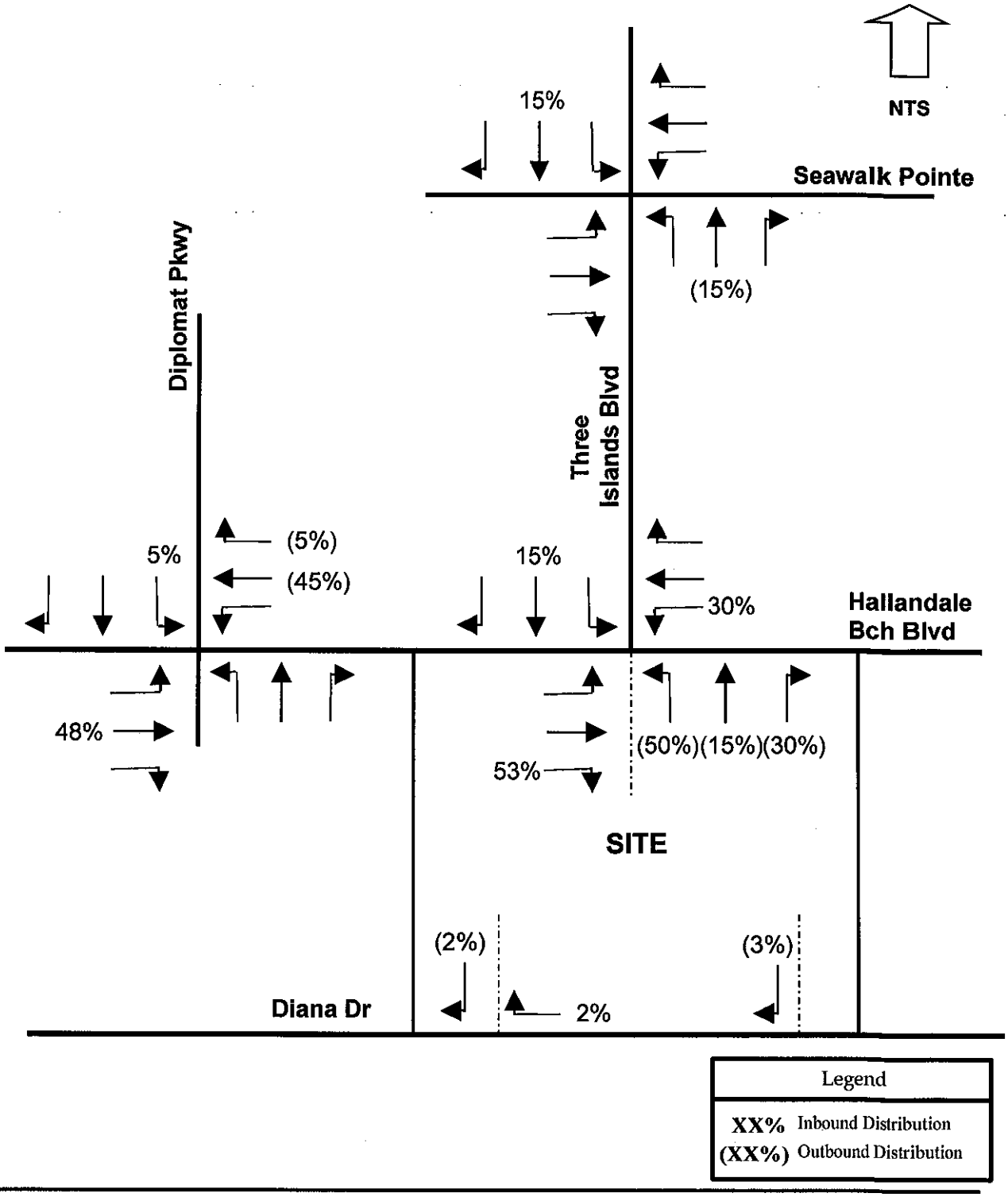

Figure 5
Project Distribution
PNC Bank – Hallandale Beach Boulevard
Traffic Analysis
City of Hallandale Beach, Florida

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5.3 Project Trip Assignment

Trips generated by the proposed development were distributed to the surrounding roadway network based on the assumed project distribution and trip generation analyses and are also shown on **Figure 6**. Detailed calculations of total traffic are included in Table C-3, attached in Appendix C. Total (2012) PM peak hour, peak season traffic volumes are graphically depicted in **Figure 7**.

5.4 Link Capacity Analysis – Total Traffic

Link capacity analysis was performed for the study area roadways for total traffic conditions. Results of the total conditions link analysis, summarized in **Table 6**, indicate that the study roadways will continue to operate at an acceptable LOS at the project buildout.

5.5 Intersection Capacity Analysis – Total Traffic

Intersection capacity analysis was performed using Synchro software, version 7.0. Peak hour factors and truck factors were based on the collected data. Where truck factors were below the default standard of two percent, two percent was used for analysis purpose. For the intersection of Hallandale Beach Boulevard at Three Islands Boulevard, the following geometry changes are proposed: Addition of an exclusive northbound left-turn lane and a shared through and right-turn lane; restriping of the outside eastbound through lane to a shared through and right-turn lane; and the restriping of the inside southbound left-turn lane to a shared through and left-turn lane. The proposed roadway geometry is shown on **Figure 8**. Signal timings and phasings were modified. Results of the total conditions intersection capacity analysis, summarized in **Table 7**, indicate that the study intersections will continue to operate at an acceptable LOS at the project buildout. Analysis worksheets are attached in **Appendix H**.

5.6 Roadway Mitigation

The PNC Bank is anticipated to increase traffic by a maximum of 29 PM peak-hour, two-way trips along Hallandale Beach Boulevard, which is considered insignificant when compared to the roadway capacity.

It is understood that the mitigation for the traffic impacts of the proposed PNC Bank will be estimated based on City Ordinance No. 2009-10 "Adequate Public Traffic and Transportation Facilities". The Applicant will coordinate with City staff to determine the appropriate traffic mitigation for the project.

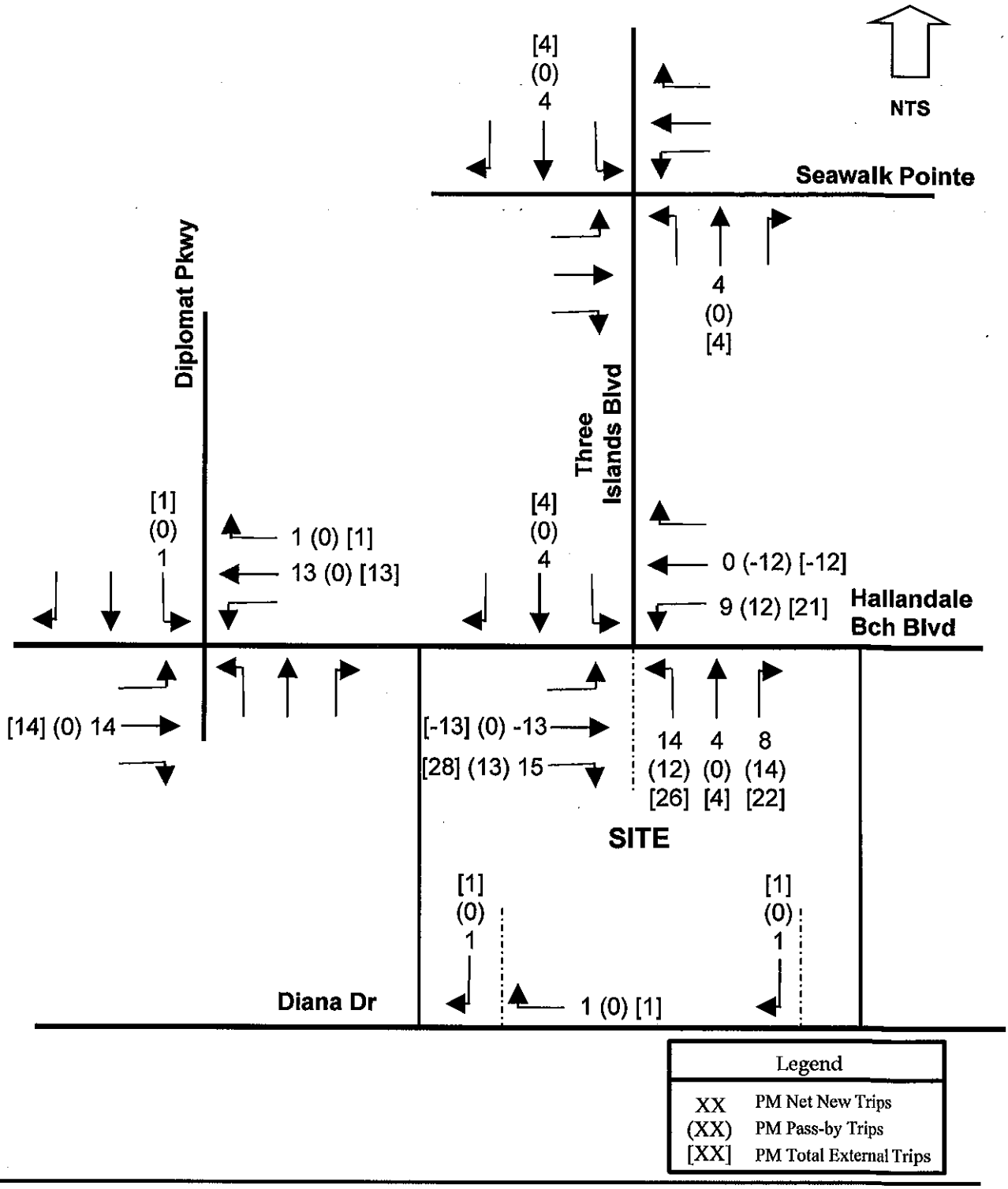

Figure 6
Project Assignment
PNC Bank – Hallandale Beach Boulevard
Traffic Analysis
City of Hallandale Beach, Florida

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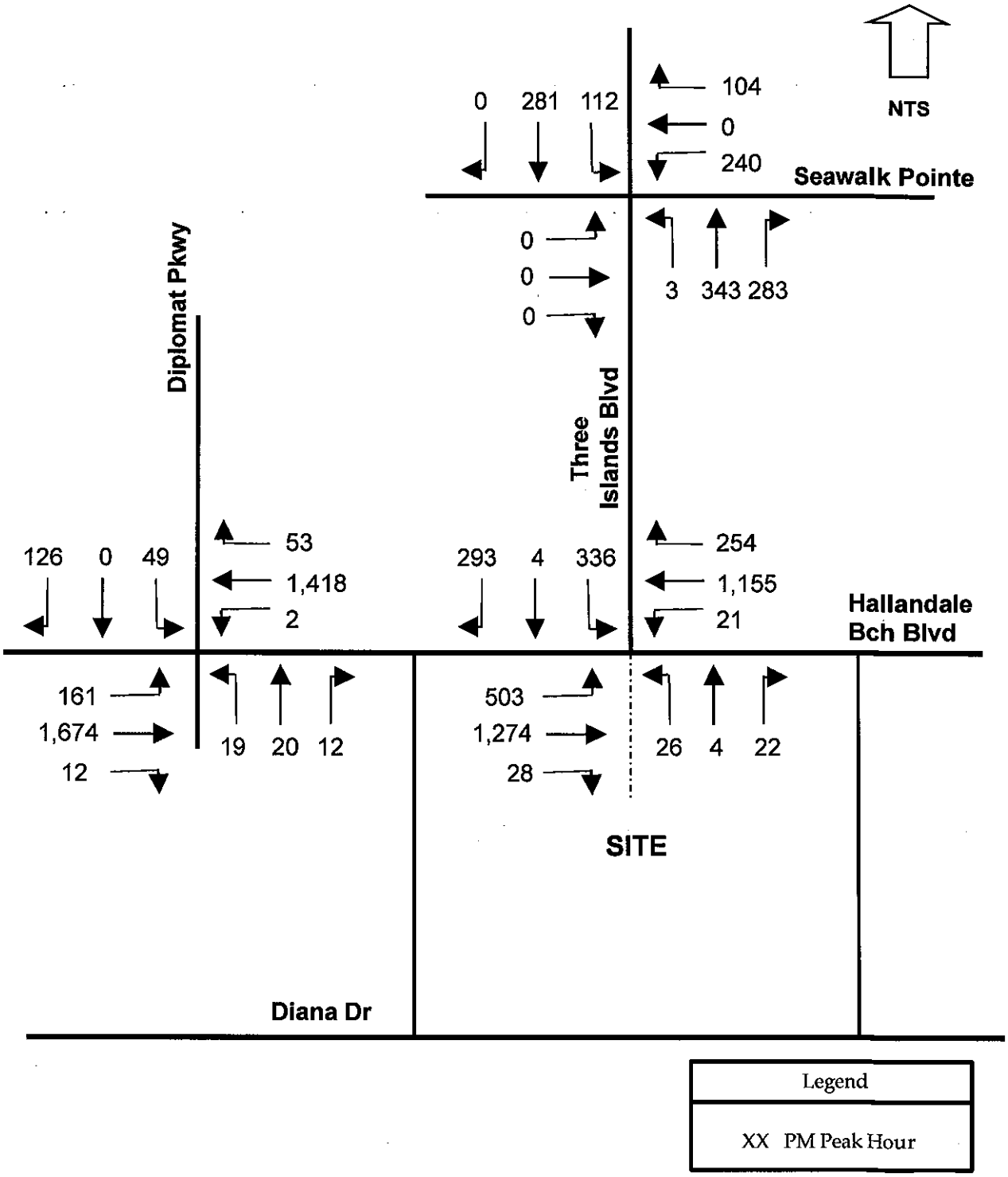

Legend
XX PM Peak Hour

Figure 7
Total (2012) Peak Hour, Peak Season Traffic Volumes
PNC Bank – Hallandale Beach Boulevard
Traffic Analysis
City of Hallandale Beach, Florida

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TABLE 6
TOTAL (2012) PM PEAK HOUR LINK CAPACITY ANALYSIS
PNC BANK - HALLANDALE BEACH BOULEVARD TRAFFIC ANALYSIS

ROADWAY	SEGMENT		NO. OF LANES	ADOPTED LOS "D" THRESHOLD[1]	TOTAL (2012) CONDITIONS	
	FROM	TO			PEAK-SEASON VOLUMES	LEVEL OF SERVICE
Hallandale Beach Blvd	Golden Isles Drive	Diplomat Parkway	6	4,240	3,410	D
	Diplomat Parkway	Three Islands Blvd	6	4,240	3,279	D
	Three Islands Blvd	Intracoastal Waterway	6	4,240	3,062	D
Three Islands Blvd	Hallandale Beach Blvd	North of Hallandale Beach	6	3,172	1,394	C
Diplomat Parkway	Hallandale Beach Blvd	North of Hallandale Beach	2	1,040	409	B

(1) Adopted LOS "D" threshold based on 2009 FDOT Quality Level of Service Handbook, Table 4.

