Florida International University

Traffic Study Update

For

Modesto A. Maidique, Engineering Center & Biscayne Bay Campuses

Prepared By:

MILLER LEGG

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12-00133

ENGINEER'S CERTIFICATION

I, Mohan Gopalakrishna, P.E. # 60720, certify that I currently hold an active Professional Engineers License in the State of Florida and am competent through education and experience to provide engineering services in the civil and traffic engineering disciplines contained in this plan, print, specification or report. I further certify that this traffic analysis study was prepared by me or under my responsible charge as defined in Chapter 61G15-18.001 F.A.C. and that all statements, conclusions and recommendations made herein are true and correct to the best of my knowledge and ability.

Traffic Study Update for Modesto A. Maidique, Engineering Center & Biscayne Bay Campuses

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1.0 Introduction, Background and Purpose

Florida International University (FIU) retained Miller Legg to perform a traffic study update for the Comprehensive Master Plan Amendment for the three FIU Campuses in Miami, Florida; namely, Modesto A Maidique (MMC), Engineering Center (ECC) and Biscayne Bay (BBC). This update is a follow up to the "Existing Traffic Analysis" conducted by Miller Legg (dated February 11, 2013). The purpose of this update is to include analysis and conceptual recommendations to address capacity issues identified with respect to potential traffic impacts encountered from the year 2020 campus growth. The traffic impacts include segments and intersections which are deficient, with an unacceptable Level of Service (LOS) "F". The scope of this study does not include providing any engineering support services to determine the feasibility and constructability of these recommendations.

Modesto A. Maidique Campus (MMC)

The MMC is the main campus located (see Figure 1, Appendix A) just east of the Florida's Turnpike in University Park in Miami-Dade County, abutting SW 8th Street between SW 107th and 117th Avenues. The campus has access points along SW 117th Avenue, SW 8th Street, and SW 107th Avenue.

Collector Roads: The entrance roads and campus roads (SW 10th Street/University Drive), SW 11th Street (Victoria Drive), SW 115th Avenue, SW 17th Street and SW 14th Street, function as collectors on this campus. These campus roads serve to collect traffic and segregate it from the campus core, yet provide vehicular linkage to key parking, education, athletic, housing and support facilities.

Local Roads: All other roads on campus function as local Streets; these Streets are: SW 11th Street (west of SW 115th Avenue) on the western part of campus; SW 113th Avenue, just east of the nature preserve, SW 14th Street which runs east/west on the north side of University Towers; and the SW 12th Street entry to University Apartments at SW 107th Avenue.

The roadways in the planning study area are classified as follows: Tamiami Trail (SW 8th Street) is a state principal arterial. The Homestead Extension of Florida's Turnpike (HEFT) is a limited-access tolled expressway.

The following roadways are minor arterials:

- SW 24th Street (Coral Way)
- SW 107th Avenue (SR 985)
- SW 117th Avenue
- W Flagler Street (SR 968)

The following roadways are collectors:

- SW 16th Street
- SW 97th Avenue
- SW 102nd Avenue

- SW 122nd Avenue
- SW 127th Avenue

Engineering Center Campus (ECC)

The ECC is a smaller campus than MMC, abutting W Flagler Street between NW 107th Avenue and SW 105th Place (see Figure 2, Appendix A). This campus is accessible from NW 107th Avenue and W Flagler Street.

Collector Roads: The campus entrance roads to NW 107th Avenue and W. Flagler Street function as collectors.

Local Roads: All other roads providing access to the campus parking lots and engineering center building function as local Streets.

The roadways in the planning study area are classified as follows: Tamiami Trail (SW 8th Street) is a state principal arterial. The Homestead Extension of Florida's Turnpike (HEFT) is a limited-access tolled expressway.

The following roadways are minor arterials:
- NW/SW 107th Avenue (SR 985)
- W Flagler Street (SR 968)

The following roadways are collectors:
- NW 7th Street/Fontainebleau Blvd
- NW/SW 97th Avenue
- NW/SW 102nd Avenue
- NW/SW 122nd Avenue
- NW/SW 127th Avenue

Biscayne Bay Campus (BBC)

The BBC is located (see Figure 3, Appendix A) on the shores of Biscayne Bay; the campus has access to the intra-coastal waterway and is surrounded by Oleta River State Park and a natural preserve. It is located in the southeast quadrant of US 1 (Biscayne Boulevard) and NE 151st Street and is restricted by a single point of access from NE 151st Street/Bay Vista Boulevard.

Collector Roads: Bay Vista Boulevard is the main collector road which leads into the Biscayne Bay Campus. Bay Vista Boulevard intersects with NE 151st Street, and becomes NE 151st Street east of US 1 (Biscayne Boulevard).

Local Roads: All other roads providing access to the campus parking lots and facilities function as local Streets.

In the Biscayne Bay Campus planning study area, US 1 (Biscayne Boulevard) and NE 163rd Street (SR 826) are classified as principal arterials. W Dixie Highway (SR 909) is classified as a minor arterial, while the following are classified as collectors: NE 159th Street, NE 151st Street, and Bay Vista Boulevard.

The Campus Master Plan (Inventory and Analysis, dated December 18, 2012) is currently being updated and contains projected University enrollment by Campus for undergraduate and graduate programs for 2020. These projections would most likely result in traffic capacity improvements on roadways and intersections, and expansion of academic facilities and student housing.

2.0 Traffic Impact Assessment of the Roadway Capacity on Campus and in the Planning Study Area for the Campus Master Plan Base Year and Projected Year 2020

Future Conditions for Enrollment, Building Program and Parking Facilities (for details refer to 2020 Campus Master Plan Update for the following campuses)

- Modesto A. Maidique Campus (MMC)
- Engineering Center (ECC)
- Biscayne Bay Campus (BBC)

3.0 Traffic Analysis Methodology

For all campuses, the analysis area includes the existing on campus and off campus roadway segments and intersections, which provide access.

3.1 ***Traffic Data Collection*** used turning movement counts (TMCs) for existing year 2012 (PM Peak hour traffic) at the on and off campus intersections and determination of roadway segment directional peak hour traffic volumes.

3.2 ***Capacity Analysis for Existing 2012 Traffic Data*** (using Highway Capacity Software (HCS) 2010) to determine the existing 2012 level of service (LOS) for both roadway segments and intersections. This is required to determine if there are any capacity issues related to congestion and delay. LOS “A” through “D” is acceptable. LOS “E” is at capacity or constrained conditions. LOS “F” is failure, wherein the traffic demand exceeds the capacity.

3.3 ***Trip Generation*** analysis was done for the year 2020, using the ITE (Institute of Transportation Engineers) Trip Generation Manual (8th Edition). The proposed peak hour (PM) trip ends is obtained based on the projected student headcount (land use code 550, page 1033) and the faculty/staff (employees) headcount (land use code 550, page 1039). Trip generation is based on equations or rates and the equations specified on these pages were utilized to compute the PM peak hour trips between 4:00 and 6:00 PM to match the adjacent street traffic peak hour.

3.4 ***Trip Distribution*** was accomplished using the cardinal directional distribution method, which is currently used in Miami-Dade County. Distribution percentages of each Traffic Analysis Zone (TAZ) pertaining

to the three (3) campuses were obtained from Miami Dade County, MPO. These percentages were applied to the year 2020 peak hour (PM) trip ends prior to their distribution (***Traffic Assignment***) along the roadway network.

3.5 ***Traffic Assignment and Capacity Analysis – Year 2020*** (without any capacity improvements in problem areas): Highway Capacity Software (HCS) 2010) is used to determine the year 2020 level of service (LOS) for both roadway segments and intersections. The projected peak hour (PM) traffic is added to the existing 2012 traffic data for this analysis. This is required to determine if there are any capacity issues related to congestion and delay. LOS "A" through "D" is acceptable. LOS "E" is at capacity or constrained conditions. LOS "F" is failure.

3.6 ***Recommendations*** to mitigate the traffic impacts on the existing roadways and intersections for plan year 2020.

3.1 *Traffic Data Collection*

Modesto A. Maidique Campus (MMC)

PM peak period turning movement counts (TMCs) were collected at the following University access locations (see Figure 4, Appendix A):

- SW 107th Avenue and SW 12th Street
- SW 107th Avenue and SW 16th Street
- SW 107th Avenue and SW 1700 Block (SW 108th Avenue)
- SW 109th Avenue and SW 8th Street
- SW 109th Avenue and University Drive
- SW 112th Avenue and SW 8th Street
- SW 117th Avenue and SW 17th Street
- SW 115th Avenue and SW 17th Street
- University Drive and SW 16th Street

The TMCs were collected in September/October 2012 between Tuesday and Thursday during the PM peak periods from 4:00 PM to 6:00 PM.

For the following internal locations, we obtained TMC's from Metric Engineering dated October 2012:

- University Drive at SW 109 Avenue

We obtained 24 Hour Bi-Directional Volume Counts from FIU dated June 2012 at the following entrances to MMC:

- SW 109 Avenue south of SW 8 Street
- SW 112 Avenue south of SW 8 Street
- SW 16 Street west of SW 107 Avenue

We obtained 24 Hour Bi-Directional Volume Counts from Stantec-C3TS dated January 2013 at the following locations:

- SW 117 Avenue south of SW 8 Street
- SW 17 Street east of SW 117 Avenue
- SW 117 Avenue north of SW 17 Street
- SW 17 Street east of SW 115 Avenue
- SW 11 Street east of SW 115 Avenue

The data collected is included in the Appendix B. In addition, segmental 2011 peak volumes collected from the FDOT count stations are indicated on Figure 4 and shown on Table 13A.

Engineering Center Campus (ECC)

PM peak period TMC's were collected at the following intersections (see Figure 5, Appendix A:

- NW 107th Avenue and Engineering Center Entrance (West Entrance)
- W Flagler Street and SW 105th Place (South Entrance)

The TMCs was collected in September/October 2012 between Tuesday and Thursday during the PM peak periods from 4:00 PM to 6:00 PM. The data collected is included in the Appendix B. In addition, segmental 2011 peak volumes collected from the FDOT count stations are indicated on Figure 5 and shown on Table 13A.

Biscayne Bay Campus (BBC)

PM peak period TMCs was collected at the following intersections (see Figure 6, Appendix A:

- US 1 (Biscayne Blvd)/NE 151 Street,
- Bay Vista Blvd (NE 151 Street) and FIU entrance (NE 145th Street).

The TMCs was collected in September 2012 between Tuesday and Thursday during the PM peak periods from 4:00 PM to 6:00 PM. The data collected is included in Appendix B. In addition, at the US 1/NE 151 Street intersection, we obtained TMC's conducted by Atkins (as a part of their Biscayne Landings Study) in December 2012 for PM peak hour. Cross check with Miller Legg data shows that the traffic data numbers are similar. Hence, for analysis purposes we used Miller Legg data at this location.

In addition, segmental 2011 peak volumes collected from the FDOT count stations are indicated on Figure 6 and shown on Table 16A.

3.2 *Capacity Analysis for Existing 2012 Traffic Data*

A capacity analysis was conducted using the 2010 Highway Capacity Software (HCS) software for all the roadway segments and intersections. For this purpose the existing 2012 PM peak hour traffic data was used with existing lane configuration. FIU experiences the highest volume of traffic during the PM peak period as many part-time students and University staff commute to/from campus. The level of service (LOS) results obtained is indicative of the operation and capacity issues. LOS "A" through "D" is acceptable. LOS "E" is at capacity or constrained conditions. LOS "F" is failure.

Modesto A. Maidique Campus (MMC)

The study area includes roadways and intersections adjacent to the campus. FDOT Quality/LOS Handbook Tables was used to analyze the LOS on each of the study area roadway segments. The existing 2012 PM peak hour LOS for the roadways on campus and within the study area is shown in Table 1. All the roadway segments currently operate above the adopted LOS "D", except the segments along SW 8 Street approaching the SW 112 Avenue intersection, which operates at LOS "F".