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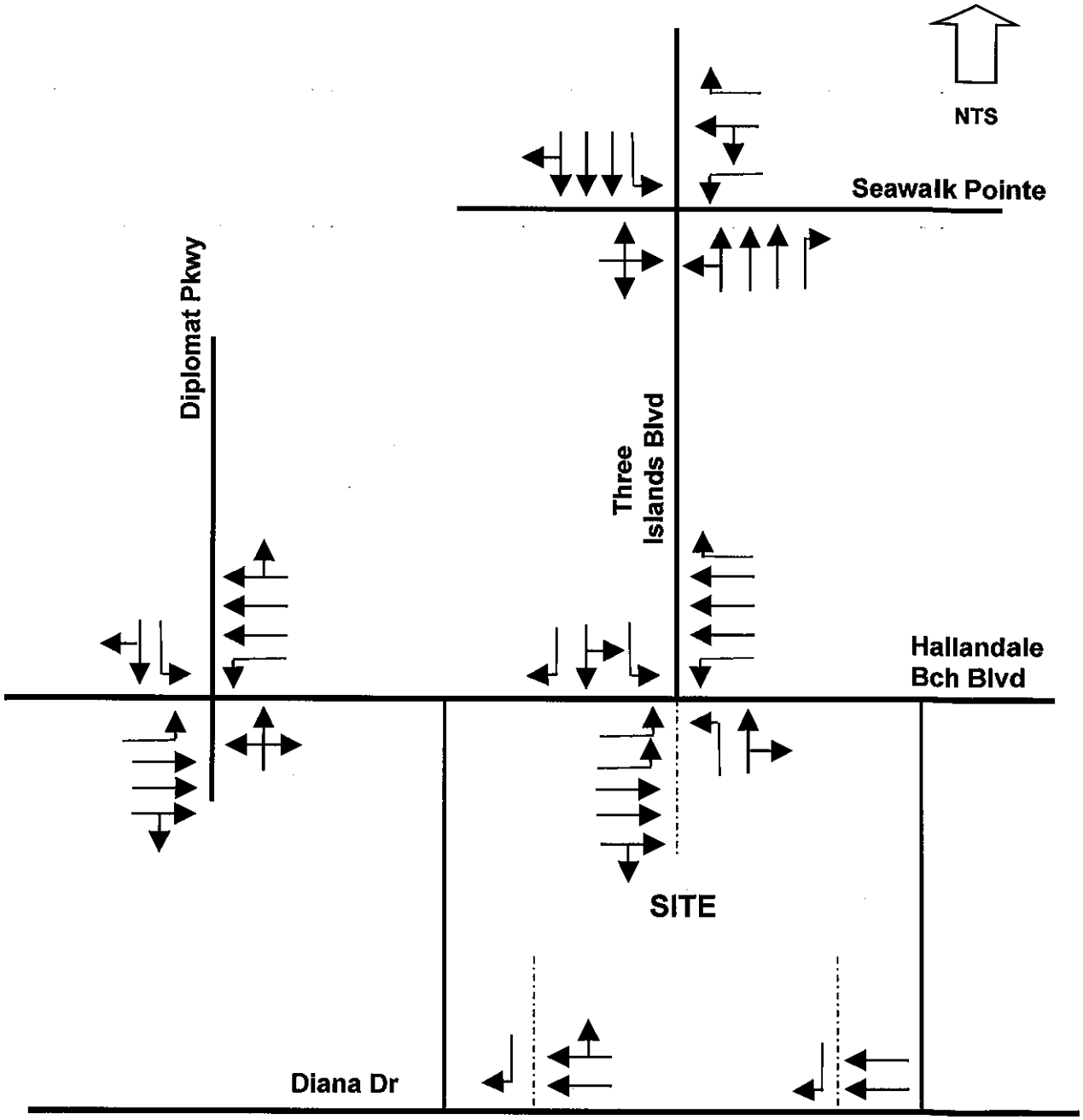

Figure 8
Proposed Roadway Geometry
PNC Bank – Hallandale Beach Boulevard Traffic Analysis
City of Hallandale Beach, Florida

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TABLE 7
TOTAL (2012) INTERSECTION CAPACITY ANALYSIS SUMMARY
PNC BANK - HALLANDALE BEACH BOULEVARD TRAFFIC ANALYSIS

INTERSECTION		OVERALL		EB		WB		NB		SB	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
HALLANDALE BEACH BOULEVARD AT THREE ISLANDS BOULEVARD	PM	35.3	D	31.5	C	29.4	C	77.0	E	58.2	E
HALLANDALE BEACH BOULEVARD AT DIPLOMAT PKWY	PM	20.2	C	12.1	B	11.2	B	318.5	F	74.3	E
THREE ISLANDS BOULEVARD AT SEAWALK POINTE	PM	13.7	B	0.0	A	35.2	D	8.3	A	3.4	A

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6.0 CONCLUSIONS AND RECOMMENDATIONS

McMahon has completed a traffic analysis for the proposed PNC Bank located on the south side of the intersection of Hallandale Beach Boulevard and Three Islands Boulevard, in the City of Hallandale Beach. The site is currently vacant. The previous land use for the site, demolished in December 2006, included a 40,000 square-foot nursing home facility. The proposed development, with an anticipated buildout year of 2012, will include a 4,171 square-foot PNC Bank with four (4) drive-through lanes.

Results of the link capacity analysis indicate that all roadway segments within the study area currently operate, and are anticipated to continue to operate, at an acceptable LOS at the project buildout. Results of the intersection capacity analysis indicate that the study area intersections are also anticipated to operate at an acceptable LOS at the buildout of the project.

For the intersection of Hallandale Beach Boulevard at Three Islands Boulevard, the following geometry changes are proposed: Addition of an exclusive northbound left-turn lane and a shared through and right-turn lane; restriping of the outside eastbound through lane to a shared through and right-turn lane; and the restriping of the inside southbound left-turn lane to a shared through and left-turn lane.

It is understood that the mitigation for the traffic impacts of the proposed PNC Bank will be estimated based on City Ordinance No. 2009-10 "Adequate Public Traffic and Transportation Facilities". The Applicant will coordinate with City staff to determine the appropriate traffic mitigation for the project.

Based on the findings of this report, the proposed PNC Bank will not adversely impact the study area intersections or roadway segments at the project buildout. Therefore, it is recommended that the City of Hallandale Beach approve the proposed development.

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APPENDIX A

TRIP GENERATION AND PASS-BY CAPTURE INFORMATION

Nursing Home
(620)

Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Floor Area
On a: Weekday

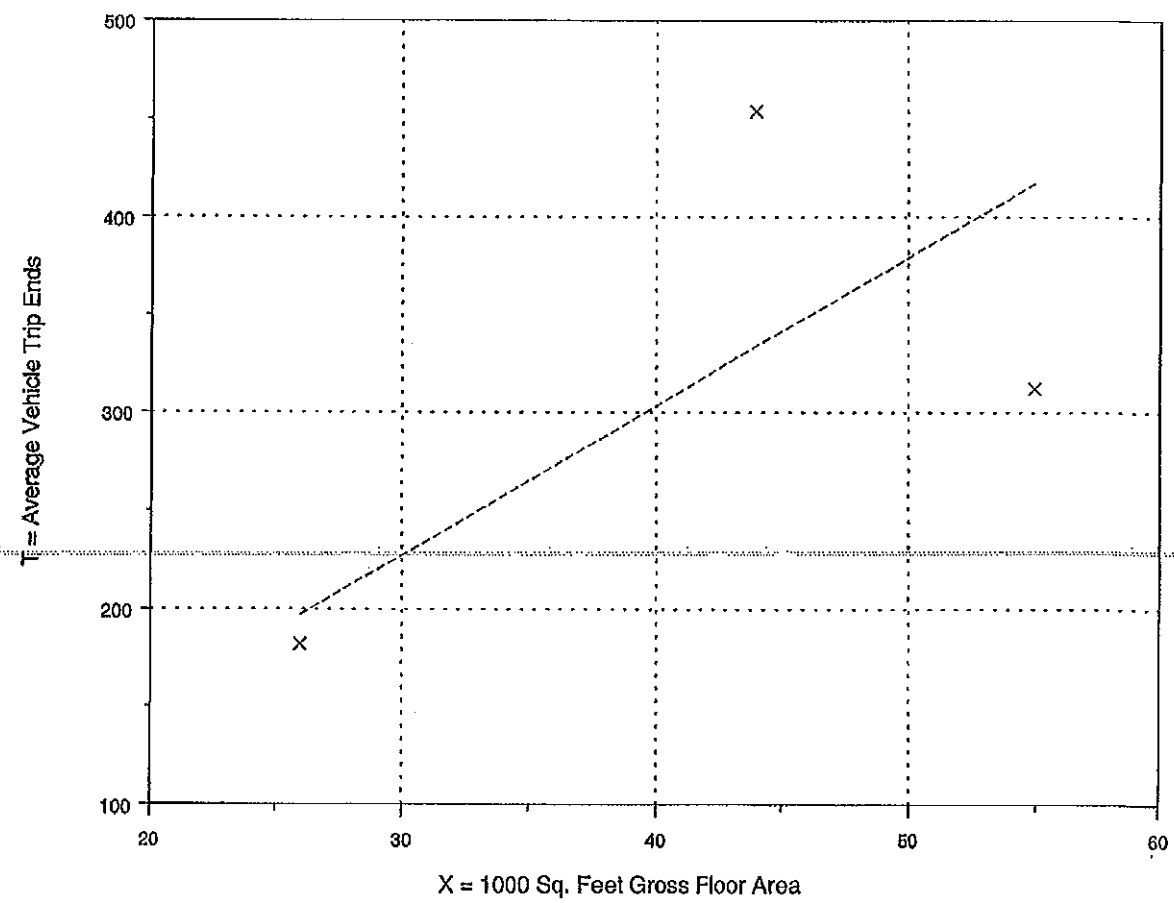
Number of Studies: 3
Average 1000 Sq. Feet GFA: 42
Directional Distribution: 50% entering, 50% exiting

Trip Generation per 1000 Sq. Feet Gross Floor Area

Average Rate	Range of Rates	Standard Deviation
7.58	5.67 - 10.31	3.43

Data Plot and Equation

Caution - Use Carefully - Small Sample Size



× Actual Data Points

------ Average Rate

Fitted Curve Equation: Not given

R^2 = ****

Nursing Home
(620)

Average Vehicle Trip Ends vs: **1000 Sq. Feet Gross Floor Area**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

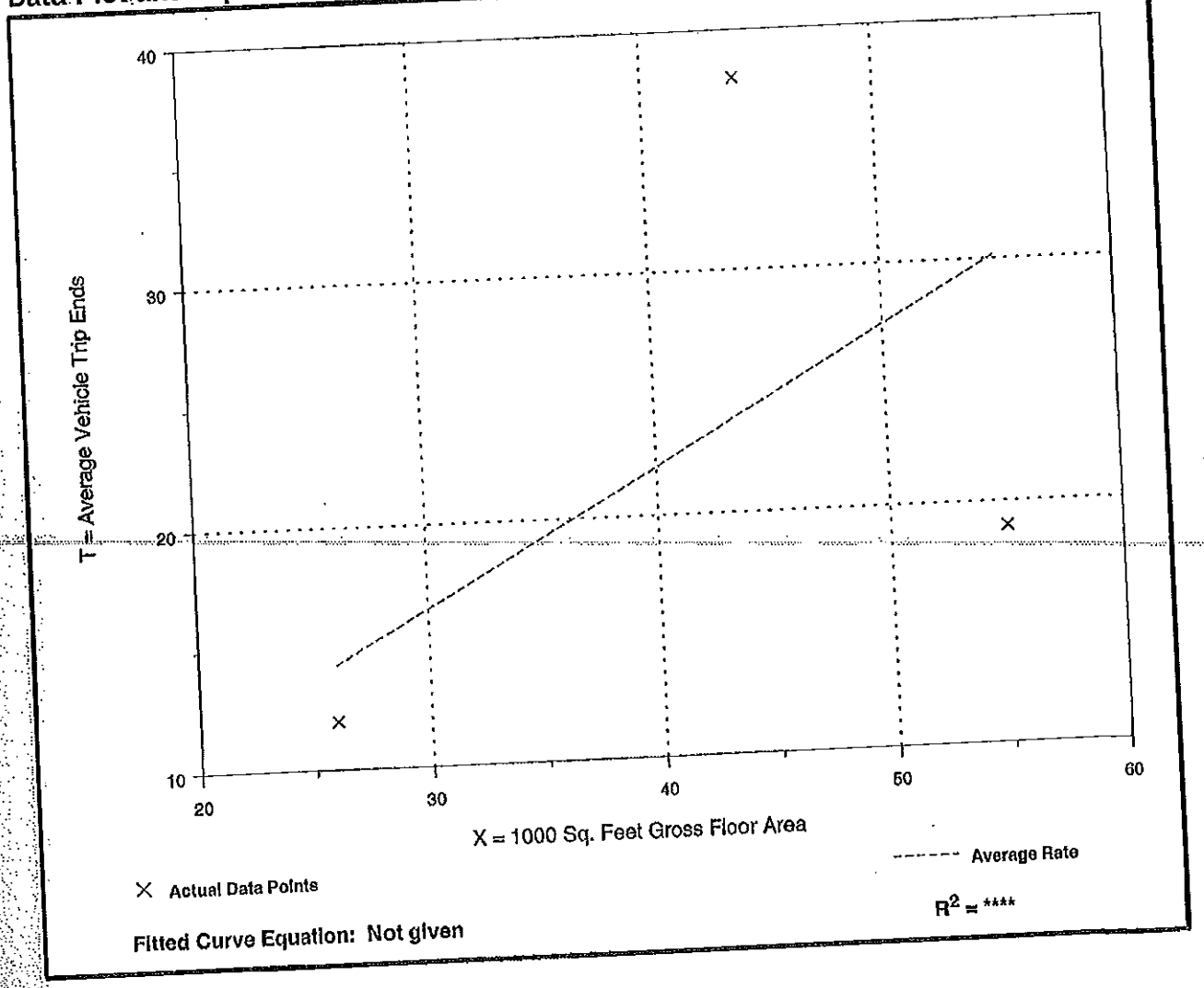
Number of Studies: 3
Average 1000 Sq. Feet GFA: 42
Directional Distribution: 71% entering, 29% exiting

Trip Generation per 1000 Sq. Feet Gross Floor Area

Average Rate	Range of Rates	Standard Deviation
0.55	0.35 - 0.86	0.77

Caution - Use Carefully - Small Sample Size

Data Plot and Equation



Fitted Curve Equation: Not given

Nursing Home
(620)

Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Floor Area
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

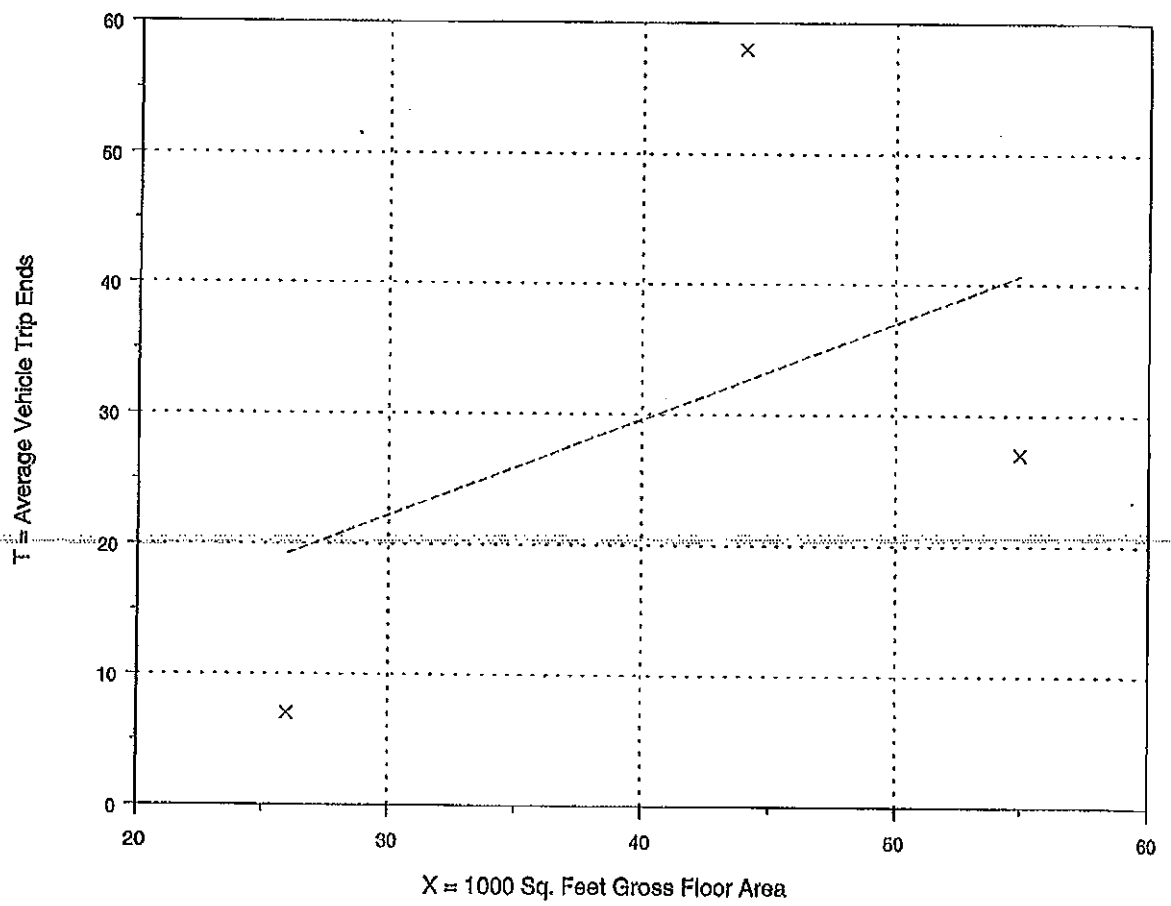
Number of Studies: 3
Average 1000 Sq. Feet GFA: 42
Directional Distribution: 52% entering, 48% exiting

Trip Generation per 1000 Sq. Feet Gross Floor Area

Average Rate	Range of Rates	Standard Deviation
0.74	0.27 - 1.32	0.96

Data Plot and Equation

Caution - Use Carefully - Small Sample Size



× Actual Data Points

------ Average Rate

Fitted Curve Equation: Not given

R^2 = ****

Drive-in Bank
(912)

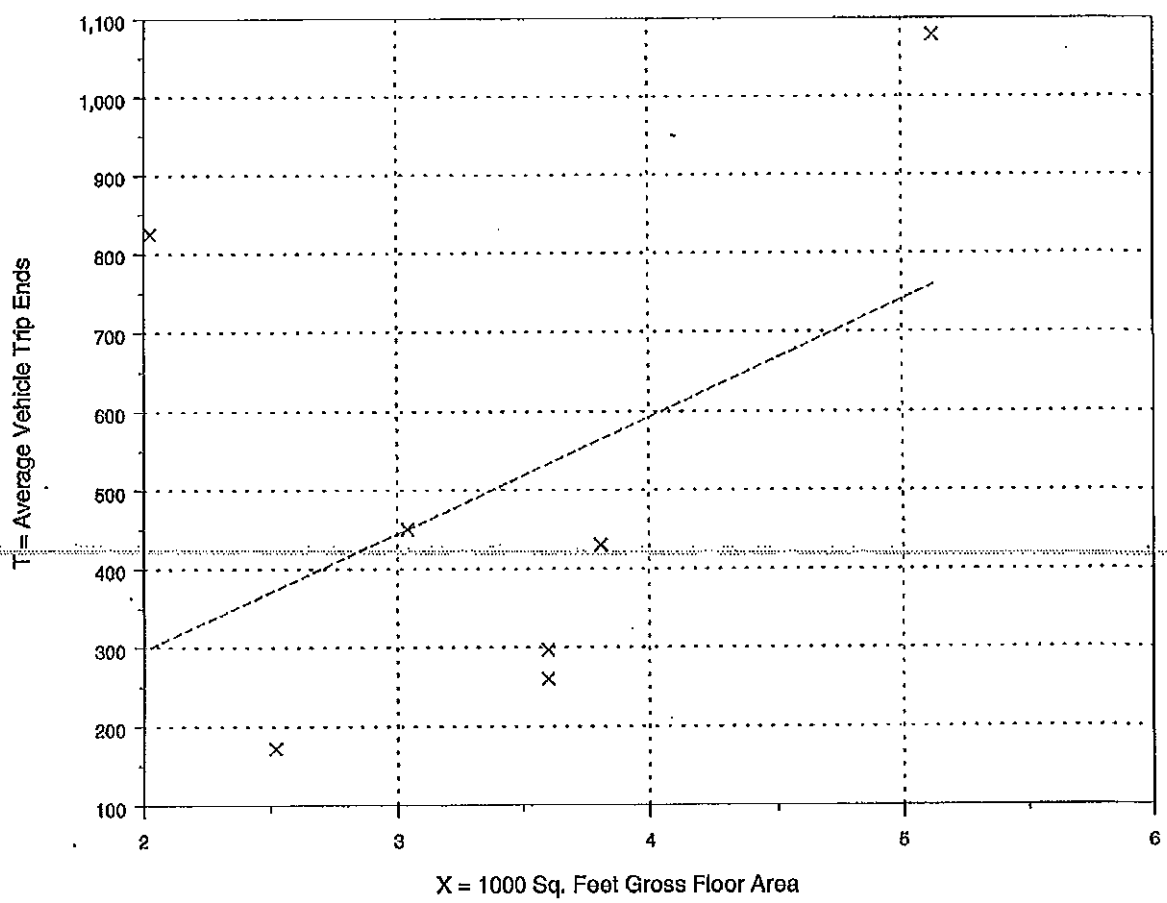
Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Floor Area
On a: Weekday

Number of Studies: 7
Average 1000 Sq. Feet GFA: 3
Directional Distribution: 50% entering, 50% exiting

Trip Generation per 1000 Sq. Feet Gross Floor Area

Average Rate	Range of Rates	Standard Deviation
148.15	68.23 - 407.21	97.36

Data Plot and Equation



Fitted Curve Equation: Not given

R^2 = ****

Drive-in Bank
(912)

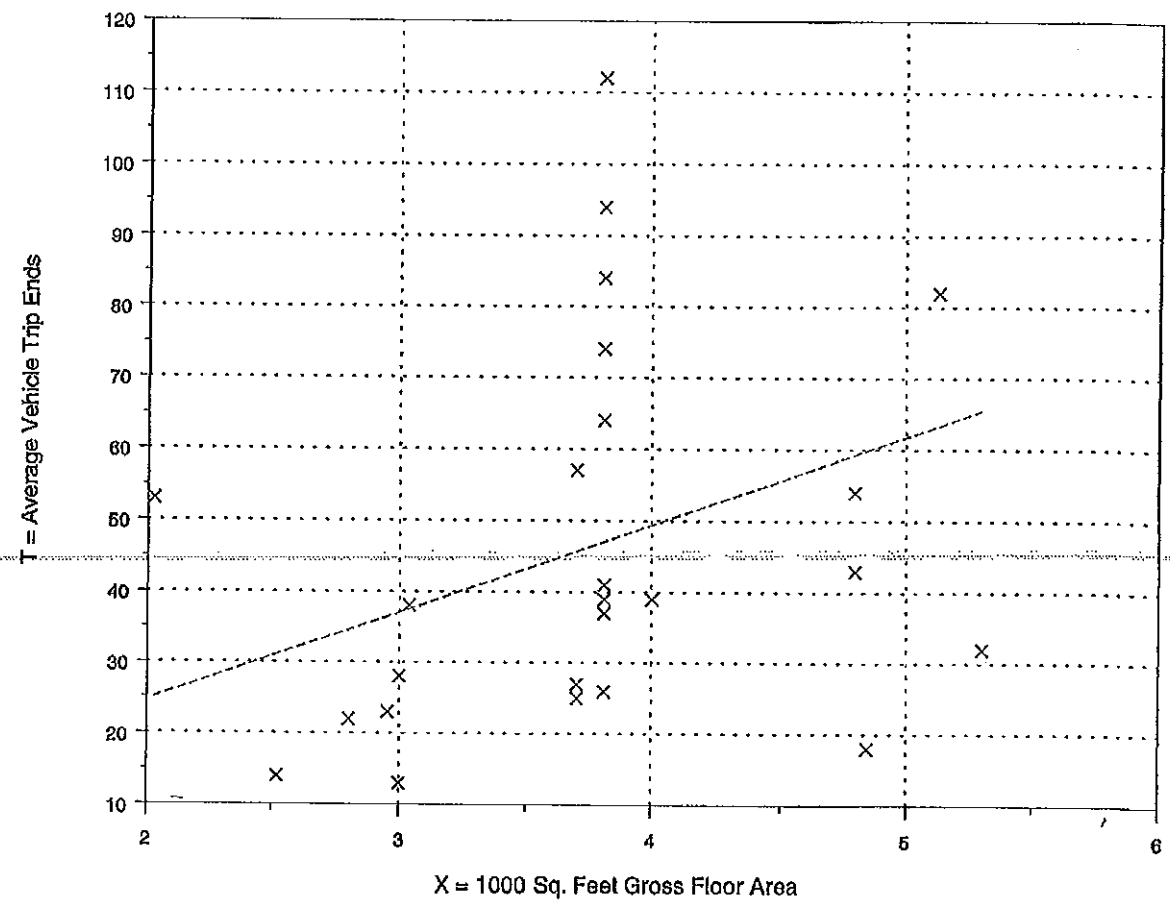
Average Vehicle Trip Ends vs: **1000 Sq. Feet Gross Floor Area**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Number of Studies: 26
Average 1000 Sq. Feet GFA: 4
Directional Distribution: 56% entering, 44% exiting

Trip Generation per 1000 Sq. Feet Gross Floor Area

Average Rate	Range of Rates	Standard Deviation
12.35	3.71 - 29.40	7.38

Data Plot and Equation



× Actual Data Points

------ Average Rate

Fitted Curve Equation: Not given

R^2 = ****

Drive-in Bank
(912)

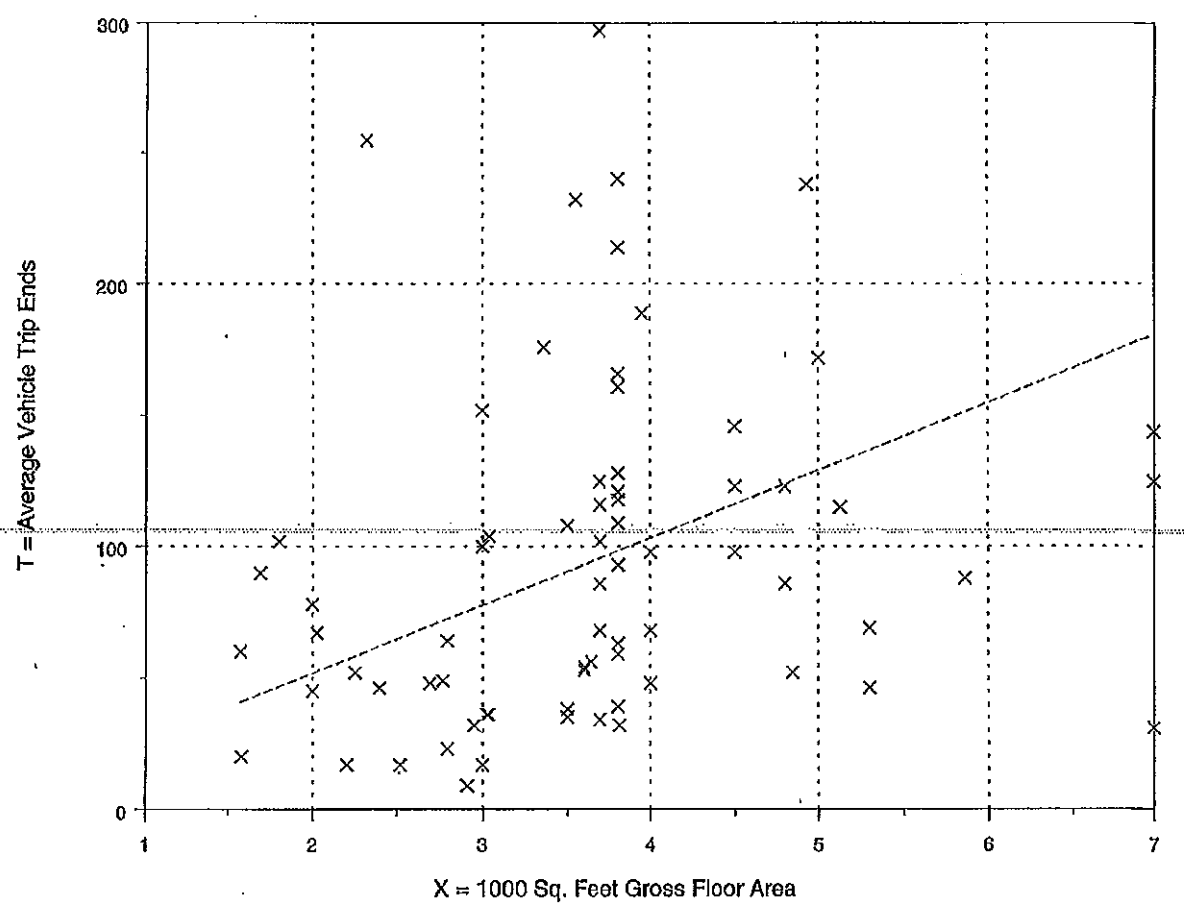
Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Floor Area
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Number of Studies: 71
Average 1000 Sq. Feet GFA: 4
Directional Distribution: 50% entering, 50% exiting

Trip Generation per 1000 Sq. Feet Gross Floor Area

Average Rate	Range of Rates	Standard Deviation
25.82	3.09 - 109.68	18.37

Data Plot and Equation



× Actual Data Points

Average Rate

Fitted Curve Equation: Not given

R^2 = ****

Table 5.20
Pass-By Trips and Diverted Linked Trips
Weekday, p.m. Peak Period

Land Use 912—Drive-in Bank

SIZE (1,000 SQ. FT. GFA)	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PRIMARY TRIP (%)	NON-PASS-BY TRIP (%)	DIVERTED LINKED TRIP (%)	PASS-BY TRIP (%)	ADJ. STREET PEAK HOUR VOLUME	SOURCE
16.0	Overland Park, KS	Dec. 1988	20	4:30–5:30 p.m.	55	—	30	15	n/a	n/a
3.3	Louisville area, KY	Jul. 1993	n/a	4:00–6:00 p.m.	22	—	30	48	2,570	Barton-Aschman Assoc.
3.4	Louisville area, KY	Jul. 1993	n/a	4:00–6:00 p.m.	22	—	14	64	2,266	Barton-Aschman Assoc.
3.4	Louisville area, KY	Jul. 1993	75	4:00–6:00 p.m.	11	—	32	57	1,955	Barton-Aschman Assoc.
3.5	Louisville area, KY	Jun. 1993	53	4:00–6:00 p.m.	32	—	21	47	2,785	Barton-Aschman Assoc.
6.4	Louisville area, KY	Jun. 1993	66	4:00–6:00 p.m.	20	—	27	53	2,610	Barton-Aschman Assoc.

Average Pass-By Trip Percentage: 47

Table 5.21
Pass-By Trips and Diverted Linked Trips
Weekday, p.m. Peak Period

Land Use 931—Quality Restaurant

SEATS	SIZE (1,000 SQ. FT. GFA)	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PRIMARY TRIP (%)	NON-PASS-BY TRIP (%)	DIVERTED LINKED TRIP (%)	PASS-BY TRIP (%)	ADJ. STREET PEAK HOUR VOLUME	SOURCE
240	12	Louisville area, KY	Jul. 1993	38	4:00–6:00 p.m.	36	—	38	26	4,145	Barton-Aschman Assoc.
n/a	8	Orlando, FL	1992	168	4:00–8:00 p.m.	—	55	—	45	n/a	TPD Inc.
n/a	8.8	Orlando, FL	1992	84	2:00–6:00 p.m.	40	—	16	44	n/a	TPD Inc.
n/a	6.5	Orlando, FL	1995	173	2:00–6:00 p.m.	—	38	—	62	n/a	TPD Inc.