Capacity analyses for critical intersections around the campus were performed using HCS. The intersection LOS for the 2012 PM peak hour is shown in Table 2. All intersections, with the exception of a few, currently satisfy the minimum adopted LOS threshold. The intersections of SW 109th Avenue/SW 8th Street and SW 107th Avenue/SW 16th Street operate at a LOS E (capacity). At SW 109th Avenue/SW 8th Street, the critical movements (LOS "F") are eastbound right, westbound approach and northbound left. Field observations show that there are substantial backups from storage lanes blocking the through movement. At SW 107th Avenue/SW 16th Street, the critical movements (LOS "F") are the eastbound and westbound lefts. Field observations show that the demand exceeds the capacity. With future growth and anticipated traffic increase, the operation of these intersections could potentially worsen. These locations need to be evaluated for future traffic impacts and capacity improvements.

Table 1 Existing Roadway Segment Level of Service (LOS) Analysis 2012 PM Peak Hour – Modesto A. Maidique Campus

Location	Direction	Lanes (1)	Traffic Volumes (2)	FDOT LOS "D" Threshold Veh/hour (Class) (3)	Two way Traffic Veh/hour (LOS) (4)
SW 117th Avenue, S/O SW 17th Street	NB	1	540	1,600 (I)	1,417 (C)
	SB	1	877		
SW 17th Street, E/O SW 117th Avenue	EB	1	217	1,600 (I)	860 (B)
	WB	1	643		
SW 117th Avenue ,N/O SW 17th Street	NB	1	595	1,600 (I)	1,101 (C)
	SB	1	506		
SW 8th Street (SR 90), W/O SW 109th Avenue	EB	3	2163	4,880 (II)	4,496 (D) (5)
	WB	3	2333		
SW 109th Avenue, S/O SW 8th Street	NB	2	726	3,220 (II)	1,261 (C) (5)
	SB	2	535		
SW 8th Street (SR 90), E/O SW 109th Avenue	EB	3	2240	4,880 (II)	4,278 (D) (5)
	WB	3	2038		
SW 109th Avenue, N/O SW 8th Street	NB	1	442	1,480 (II)	1,065 (D)
	SB	1	623		
SW 8th Street (SR 90), W/O SW 112th Avenue	EB	3	2520	4,880 (II)	5,487 (F)
	WB	3	2967		
SW 112th Avenue, S/O SW 8th Street	NB	2	678	3,220 (II)	1,395 (C)
	SB	2	717		
SW 8th Street (SR 90), E/O SW 112th Avenue	EB	3	2353	4,880 (II)	5,192 (F)
	WB	3	2839		
SW 107th Avenue (SR 985), N/O SW 12th Street	NB	3	2170	4,880 (II)	4,237 (D)
	SB	3	2067		
SW 12th Street, W/O SW 107th Avenue	EB	1	745	1,480 (II)	1,287 (D)
	WB	1	542		
SW 12th Street, E/O SW 107th Avenue	EB	1	227	1,480 (II)	227 (A)
	WB	1	0		
SW 107th Avenue (SR 985), S/O SW 12th Street	NB	3	2215	4,880 (II)	4,156 (D)
	SB	3	1941		
SW 16th Street, W/O SW 107th Avenue	EB	2	820	3,220 (II)	1,499 (C)
	WB	2	679		
SW 16th Street, E/O SW 107th Avenue	EB	2	531	3,220 (II)	1,329 (C)
	WB	2	798		
SW 107th Ave (SR 985) N/O SW 16th Street	NB	3	1465	4,880 (II)	3,036 (C)
	SB	3	1571		
SW 107th Ave (SR 985) S/O SW 16th Street	NB	3	1258	4,880 (II)	3,030 (C)
	SB	3	1772		
SW 108TH Ave, W/O SW 107th Avenue	EB	2	97	3,220 (II)	213 (A)
	WB	2	116		
SW 107th Ave (SR 985) S/O SW 108TH Ave	NB	3	1613	4,880 (II)	3,482 (C)
	SB	3	1869		
SW 107th Ave (SR 985) N/O SW 108TH Ave	NB	3	1525	4,880 (II)	3,325 (C)
	SB	3	1800		

(1) Denotes number of through lanes by direction.
(2) Traffic volumes are based on 2012 PM peak turning movement counts.
(3) LOS thresholds based on 2012 FDOT Quality/LOS Handbook Tables, Table 4: Generalized Peak Hour Two-Way Volumes for Florida's Urbanized Areas.
(4) LOS based on 2012 FDOT Quality/LOS Handbook Tables, Table 4: Generalized Peak Hour Two-Way Volumes for Florida's Urbanized Areas.
(5) Even though the segment shows acceptable LOS, the northbound, westbound and eastbound approaches of SW 8th Street and SW 109th Avenue operate at poor levels (LOS "E" & "F").

Table 2 Existing Intersection Level of Service (LOS) Year 2012 PM Peak Hour - Modesto A. Maidique Campus

SIGNALIZED INTERSECTIONS		
	DELAY & LOS (1)	
Location	**Intersection Delay (secs/veh)**	**LOS**
SW 107th Ave and SW 12th St	29.3	C
SW 107th Ave and SW 16th St	65.8	E
SW 107th Ave and SW 8th St (2)	-	-
SW 107th Ave and SW 1700 Block (SW 108th Ave)	9.7	A
SW 109th Ave and SW 8th St	76.1	E (4)
SW 112th Ave and SW 8th St	31.2	C
SW 117th Ave and SW 17th St	32.9	C
University Dr & SW 109th Ave (on campus)	6.1	A
UNSIGNALIZED INTERSECTIONS		
SW 112th Ave & University Dr (2 way stop control) (on campus) (3)	(EB approach delay=228.1) (WB approach delay = 16)	F C
SW 115 Ave and SW 17th St	(EB approach delay=24.6) (WB approach delay = 19.9)	C C
University Dr and SW 16th St (Roundabout)	9.9	A

(1) From HCS 2010 analysis, see Appendix C.
(2) Intersection is not analyzed. FDOT project is proposing design improvements along SW 107th Avenue from SW 8 Street to Flagler Street.
(3) Stop control on SW 112th Avenue.
(4) Critical movements at LOS "F" are westbound approach, eastbound right and northbound left.

Engineering Center Campus (ECC)

The study area includes access roadways and intersections adjacent to the campus. FDOT Quality/LOS Handbook Tables was used to analyze the LOS on each of the roadway segments within the study area. All of the roadway segments currently operate at or above adopted levels of service, as shown in Table 3.

HCS was used to analyze the intersection LOS. Table 4 summarizes the existing LOS for study area intersections. Analysis results indicate that all study intersections operate at or above adopted levels of service.

Table 3 Existing Roadway Segment Level of Service Analysis PM Peak Hour Engineering Center Campus – Year 2012

Location	Direction	Lanes (1)	Traffic Volumes (2)	FDOT LOS "D" Threshold Veh/hour (Class) (3)	Two way Traffic Veh/hour (LOS) (4)
NW 107th Ave (SR 985) S/O ECC Entrance	NB	3	1281	3,220 (II)	2,827 (D)
	SB	2	1546		
NW 107th Ave (SR 985) N/O ECC Entrance	NB	3	1284	4,880 (II)	2,890 (C)
	SB	3	1606		
W Flagler St (SR 968) E/O ECC Entrance/SW 105 Pl.	EB	3	1051	4,880 (II)	2,254 (C)
	WB	3	1203		
W Flagler St (SR 968) W/O ECC Entrance/SW 105 Pl.	EB	3	1010	4,880 (II)	2,233 (C)
	WB	3	1223		

(1) Denotes number of through lanes by direction.
(2) Traffic volumes are based on 2012 PM peak turning movement counts.
(3) LOS thresholds based on 2012 FDOT Quality/LOS Handbook Tables, Table 4: Generalized Peak Hour Two-Way Volumes for Florida's Urbanized Areas.
(4) LOS based on 2012 FDOT Quality/LOS Handbook Tables, Table 4: Generalized Peak Hour Two-Way Volumes for Florida's Urbanized Areas.

Table 4 Existing Intersection Level of Service (LOS) Analysis 2012 PM Peak Hour – Engineering Center Campus

SIGNALIZED INTERSECTION			
LOCATION		DELAY & LOS	
		Intersection Delay (secs/veh)	LOS
SW 105th Pl and W Flagler St (SR 968)		33.8	C
UNSIGNALIZED INTERSECTION			
		Approach Delay (secs/veh)	LOS
NW 107th St and ECC Entrance	WBR only (Stop Control)	16.4	C
	SBL	14.4	B
	NBL	12.0	B
	EBR only (Stop Control)	12.5	B

Source: From HCS 2010 analysis, Appendix C.

Biscayne Bay Campus (BBC)

The study area includes access roadways and intersections adjacent to the campus. FDOT Quality/LOS Handbook Tables was used to analyze the LOS on each of the roadway segments within the study area. All the roadway segments currently operate above the adopted LOS "D" as presented in Table 5.

Table 5 Existing Roadway Segment Level of Service (LOS) Analysis 2012 PM Peak Hour – Biscayne Bay Campus

Location	Direction	Lanes (1)	Traffic Volumes (2)	FDOT LOS "D" Threshold Veh/hour (Class) (3)	Two way Traffic Veh/hour (LOS) (4)
Bay Vista Blvd, (NE 151st St) N/O Campus Entrance (NE 145th St)	NB	2	311	3,560 (I)	567 (B)
	SB	2	256		
Campus Entrance (NE 145th St) E/O Bay Vista Blvd (NE 151st Street)	EB	1	210	1,600 (I)	394 (B)
	WB	1	184		
NE 151st St E/O Biscayne Blvd	EB	2	580	3,560 (I)	1,362 (B) (5)
	WB	2	782		

(1) Denotes number of through lanes by direction.
(2) Traffic volumes are based on 2012 PM peak turning movement counts.
(3) LOS thresholds based on 2012 FDOT Quality/LOS Handbook Tables, Table 4: Generalized Peak Hour Two-Way Volumes for Florida's Urbanized Areas.
(4) LOS based on 2012 FDOT Quality/LOS Handbook Tables, Table 4: Generalized Peak Hour Two-Way Volumes for Florida's Urbanized Areas.
(5) Even though the segment shows acceptable LOS, NE 151 St. @ Biscayne Blvd. is operating at poor LOS "F".

HCS was also used to analyze the intersection LOS. Table 6 summarizes the existing level of service for study area intersections. Analysis results indicate that the intersection of US 1/Biscayne Boulevard and NE 151st Street is currently operating at LOS F. With future growth and anticipated traffic increase, the conditions will likely worsen, if no capacity improvements occur. This location needs to be further evaluated for capacity improvements.

Table 6 Existing Intersection Level of Service (LOS) 2012 PM Peak Hour – Biscayne Bay Campus

SIGNALIZED INTERSECTIONS		
	DELAY & LOS	
LOCATION	**Intersection Delay (secs/veh)**	**LOS**
US 1 (Biscayne Blvd) and NE 151st St	159.5	F
UNSIGNALIZED INTERSECTION		
Bay Vista Blvd (NE 151st St) and Campus Entrance (NE 145th Street)	Approach Delay (secs/veh)	LOS
WB Approach (L+R)	8.42	A
NB Approach (2 lane)	8.41	A
SB Approach (1 LT+2 Through)	10.38	B

Source: From HCS 2010 analysis, see Appendix C.

3.3 *Trip Generation*

For the year 2020, the ITE (Institute of Transportation Engineers) Trip Generation Manual (8th Edition) was utilized for student headcount (land use code 550, page 1033) and for faculty/staff (employees) headcount (land use code 550, page 1039) trip generation. Trip generation is based on equations or rates and the equations specified on these pages were utilized to compute the PM peak hour trips between 4:00 and 6:00 PM to match the adjacent street traffic peak hour. Tables 7 and 8 summarize the estimated total PM peak hour trips of the student, faculty/staff (employee) and other future traffic generators.