Average Pass-By Trip Percentage: 44

APPENDIX B

TRAFFIC DATA

TABLE B-1
PEAK-HOUR DETERMINATION
PNC BANK - HALLANDALE BEACH BOULEVARD TRAFFIC ANALYSIS

Time Period	Hallandale Beach Boulevard at Diplomat Parkway	Hallandale Beach Boulevard at Three Islands Boulevard	Three Islands Boulevard at Shopping Center Entrance	Intersection Total	Hour Total	Peak Hour Period
	3/23/10	4/15/09	4/15/09			
4:00 PM	710	806	319	1,835		
4:15 PM	747	717	321	1,785		
4:30 PM	708	664	288	1,660		
4:45 PM	702	715	302	1,719	6,999	4:00-5:00 PM
5:00 PM	734	659	263	1,656	6,820	4:15-5:15 PM
5:15 PM	644	704	263	1,611	6,646	4:30-5:30 PM
5:30 PM	708	698	293	1,699	6,685	4:45-5:45 PM
5:45 PM	635	721	357	1,713	6,679	5:00-6:00 PM

McMahon and Associates, Inc.

5500 Village Boulevard, Suite 103
West Palm Beach, Florida 33407
(561)840-8650 (phone) / (561)840-8590 (fax)

File Name : Diplomat
Site Code : L8743.02
Start Date : 3/23/2010
Page No : 1

Groups Printed- Passanger Cars - Trucks - turns

	Diplomat Pkwy From North SB					Hallandale Bch Blvd From East EB					Driveway From South NB					Hallandale Bch Blvd From West WB					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	12	0	11	11	23 34	12	320	1	1	333 334	1	1	6	8	5 16	1	331	14	2	346 348	732 - 22
04:15 PM	17	0	8	8	25 33	11	306	0	0	317	3	3	3	2	9 11	3	371	22	3	396 399	760 - 18
04:30 PM	16	0	10	14	26 40	12	326	1	0	339	3	9	5	3	17 20	2	304	20	0	326	725 - 17
04:45 PM	15	0	10	6	25 31	10	265	0	0	275	5	7	5	4	17 21	4	362	19	1	385 386	713 - 18
Total	60	0	39	39	99 138	45	1217	2	1	1264 1265	12	20	19	17	51 68	10	1368	75	6	1453 1459	2930
					0.95					0.93					0.75					0.92	
05:00 PM	16	3	4	11	34	8	311	1	1	321	3	6	6	7	22	2	358	16	0	376	753 - 19
05:15 PM	11	0	13	9	33	3	286	0	0	289	6	4	4	3	17	1	293	23	0	317	656 - 17
05:30 PM	5	0	14	11	30	18	271	1	1	291	5	1	1	7	14	1	370	21	0	392	727 - 19
05:45 PM	8	2	11	12	33	6	230	0	0	236	3	0	0	2	5	1	360	14	0	375	649 - 14
Total	40	5	42	43	130	35	1098	2	2	1137	17	11	11	19	58	5	1381	74	0	1460	2785
Grand Total	100	5	81	82	268	80	2315	4	3	2402	29	31	30	36	126	15	2749	149	6	2919	5715
Apprch %	37.3	1.9	30.2	30.6		3.3	96.4	0.2	0.1		23	24.6	23.8	28.6		0.5	94.2	5.1	0.2		
Total %	1.7	0.1	1.4	1.4	4.7	1.4	40.5	0.1	0.1	42	0.5	0.5	0.5	0.6	2.2	0.3	48.1	2.6	0.1	51.1	
Passanger Cars	96	5	77	82	260	77	2278	1	3	2359	29	31	30	36	126	15	2714	102	6	2837	5582
% Passanger Cars	96	100	95.1	100	97	96.2	98.4	25	100	98.2	100	100	100	100	100	100	98.7	68.5	100	97.2	97.7
Trucks	4	0	4	0	8	3	37	0	0	40	0	0	0	0	0	0	35	1	0	36	84
% Trucks	4	0	4.9	0	3	3.8	1.6	0	0	1.7	0	0	0	0	0	0	1.3	0.7	0	1.2	1.5
U-turns	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	46	0	46	49
% U-turns	0	0	0	0	0	0	0	75	0	0.1	0	0	0	0	0	0	0	30.9	0	1.6	0.9

McMahon Associates, Inc.

7741 N. Military trail, Suite 5
Palm Beach Gardens,FL 33418
(561) 840-8650 (phone) / (561) 840-8590 (fax)

File Name : Hallandale Bch Blvd @ Three Island Blvd
Site Code : 12345678
Start Date : 4/15/2009
Page No : 1

Groups Printed- Pass. Cars - Trucks - Turns

	Three Islands Blvd From North SB				Hallandal Beach Blvd From East WB				Hallandal Beach Blvd From West EB				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	61	34	0	95	2	119	0	121	112	41	2	155	371
07:15 AM	42	37	1	80	7	119	0	126	127	31	1	159	365
07:30 AM	51	28	3	82	11	172	0	183	125	23	1	149	414
07:45 AM	70	52	3	125	9	194	0	203	164	48	0	212	540
Total	224	151	7	382	29	604	0	633	528	143	4	675	1690
08:00 AM	72	50	6	128	5	182	0	187	147	47	1	195	510
08:15 AM	72	54	3	129	6	141	0	147	177	58	0	235	511
08:30 AM	81	43	5	129	3	175	0	178	163	50	0	213	520
08:45 AM	62	68	8	138	6	193	0	199	170	53	1	224	561
Total	287	215	22	524	20	691	0	711	657	208	2	867	2102
*** BREAK ***													
04:00 PM	58	55	4	113 ~~117~~	34	252	0	286	294	113	2	407 ~~409~~	812-10
04:15 PM	62	51	7	113 ~~120~~	29	204	0	233	240	131	1	371 ~~372~~	725-3
04:30 PM	74	31	11	105 ~~116~~	20	210	0	230	242	87	0	329	675-11
04:45 PM	53	52	6	105 ~~111~~	16	261	0	277	229	104	1	333 ~~334~~	722-2
Total	247	189	28	436 ~~464~~ 0.96	99	927	0	1026 0.90	1005	435	4	440 ~~1445~~ 0.88	2934
05:00 PM	60	42	12	114	22	261	0	283	185	89	1	275	672-5
05:15 PM	50	46	7	103	25	234	0	259	265	84	1	350	712-8
05:30 PM	47	52	8	107	18	215	0	233	235	131	0	366	706-8
05:45 PM	63	56	4	123	44	191	0	235	252	115	1	368	726-5
Total	220	196	31	447	109	901	0	1010	937	419	3	1359	2816
Grand Total	978	751	88	1817	257	3123	0	3380	3127	1205	13	4345	9542
Apprch %	53.8	41.3	4.8		7.6	92.4	0		72	27.7	0.3		
Total %	10.2	7.9	0.9	19	2.7	32.7	0	35.4	32.8	12.6	0.1	45.5	
Pass. Cars	978	751	88	1817	257	3123	0	3380	3127	1205	13	4345	9542
% Pass. Cars	100	100	100	100	100	100	0	100	100	100	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	0
% U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	0

PHF –

McMahon Associates, Inc.

7741 N. Military trail, Suite 5
Palm Beach Gardens,FL 33418
(561) 840-8650 (phone) / (561) 840-8590 (fax)

File Name : Three Island Blvd @ Driveway
Site Code : 12345678
Start Date : 4/15/2009
Page No : 1

Groups Printed- Pass. Cars - Trucks - Turns

	Three Islands Blvd From North					Driveway Connection From East					Three Islands Blvd From South					Driveway Connection From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	86	3	0	89	9	0	14	3	26	16	15	1	0	32	1	0	0	0	1	148
07:15 AM	0	57	10	2	69	5	0	12	2	19	18	18	2	0	38	0	0	0	0	0	126
07:30 AM	0	81	12	0	93	10	0	25	1	36	21	38	0	0	59	0	0	0	4	4	192
07:45 AM	0	96	20	0	116	12	0	23	1	36	24	31	0	0	55	0	0	0	8	8	215
Total	0	320	45	2	367	36	0	74	7	117	79	102	3	0	184	1	0	0	12	13	681
08:00 AM	0	97	16	0	113	12	0	23	0	35	29	44	0	0	73	0	0	0	1	1	222
08:15 AM	0	98	17	0	115	16	0	34	1	51	30	53	0	0	83	0	0	0	1	1	250
08:30 AM	0	104	17	0	121	6	0	31	3	40	30	41	0	0	71	0	0	0	1	1	233
08:45 AM	0	84	18	0	102	11	0	25	1	37	46	43	0	6	95	0	0	0	1	1	235
Total	0	383	68	0	451	45	0	113	5	163	135	181	0	6	322	0	0	0	4	4	940
*** BREAK ***																					
04:00 PM	0	63	21	0	84	21	0	63	1	85	61	89	1	0	151	0	0	0	1	1	321
04:15 PM	0	79	27	0	106	27	0	42	0	69	65	81	0	0	146	0	0	0	0	0	321
04:30 PM	0	53	26	0	79	21	0	50	0	71	73	65	0	0	138	0	0	0	0	0	288
04:45 PM	0	63	23	0	86	20	0	53	1	74	49	94	0	0	143	0	0	0	0	0	303
Total	0	258	97	0	355	89	0	208	2	299	248	329	1	0	578	0	0	0	1	1	1233
PHF					0.84					0.88					0.96						
05:00 PM	0	52	22	0	74	17	0	53	0	70	35	84	0	0	119	0	0	0	0	0	263
05:15 PM	0	50	16	0	66	31	0	43	0	74	33	90	0	0	123	0	0	0	0	0	263
05:30 PM	0	58	19	0	77	24	0	40	1	65	58	93	0	0	151	0	0	1	0	1	294
05:45 PM	0	80	30	1	111	34	0	43	0	77	57	113	0	0	170	0	0	0	0	0	358
Total	0	240	87	1	328	106	0	179	1	286	183	380	0	0	563	0	0	1	0	1	1178
Grand Total	0	1201	297	3	1501	276	0	574	15	865	645	992	4	6	1647	1	0	1	17	19	4032
Apprch %	0	80	19.8	0.2		31.9	0	66.4	1.7		39.2	60.2	0.2	0.4		5.3	0	5.3	89.5		
Total %	0	29.8	7.4	0.1	37.2	6.8	0	14.2	0.4	21.5	16	24.6	0.1	0.1	40.8	0	0	0	0.4	0.5	
Pass. Cars	0	1183	250	3	1436	271	0	551	15	837	625	972	3	6	1606	1	0	1	17	19	3898
% Pass. Cars	0	98.5	84.2	100	95.7	98.2	0	96	100	96.8	96.9	98	75	100	97.5	100	0	100	100	100	96.7
Trucks	0	18	5	0	23	4	0	23	0	27	20	20	0	0	40	0	0	0	0	0	90
% Trucks	0	1.5	1.7	0	1.5	1.4	0	4	0	3.1	3.1	2	0	0	2.4	0	0	0	0	0	2.2
U-Turns	0	0	42	0	42	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	44
% U-Turns	0	0	14.1	0	2.8	0.4	0	0	0	0.1	0	0	25	0	0.1	0	0	0	0	0	1.1

2010 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
CATEGORY: 8600 EAST-A1A TO US1

MOCF: 0.90

WEEK	DATES	SF	PSCF
1	01/01/2010 - 01/02/2010	1.01	1.13
2	01/03/2010 - 01/09/2010	0.99	1.11
3	01/10/2010 - 01/16/2010	0.97	1.08
4	01/17/2010 - 01/23/2010	0.95	1.06
* 5	01/24/2010 - 01/30/2010	0.93	1.04
* 6	01/31/2010 - 02/06/2010	0.92	1.03
* 7	02/07/2010 - 02/13/2010	0.90	1.01
* 8	02/14/2010 - 02/20/2010	0.88	0.98
* 9	02/21/2010 - 02/27/2010	0.88	0.98
*10	02/28/2010 - 03/06/2010	0.87	0.97
*11	03/07/2010 - 03/13/2010	0.87	0.97
*12	03/14/2010 - 03/20/2010	0.86	0.96
*13	03/21/2010 - 03/27/2010	0.88	0.98
*14	03/28/2010 - 04/03/2010	0.89	0.99
*15	04/04/2010 - 04/10/2010	0.90	1.01
*16	04/11/2010 - 04/17/2010	0.92	1.03
*17	04/18/2010 - 04/24/2010	0.94	1.05
18	04/25/2010 - 05/01/2010	0.97	1.08
19	05/02/2010 - 05/08/2010	0.99	1.11
20	05/09/2010 - 05/15/2010	1.01	1.13
21	05/16/2010 - 05/22/2010	1.03	1.15
22	05/23/2010 - 05/29/2010	1.04	1.16
23	05/30/2010 - 06/05/2010	1.05	1.17
24	06/06/2010 - 06/12/2010	1.06	1.18
25	06/13/2010 - 06/19/2010	1.08	1.21
26	06/20/2010 - 06/26/2010	1.08	1.21
27	06/27/2010 - 07/03/2010	1.08	1.21
28	07/04/2010 - 07/10/2010	1.08	1.21
29	07/11/2010 - 07/17/2010	1.08	1.21
30	07/18/2010 - 07/24/2010	1.08	1.21
31	07/25/2010 - 07/31/2010	1.08	1.21
32	08/01/2010 - 08/07/2010	1.09	1.22
33	08/08/2010 - 08/14/2010	1.09	1.22
34	08/15/2010 - 08/21/2010	1.09	1.22
35	08/22/2010 - 08/28/2010	1.10	1.23
36	08/29/2010 - 09/04/2010	1.12	1.25
37	09/05/2010 - 09/11/2010	1.13	1.26
38	09/12/2010 - 09/18/2010	1.14	1.27
39	09/19/2010 - 09/25/2010	1.12	1.25
40	09/26/2010 - 10/02/2010	1.11	1.24
41	10/03/2010 - 10/09/2010	1.09	1.22
42	10/10/2010 - 10/16/2010	1.07	1.20
43	10/17/2010 - 10/23/2010	1.06	1.18
44	10/24/2010 - 10/30/2010	1.06	1.18
45	10/31/2010 - 11/06/2010	1.05	1.17
46	11/07/2010 - 11/13/2010	1.04	1.16
47	11/14/2010 - 11/20/2010	1.04	1.16
48	11/21/2010 - 11/27/2010	1.03	1.15
49	11/28/2010 - 12/04/2010	1.03	1.15
50	12/05/2010 - 12/11/2010	1.02	1.14
51	12/12/2010 - 12/18/2010	1.01	1.13
52	12/19/2010 - 12/25/2010	0.99	1.11
53	12/26/2010 - 12/31/2010	0.97	1.08

* PEAK SEASON

BROWARD COUNTY HISTORICAL COUNTS

ID	LOCATION	ADT2005	ADT2006	ADT2007	ADT2008	ADT2009
349	HALLANDALE BCH BLVD W OF ICWW BRIDGE	35500	30500	31000	31500	30500
5029	HALLANDALE BCH BLVD E OF US 1	47000	45500	39500	55000	46500