Table 7 Fall 2020 PM Peak Hour Trips by FIU Campuses

University Campus	Fall 2020 Student Headcount (1)	Fall 2020 Faculty/Staff (employees) Headcount (2)	Student+ Faculty/Staff Trips (Veh/hr) 2020 PM Peak Hour (3)	Other future Trips (Veh/hr) 2020 PM Peak Hour (4)	Total 2020 PM Peak Hour Trips (Veh/hr) (5)
Modesto A. Maidique (MMC)	37,719	6,690	9,493	1,204	10,697
Engineering Center (ECC)	2,918	97	705	-	705
Biscayne Bay Campus (BBC)	9,055	397	1,970	751	2,721

(1) From FIU enrollment matrix
(2) Not provided by FIU, Projections calculated based on faculty/staff to student ratio for 2012, and percentage of total faculty/staff (employees) in 2012 which is FTE.
(3) 2020 PM Peak hour trips = trip generation based on student headcount (1) + trip generation based on faculty/staff (employees) headcount (2).
(4) Future Generators Trip totals from last column of Table 8 for MMC and BBC. No new trips for ECC.
(5) Total 2020 PM Peak Hour Trips = (3)+(4)

Table 8 Fall 2020 PM Peak Hour Trips by FIU Campuses for Other Future Traffic Generators

University Campus	Land Use (ITE Code) (1)	Units	2020 PM Peak Hour Trips (Veh/hr) (3)
Modesto A. Maidique (MMC)	Hotel (310)	150 Rooms	89
Modesto A. Maidique (MMC)	Hotel (310)	50 Employees	65
Modesto A. Maidique (MMC)	Ambulatory care Clinic (630)	14,100 SF	40
Modesto A. Maidique (MMC)	Medical Office Building - MAP-1 (720)	91,200 SF	260
Modesto A. Maidique (MMC)	Medical Office Building - MAP-2 (720)	105,000 SF	295
Modesto A. Maidique (MMC)	Medical Office Building - MAP-3 (720)	142,400 SF	385
Modesto A. Maidique (MMC)	Medical Office Building - MAP-4 (720)	15,700 SF	55
Total MMC trips			**1,204**
Biscayne Bay Campus (BBC)	Magnet High School (530)	1200 students 60 Staff 30 visitors (2) (1.55 trips/visitor – assumed same rate as staff)	156 93 47
Biscayne Bay Campus (BBC)	Royal Caribbean Training Center (assume trips during peak hour) (710)	50 employees 25 visitors (2) (assume same rate as General Office, 0.5 trip/employee)	38
Biscayne Bay Campus (BBC)	Miami Science & Wildlife Museum (assume trips during peak hour)	based on anticipated Museum closing time at 5 PM. Assume 5 buses during PM peak hour (assume 1 trip/bus), 8 visitors (assume 1 trip/visitor)	13
Biscayne Bay Campus (BBC)	Academic Health Center (630)	143,000 SF	405
Total BBC trips			**751**

(1) Source: ITE Trip Generation, 8th Edition
(2) No ITE trip generation rates provided and hence assumptions were necessary.
(3) 2020 PM Peak hour trips = trip generation based on units shown in Column 3.

Table 9 Future Traffic Generators (Biscayne Landing) Impacting NE 151 Street – Sole BBC Access – 2020 AM & PM Peak

Proposed Land Use	Land Use (ITE Code) (1)	Units (2)	2020 AM (PM) Peak Hour Trips (Veh/hr) (1)	Traffic Impact on NE 151 Street 2020 AM (PM) Peak Hour Trips (Veh/hr) (3)
Shopping Center	820	1,270,280 SF	690 (3,493)	248 (1,257)
Residential/Condominium/Townhouse	230	3,200 Units	826 (1,031)	297 (371)
Hotel	310	200 Rooms	97 (118)	35 (42)
Total Net New Trips (Veh/hr)			**1,613 (4,642)**	**581 (1,671)**

(1) Source: ITE Trip Generation, 8th Edition
(2) Source: "Traffic Due Diligence Assessment Update" Biscayne Landing Development (dated December 14, 2012), North Miami, Florida
(3) 36% contribution (per (2)) to NE 151 Street traffic

3.4 *Trip Distribution*

Modesto A. Maidique (MMC) and Engineering Center Campuses (ECC)

The Modesto A. Maidique Campus is located within the Miami-Dade County Metropolitan Planning Organization (MPO) Traffic Analysis Zone (TAZ) 983 while Engineering Center is located within TAZ 814. Trip distribution was accomplished using the cardinal directional distribution method, which is currently used in Miami-Dade County. Distribution percentages of each TAZ were obtained from the MPO. Tables 10 and 11 show the distribution percentage and trip distribution corresponding to the cardinal direction for the TAZs in which the Modesto A. Maidique campus and the Engineering Center are located.

Table 10 Trip Distribution by Cardinal Direction – Modesto A. Maidique Campus

Cardinal Direction	Percent of Trip Distribution for TAZ 983 (1)	Trip Distribution (Year 2020) (Veh/hr)
NNE	11.2	1,198
ENE	16.91	1,810
ESE	9.12	976
SSE	13.88	1,485
SSW	23.2	2,482
WSW	14.94	1,598
WNW	4.85	519
NNW	5.89	630
TOTAL	100	10,697 (2)

(1) Percent trip distribution for TAZ from Miami-Dade County MPO.
(2) Trip generation computed in Table 7.

Table 11 Trip Distribution by Cardinal Direction – Engineering Center Campus

Cardinal Direction	Percent of Trip Distribution for TAZ 814 (1)	Trip Distribution (Year 2020) (Veh/hr)
NNE	14.49	102
ENE	18.5	130
ESE	14.62	103
SSE	11.97	84
SSW	20.46	144
WSW	10.98	77
WNW	3.90	27
NNW	5.08	36
TOTAL	100	705 (2)

(3) Percent trip distribution for TAZ from Miami-Dade County MPO.
(4) Trip generation computed in Table 7.

Biscayne Bay Campus (BBC)

The BBC is located within the Miami-Dade County Metropolitan Planning Organization (MPO) Traffic Analysis Zone (TAZ) 190. Trip distribution was accomplished using the cardinal directional distribution method. Distribution percentages of TAZ 190 were obtained from the MPO. Table 12 summarizes the distribution percentages and trip distribution corresponding to the cardinal directions of TAZ 190. When the distribution was made, it was presumed that there is only one access point to the campus via NE 151st Street from its intersection with Biscayne Boulevard. Given that the intersection is over capacity and operating at a LOS “F”, a second entry point needs to be considered to reduce future impacts. Evaluation of the distribution percentages and trip distribution will be conducted after obtaining further direction from FIU regarding the second access point.

Table 12 Trip Distribution by Cardinal Direction – Biscayne Bay Campus

Cardinal Direction	Percent of Trip Distribution for TAZ 190 (1)	Trip Distribution (Year 2020) (Veh/hr)
NNE	10.51	286
ENE	0.15	4
ESE	0.01	0
SSE	4.13	112
SSW	11.31	308
WSW	26.71	727
WNW	23.44	638
NNW	23.73	646
TOTAL	100	2,721 (2)

(1) Percent trip distribution for TAZ from Miami-Dade County MPO.
(2) Trip generation computed in Table 7.

3.5 *Traffic Assignment and Capacity Analysis – Year 2020 – MMC & ECC*

The traffic assignment has been documented to establish the project traffic contribution on roadways within one mile of both the MMC and ECC using the concurrency data kept by the Miami-Dade County Public Works Department and FDOT. The resulting two-way assignment of project traffic along with the percentage of project traffic contribution for each traffic count station is shown in Table 13A. A LOS analysis was conducted for each of the roadway segments listed, with the existing lane configuration. Several segments will fail to operate within the adopted LOS threshold. In order to improve the operation and LOS, improvements are necessary as listed in Table 13B. Also a LOS analysis was conducted for the critical intersections, with the existing lane configuration (no improvements) and the results are shown in Table 14A. Intersections that provide access to MMC (SW 107th Avenue & SW 16th Street, SW 107th Avenue & SW 12th Street, SW 109th Avenue & SW 8th Street, SW 112th Avenue & SW 8th Street, SW 112th Avenue & University Drive) will operate at poor LOS “F”, with the demand exceeding the existing capacity. In order to improve the operation and future LOS at these locations, capacity improvements are necessary. Our conceptual analysis shows that it is feasible to improve the operation and LOS with new geometrical improvements, which are illustrated in Tables 14B and 15.

Table 13A Traffic Impact Assessment – Two Way PM Peak Analysis for Roadway Segments – Modesto A. Maidique and Engineering Center Campus – Year 2020 – with No Capacity Improvements

Rdwy	Limits	Station No.	Lanes	FDOT LOS "D" Threshold Veh/hour (Class)	Roadway LOS Standard (2)	2020 PM peak hour two-way traffic (3)	Two-Way Project Traffic (4)	Project Traffic Contribution (5)	2011 Background Traffic (Two Way) (6)
SW 127 Ave (1)	SW 7 St to NW 6 St	9770	4	3,220 (II)	C	1,754	125	1.1%	1,628
SW 127 Ave (1)	SW 8 St to SW 26 St	9772	4	3,220 (II)	C	2,389	34	0.3%	2,355
SW 122 Ave	SW 8 St to SW 26 St	877046	4	3,220 (II)	C	2,410	160	1.4%	2,250
HEFT	300' N of SW 8 St	2250	10	16,930 Freeway	C	12,717	137	1.2%	12,580
HEFT	1000' N of Bird Rd	2270	6	10,150 Freeway	F	11,613	308	2.7%	11,305
NW 107 Ave	Flagler St to SR 836	1218	6	4,880 (II)	F	6,600	1,425	12.5%	5,175
SW 107 Ave	Flagler St to SW 8 St	2580	4	3,220 (II)	F	6,441	2,976	26.1%	3,465
SW 107 Ave	SW 8 St to SW 24 St	1090	6	4,880 (II)	F	5,467	787	6.9%	4,680
SW 97 Ave (1)	SW 8 St to SW 40 St	9698	2	1,480 (II)	D	1,394	239	2.1%	1,154
SW 26 St. (Coral Way) (1)	SW 117 Ave to SW 127 Ave	9130	4	3,220 (II)	F	4,633	923	8.1%	3,709
SW 24 St (Coral Way) (1)	SW 107 Ave to SW 117 Ave	9128	4	3,220 (II)	F	3,789	57	0.5%	3,732
SW 24 St (Coral Way) (1)	SW 97 Ave to SW 107 Ave	9126	4	3,220 (II)	F	3,689	399	3.5%	3,290
SW 8 St	SW 127 Ave to SW 137 Ave	88	6	4,880 (II)	F	5,438	308	2.7%	5,130
SW 8 St	SW 117 Ave to SW 127 Ave	2561	6	4,880 (II)	F	5,872 (7)	502	4.4%	5,355
SW 8 St	SW 107 Ave to SW 117	90	6	4,880 (II)	F	5,747 (7)	467	4.1%	5,265

	Ave								
W Flagler St (1)	NW 107 Ave to NW 114 Ave	9158	6	4,880 (II)	C	3,532	285	2.5%	3,247
W Flagler St(1)	NW 97 Ave to 107 Ave	9156	6	4,880 (II)	C	3,631	604	5.3%	3,026

(1) Items had no FDOT 2011 volumes, therefore a 20% increase was applied (based on typical increase on other segments) to the previous background traffic from 2006 Campus Master Plan
(2) Based on FDOT Generalized Peak Hour Two-Way Volumes for Florida's Urbanized Areas.
(3) 2020 PM peak hour traffic = (4) + (7)
(4) Two way project traffic = (Sum of 2020 PM peak trip generation trips for MMC campus (10,697 veh/hr from Table 10) + EC campus (705 from Table 11) = 11,402 x (5).
(5) Same traffic contribution percentages as 2006 Campus Master Plan
(6) Two way background traffic
(7) Includes 15 trips for proposed transit hub at proposed Parking Garage 6 (PG 6)