FLORIDA DEPARTMENT OF TRANSPORTATION
2010 ANNUAL AVERAGE DAILY TRAFFIC REPORT - REPORT TYPE: ALL

COUNTY: 86 BROWARD

SITE	SITE TYPE	DESCRIPTION	DIRECTION 1		DIRECTION 2		AADT TWO-WAY	"K" FCTR	DEMAND K100	"D" FCTR	DEMAND D100	"T" FCTR
0301		CYPRESS CREEK RD - 0.5 MI E OF SR 9/I-95	E	17000	W	17000	34000 C	8.35F	9.00	52.69F	52.00	6.78A
0302		COPANS RD - W OF SR 9/I-95	E	22000	W	25000	47000 C	8.35F	9.00	52.69F	52.00	9.99A
0303		COPANS RD - E OF SR 9/I-95	E	23000	W	20500	43500 C	9.37F	9.00	54.06F	52.00	2.13A
0306	T	SR-820/HOLLYWOOD BLVD 300 FT W OF 8 AVE BROWARD	E	0E	W	0E	12000 F	10.23P	9.27	56.72P	52.18	4.41F
0308		SR 7 / US 441 - N OF WASHINGTON ST	N	20500	S	17500	38000 C	8.35F	9.00	52.69F	52.00	5.33A
0331	T	SR9/I95 .1 M N OF SR858/HALLANDALE BCH BLV BROWA	N	119590	S	119761	239351 C	7.16A	8.50	50.49A	52.00	5.49A
0345		SR 25/US 27 - S OF SR 93/I-75	N	6600	S	6900	13500 C	9.60F	9.24	57.92F	52.00	17.20F
0346		SR 5 / US 1 - S OF NEW RIVER TUNNEL C-39	N	21000	S	20500	41500 C	9.37F	9.00	54.06F	52.00	3.23A
0349		SR 858 / HALLANDALE BCH BLVD - W OF ICWW BR	E	17500	W	15500	33000 C	9.37F	9.00	54.06F	52.00	5.07F
0353		SR 820 / HOLLYWOOD BLVD - W OF SR 7/US 441	E	20000	W	22000	42000 C	9.60F	9.24	57.92F	52.00	7.03A
0356		SR 820 / PINES BLVD - E OF SR 823/FLAMINGO RD	E	24500	W	24000	48500 C	9.60F	9.24	57.92F	52.00	1.80A
0357	T	SR93/I75 2 MI W OF US27 .6 MI W OF TOLL BROWARD	E	10623	W	10623	21246 C	11.61P	10.80	54.30P	52.00	10.27P
0359		SR 838 / SUNRISE BLVD - E OF ICWW BR	E	12000	W	10500	22500 C	9.37F	9.00	54.06F	52.00	8.07A
0360		SR A1A - N OF PINE AVE-N OF SR 870/COMMERCIAL BL	N	8300	S	8100	16400 C	9.37F	9.00	54.06F	52.00	6.48F
0362	T	SR-93/I-75 0.78 MI N OF DADE CO/L BROWARD CO	N	75420	S	74816	150236 C	9.47A	9.31	63.40A	60.49	3.81A
0386		SR 5 / US 1 - N OF CYPRESS CREEK RD,POMPANO	N	23000	S	22500	45500 C	9.37F	9.00	54.06F	52.00	3.49A

SITE TYPE : P= PORTABLE; T= TELEMETERED
AADT FLAGS : C= COMPUTED; E= MANUAL EST; F= FIRST YEAR EST; S= SECOND YEAR EST; T= THIRD YEAR EST; X= UNKNOWN
"K/D" FLAGS : A= ACTUAL; F= VOLUME FCTR CATG; D= DIST/FUNC. CLASS; P= PRIOR YEAR; S= STATE-WIDE DEFAULT; W= ONE-WAY ROAD
"T" FLAGS : A= ACTUAL; F= AXLE FCTR CATG; D= DIST/FUNC. CLASS; P= PRIOR YEAR; S= STATE-WIDE DEFAULT; X= CROSS-REFERENCE

FLORIDA DEPARTMENT OF TRANSPORTATION
2010 ANNUAL AVERAGE DAILY TRAFFIC REPORT - REPORT TYPE: ALL

COUNTY: 86 BROWARD

SITE	SITE TYPE	DESCRIPTION	DIRECTION 1		DIRECTION 2		AADT TWO-WAY	"K" FCTR	DEMAND K100	"D" FCTR	DEMAND D100	"T" FCTR
5015		SR 5/US 1 - N OF 17 ST CAUSEWAY	N	23000	S	21000	44000 C	9.37F	9.00	54.06F	52.00	2.84A
5019		SR 84 - 300' W OF ANDREWS AVE	E	15000	W	13500	28500 C	8.35F	9.00	52.69F	52.00	6.07P
5020		SR 84 - W OF SR 5	E	9000	W	7900	16900 C	8.35F	9.00	52.69F	52.00	7.37A
5021		BROWARD BLVD. - EAST OF SR 5/US 1	E	11000	W	12000	23000 C	9.37F	9.00	54.06F	52.00	9.00F
5025		SR A1A /ATLANTIC BLVD - 200' N OF LAS OLAS,NB ON	N	13000		0	13000 C	9.37F	9.00	99.99W	99.99	10.49A
5028		SR 5 / US 1 - S OF SR 824/PEMBROKE RD	N	15500	S	17500	33000 C	9.37F	9.00	54.06F	52.00	4.19A
* 5029		SR 858 / HALLANDALE BCH BLVD - E OF SR 5/US 1	E	21000	W	21500	42500 C	9.37F	9.00	54.06F	52.00	2.69A
5036		SR 5 / US 1 - S OF SR A1A/DANIA BCH BLVD	N	16000	S	14500	30500 C	9.37F	9.00	54.06F	52.00	3.38A
5037		SR 5/US 1 - N OF DANIA BCH BLVD/SR A1A	N	18500	S	18500	37000 C	9.37F	9.00	54.06F	52.00	2.64A
5042		SR A1A - S OF SR 820/HOLLYWOOD BLVD	N	11500	S	11000	22500 C	9.37F	9.00	54.06F	52.00	2.08P
5044		SR A1A - S OF SR 858/HALLANDALE BCH BLVD	N	14500	S	16000	30500 C	9.37F	9.00	54.06F	52.00	4.60A
5046		SR 820/HOLLYWOOD BLVD - W OF I-95	E	26500	W	23000	48500 C	8.35F	9.00	52.69F	52.00	4.41F
5050		SR 820 / HOLLYWOOD BLVD - E OF 17 AVE	E	6200	W	6400	12600 C	9.37F	9.00	54.06F	52.00	5.07F
5054		SR 814 / ATLANTIC BLVD - W OF SR 811/DIXIE HWY	E	26500	W	25500	52000 C	8.35F	9.00	52.69F	52.00	7.21F
5064		SR 5 / US 1 - S OF SR 810/HILLSBORO BLVD	N	17500	S	17000	34500 C	9.37F	9.00	54.06F	52.00	2.92P
5067		SR 816/OAKLAND PARK BLVD - W OF SR 811/DIXIE HWY	E	19500	W	20500	40000 C	8.35F	9.00	52.69F	52.00	7.23A

SITE TYPE : P= PORTABLE; T= TELEMETERED
AADT FLAGS : C= COMPUTED; E= MANUAL EST; F= FIRST YEAR EST; S= SECOND YEAR EST; T= THIRD YEAR EST; X= UNKNOWN
"K/D" FLAGS : A= ACTUAL; F= VOLUME FCTR CATG; D= DIST/FUNC. CLASS; P= PRIOR YEAR; S= STATE-WIDE DEFAULT; W= ONE-WAY ROAD
"T" FLAGS : A= ACTUAL; F= AXLE FCTR CATG; D= DIST/FUNC. CLASS; P= PRIOR YEAR; S= STATE-WIDE DEFAULT; X= CROSS-REFERENCE

TABLE 4

Generalized **Peak Hour Two-Way** Volumes for Florida's **Urbanized Areas**[1]

9/4/09

STATE SIGNALIZED ARTERIALS

Class I (>0.00 to 1.99 signalized intersections per mile)

Lanes	Median	B	C	D	E
2	Undivided	930	1,500	1,600	***
4	Divided	2,840	3,440	3,560	***
6	Divided	4,370	5,200	5,360	***
8	Divided	5,900	6,970	7,160	***

Class II (2.00 to 4.50 signalized intersections per mile)

Lanes	Median	B	C	D	E
2	Undivided	**	1,020	1,480	1,570
4	Divided	**	2,420	3,220	3,400
6	Divided	**	3,790	4,880	5,150
8	Divided	**	5,150	6,530	6,880

Class III/IV (more than 4.50 signalized intersections per mile)

Lanes	Median	B	C	D	E
2	Undivided	**	500	1,150	1,440
4	Divided	**	1,220	2,730	3,100
6	Divided	**	1,910	4,240	4,680
8	Divided	**	2,620	5,770	6,280

FREEWAYS

Lanes	B	C	D	E
4	4,000	5,500	6,770	7,300
6	6,000	8,320	10,150	11,290
8	8,000	11,050	13,480	15,270
10	10,000	13,960	16,930	19,250
12	13,730	18,600	21,950	23,230

Freeway Adjustments

Auxiliary Lanes	Ramp Metering	Oversaturated Conditions*
+ 1,800	+ 5%	-10% of E

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
2	Undivided	730	1,460	2,080	2,620
4	Divided	3,220	4,660	6,040	6,840
6	Divided	4,840	6,990	9,060	10,280

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
2	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Major City/County Roadways - 10%
Other Signalized Roadways - 35%

State & Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Divided/Undivided & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
2	Divided	Yes	No	+5%
2	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
–	–	–	Yes	+ 15%

One-Way Facility Adjustment

Multiply the corresponding two-directional volumes in this table by 0.6.

BICYCLE MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Paved Shoulder/ Bicycle Lane

Coverage	B	C	D	E
0-49%	**	310	1,180	>1,180
50-84%	240	360	>360	***
85-100%	620	>620	***	***

PEDESTRIAN MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Sidewalk Coverage	B	C	D	E
0-49%	**	**	480	1,390
50-84%	**	**	1,100	1,820
85-100%	**	1,100	1,820	>1,820

BUS MODE (Scheduled Fixed Route)[3]

(Buses in peak hour in peak direction)

Sidewalk Coverage	B	C	D	E
0-84%	>5	≥4	≥3	≥2
85-100%	>4	≥3	≥2	≥1

[1] Values shown are presented as hourly two-way volumes for levels of service and are for the automobile/truck modes unless specifically stated. Although presented as peak hour two-way volumes, they actually represent peak hour peak direction conditions with an applicable D factor applied. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the Highway Capacity Manual, Bicycle LOS Model, Pedestrian LOS Model and Transit Capacity and Quality of Service Manual, respectively for the automobile/truck, bicycle, pedestrian and bus modes.

[2] Level of service for the bicycle and pedestrian modes in this table is based on number of motorized vehicles, not number of bicyclists or pedestrians using the facility.

[3] Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

* For oversaturated conditions during peak hour, subtract 10% from the LOS E (capacity volumes). This number becomes the new maximum service volume for LOS D, and LOS E cannot be achieved.

** Cannot be achieved using table input value defaults.

*** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Planning Office
605 Suwannee Street, MS 19
Tallahassee, FL 32399-0450

APPENDIX C

VOLUME CALCULATIONS

TABLE C-1
EXISTING (2011) VOLUME CALCULATIONS
PNC BANK - HALLANDALE BEACH BOULEVARD TRAFFIC ANALYSIS

INTERSECTION		EBLT	EBTH	EBRT	WBLT	WBTH	WBRT	NBLT	NBTH	NBRT	SBLT	SBTH	SBRT
Hallandale Beach Boulevard at Diplomat Parkway	Collected Count (03/23/10)	75	1,368	10	2	1,217	45	19	20	12	39	0	60
	Peak-Season Conversion Factor (PSCF)(1)	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
	2010 Peak-Season Count	74	1,341	10	2	1,193	44	19	20	12	38	0	59
	CGR	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	2011 Peak-Season Count	75	1,354	10	2	1,205	44	19	20	12	38	0	60
Hallandale Beach Boulevard at Three Islands Boulevard	Collected Count (04/15/09)	435	1,005	0	0	927	99	0	0	0	189	0	247
	Peak-Season Conversion Factor (PSCF)(1)	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
	2009 Peak-Season Count	448	1,035	0	0	955	102	0	0	0	195	0	254
	CGR	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	2011 Peak-Season Count	457	1,056	0	0	892	104	0	0	0	199	0	259
Three Islands Boulevard at Seawalk Pointe	Collected Count (04/15/09)	0	0	0	208	0	89	1	329	248	97	258	0
	Peak-Season Conversion Factor (PSCF)(1)	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
	2009 Peak-Season Count	0	0	0	214	0	92	1	339	255	100	266	0
	CGR	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	2011 Peak-Season Count	0	0	0	218	0	94	1	300	260	102	240	0

(1) Peak Season Conversion Factor (PSCF) obtained from the 2010 FDOT Transportation DVD.
Balanced Volumes

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

TABLE C-2
BACKGROUND (2012) VOLUME CALCULATIONS
PNC BANK - HALLANDALE BEACH BOULEVARD TRAFFIC ANALYSIS

INTERSECTION		EBLT	EBTH	EBRT	WBLT	WBTH	WBRT	NBLT	NBTH	NBRT	SBLT	SBTH	SBRT
Hallandale Beach Boulevard at Diplomat Parkway	Collected Count (03/23/10)	75	1,368	10	2	1,217	45	19	20	12	39	0	60
	Peak-Season Conversion Factor (PSCF)(1)	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
	2010 Peak-Season Count	74	1,341	10	2	1,193	44	19	20	12	38	0	59
	CGR	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	2011 Peak-Season Count	75	1,354	10	2	1,205	44	19	20	12	38	0	60
	Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Committed Development Trips	85	292	2	0	188	8	0	0	0	10	0	65
	2012 Background Traffic	161	1,660	12	2	1,405	52	19	20	12	48	0	126
Hallandale Beach Boulevard at Three Islands Boulevard	Collected Count (04/15/09)	435	1,005	0	0	927	99	0	0	0	189	0	247
	Peak-Season Conversion Factor (PSCF)(1)	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
	2009 Peak-Season Count	448	1,035	0	0	955	102	0	0	0	195	0	254
	CGR	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	2011 Peak-Season Count	457	1,056	0	0	992	104	0	0	0	199	0	259
	Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Committed Development Trips	41	220	0	0	165	149	0	0	0	135	0	31
	2012 Background Traffic	503	1,287	0	0	1,167	254	0	0	0	336	0	293
Three Islands Boulevard at Seawalk Pointe	Collected Count (04/15/09)	0	0	0	208	0	89	1	329	248	97	258	0
	Peak-Season Conversion Factor (PSCF)(1)	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
	2009 Peak-Season Count	0	0	0	214	0	92	1	339	255	100	266	0
	CGR	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	2011 Peak-Season Count	0	0	0	218	0	94	1	300	260	102	240	0
	Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Committed Development Trips	0	0	0	20	0	9	2	36	20	9	35	0
	2012 Background Traffic	0	0	0	240	0	104	3	339	283	112	277	0

(1) Peak Season Conversion Factor (PSCF) obtained from the 2010 FDOT Transportation DVD.
Balanced Volumes

McMAHON

TABLE C-3
TOTAL(2012) VOLUME CALCULATIONS
PNC BANK - HALLANDALE BEACH BOULEVARD TRAFFIC ANALYSIS

INTERSECTION		EBLT	EBTH	EBRT	WBLT	WBTH	WBRT	NBLT	NBTH	NBRT	SBLT	SBTH	SBRT
Hallandale Beach Boulevard at Diplomat Parkway	Collected Count (03/23/10)	75	1,368	10	2	1,217	45	19	20	12	39	0	60
	Peak-Season Conversion Factor (PSCF)(1)	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
	2010 Peak-Season Count	74	1,341	10	2	1,193	44	19	20	12	38	0	59
	CGR	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	2011 Peak-Season Count	75	1,354	10	2	1,205	44	19	20	12	38	0	60
	Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Committed Development Trips	85	292	2	0	188	8	0	0	0	10	0	65
	2012 Background Traffic	161	1,660	12	2	1,405	52	19	20	12	48	0	126
	Project IN/OUT Movement		IN			OUT	OUT				IN		
	Project Distribution		48.00%			45.00%	5.00%				5.00%		
	2012 Project Trips		14			13	1				1		
	2012 Total Traffic	161	1,674	12	2	1,418	53	19	20	12	49	0	126
Hallandale Beach Boulevard at Three Islands Boulevard	Collected Count (04/15/09)	435	1,005	0	0	927	99	0	0	0	189	0	247
	Peak-Season Conversion Factor (PSCF)(1)	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
	2009 Peak-Season Count	448	1,035	0	0	955	102	0	0	0	195	0	254
	CGR	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	2011 Peak-Season Count	457	1,056	0	0	992	104	0	0	0	199	0	259
	Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Committed Development Trips	41	220	0	0	165	149	0	0	0	135	0	31
	2012 Background Traffic	503	1,287	0	0	1,167	254	0	0	0	336	0	293
	Project IN/OUT Movement			IN	IN			OUT	OUT	OUT		IN	
	Project Distribution			53.00%	30.00%			50.00%	15.00%	30.00%		15.00%	
	2012 Project Trips		-13	28	21	-12		26	4	22		4	
	2012 Total Traffic	503	1,274	28	21	1,155	254	26	4	22	336	4	293
Three Islands Boulevard at Seawalk Pointe	Collected Count (04/15/09)	0	0	0	208	0	89	1	329	248	97	258	0
	Peak-Season Conversion Factor (PSCF)(1)	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
	2009 Peak-Season Count	0	0	0	214	0	92	1	339	255	100	266	0
	CGR	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	2011 Peak-Season Count	0	0	0	218	0	94	1	300	260	102	240	0
	Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Committed Development Trips	0	0	0	20	0	9	2	36	20	9	35	0
	2012 Background Traffic	0	0	0	240	0	104	3	339	283	112	277	0
	Project IN/OUT Movement								OUT			IN	
	Project Distribution								15.00%			15.00%	
	2012 Project Trips								4			4	
	2012 Total Traffic	0	0	0	240	0	104	3	343	283	112	281	0

(1) Peak Season Conversion Factor (PSCF) obtained from the 2010 FDOT Transportation DVD.