Table 13B Traffic Impact Assessment – Two Way PM Peak Analysis– Modesto A. Maidique and Engineering Center Campus – Year 2020 – with Capacity Improvements for Problem Roadway Segments

Rdwy	Limits	Station No. (1)	Roadway LOS Year 2020 (2)	Existing Lanes (3)	Improved LOS Year 2020 (4)	Proposed Lanes (5)	2020 PM peak hour two-way traffic	FDOT LOS "D" Threshold Veh/hour (Class) (6)
HEFT	1000' N of Bird Rd	2270	F	6	D	8	11,613	13,480 Freeway
NW 107 Ave	Flagler St to SR 836	1218	F	6	E	8	6,600	6,530 (II)
SW 107 Ave	Flagler St to SW 8 St	2580	F	4	D	8	6,441	6,530 (II)
SW 107 Ave	SW 8 St to SW 24 St	1090	F	6	D	8	5,467	6,530 (II)
SW 24 St. (Coral Way)	SW 117 Ave to SW 127 Ave	9130	F	4	D	6	4,633	4,880 (II)
SW 24 St (Coral Way)	SW 107 Ave to SW 117 Ave	9128	F	4	C	6	3,789	4,880 (II)
SW 24 St (Coral Way)	SW 97 Ave to SW 107 Ave	9126	F	4	C	6	3,689	4,880 (II)
SW 8 St	SW 127 Ave to SW 137 Ave	88	F	6	D	8	5,438	6,530 (II)
SW 8 St	SW 117 Ave to SW 127 Ave	2561	F	6	D	8	5,872	6,530 (II)
SW 8 St	SW 107 Ave to SW 117 Ave	90	F	6	D	8	5,747	6,530 (II)

(1) See Table 13A.
(2) Refers to LOS without capacity improvements.
(3) Refers to existing lanes prior to capacity improvements.
(4) Refers to LOS with capacity improvements.
(5) Refers to proposed lanes after capacity improvements.
(6) LOS "D" threshold for proposed geometry. Source: Generalized peak hour two-way volumes.

Table 14A Traffic Impact Assessment –PM Peak Analysis for Critical Intersections – Modesto A. Maidique and Engineering Center Campuses – Year 2020– with No Capacity Improvements

SIGNALIZED INTERSECTIONS		
	DELAY & LOS (1)	
Location	**Intersection Delay (secs/veh)**	**LOS**
SW 107th Ave and SW 16th St	135.5	F
SW 107th Ave and SW 12th St (2)	157.4	F
SW 109th Ave and SW 8th St	127.6	F
SW 112th Ave and SW 8th St	112	F
SW 117th Ave and SW 17th St	72.2	E
SW 107th Ave and SW 108th Ave	10.2	B
University Dr & SW 109th Ave (on campus)	7.0	A
SW 105th Pl and W Flagler St (SR 968)	33.0	C
UNSIGNALIZED INTERSECTIONS		
SW 112th Ave & University Dr (Unsignalized-2 way stop control) (on campus)	(EB approach delay=2992) (WB approach delay = 195.9)	F F
SW 17th St and SW 115th Ave	(EB approach delay=895.6) (WB approach delay = 173.6)	F
University Dr and SW 16th St (Roundabout)	23.12	C

(1) From HCS 2010 analysis, see Appendix E.
(2) Plan for 2020 connects SW 12th Street to University Drive.

Table 14B Traffic Impact Assessment –PM Peak Analysis for Critical Intersections – Modesto A. Maidique and Engineering Center Campuses – Year 2020– with Capacity Improvements

SIGNALIZED INTERSECTIONS				
	DELAY, LOS & Improvements			
Location	**Intersection Delay (secs/veh) Existing/ [Proposed] (1)**	**LOS Existing/ [Proposed] (2)**	**Critical Movements With LOS F (3)**	**Existing/ [Proposed] Lanes (4)**
SW 107th Ave and SW 16th St	135.5 =LOS F [39.4 = LOS D]	F [C] D [D] C [C] F [F] E [C] F [C] D [C] D [C] D [D] C [C] D [D] C [C]	EBL EBT EBR (5) WBL WBT WBR NBL (5) NBT NBR SBL SBT SBR (5)	2 1 1 2 1 Sh [1] 2 3 Sh [1] 1 3 1
SW 107th Ave and SW 12th St	157.4 =LOS F [65.5 = LOS E]	F [D] F [C]	EBL EBT	ShL [2] ShL [1]

		B [B] C [C] F [F] F [B] C [C] F [F] C [B]	EBR (6) NBL NBT NBR SBL SBT SBR (6)	1 2 3 Sh [1] 1 3 1
SW 109th Ave and SW 8th St	127.6 =LOS F [48.1 = LOS D]	F [E] E [D] F [B] F [E] E [D] E [B] F [F] F [E] E [E] F [E] F [E] F [E]	EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT SBR	1 [2] 4 Sh [1] 1 [2] 3 Sh[1] 2 ShL [2] ShL [1] 1 [2] 2 ShL [2] ShL [1] 1 [2]
SW 112th Ave and SW 8th St	112 =LOS F [36.3 = LOS D]	F [C] F [D] F [D] C [C] F [D] C [C]	EBT EBR WBL WBT NBL NBR	3 [4] 1 1 [2] 3 1 [2] 1
SW 107th Ave and SW 108th Ave (proposed year 2020 realigned SW 17th St)	10.2 =LOS B [13 = LOS B]	C [C] C [C] A [A] B [B] A [A]	EBR (5) NBL (5) NBT SBT SBR (5)	2 1 3 3 1
SW 117th Ave and SW 17th St (7)	72 =LOS E [28.9 = LOS C]	E [C] B [B] F [D] F [D] C [C] C [B]	WBL WBR NBT NBR SBL SBT	1 1 1 Sh 1 1
SW 117th Ave and SW 11th St (proposed year 2020 traffic signal) (7)	[30 = LOS C]	[C] [C] [D] [D] [C] [B]	WBL WBR NBT NBR SBL SBT	1 1 1 Sh 1 1

(1) Values within brackets [x] indicate delay achieved after making capacity improvements. Reference to "Existing" pertains to Intersection delay without capacity improvements.
(2) Values within brackets [x] indicate LOS achieved after making capacity improvements. Reference to "Existing" pertains to LOS level without capacity improvements.
(3) Movement descriptions legend: EBL = east bound left, EBT = east bound through, EBR = eastbound right, WBL = westbound left, WBT = westbound through, WBR = westbound right, NBL = northbound left, NBT = northbound through, NBR = northbound right, SBL = southbound left, SBT = southbound through, SBR = southbound right, Sh= shared through-right lane, ShL = shared left-through
(4) Value within brackets [x] is the total lanes required for plan year 2020 lane capacity improvements to improve overall intersection delay and LOS. Reference to "Existing" pertains to current lane configuration.
(5) Reduced 2020 traffic volumes. Spread traffic from SW 107th Ave and SW 16th St intersection to adjacent intersection SW 107 Avenue at SW 108 Avenue. Note that intersection LOS does not degrade at SW 108 Avenue.
(6) Reduced 2020 traffic volumes. Spread traffic from SW 107th Ave and SW 12th St intersection to adjacent proposed right-in right-out intersection SW 107 Avenue at SW 10 Street.
(7) To alleviate the traffic demand on the main west entrance (SW 117th Ave and SW 17th St) to the campus, a signalized intersection is proposed at SW 117th Ave and SW 11th St. A roadway segment is proposed to connect this signal to the proposed realignment of University Drive. Initially, this intersection will operate as a right-in right out intersection with stop control on SW 11th St. Per a study done by Stantec (Traffic and Signal Warrant Study, March 2013) signal should be proposed only after a signal warrant study is conducted justifying its installation. The traffic conditions need to be monitored and actual traffic volumes should be utilized for the signal warrant study.

Table 15 Traffic Impact Assessment –PM Peak Analysis for Roundabouts – Modesto A. Maidique – Year 2020

ROUNDABOUTS ON CAMPUS				
	Approach Delay (secs/veh) Existing/ [Proposed] (1)	**LOS Existing/ [Proposed] (2)**	**Critical Movements With LOS F (3)**	**Existing/ [Proposed] Lanes (4)**
SW 112th Ave & University Dr. (proposed 2 lane roundabout – replace existing un-signalized intersection)	EB = 2992 [9.26]	F [A]	EBL EBT	0 [1] 1
	WB = 195.9 [4.06]	F [A]	WBT WBR	1 0 [1]
	Overall Delay = [6.83]	F [A]		
SW 16 St. & University Dr. (Existing 2 lane roundabout)	SB = 72.9 [20.91]	F [C]	SBL SBT SBR	0 [1] 1 Sh
	Overall Delay = 23.12 [16.05]	C [C]		
SW 17 St. & SW 115th Ave (proposed 1 lane roundabout – replace existing un-signalized intersection)	895.6 [4.9] 173.6 [C]	F [A] F [C]	EBL WBT	EB ShL [1] EBR 1 Lane [convert to EBT] WBL 1 Lane [remove excl. left lane] WBTR [ShL] 0 [WBR 1] NBLTR SBLTR
	Overall Delay = 173.6 [17.15]	F [C]		

(1) Values within brackets [x] indicate delay achieved after making capacity improvements. Reference to "Existing" pertains to Intersection delay without capacity improvements for 2020 traffic.
(2) Values within brackets [x] indicate LOS achieved after making capacity improvements. Reference to "Existing" pertains to LOS level without capacity improvements.
(3) Movement descriptions legend: EB = east bound, EBT = east bound through, EBR = eastbound right, WBL = westbound left, WBTR = westbound shared through-right lane, WBR = westbound right, NBLTR = one northbound lane: shared left-thru-right movements, SBLTR = one southbound lane: shared left-thru-right movements, Sh= shared through-right lane, ShL = shared left-through
(4) Value within brackets [x] is the total lanes required for plan year 2020 lane capacity improvements to improve overall intersection delay and LOS. Reference to "Existing" pertains to current lane configuration.

Table 16A depicts the project traffic contribution on all roadway links within one (1) mile of Biscayne Bay Campus using concurrency data kept by the Miami-Dade County Public Works Department and FDOT. The resulting two-way assignment of project traffic along with the percentage of project traffic contribution for each traffic count station is shown in Table 16A. A LOS analysis was conducted for each of the roadway segments listed, with the existing lane configuration. Except for two locations, all other locations operate within the adopted LOS threshold. In order to improve the LOS at the failed locations, capacity improvements are necessary. Our conceptual analysis shows that it is feasible to improve the LOS with these improvements. Table 16B shows that an acceptable LOS can be achieved with conceptual lane additions as shown. A LOS analysis was conducted for the critical intersections, with the existing lane configuration and the results are shown in Table 17A. Both intersections providing access to the campus will fail resulting in LOS "F". In order to improve the LOS at the failed locations, capacity improvements are necessary. Our conceptual analysis shows that it is feasible to improve the LOS with

these improvements. Table 17B shows that the intersection operation at Biscayne Blvd/NE 151 Street can be considerably improved with conceptual lane additions as shown. The LOS is improved from “F” to “D”. At the Bay Vista Blvd (NE 151st St) and Campus Entrance (NE 145th Street) un-signalized intersection, the LOS is improved from “F” to “C” by converting it to a signalized intersection and revising the westbound lane configuration to have one shared left-right lane and a dedicated right turn lane (existing lane configuration has a single left and single right turn lanes). From our field observation, we note that there are no westbound left turn volumes during the PM peak and hence our recommendation for this revision in lane configuration.

Table 16A Traffic Impact Assessment – Two Way PM Peak Analysis for Roadway Segments – Biscayne Bay Campus - Year 2020 – with No Capacity Improvements

Rdwy	Limits	Station No.	Lanes	FDOT LOS "D" Threshold Veh/hour (Class)	Rdwy LOS Standard (2)	2020 PM peak hour two-way traffic (3)	Two-Way Project Traffic (4)	Project Traffic Contri-bution (5)	2011 Back-ground Traffic (Two Way) (6)
West Dixie Hwy	NE 16 Ave to NE 163 St	531	4	3,220 (II)	C	1,371	3	0.1%	1,368
Biscayne Blvd	NE 135 St to NE 163 St	5219	6	4,880 (II)	F	5,636	101	3.7%	5,535
Biscayne Blvd	NE 121 St to NE 135 St	524	6	4,880 (II)	C	3,514	49	1.8%	3,465
NE 135th St	NE 12 Ave to Biscayne Blvd	1026	4	3,220 (II)	C	1,948	220	8.1%	1,728
NE 151 St/Bay Vista Blvd	Biscayne Blvd to East of Biscayne Landing entrance	NA	4	3,220 (II)	F	3,900 (7)	925	34.0%	1,362 (1)
NE 151 St/Bay Vista Blvd	East of Biscayne Landing entrance to Biscayne Bay Campus Entrance	NA	4	3,560 (I)	B	2,287	925	34.0%	1,362 (1)
Bay Vista Blvd	South of Golden Panther Dr to Proposed Magnet School Entrance	NA	2	1,600 (I)	B	927	293 (Magnet School) + 93 (8) + 405 (Academic Heath Center)	NA	136 (8)

(1) Obtained from 2012 TMCs at US 1 (Biscayne Blvd) & NE 151 St.
(2) Based on FDOT Generalized Peak Hour Two-Way Volumes for Florida's Urbanized Areas.
(3) 2020 PM peak hour traffic = (4) + (7)
(4) Two way project traffic = (2020 PM peak trip generation trips for BC campus, i.e. 2,721, from Table 12) x (5).
(5) Same contribution as 2006 Campus Master Plan
(6) Two way background traffic
(7) Includes 2020 traffic from Biscayne Landing (see Table 9) =1,362 + 925 + 1,613 = 3,900
(8) Includes 10 percent of background traffic shown for NE 151st Street/Bay Vista Blvd intersection in the row above it.

Table 16B Traffic Impact Assessment – Two Way PM Peak Analysis for Roadway Segments – Biscayne Bay Campus - Year 2020 – with Capacity Improvements for Problem Roadway Segments

Rdwy	Limits	Station No. (1)	Roadway LOS Year 2020 (2)	Existing Lanes (3)	Improved LOS Year 2020 (4)	Proposed Lanes (5)	2020 PM peak hour two-way traffic	FDOT LOS "D" Threshold Veh/hour (Class) (6)
Biscayne Blvd	NE 135 St to NE 163 St	5219	F	6	D	8	5,636	6,530 (II)
NE 151 St/Bay Vista Blvd	Biscayne Blvd to East of Biscayne Landing entrance	NA	F	4	D	6	3,900	4,880 (II)

(1) See Table 16A.
(2) Refers to LOS without capacity improvements.
(3) Refers to existing lanes prior to capacity improvements.
(4) Refers to LOS with capacity improvements.
(5) Refers to proposed lanes after capacity improvements.
(6) LOS "D" threshold for proposed geometry. Source: Generalized peak hour two-way volumes.

Table 17A Traffic Impact Assessment –PM Peak Analysis for Critical Intersections – Biscayne Bay Campus– Year 2020– with No Capacity Improvements

SIGNALIZED INTERSECTIONS		
	DELAY & LOS	
LOCATION	**Intersection Delay (secs/veh)**	**LOS**
US 1 (Biscayne Blvd) and NE 151st St (1)	639.2	F
UNSIGNALIZED INTERSECTION		
Bay Vista Blvd (NE 151st St) and Campus Entrance (NE 145th Street) (2)	Approach Delay (secs/veh)	LOS
WB Approach (L+R)	361.42	F
NB Approach (2 lane)	123.64	F
SB Approach (1 LT+2 Through)	136.5	F
	Intersection Delay = F (203.5 secs/veh)	

Source: From HCS 2010 analysis, see Appendix E.

(1) In addition to future FIU traffic, includes future traffic from Biscayne Landings Development.

(2) In addition to future FIU traffic, includes trips for Magnet School, Royal Caribbean, Museum and Academic Health Center.

Table 17B Traffic Impact Assessment –PM Peak Analysis for Critical Intersections – Biscayne Bay Campus– Year 2020– with Capacity Improvements

SIGNALIZED INTERSECTION				
	DELAY, LOS & Improvements			
LOCATION	**Intersection Delay (secs/veh) Existing/ [Proposed] (1)**	**LOS Existing/ [Proposed] (2)**	**Critical Movements (3)**	**Existing/ [Proposed] Lanes (4)**
US 1 (Biscayne Blvd) and NE 151st St	639.2=LOS F [60.2= LOS E]	D [C] F [D] E [C] F [E] F [D] E [C] F [D] F [F] F [C] F [D] F [D]	EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT	1 [2] 2 [4] 1 [2] 1 [2] 2 [4] 1 [2] 1 [2] 3 [5] Sh [1] 1 [3] 3 [5]
OPTION 1: RECOMMEND CONVERTING FOLLOWING INTERSECTION TO SIGNAL				
Bay Vista Blvd (NE 151st St) and Campus Entrance (NE 145th Street) (Proposed signalized T-Intersection)	203.5 =LOS F [25.8= LOS C]	A [A] F [C] F [C] F [D] F [A]	WBL WBR NBTR SBL SBT	1 [convert to ShL] 1 2 1 2
OPTION 2: RECOMMEND A NEW MAIN ENTRANCE TO CAMPUS SOUTH OF NE 145TH STREET & MAINTAIN CURRENT MAIN ENTRANCE AT NE 145th STREET AS SECONDARY ENTRANCE				
Bay Vista Blvd (NE 151st St) and New Campus Entrance (re-aligned Golden Panther Drive) (Proposed signalized T-Intersection)	[48.7= LOS D]	[A] [F] [B] [B] [A]	WBLR WBR NBTR SBL SBT	1 1 2 1 2
Bay Vista Blvd (NE 151st St) and Campus Entrance (NE 145th Street) (un-signalized intersection)	203.5 =LOS F [10.33= LOS B]	A [A] F [B] F [B] F [A] F [A]	WBL WBR NBTR SBL SBT	1 [convert to ShL] 1 2 1 2

(1) Values within brackets [x] indicate Intersection delay achieved after making capacity improvements. Reference to "Existing" pertains to Intersection delay without capacity improvements.
(2) Values within brackets [x] indicate LOS achieved after making capacity improvements. Reference to "Existing" pertains to LOS level without capacity improvements.
(3) Movement descriptions legend: EBL = east bound left, EBT = east bound through, EBR = eastbound right, WBL = westbound left, WBLR = one shared westbound left-right lane, WBT = westbound through, WBR = westbound right, NBL = northbound left, NBT = northbound through, NBTR = northbound shared through-right outside lane, NBR = northbound right, SBL = southbound left, SBT = southbound through, SBR = southbound right, Sh= shared through-right lane, ShL= shared left-right turn lane
(4) Value within brackets [x] is the total lanes required for plan year 2020 lane capacity improvements to improve overall intersection delay and LOS. Reference to "Existing" pertains to current lane configuration.

3.6 *Recommendations*

Based on our capacity analysis for years 2012 and 2020, several intersections providing access to the MMC and BBC fail during the PM peak hour. Capacity improvements will be necessary at these intersections by the year 2020 to improve their operation. The following is a summary of our conceptual recommendations and should be evaluated for constructability, feasibility and budget.

Modesto A. Maidique (MMC)

- At SW 107 Avenue/SW 16 Street, major capacity improvements are not necessary. Some of the traffic demand will be shared with the realigned SW 107 Ave/SW 17 Street intersection (currently SW 107 Avenue/SW 108 Avenue), which will serve as the main east entry. At SW 107 Avenue/SW 16 Street, for the westbound and northbound approaches, the shared through-right lane should be converted to separate the movements by providing an exclusive right turn lane as listed in Table 14B. The LOS improves to "D". These improvements will require relocation of existing light poles and relocation of existing utilities. Any right of way impacts need to be discussed prior to design

- The SW 107 Ave/SW 17 Street intersection will handle planned volumes through year 2020 and does not degrade its current LOS "B"

- The SW 107 Avenue/SW 12 Street intersection is proposed to be connected to University Drive by removal of the existing gates located across SW 12 Street, widening to 3 lanes and realignment. SW 12 Street is currently serving the student housing and is not connected to University Drive. This proposed connection will help alleviate the traffic demand on the current main east entry through the SW 107 Avenue/SW 16 Street intersection. The SW 107 Avenue/SW 12 Street intersection will function at LOS "E" with improvements as listed in Table 14B. For the eastbound approach, it is recommended to convert the shared left through lane to provide dual lefts and one through lane. For the northbound approach, it is recommended to separate the outermost shared through-right lane to provide an exclusive right lane adjacent to the outermost through lane. These improvements will require relocation of existing light poles and relocation of existing utilities. The existing mast arm signals (for eastbound and northbound movements) will need to be replaced with new mast arm signal poles. Any right of way impacts need to be discussed prior to design

- To reduce traffic demand on the east campus signalized access points along SW 107 Avenue, it is recommended to provide a right-in right-out entry along SW 107 Avenue at SW 10 Street. The geometry will contain an exclusive southbound right turn lane, and an exclusive eastbound right turn lane. It is also recommended to propose a three lane undivided roadway segment to connect this right-in right-out entry with the existing roundabout located at University Drive/E Campus Circle intersection. Both the right-in

right-out entry and roadway segment will operate at LOS "A" for year 2020 traffic. Coordination will be necessary with FDOT to obtain a permit for this new access. For an access management class 5 roadway, the spacing requirement for a right-in right-out from the adjacent intersection is 245 feet. The proposed SW 107th Avenue/SW 10 Street right-in right-out location meets this criterion. The construction of the southbound right turn lane will require relocation of existing light poles and relocation of existing utilities. Additional right of way requirements will need to be discussed prior to design

- At SW 109 Avenue/SW 8 Street, it is recommended to provide dual left turn lanes for all approaches as listed in Table 14B. For the eastbound and westbound approaches, shared through-right lane should be converted to separate the movements by providing exclusive eastbound and westbound right turn lanes. For the northbound and southbound approaches, shared left-through lane should be converted to separate the movements by providing exclusive dual lefts for northbound and southbound left turn lanes. With these improvements, existing signal mast arm poles need to be replaced with new signal mast arm poles. Other impacts will require relocation of existing light poles, additional right of way and impacts to the existing bridge along the north leg of the intersection

- At SW 112 Avenue/SW 8 Street (as listed in Table 14B), for the eastbound approach, it is recommended to provide a fourth eastbound through lane to line up with the fourth receiving lane and move the existing dedicated right turn lane south. For the northbound approach it is recommended to provide additional left turn lane and retain the dedicated right turn lane. The final configuration for this approach is dual lefts and a single dedicated right turn lane. For the westbound approach, it is recommended to provide an additional westbound left turn lane for a final configuration of dual lefts. With these improvements, all three existing signal mast arm poles need to be replaced with new signal mast arm poles. Other impacts will require relocation of existing overhead utilities along the south side and additional right of way in the southwest and southeast corners to accommodate the proposed improvements to the eastbound and northbound approaches. To accommodate the additional westbound left turn lane, a design evaluation is required to determine if it is feasible to accommodate it in the median

- Table 13B lists several roadway segments in the campus vicinity which will likely operate at poor LOS in year 2020. Traffic volumes will require close monitoring and when traffic conditions worsen, coordination with those agencies is recommended to implement corrective measures at that time

- At SW 117 Avenue/SW 17 Street (as listed in Table 14B),which is the lone main west entry to the campus, it is recommended to reduce the traffic demand by initially providing a new right-in right-out intersection at SW 117 Avenue/SW 11 Street. The right-in right-out intersection should be monitored periodically in the future for traffic volume increases prior to conducting a traffic signal warrant study. A study conducted by Stantec ("Traffic and Signal Warrant Study, dated March 2013) recommends

reevaluation of the signal warrants prior to the installation of a signal based on the traffic volumes and roadway network conditions at that time. Our signalization analysis for 2020 traffic volumes at SW 117 Avenue/SW 11 Street intersection, reveals that this location will operate at LOS "C". It is also recommended to propose a three lane undivided roadway segment to connect this proposed signal to align with the proposed realignment of University Drive. The new roadway segment will operate at LOS "A" for year 2020 traffic. These improvements will require new signalization, new signs, new lighting, roadway improvements, relocation of utilities and impacts to right of way

- Table 15 lists the capacity analysis results and recommendations for the following on campus un-signalized intersections to be replaced with roundabout for the year 2020:
    - SW 112th Avenue and University Drive
    - SW 16 Street and University Drive
    - SW 17 Street and SW 115th Avenue

  Results of the analysis indicate that an acceptable LOS is obtained at all locations. These roundabouts will function better than the current un-signalized intersections. Budgetary constraints will need to be a consideration in their implementation. Existing light poles, signs and utilities will be impacted by these improvements.