Balanced Volumes

McMAHON

APPENDIX D

SIGNAL TIMING SHEETS

BROWARD COUNTY TRAFFIC ENGINEERING

ACTUATED TRAFFIC SIGNAL TIMING SHEET

Intersection Number	3080	**Initial Operation Date**	UNKNOWN
Controller Type	2070	**System Number**	3080
Modification Number	12	**Modification Date**	12/19/2008
Drawing/Project No	228169-1-52-01	**FPL Grid Number**	87770251907
Intersection	HALLANDALE BEACH BLVD. and DIPLOMAT PARKWAY		
Municipality	HALLANDALE BEACH		

Controller Phase	1	2	3	4	5	6	7	8
Face Number	1	2,6	5	4,8				
Direction	EBL	E/W	WBL	N/S				
Initial Green(MIN)	5	10	5	6				
Vehicle Ext.(GAP)	1.5	3.0	1..5	2.0				
Maximum Green I	18	50	18	25				
Maximum Green II								
Yellow Clearance	4.0	4.0	4.0	4.0				
All Red Clearance	2.0	2.0	2.0	2.0				
Phase Recall	OFF	MIN	OFF	OFF				
Detector Delay								
Walk		7		7				
Pedestrian Clearance		18		27				
Permissive	NO		NO					
Flash Operation	RED	YELLOW	RED	RED				
Green Return	7	1,2	8	5,6				

Attachment

Channel/Drop 15 / 6 **IP Address**

NOTES:

1. LEAD/LAG LEFTS: EBL>EW>WBL.
2. VIDEO DETECTION.
3. MOD. 12 REPHASES SIGNAL, NO CHANGE IN SEQUENCE OR TIMING.

Submitted By _____ **Approved By** _____

System Number: 3080
Section Number: 22

Wednesday, July 13, 2011
2:03:06 PM

Pattern Timing Plan Data

Hallandale Beach Blvd & Diplomat Parkway

Pattern Number	Offset	Cycle Length	Phase Durations EW	WBL	NS	EBL
1	20	110	38	16	40	16
2	50	160	68	25	43	25
3	113	160	62	26	45	26
4	76	160	68	25	43	25
5	12	130	52	17	43	17
12	50	180	79	25	49	28
13	83	160	61	26	46	26
14	76	180	76	25	47	32

Fixed Intervals:

Min Green	10	5	6	5
Flashing Don't Walk	18	0	0	0
Yellow	4	4	4	4
All Red	2	2	2	2
Green Returns	1,2	8	5,6	7
Command	YIELD	FO 2	FO 1&2	FO 1

Time Of Day Schedule

Monday - Friday		
Pattern 2	Morning Peak Pattern	06:00 - 09:00
Pattern 3	Midday Pattern	09:00 - 15:10
Pattern 4	Evening Peak Patten	15:10 - 20:00
Pattern 3	Midday Pattern	20:00 - 00:00
Saturday		
Pattern 3	Midday Pattern	06:30 - 01:00
Sunday		
Pattern 3	Midday Pattern	06:30 - 23:00

BROWARD COUNTY TRAFFIC ENGINEERING

ACTUATED TRAFFIC SIGNAL TIMING SHEET

Intersection Number	3079	**Initial Operation Date**	1977
Controller Type	2070 LN	**System Number**	3079
Modification Number	16	**Modification Date**	05/23/2011
Drawing/Project No	86200-3514	**FPL Grid Number**	87770352207
Intersection	HALLANDALE BEACH BLVD. and THREE ISLANDS DRIVE		
Municipality	HALLANDALE BEACH		

Controller Phase	1	2	3	4	5	6	7	8
Face Number	1	2	P4,P8	8,8R	5	6		
Direction	EBL	WB	XPED	SB	WBL	EB		
Initial Green(MIN)	5	10	7	6	5	10		
Vehicle Ext.(GAP)	1.5	3.0	0.0	2.0	1.5	3.0		
Maximum Green I	25	50		25	15	50		
Maximum Green II								
Yellow Clearance	4.0	4.0	4.0	4.0	4.0	4.0		
All Red Clearance	1.0	1.0	1.0	1.0	1.0	1.0		
Phase Recall	OFF	MIN	OFF	OFF	OFF	MIN		
Detector Delay				20-RT				
Walk		7	7			7		
Pedestrian Clearance		26	31			26		
Permissive	DUAL				NO			
Flash Operation	RED	YELLOW	DARK	RED	RED	YELLOW		
Green Return	7	1	3	5	8	2		

Attachment

Channel/Drop **15 / 7** **IP Address**

NOTES:

1. FIREHOUSE PREEMPTION SEQUENCE (IN SECONDS):
   (1)TIME BEFORE PREEMPTION = 5
   (2)YELLOW CLEARANCE=4.0, ALL RED CLEARANCE=2.0.
   (3)FIRE HOUSE CLEARANCE (SB) = 30
   (4)YELLOW CLEARANCE=4.0
   (5)RETURN TO EAST/WEST (PHASES 2 + 6):
2. VIDEO DETECTION.
3. HEAD 8R (SBR) HARDWIRED TO PHASE 1 (EBL).
4. MOD. 16 INSTALLS VIDEO DETECTION AND UPDATES MINIMUM GREENS.

Submitted By _____ **Approved By** _____

System Number: 3079
Section Number: 22

Wednesday, July 13, 2011
2:02:21 PM

Pattern Timing Plan Data

Hallandale Beach Blvd & Three Islands Dr

Pattern Number	Offset	Cycle Length	Phase Durations EW	XPED	SB	EWL	WBL	EBL
1	104	110	45	41	12	12	0	0
2	55	160	59	41	30	30	0	0
3	108	160	65	36	27	32	0	0
4	86	160	59	41	30	30	0	0
5	124	130	45	41	22	22	0	0
12	55	180	72	43	34	31	0	0
13	73	160	65	36	27	32	0	0
14	102	180	60	43	33	35	10	0

Fixed Intervals:

Min Green	10	7	6	5	5	5
Flashing Don't Walk	26	0	0	0	0	0
Yellow	4	4	4	4	4	4
All Red	2	0	2	2	2	2
Green Returns	1,2	3	5	7,8	8	7
Command	YIELD	HOL	FO 1	FO 1&2	FO 2	FO 1

Time Of Day Schedule

Monday - Friday

Pattern 2	Morning Peak Pattern	06:00 - 09:00
Pattern 3	Midday Pattern	09:00 - 15:10
Pattern 4	Evening Peak Patten	15:10 - 20:00
Pattern 3	Midday Pattern	20:00 - 00:00

Saturday

Pattern 3	Midday Pattern	06:30 - 01:00

Sunday

Pattern 3	Midday Pattern	06:30 - 23:00

BROWARD COUNTY TRAFFIC ENGINEERING

ACTUATED TRAFFIC SIGNAL TIMING SHEET

Intersection Number	3422	**Initial Operation Date**	02/21/02
Controller Type	NEMA 8 PHASE W/P	**System Number**	3422
Modification Number	0	**Modification Date**	
Drawing/Project No		**FPL Grid Number**	87770353009
Intersection	THREE ISLANDS BLVD. and SEA WALK POINTE/WAL MART		
Municipality	HALLANDALE BEACH		

Controller Phase	1	2	3	4	5	6	7	8
Face Number	1	2	3,8	4,7		6		F
Direction	SBL	NB	WB	EB		SB		NEB
Initial Green(MIN)	4	15	6	6		15		25
Vehicle Ext.(GAP)	1.5	3.0	2.0	2.5		3.0		0.0
Maximum Green I	12	60	31	20		60		25
Maximum Green II								
Yellow Clearance	4.0	4.0	4.0	4.0		4.0		4.0
All Red Clearance	1.5	2.0	2.0	1.5		1.5		2.0
Phase Recall	OFF	MIN	OFF	OFF		MIN		OFF
Detector Delay			20-RT					
Walk		7	7					
Pedestrian Clearance		19	24					
Permissive	5-SECT							
Flash Operation		YELLOW	RED	RED		YELLOW		
Green Return	7	1	3	5		2		

Attachment

Channel/Drop **IP Address**

NOTES:

1. INITIAL OPERATION DATE IS DATE OF INSPECTION BY BCTED.
2. ANTI-BACKDOWN DIODE SOUTHBOUND.
3. PHASE 8 (NORTHEAST BOUND) ONLY USED DURING PREEMPTION.
4. PRE-EMPTION OPERATION:
   (1) TIME BEFORE PRE-EMPTION = 10
   (2) CYCLE TO PHASE 8 (NORTHEAST BOUND).
   (3) RETURN TO PHASES 2+6 (N/S).

Submitted By _____ **Approved By** _____

BROWARD COUNTY TRAFFIC ENGINEERING DIVISION

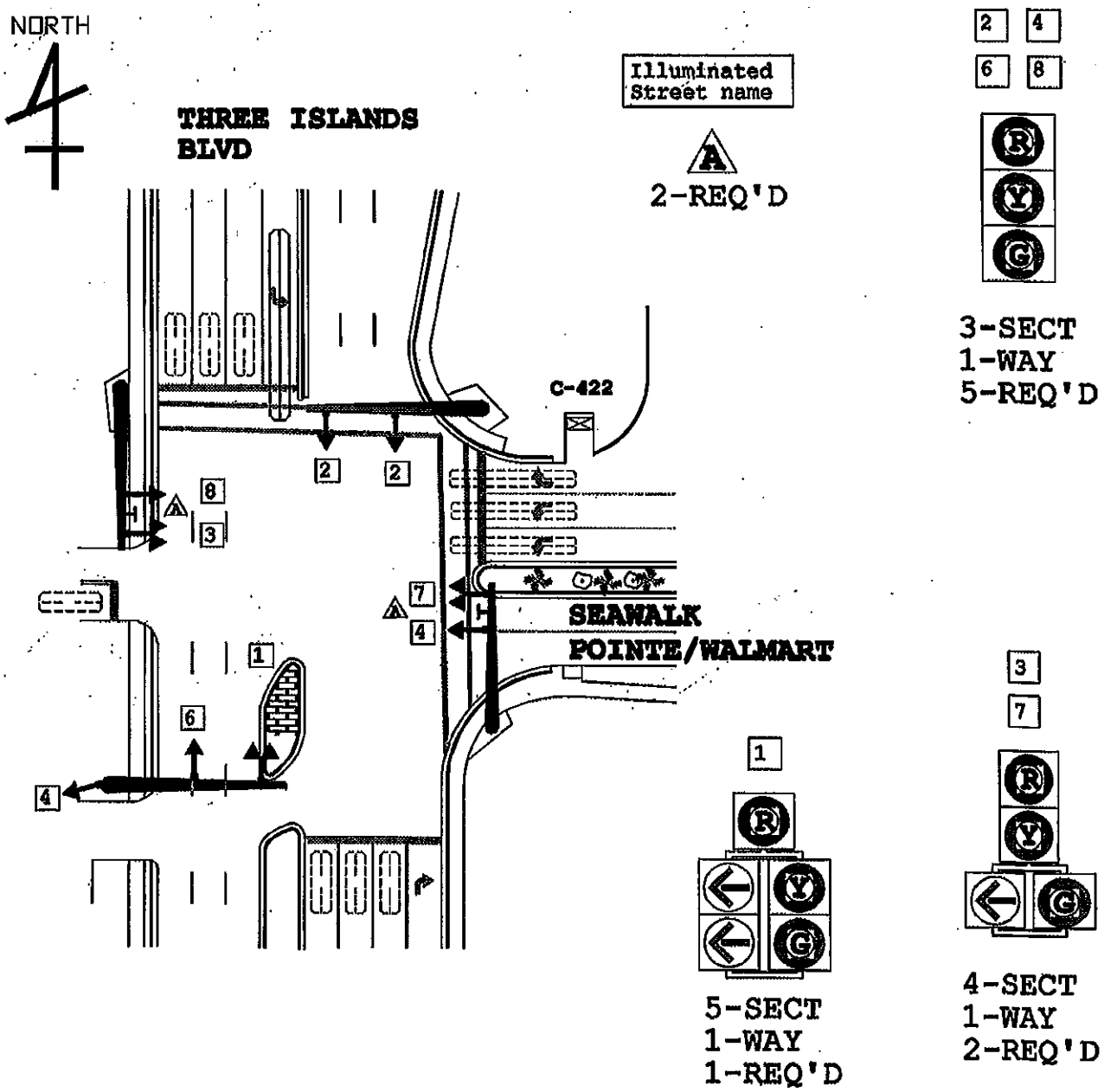
TRAFFIC SIGNAL INSTALLATION ORDER

LOCATION **THREE ISLANDS BLVD & SEAWALK POINTE**

ORDER NO ---- ISSUE DATE --- REVISION NO. 0 COMPLETION DATE 2/21/02

DWG. NO. 02-03-02-01 FILE NO. C-422 CITY HALLANDALE SCALE: 1" = 50'