- At SW 112 Avenue/University Drive (as listed in Table 15), it is recommended to convert the existing un-signalized intersection to a 2 lane roundabout. At the eastbound approach to the roundabout, it is recommended to provide a lane configuration to include one dedicated left turn lane and one through lane. For the westbound approach to the roundabout, it is recommended to provide channelized westbound right turn lane so as to create free flow for this heavy movement.

- It is recommended to consider widening SW 117 Avenue to a 4 lane divided facility between SW 8th Street and north of SW 24th Street to better handle the year 2020 traffic demand. This recommendation must be analyzed with other proposed master plan improvements to maintain an appropriate "scale" for this roadway. In addition to roadway improvements, improvements will require new signalization, new signing-marking, new lighting, relocation of utilities and impacts to right of way

- Roadway segment capacity analysis along the campus roadways reveal that the existing through lane configurations will work for the projected year 2020 traffic, except at the following locations where roadway improvements will be necessary. Impacts to utilities, any existing buildings and right of way need to be considered. Our recommendations are as follows:
    - Widen SW 17 Street east of SW 115 Avenue (east of the proposed 1 lane roundabout) from 2 lane to 4 lane divided. Provide 4 lane divided along the proposed realignment of SW 17 Street to connect to its intersection at SW 107 Avenue

- Construct new 3 lane roadway along SW 10 Street between University Drive roundabout and proposed right in right out entrance at SW 107 Avenue/SW 10 Street intersection
- Construct and realign 3 lane roadway along SW 12 Street between University Drive and the intersection of SW 107 Avenue/SW 12 Street intersection
- Widen University Drive along the east side of the campus from 2 lane to 3 lane

- At the request of FIU, the modification of the Greenbelt Road around the Panther Garage (PG-3) was evaluated to determine if a 3 lane roadway can be accommodated between PG-3 and the existing Elementary School. Our design evaluation with a WB-40 Semi-Trailer Truck (45' long) reveals that the following roadway can be fit within an 85' right of way
  - 3 – 11' wide lanes = 33' (2 lane road with a two way left turn lane)
  - 2 - 4' bike lanes = 8'
  - 2- 2' curbs = 4'
  - 2-11' landscape shoulders at back of curb
  - 2 -6' sidewalks = 12'

- During the development of this study, Miller Legg has been involved in several focus group meetings (October-November 2012) related to the accommodation of a two way articulated express bus routing/transit stop at the proposed PG6. Coordination is ongoing between FIU and MDT, and there is no confirmation as to the timing of its design and implementation. The PG6 design team is making accommodations within the garage and adjacent roadways to accommodate a 60' articulated bus

Biscayne Bay Campus (BBC)

- At US 1 (Biscayne Blvd)/NE 151 Street intersection, major improvements (as listed in Table 17B) should include five through lanes in the north-south direction and four through lanes in the east-west direction. Recommended turn lane improvements are also listed in the Table. These improvements will require total redesign of the intersection including intersection re-design, replacement of existing mast arm signal poles, street lighting, signing-marking, utility relocation and right of way impacts

- At the Bay Vista Blvd (NE 151 Street) and NE 145th Street (main campus entrance) intersection, we evaluated two options. For option 1, it is recommended to convert the un-signalized intersection to signalized intersection. The westbound left turn lane needs to be converted to a shared left-right turn lane to mitigate the number of high right turn volumes, since our observations reveal that there are no existing westbound left turn volumes during the peak hour. These improvements will require providing new signal mast arm poles, removal of stop signs and restriping. For option 2, it is recommended to propose a main entrance at Bay Vista Blvd (NE 151 Street) and Golden Panther Drive (re-aligned). The current main entrance at NE 145th Street can be maintained as a secondary entrance with limited access to parking facilities and be retained as an un-signalized intersection.

At Golden Panther Drive, a signalized T-intersection is proposed and for 2020 traffic it will operate at a better LOS “D” when compared to the main entrance at NE 145th Street (which will operate at LOS “F”). Also, the new realigned roadway segment of Golden Panther Drive will connect to the internal campus roadway network and operate at an acceptable LOS “C” as a three lane segment. We recommend option 2 to alleviate the anticipated congestion at Bay Vista Blvd (NE 151 Street) and NE 145th Street. Option 2 will entail roadway improvements, signing-marking, street lighting, utility relocation, landscaping and right of way impacts

- Table 16A lists roadway segments leading to the campus which will likely operate at poor LOS in year 2020. Traffic volumes will require close monitoring and when traffic conditions worsen, coordination with those agencies is recommended to implement corrective measures at that time

APPENDIX A

Figure 1: Location Map
Modesto A. Maidique Campus (MMC)

Figure 2: Location Map
Engineering Center (EC)

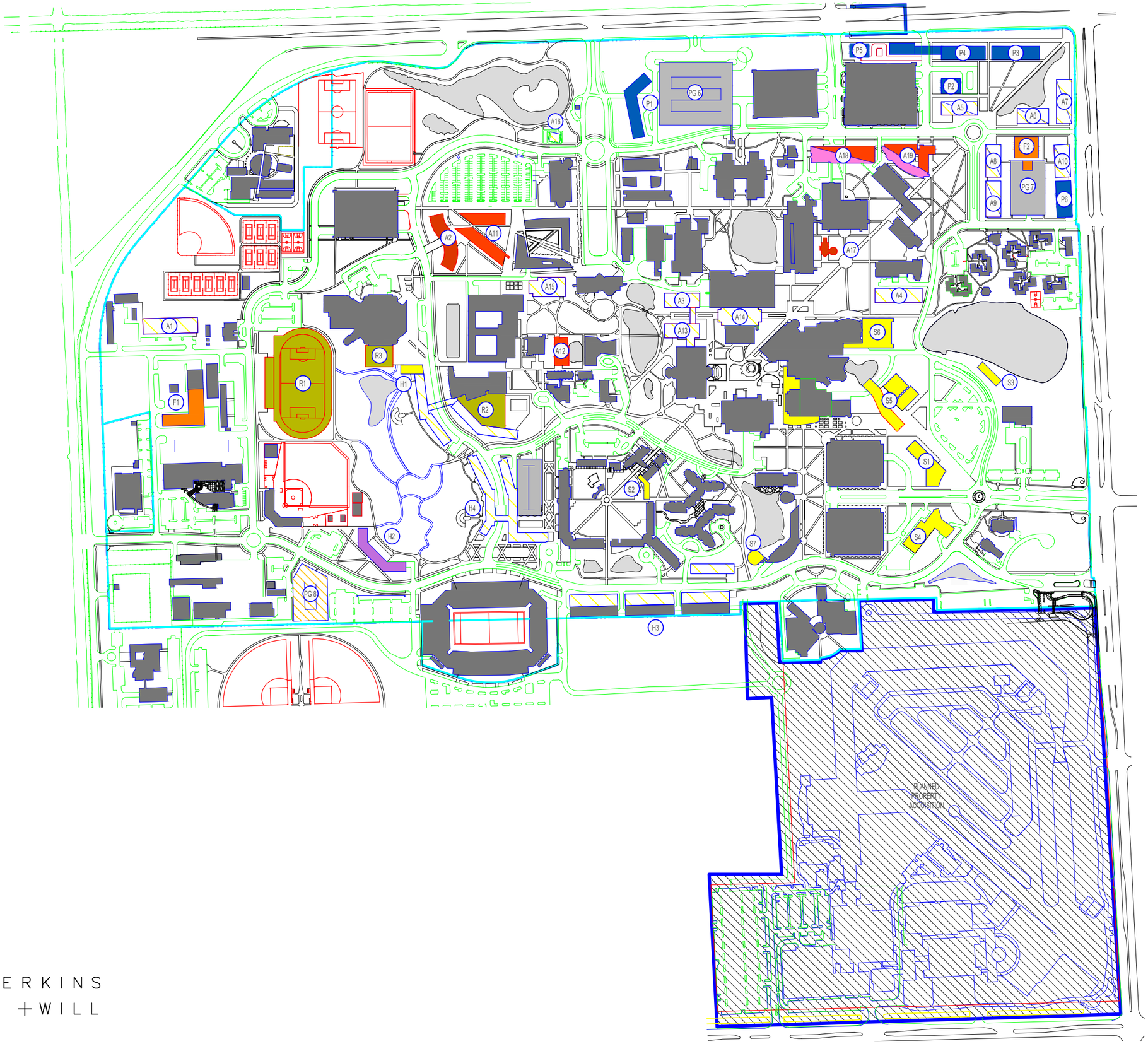
Figure 3: Location Map
Biscayne Bay Campus (BBC)

Figure 4: 2012 Traffic Data Collection Locations (MMC)

Figure 5: 2012 Traffic Data Collection Locations (EC)

Figure 6: 2012 Traffic Data Collection Locations (BBC)

FIU FLORIDA INTERNATIONAL UNIVERSITY



KEY:

A1. ACADEMIC 1
A2. ACADEMIC 2
A3. ACADEMIC 3
A4. ACADEMIC 4
A5. ACADEMIC 5
A6. ACADEMIC 6
A7. ACADEMIC 7
A8. ACADEMIC 8
A9. ACADEMIC 9
A10. ACADEMIC 10
A11. GRADUATE SCHOOL OF BUSINESS
A12. SOCIAL SCIENCES
A13. HUMANITIES CENTER
A14. GREEN LIBRARY EXPANSION
A15: MANGO
A16: SOLAR HOUSE
A17: STOCKER ASTROSCIENCE
A18: SCIENCE CLASSROOM COMPLEX
A19. ACADEMIC HEALTH CENTER 5
FI. FACILITIES 1
F2: CENTAL UTILITIES
H1. PARKVIEW HOUSING 2
H2. GREEK HOUSING
H3. EXPANDED UNIVERSITY HOUSING
H4. PARKVIEW HOUSING

P1. HOTEL
P2. MAP 4
P3. MAP 2
P4. MAP 3
P5. ACC
P6. MAP 1
PG7. PARKING GARAGE 7
PG8. PARKING GARAGE 8
R1. EXPANDED TRACK AND FIELD
R2. REC CENTER EXPANSION
S1. SUPPORT 1
S2. SUPPORT 2
S3. PRESIDENT'S PARK PAVILLION
S4. ALUMNI CENTER
S5. STUDENT ACADEMIC SUPPORT CENTER
S6. GRAHAM CENTER EXPANSION
S7. FROST MUSEUM EXPANSION

LEGEND

- ACADEMIC
- RESEARCH
- SUPPORT: OFFICE, SPECIAL + GENERAL USE
- 1ST FLOOR SUPPORT
- HOUSING
- PARTNERSHIP
- SPORTS / RECREATION
- FACILITY SUPPORT

FIGURE 1: LOCATION MAP (MMC)

2020 PLAN
MODESTO MAIDIQUE CAMPUS

NORTH

0 125 250 500 1000

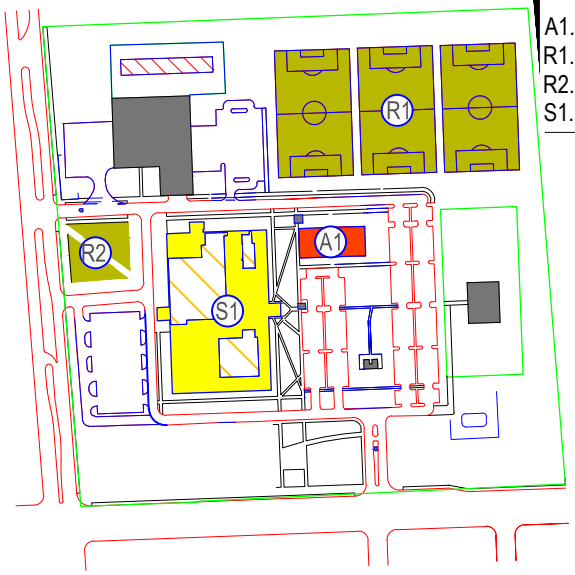
Scale: 1:500

PERKINS + WILL

FIU FLORIDA INTERNATIONAL UNIVERSITY

LEGEND

- ACADEMIC
- RESEARCH
- SUPPORT: OFFICE, SPECIAL + GENERAL USE
- 1ST FLOOR SUPPORT
- HOUSING
- PARTNERSHIP
- SPORTS / RECREATION
- FACILITY SUPPORT



KEY

A1. ACADEMIC 1
R1. RECREATION FIELDS
R2. TRANSIT PLAZA
S1. FIRST FLOOR INFILL

FIGURE 2: LOCATION MAP (BBC)

2020 PLAN
ENGINEERING CENTER

NORTH

0 125 250 500 1000

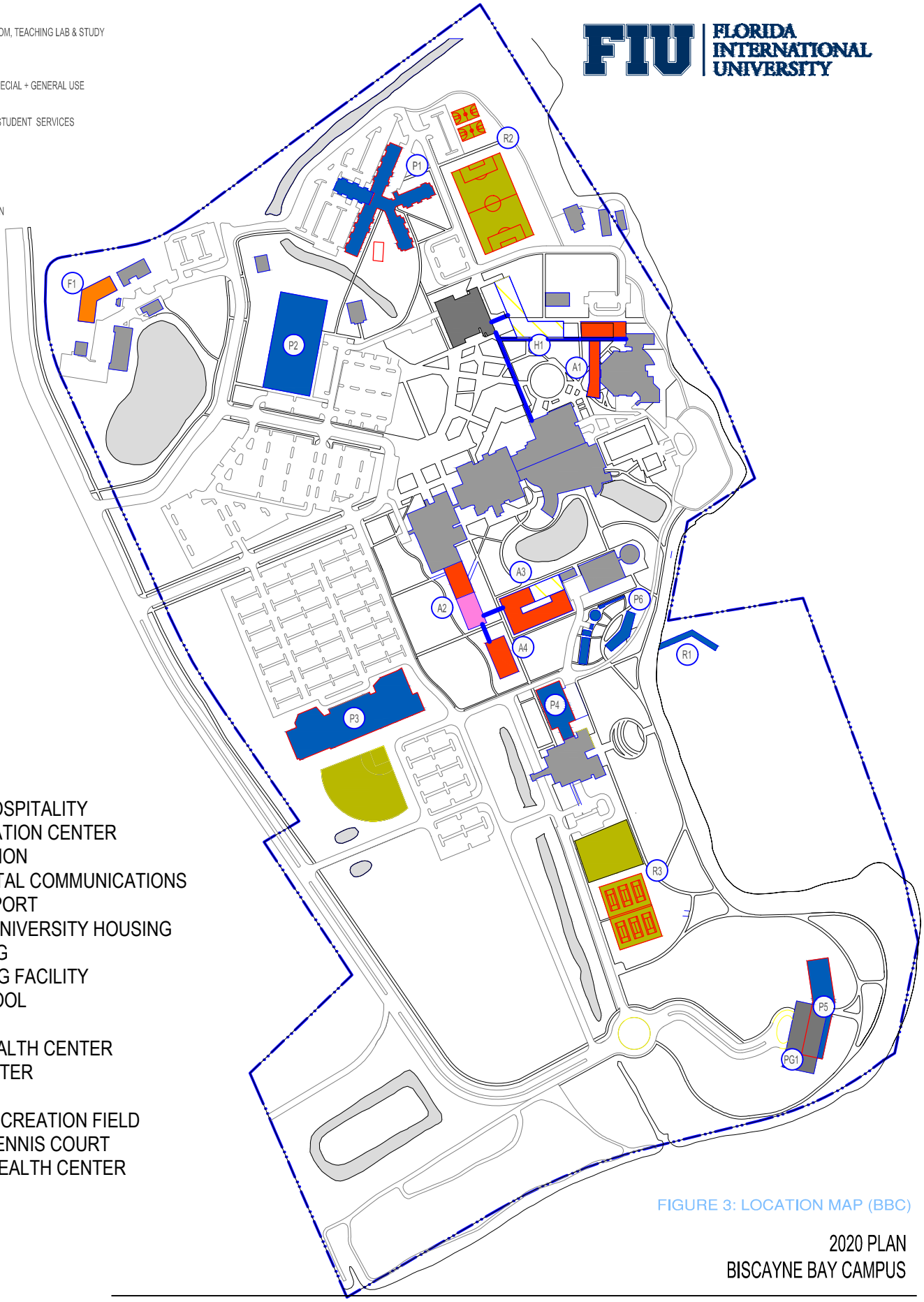
Scale: 1:500

PERKINS + WILL

LEGEND

- ACADEMIC: CLASSROOM, TEACHING LAB & STUDY
- RESEARCH
- SUPPORT: OFFICE, SPECIAL + GENERAL USE 1ST FLOOR SUPPORT
- AUXILIARY, STUDY & STUDENT SERVICES
- HOUSING
- PARTNERSHIP
- SPORTS / RECREATION
- FACILITY SUPPORT

FIU FLORIDA INTERNATIONAL UNIVERSITY



KEY

A1. GRADUATE HOSPITALITY
A2. MEDIA INNOVATION CENTER
A3. SEAS EXPANSION
A4. ENVIRONMENTAL COMMUNICATIONS
F1. FACILITY SUPPORT
H1. RELOCATED UNIVERSITY HOUSING
P1. RCCL HOUSING
P2. RCCL TRAINING FACILITY
P3. MAGNET SCHOOL
P4. HOTEL
P5. ACADEMIC HEALTH CENTER
P6. WILDFIRE CENTER
R1. DOCK
R2. EXPANDED RECREATION FIELD
R3. ROPES AND TENNIS COURT
PG1. ACADEMIC HEALTH CENTER GARAGE

FIGURE 3: LOCATION MAP (BBC)

2020 PLAN
BISCAYNE BAY CAMPUS

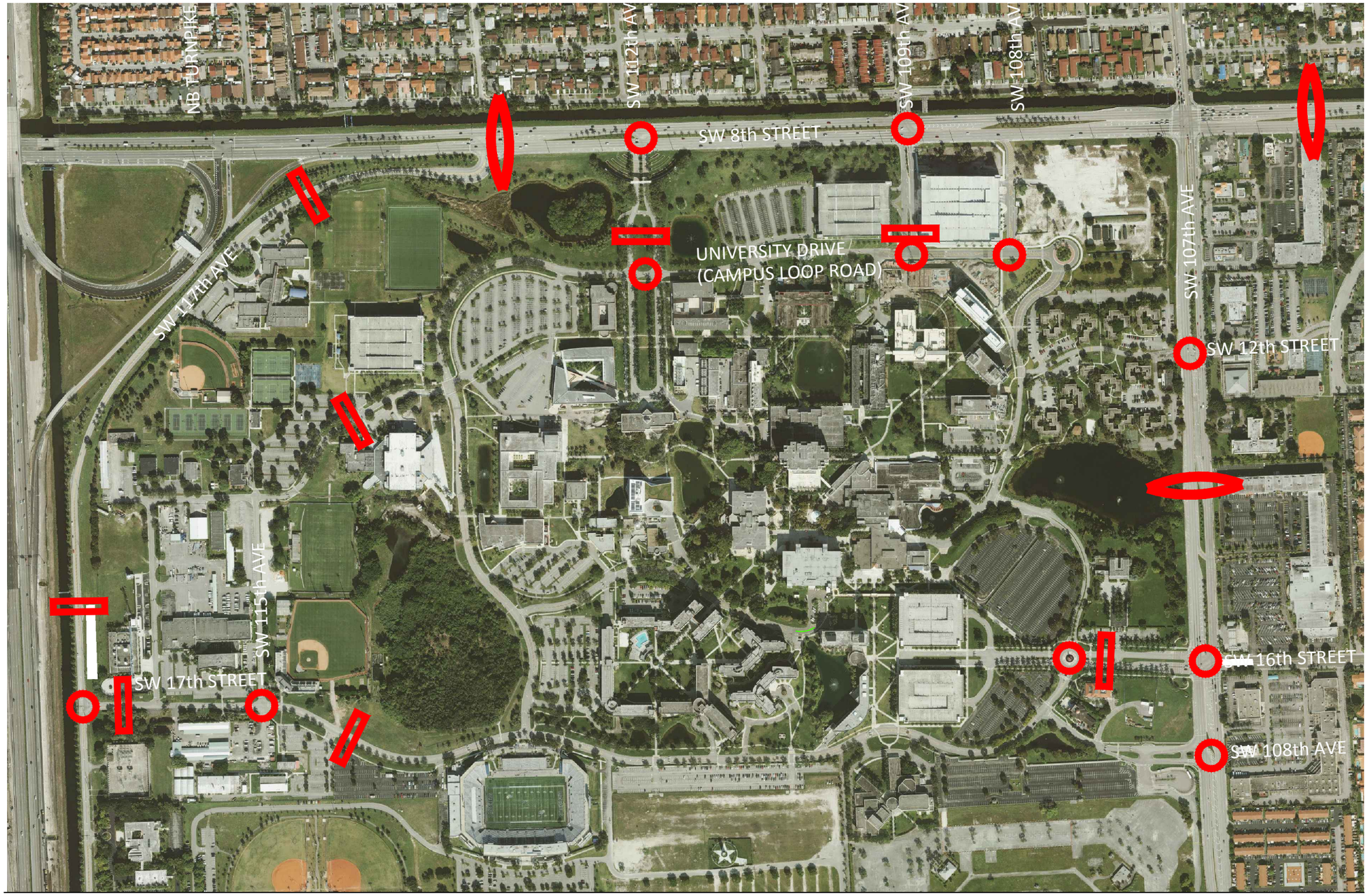
NORTH

0 125 250 500 1000

Scale: 1:500

PERKINS + WILL

MODESTO A. MAIDIQUE CAMPUS



LEGEND

- 2012 TURNING MOVEMENT COUNTS (TMC's) DATA COLLECTION LOCATIONS
- 24 HOUR ADT (2012) LOCATIONS
- FDOT 2011 TWO WAY PEAK VOLUMES

KEY MAP

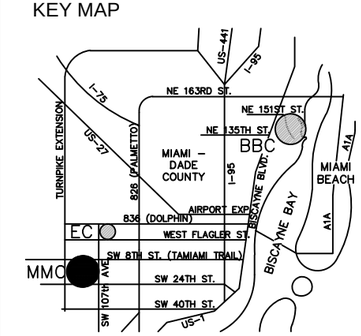


FIGURE 4
2012 TRAFFIC DATA COLLECTION LOCATIONS (MMC)