DWN BY: LARRY



REMARKS

APPENDIX E

EXISTING INTERSECTION CAPACITY ANALYSIS WORKSHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	1354	10	2	1205	44	19	20	12	38	0	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99			0.97		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.98		0.95	1.00	
Satd. Flow (prot)	1770	5080		1770	5059			1771		1752	1568	
Flt Permitted	0.95	1.00		0.95	1.00			0.85		0.64	1.00	
Satd. Flow (perm)	1770	5080		1770	5059			1537		1188	1568	
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.93	0.75	0.75	0.75	0.95	0.95	0.95
Adj. Flow (vph)	82	1472	11	2	1296	47	25	27	16	40	0	63
RTOR Reduction (vph)	0	0	0	0	1	0	0	8	0	0	59	0
Lane Group Flow (vph)	82	1483	0	2	1342	0	0	60	0	40	4	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Actuated Green, G (s)	11.3	128.4		3.1	120.2			10.5		10.5	10.5	
Effective Green, g (s)	11.3	128.4		3.1	120.2			10.5		10.5	10.5	
Actuated g/C Ratio	0.07	0.80		0.02	0.75			0.07		0.07	0.07	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0		6.0	6.0	
Vehicle Extension (s)	1.5	3.0		1.5	3.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	125	4077		34	3801			101		78	103	
v/s Ratio Prot	c0.05	c0.29		0.00	c0.27						0.00	
v/s Ratio Perm								c0.04		0.03		
v/c Ratio	0.66	0.36		0.06	0.35			0.59		0.51	0.04	
Uniform Delay, d1	72.5	4.4		77.0	6.7			72.7		72.3	70.0	
Progression Factor	1.00	1.00		0.80	0.66			1.00		1.00	1.00	
Incremental Delay, d2	9.1	0.3		0.2	0.2			6.0		2.4	0.1	
Delay (s)	81.5	4.7		61.8	4.7			78.7		74.6	70.1	
Level of Service	F	A		E	A			E		E	E	
Approach Delay (s)		8.7			4.8			78.7			71.9	
Approach LOS		A			A			E			E	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	457	1056	0	0	992	104	0	0	0	199	0	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0				6.0		6.0
Lane Util. Factor	0.97	0.91			0.91	1.00				0.97		1.00
Frt	1.00	1.00			1.00	0.85				1.00		0.86
Flt Protected	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (prot)	3433	5085			5085	1583				3433		1583
Flt Permitted	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (perm)	3433	5085			5085	1583				3433		1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.90	0.90	0.90	0.25	0.25	0.25	0.96	0.96	0.96
Adj. Flow (vph)	519	1200	0	0	1102	116	0	0	0	207	0	270
RTOR Reduction (vph)	0	0	0	0	0	42	0	0	0	0	0	218
Lane Group Flow (vph)	519	1200	0	0	1102	74	0	0	0	207	0	52
Turn Type	Prot			Prot		Perm				Prot		Over
Protected Phases	1	6		5	2					4		1
Permitted Phases						2						
Actuated Green, G (s)	31.1	134.0			96.9	96.9				14.0		31.1
Effective Green, g (s)	31.1	134.0			96.9	96.9				14.0		31.1
Actuated g/C Ratio	0.19	0.84			0.61	0.61				0.09		0.19
Clearance Time (s)	6.0	6.0			6.0	6.0				6.0		6.0
Vehicle Extension (s)	1.5	3.0			3.0	3.0				2.0		1.5
Lane Grp Cap (vph)	667	4259			3080	959				300		308
v/s Ratio Prot	c0.15	0.24			c0.22					c0.06		0.03
v/s Ratio Perm						0.05						
v/c Ratio	0.78	0.28			0.36	0.08				0.69		0.17
Uniform Delay, d1	61.2	2.8			15.9	13.1				70.9		53.7
Progression Factor	0.93	0.69			1.00	1.00				1.00		1.00
Incremental Delay, d2	5.1	0.2			0.3	0.2				5.2		0.1
Delay (s)	61.9	2.1			16.2	13.2				76.1		53.8
Level of Service	E	A			B	B				E		D
Approach Delay (s)		20.1			15.9			0.0			63.5	
Approach LOS		C			B			A			E	

Intersection Summary			
HCM Average Control Delay	24.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	218	0	94	1	300	260	102	240	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0		6.0	6.0	5.5	5.5	
Lane Util. Factor				0.95	0.95	1.00		0.91	1.00	1.00	0.91	
Frt				1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95	0.95	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1665	1665	1568		5084	1583	1770	5085	
Flt Permitted				0.95	0.95	1.00		0.94	1.00	0.50	1.00	
Satd. Flow (perm)				1665	1665	1568		4778	1583	939	5085	
Peak-hour factor, PHF	0.25	0.25	0.25	0.88	0.88	0.88	0.96	0.96	0.96	0.84	0.84	0.84
Adj. Flow (vph)	0	0	0	248	0	107	1	312	271	121	286	0
RTOR Reduction (vph)	0	0	0	0	0	94	0	0	104	0	0	0
Lane Group Flow (vph)	0	0	0	124	124	13	0	313	167	121	286	0
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Turn Type	Split			Split		Perm	Perm		Perm	pm+pt		
Protected Phases	4	4		8	8			2		1	6	
Permitted Phases						8	2		2	6		
Actuated Green, G (s)				11.0	11.0	11.0		55.0	55.0	66.6	66.6	
Effective Green, g (s)				11.0	11.0	11.0		55.0	55.0	66.6	66.6	
Actuated g/C Ratio				0.12	0.12	0.12		0.62	0.62	0.75	0.75	
Clearance Time (s)				6.0	6.0	6.0		6.0	6.0	5.5	5.5	
Vehicle Extension (s)				2.0	2.0	2.0		3.0	3.0	1.5	3.0	
Lane Grp Cap (vph)				206	206	194		2949	977	754	3801	
v/s Ratio Prot				c0.07	0.07					c0.01	0.06	
v/s Ratio Perm						0.01		0.07	c0.11	0.11		
v/c Ratio				0.60	0.60	0.07		0.11	0.17	0.16	0.08	
Uniform Delay, d1				37.0	37.0	34.5		7.0	7.3	3.2	3.0	
Progression Factor				1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2				3.4	3.4	0.1		0.1	0.4	0.0	0.0	
Delay (s)				40.3	40.3	34.6		7.1	7.7	3.3	3.0	
Level of Service				D	D	C		A	A	A	A	
Approach Delay (s)		0.0			38.6			7.3			3.1	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	14.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	89.1	Sum of lost time (s)	17.5
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

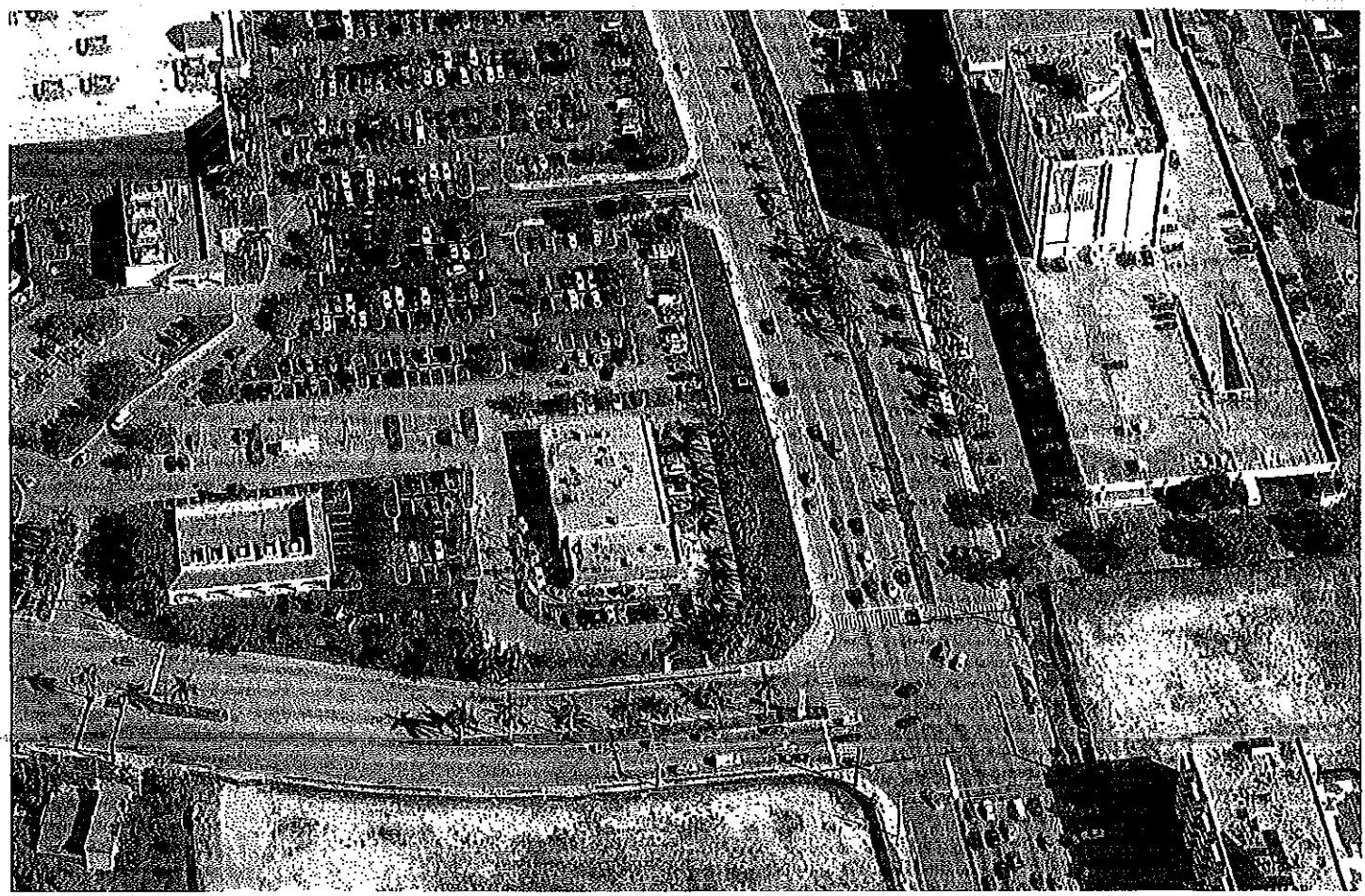
APPENDIX F

COMMITTED DEVELOPMENT INFORMATION

Walmart Expansion Traffic Impact Study

WalMart Store No. 1996-04

Broward County, Florida



Prepared for

GREECH ENGINEERS INC.

Prepared by

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

August 2010

TABLE K-1
TOTAL (2012) PM PEAK-HOUR, PEAK-SEASON TURNING-MOVEMENT VOLUMES
WALMART EXPANSION TRAFFIC IMPACT STUDY

INTERSECTION		EBLT	EBTH	EBRT	WBLT	WBTH	WBRT	NBLT	NBTH	NBRT	SBLT	SBTH	SBRT
Hallandale Beach Boulevard at Three Island Boulevard	Collected Count (04/15/09)	408	914	0	0	971	61	0	0	0	192	0	210
	Peak-Season Conversion Factor (PSCF)[1]	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
	2009 Peak-Season Count	428	960	0	0	1,020	65	0	0	0	202	0	221
	CGR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	2009 Peak-Season Count	428	960	0	0	1,020	65	0	0	0	202	0	221
	Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Committed Development Trips	23	220	0	0	155	117	0	0	0	126	0	22
	2012 Background Traffic	515	1,207	0	0	1,149	235	0	0	0	343	0	250
	Project IN/OUT Movement	IN				OUT	IN				OUT		OUT
	Project Distribution	50.00%				25.00%	5.00%				25.00%		25.00%
	2012 Project Trips	18	0	0	0	9	2	0	0	0	9	0	9
	2012 Total Traffic	530	1,209	0	0	1,158	237	0	0	0	352	0	259
Hallandale Beach Boulevard at Driveway Connection	Collected Count (04/15/09)	0	829	0	0	1,061	124	0	0	0	0	0	141
	Peak-Season Conversion Factor (PSCF)[1]	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
	2009 Peak-Season Count	0	870	0	0	1,117	130	0	0	0	0	0	148
	CGR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	2009 Peak-Season Count	0	870	0	0	1,117	130	0	0	0	0	0	148
	Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Committed Development Trips	0	263	0	0	303	0	0	0	0	0	0	0
	2012 Background Traffic	0	1,159	0	0	1,231	134	0	0	0	0	0	152
	Project IN/OUT Movement		OUT			IN	IN						OUT
	Project Distribution		25.00%			5.00%	20.00%						25.00%
	2012 Project Trips	0	9	0	0	2	7	0	0	0	0	0	9
	2012 Total Traffic	0	1,168	0	0	1,233	141	0	0	0	0	0	161
Hallandale Beach Boulevard at South Ocean Drive	Collected Count (02/25/08)	658	96	840	20	63	45	34	726	8	73	693	647
	Peak-Season Conversion Factor (PSCF)[1]	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
	2008 Peak-Season Count	638	93	824	19	61	44	33	704	8	71	672	628
	CGR	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	2009 Peak-Season Count	644	94	832	19	61	44	33	711	8	72	679	634
	Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Committed Development Trips	88	0	173	0	0	0	193	44	0	0	43	108
	2012 Background Traffic	732	97	1,032	20	61	45	244	777	8	74	743	1,057
	Project IN/OUT Movement	OUT		OUT				IN					IN
	Project Distribution	15.00%		10.00%				10.00%					15.00%
	2012 Project Trips	5	0	4	0	0	0	4	0	0	0	0	5
	2012 Total Traffic	737	97	1,036	20	61	45	248	777	8	74	743	1,062
Three Islands Boulevard at Driveway Connection (SEA WALK POINTE)	Collected Count (04/13/09)	0	0	0	169	0	92	0	361	175	80	223	0
	Peak-Season Conversion Factor (PSCF)[1]	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
	2009 Peak-Season Count	0	0	0	193	0	97	0	379	184	84	234	0
	CGR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	2009 Peak-Season Count	0	0	0	193	0	97	0	379	184	84	234	0
	Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Committed Development Trips	0	0	0	2	0	0	-2	36	0	0	35	0
	2012 Background Traffic	0	0	0	206	0	109	2	416	190	97	276	0
	Project IN/OUT Movement				OUT		OUT			IN	IN		
	Project Distribution				50.00%		25.00%			55.00%	25.00%		
	2012 Project Trips	0	0	0	18	0	9	0	0	20	9	0	0
	2012 Total Traffic	0	0	0	224	0	109	2	426	210	96	276	0

* other committed trips

* Walmart trips

* other committed trips

* Walmart trips

NOTES:

1. PEAK SEASON CONVERSION FACTOR (PSCF) OBTAINED FROM 2008 FDOT TRANSPORTATION DVD.

[illegible] BALANCED VOLUMES

McMAHON

TABLE K-1
TOTAL(2012) PM PEAK-HOUR, PEAK-SEASON TURNING-MOVEMENT VOLUMES
WALMART EXPANSION TRAFFIC IMPACT STUDY

INTERSECTION		EBLT	EBTH	EBRT	WBLT	WBTH	WBRT	NBLT	NBTH	NBRT	SBLT	SBTH	SBRT
Hallandale Beach Boulevard at Federal Highway	Collected Count (05/19/08)	148	797	169	658	1,062	193	456	1,134	600	211	749	83
	Peak-Season Conversion Factor (PSCF)[1]	1.06	1.06	1.06	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
	2008 Peak-Season Count	157	845	200	737	1,221	222	506	1,255	786	234	831	92
	CGR	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	2009 Peak-Season Count	159	853	202	745	1,233	224	511	1,268	794	236	839	93
	Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Committed Development Trips	0	209	172	83	221	171	236	107	101	151	86	0
	2012 Background Traffic	164	1,058	380	878	1,454	405	762	1,413	893	427	950	96
	Project IN/OUT Movement		IN		OUT	OUT	OUT			IN	IN		
	Project Distribution		10.00%		11.00%	10.00%	15.00%			11.00%	11.00%		
	2012 Project Trips	0	4	0	5	4	5	0	0	5	5	0	0
	2012 Total Traffic	164	1,062	380	878	1,459	410	762	1,413	903	432	950	96
Hallandale Beach Boulevard at NE 8th Avenue	Collected Count (04/14/09)	0	1,029	15	13	1,556	0	2	0	21	23	4	136
	Peak-Season Conversion Factor (PSCF)[1]	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
	2009 Peak-Season Count	0	1,060	16	14	1,631	0	2	0	22	79	4	143
	CGR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	2009 Peak-Season Count	0	1,060	16	14	1,631	0	2	0	22	79	4	143
	Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Committed Development Trips	0	257	184	84	256	0	232	7	0	0	7	7
	2012 Background Traffic	0	2,160	200	98	3,993	0	234	7	23	81	11	154
	Project IN/OUT Movement		IN			OUT					IN		
	Project Distribution		36.00%			39.00%					4.00%		
	2012 Project Trips	0	14	0	0	14	0	0	0	0	1	0	0
	2012 Total Traffic	0	2,174	200	98	1,954	0	234	7	23	82	11	154
Hallandale Beach Boulevard at NE 10th Avenue	Collected Count (04/14/09)	53	1,351	39	33	1,500	67	19	9	60	0	0	0
	Peak-Season Conversion Factor (PSCF)[1]	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
	2009 Peak-Season Count	56	1,419	41	33	1,575	70	20	9	63	0	0	0
	CGR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	2009 Peak-Season Count	56	1,419	41	33	1,575	70	20	9	63	0	0	0
	Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Committed Development Trips	0	243	67	50	240	0	86	7	140	0	0	0
	2012 Background Traffic	53	1,705	109	86	1,863	72	107	16	203	0	0	0
	Project IN/OUT Movement		IN			OUT	OUT						
	Project Distribution		60.00%			39.00%	3.00%						
	2012 Project Trips	0	15	0	0	14	1	0	0	0	0	0	0
	2012 Total Traffic	58	1,720	109	86	1,877	73	107	16	203	0	0	0
Hallandale Beach Boulevard at NE 14th Avenue	Collected Count (09/23/09)	187	1,253	296	47	1,216	77	222	109	71	61	95	106
	Peak-Season Conversion Factor (PSCF)[1]	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
	2009 Peak-Season Count	243	1,629	385	61	1,581	100	289	142	92	79	124	138
	CGR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	2009 Peak-Season Count	243	1,629	385	61	1,581	100	289	142	92	79	124	138
	Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Committed Development Trips	23	360	0	0	231	10	0	0	0	14	0	19
	2012 Background Traffic	273	2,033	397	63	1,860	113	298	146	95	95	128	157
	Project IN/OUT Movement		IN			OUT	OUT				IN		
	Project Distribution		40.00%			42.00%	5.00%				6.00%		
	2012 Project Trips	0	15	0	0	15	2	0	0	0	2	0	0
	2012 Total Traffic	273	2,053	397	63	1,875	115	298	146	95	97	128	157
Hallandale Beach Boulevard at Diplomat Parkway	Collected Count (03/23/10)	79	1,333	8	2	1,133	39	16	18	19	41	3	47
	Peak-Season Conversion Factor (PSCF)[1]	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
	2010 Peak-Season Count	80	1,347	8	2	1,144	39	16	18	19	41	3	47
	CGR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	2010 Peak-Season Count	80	1,347	8	2	1,144	39	16	18	19	41	3	47
	Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Committed Development Trips	83	275	2	0	171	7	0	0	0	9	0	65
	2012 Background Traffic	167	1,700	10	2	1,338	47	16	18	19	51	3	113
	Project IN/OUT Movement		IN			OUT	OUT				IN		
	Project Distribution		46.00%			47.00%	3.00%				4.00%		
	2012 Project Trips	0	17	0	0	17	1	0	0	0	1	0	0
	2012 Total Traffic	167	1,717	10	2	1,355	48	16	18	19	52	3	113

* "other" committed trips

* Walmart trips

APPENDIX G

BACKGROUND INTERSECTION CAPACITY ANALYSIS WORKSHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	161	1660	12	2	1405	52	19	20	12	48	0	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99			0.97		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.98		0.95	1.00	
Satd. Flow (prot)	1770	5080		1770	5058			1771		1752	1568	
Flt Permitted	0.95	1.00		0.95	1.00			0.37		0.65	1.00	
Satd. Flow (perm)	1770	5080		1770	5058			664		1192	1568	
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.93	0.75	0.75	0.75	0.95	0.95	0.95
Adj. Flow (vph)	175	1804	13	2	1511	56	25	27	16	51	0	133
RTOR Reduction (vph)	0	0	0	0	2	0	0	8	0	0	124	0
Lane Group Flow (vph)	175	1817	0	2	1565	0	0	60	0	51	9	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Actuated Green, G (s)	19.8	128.8		2.5	111.5			10.7		10.7	10.7	
Effective Green, g (s)	19.8	128.8		2.5	111.5			10.7		10.7	10.7	
Actuated g/C Ratio	0.12	0.81		0.02	0.70			0.07		0.07	0.07	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0		6.0	6.0	
Vehicle Extension (s)	1.5	3.0		1.5	3.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	219	4089		28	3525			44		80	105	
v/s Ratio Prot	c0.10	0.36		0.00	c0.31						0.01	
v/s Ratio Perm								c0.09		0.04		
v/c Ratio	0.80	0.44		0.07	0.44			1.35		0.64	0.08	
Uniform Delay, d1	68.2	4.7		77.6	10.6			74.7		72.8	70.1	
Progression Factor	1.00	1.00		0.72	0.53			1.00		1.00	1.00	
Incremental Delay, d2	17.1	0.4		0.4	0.4			256.7		11.6	0.1	
Delay (s)	85.2	5.1		56.2	6.0			331.4		84.4	70.2	
Level of Service	F	A		E	A			F		F	E	
Approach Delay (s)		12.1			6.1			331.4			74.1	
Approach LOS		B			A			F			E	

Intersection Summary			
HCM Average Control Delay	18.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	503	1287	0	0	1167	254	0	0	0	336	0	293
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0				6.0		6.0
Lane Util. Factor	0.97	0.91			0.91	1.00				0.97		1.00
Frt	1.00	1.00			1.00	0.85				1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (prot)	3433	5085			5085	1583				3433		1583
Flt Permitted	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (perm)	3433	5085			5085	1583				3433		1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.90	0.90	0.90	0.25	0.25	0.25	0.96	0.96	0.96
Adj. Flow (vph)	572	1462	0	0	1297	282	0	0	0	350	0	305
RTOR Reduction (vph)	0	0	0	0	0	91	0	0	0	0	0	247
Lane Group Flow (vph)	572	1462	0	0	1297	191	0	0	0	350	0	58
Turn Type	Prot			Prot		Perm				Prot		Over
Protected Phases	1	6		5	2					4		1
Permitted Phases						2						
Actuated Green, G (s)	30.6	127.3			90.7	90.7				20.7		30.6
Effective Green, g (s)	30.6	127.3			90.7	90.7				20.7		30.6
Actuated g/C Ratio	0.19	0.80			0.57	0.57				0.13		0.19
Clearance Time (s)	6.0	6.0			6.0	6.0				6.0		6.0
Vehicle Extension (s)	1.5	3.0			3.0	3.0				2.0		1.5
Lane Grp Cap (vph)	657	4046			2883	897				444		303
v/s Ratio Prot	c0.17	0.29			c0.26					c0.10		0.04
v/s Ratio Perm						0.12						
v/c Ratio	0.87	0.36			0.45	0.21				0.79		0.19
Uniform Delay, d1	62.8	4.7			20.1	17.1				67.5		54.3
Progression Factor	0.93	0.71			1.00	1.00				1.00		1.00
Incremental Delay, d2	11.1	0.2			0.5	0.5				8.3		0.1
Delay (s)	69.3	3.6			20.7	17.6				75.9		54.4
Level of Service	E	A			C	B				E		D
Approach Delay (s)		22.0			20.1			0.0			65.9	
Approach LOS		C			C			A			E	

Intersection Summary			
HCM Average Control Delay	28.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	240	0	104	3	339	283	112	277	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0		6.0	6.0	5.5	5.5	
Lane Util. Factor				0.95	0.95	1.00		0.91	1.00	1.00	0.91	
Frt				1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95	0.95	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1665	1665	1568		5083	1583	1770	5085	
Flt Permitted				0.95	0.95	1.00		0.94	1.00	0.48	1.00	
Satd. Flow (perm)				1665	1665	1568		4770	1583	887	5085	
Peak-hour factor, PHF	0.25	0.25	0.25	0.88	0.88	0.88	0.96	0.96	0.96	0.84	0.84	0.84
Adj. Flow (vph)	0	0	0	273	0	118	3	353	295	133	330	0
RTOR Reduction (vph)	0	0	0	0	0	102	0	0	124	0	0	0
Lane Group Flow (vph)	0	0	0	136	137	16	0	356	171	133	330	0
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Turn Type	Split			Split		Perm	Perm		Perm	pm+pt		
Protected Phases	4	4		8	8			2		1	6	
Permitted Phases						8	2		2	6		
Actuated Green, G (s)				11.0	11.0	11.0		47.5	47.5	59.6	59.6	
Effective Green, g (s)				11.0	11.0	11.0		47.5	47.5	59.6	59.6	
Actuated g/C Ratio				0.13	0.13	0.13		0.58	0.58	0.73	0.73	
Clearance Time (s)				6.0	6.0	6.0		6.0	6.0	5.5	5.5	
Vehicle Extension (s)				2.0	2.0	2.0		3.0	3.0	1.5	3.0	
Lane Grp Cap (vph)				223	223	210		2760	916	710	3691	
v/s Ratio Prot				0.08	c0.08					c0.01	0.06	
v/s Ratio Perm						0.01		0.07	0.11	c0.12		
v/c Ratio				0.61	0.61	0.08		0.13	0.19	0.19	0.09	
Uniform Delay, d1				33.5	33.5	31.1		7.9	8.2	3.5	3.3	
Progression Factor				1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2				3.2	3.5	0.1		0.1	0.4	0.0	0.0	
Delay (s)				36.7	37.1	31.2		8.0	8.6	3.6	3.3	
Level of Service				D	D	C		A	A	A	A	
Approach Delay (s)		0.0			35.2			8.3			3.4	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	13.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	82.1	Sum of lost time (s)	11.5
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX H

TOTAL INTERSECTION CAPACITY ANALYSIS WORKSHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	161	1674	12	2	1418	53	19	20	12	49	0	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99			0.97		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.98		0.95	1.00	
Satd. Flow (prot)	1770	5080		1770	5058			1771		1752	1568	
Flt Permitted	0.95	1.00		0.95	1.00			0.37		0.65	1.00	
Satd. Flow (perm)	1770	5080		1770	5058			673		1193	1568	
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.93	0.75	0.75	0.75	0.95	0.95	0.95
Adj. Flow (vph)	175	1820	13	2	1525	57	25	27	16	52	0	133
RTOR Reduction (vph)	0	0	0	0	2	0	0	8	0	0	124	0
Lane Group Flow (vph)	175	1833	0	2	1580	0	0	60	0	52	9	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Actuated Green, G (s)	19.8	128.7		2.5	111.4			10.8		10.8	10.8	
Effective Green, g (s)	19.8	128.7		2.5	111.4			10.8		10.8	10.8	
Actuated g/C Ratio	0.12	0.80		0.02	0.70			0.07		0.07	0.07	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0		6.0	6.0	
Vehicle Extension (s)	1.5	3.0		1.5	3.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	219	4086		28	3522			45		81	106	
v/s Ratio Prot	c0.10	0.36		0.00	c0.31						0.01	
v/s Ratio Perm								c0.09		0.04		
v/c Ratio	0.80	0.45		0.07	0.45			1.32		0.64	0.08	
Uniform Delay, d1	68.2	4.8		77.6	10.7			74.6		72.7	70.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	17.1	0.4		0.4	0.4			243.9		12.3	0.1	
Delay (s)	85.2	5.1		78.0	11.2			318.5		85.0	70.1	
Level of Service	F	A		E	B			F		F	E	
Approach Delay (s)		12.1			11.2			318.5			74.3	
Approach LOS		B			B			F			E	

Intersection Summary			
HCM Average Control Delay	20.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	503	1274	28	21	1155	254	26	4	22	336	4	293
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	0.97	0.91		1.00	0.91	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.87		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00
Satd. Flow (prot)	3433	5069		1770	5085	1583	1770	1623		1681	1687	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00
Satd. Flow (perm)	3433	5069		1770	5085	1583	1770	1623		1681	1687	1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.90	0.90	0.90	0.92	0.92	0.92	0.96	0.96	0.96
Adj. Flow (vph)	572	1448	32	23	1283	282	28	4	24	350	4	305
RTOR Reduction (vph)	0	1	0	0	0	107	0	23	0	0	0	193
Lane Group Flow (vph)	572	1479	0	23	1283	175	28	5	0	178	176	112
Turn Type	Prot			Prot		Perm	Split			Split		pt+ov
Protected Phases	1	6		5	2		3	3		4	4	4 1
Permitted Phases						2						
Actuated Green, G (s)	31.0	105.2		4.4	78.6	78.6	5.8	5.8		22.6	22.6	59.6
Effective Green, g (s)	31.0	105.2		4.4	78.6	78.6	5.8	5.8		22.6	22.6	59.6
Actuated g/C Ratio	0.19	0.65		0.03	0.49	0.49	0.04	0.04		0.14	0.14	0.37
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	1.5	3.0		1.5	3.0	3.0	0.2	0.2		2.0	2.0	
Lane Grp Cap (vph)	657	3292		48	2467	768	63	58		235	235	582
v/s Ratio Prot	c0.17	0.29		0.01	c0.25		c0.02	0.00		c0.11	0.10	0.07
v/s Ratio Perm						0.11						
v/c Ratio	0.87	0.45		0.48	0.52	0.23	0.44	0.08		0.76	0.75	0.19
Uniform Delay, d1	63.6	14.1		77.7	28.7	24.1	76.5	75.5		67.1	67.0	34.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	11.8	0.4		2.7	0.8	0.7	1.8	0.2		11.7	10.8	0.1
Delay (s)	75.3	14.5		80.4	29.5	24.8	78.3	75.8		78.7	77.8	34.9
Level of Service	E	B		F	C	C	E	E		E	E	C
Approach Delay (s)		31.5			29.4			77.0			58.2	
Approach LOS		C			C			E			E	

Intersection Summary			
HCM Average Control Delay	35.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	162.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	240	0	104	3	343	283	112	281	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0		6.0	6.0	5.5	5.5	
Lane Util. Factor				0.95	0.95	1.00		0.91	1.00	1.00	0.91	
Frt				1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95	0.95	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1665	1665	1568		5083	1583	1770	5085	
Flt Permitted				0.95	0.95	1.00		0.94	1.00	0.47	1.00	
Satd. Flow (perm)				1665	1665	1568		4770	1583	883	5085	
Peak-hour factor, PHF	0.25	0.25	0.25	0.88	0.88	0.88	0.96	0.96	0.96	0.84	0.84	0.84
Adj. Flow (vph)	0	0	0	273	0	118	3	357	295	133	335	0
RTOR Reduction (vph)	0	0	0	0	0	102	0	0	124	0	0	0
Lane Group Flow (vph)	0	0	0	136	137	16	0	360	171	133	335	0
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Turn Type	Split			Split		Perm	Perm		Perm	pm+pt		
Protected Phases	4	4		8	8			2		1	6	
Permitted Phases						8	2		2	6		
Actuated Green, G (s)				11.0	11.0	11.0		47.5	47.5	59.6	59.6	
Effective Green, g (s)				11.0	11.0	11.0		47.5	47.5	59.6	59.6	
Actuated g/C Ratio				0.13	0.13	0.13		0.58	0.58	0.73	0.73	
Clearance Time (s)				6.0	6.0	6.0		6.0	6.0	5.5	5.5	
Vehicle Extension (s)				2.0	2.0	2.0		3.0	3.0	1.5	3.0	
Lane Grp Cap (vph)				223	223	210		2760	916	707	3691	
v/s Ratio Prot				0.08	c0.08					c0.01	0.07	
v/s Ratio Perm						0.01		0.08	0.11	c0.12		
v/c Ratio				0.61	0.61	0.08		0.13	0.19	0.19	0.09	
Uniform Delay, d1				33.5	33.5	31.1		7.9	8.2	3.5	3.3	
Progression Factor				1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2				3.2	3.5	0.1		0.1	0.4	0.0	0.0	
Delay (s)				36.7	37.1	31.2		8.0	8.6	3.6	3.3	
Level of Service				D	D	C		A	A	A	A	
Approach Delay (s)		0.0			35.2			8.3			3.4	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	82.1	Sum of lost time (s)	11.5
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group