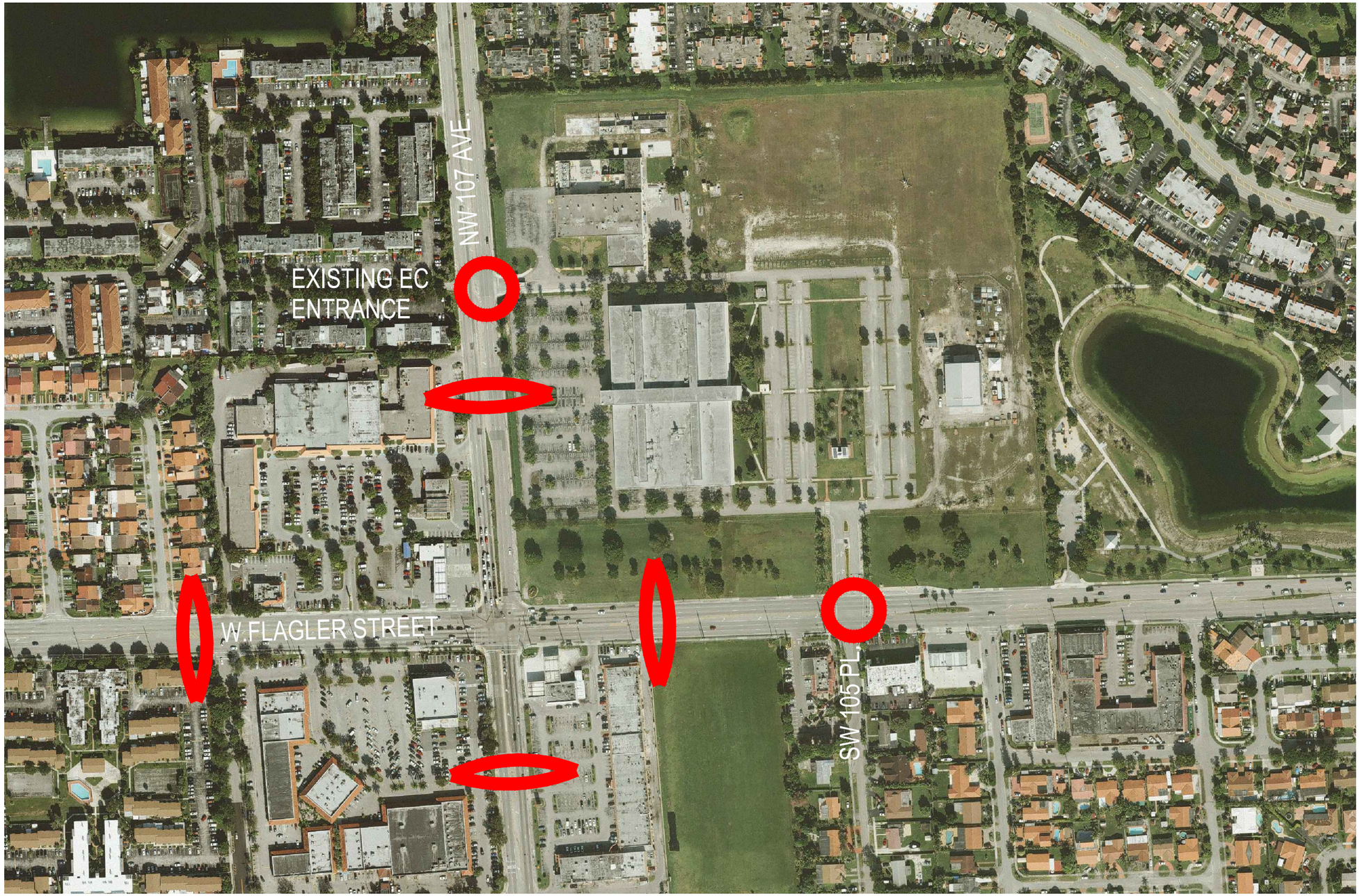
FIU FLORIDA INTERNATIONAL UNIVERSITY

Campus Master Plan - June 2013

0 250 500 1000

MILLER LEGG

ENGINEERING CENTER CAMPUS



LEGEND

- 2012 TMC'S DATA COLLECTION LOCATIONS
- FDOT 2011 TWO WAY PEAK VOLUMES

KEY MAP

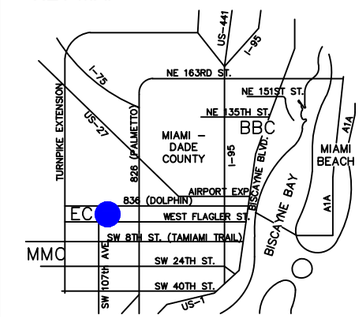


FIGURE 5
2012 TRAFFIC DATA COLLECTION LOCATIONS (ECC)

FIU FLORIDA INTERNATIONAL UNIVERSITY

Campus Master Plan - June 2013

0 250 500 1000

PERKINS + WILL

MILLER LEGG

BISCAYNE BAY CAMPUS

LEGEND

2012 TMC'S DATA COLLECTION LOCATIONS

FDOT 2011 TWO WAY PEAK VOLUMES

2012 TWO WAY PEAK VOLUMES (COMPUTED)

KEY MAP

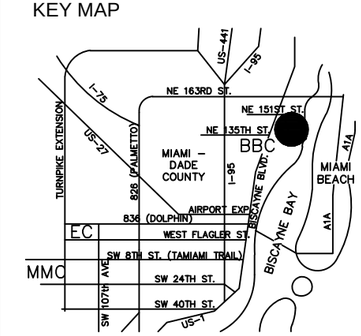


FIGURE 6
2012 TRAFFIC DATA COLLECTION LOCATIONS (BBC)

FIU FLORIDA INTERNATIONAL UNIVERSITY

Campus Master Plan - June 2013

0 250 500 1000

PERKINS + WILL

MILLER LEGG

APPENDIX B

Traffic Data Collection: 2012 PM peak hour Turning Movement Counts (TMCs) (MMC)

Traffic Data Collection: 2012 PM peak hour Turning Movement Counts (TMCs) (EC)

Traffic Data Collection: 2012 PM peak hour Turning Movement Counts (TMCs) (BBC)

Other Data from FIU, Metric Engineering and Stantec-C3TS

SW 107 AVENUE & SW 12 STREET

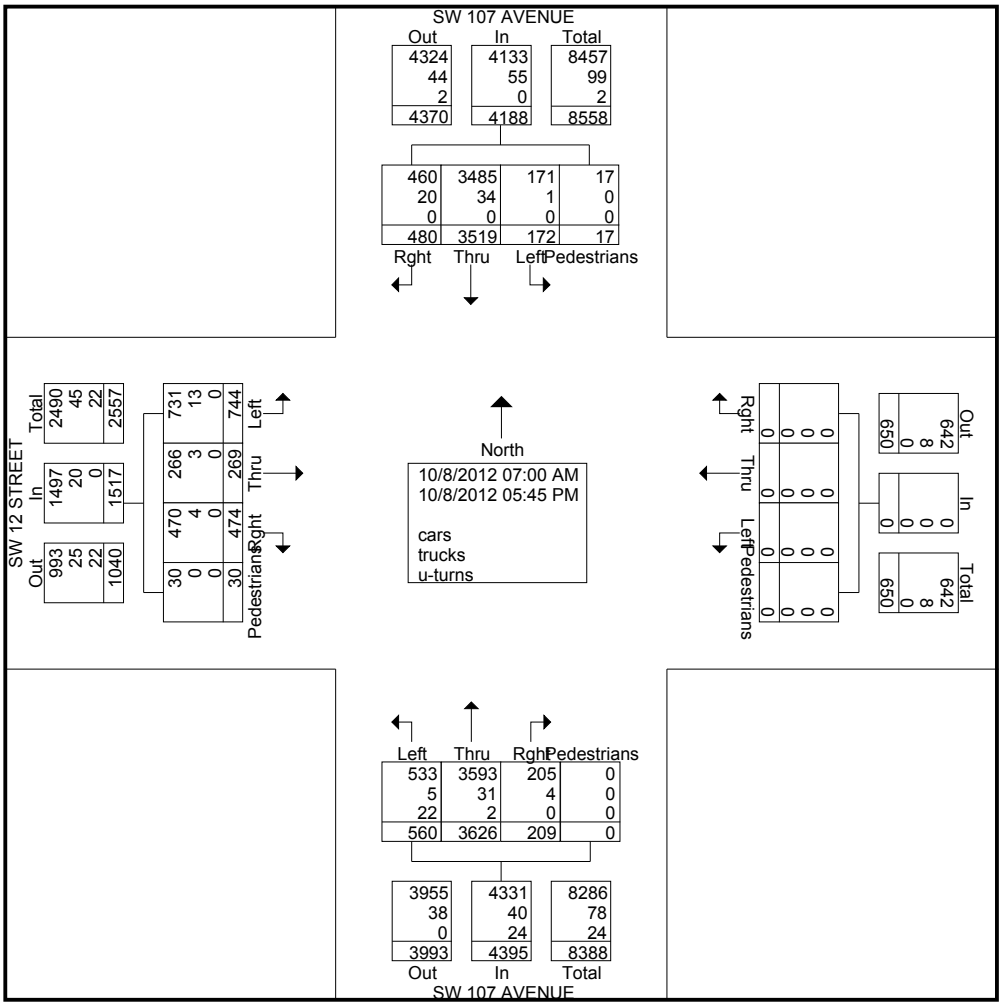
File Name : SW 107 AVENUE & SW 12 STREET
Site Code : 00000000
Start Date : 09/19/2012
Page No : 1

Groups Printed- cars - trucks - turns

	SW 107 AVENUE Northbound				SW 107 AVENUE Southbound				SW 12 STREET Eastbound				Westbound				
Start Time	Left	Thru	Rght	Pedestrians	Left	Thru	Rght	Pedestrians	Left	Thru	Rght	Pedestrians	Left	Thru	Rght	Pedestrians	Int. Total
*** BREAK ***																	
04:00 PM	59	425	29	0	14	537	65	17	67	20	41	0	0	0	0	0	1274
04:15 PM	66	438	21	0	20	434	43	0	108	33	63	0	0	0	0	0	1226
04:30 PM	83	438	17	0	14	423	58	0	111	38	77	0	0	0	0	0	1259
04:45 PM	64	524	16	0	23	413	60	0	89	31	64	3	0	0	0	0	1287
Total	272	1825	83	0	71	1807	226	17	375	122	245	3	0	0	0	0	5046
05:00 PM	77	462	30	0	14	415	64	0	87	33	53	1	0	0	0	0	1236
05:15 PM	63	416	32	0	13	428	84	0	69	65	55	26	0	0	0	0	1251
05:30 PM	89	456	29	0	46	411	52	0	101	23	56	0	0	0	0	0	1263
05:45 PM	59	467	35	0	28	458	54	0	112	26	65	0	0	0	0	0	1304
Total	288	1801	126	0	101	1712	254	0	369	147	229	27	0	0	0	0	5054
Grand Total	560	3626	209	0	172	3519	480	17	744	269	474	30	0	0	0	0	10100
Apprch %	12.7	82.5	4.8	0	4.1	84	11.5	0.4	49	17.7	31.2	2	0	0	0	0	
Total %	5.5	35.9	2.1	0	1.7	34.8	4.8	0.2	7.4	2.7	4.7	0.3	0	0	0	0	
cars	533	3593	205	0	171	3485	460	17	731	266	470	30	0	0	0	0	9961
% cars	95.2	99.1	98.1	0	99.4	99	95.8	100	98.3	98.9	99.2	100	0	0	0	0	98.6
trucks	5	31	4	0	1	34	20	0	13	3	4	0	0	0	0	0	115
% trucks	0.9	0.9	1.9	0	0.6	1	4.2	0	1.7	1.1	0.8	0	0	0	0	0	1.1
u-turns	22	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
% u-turns	3.9	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2

SW 107 AVENUE & SW 12 STREET

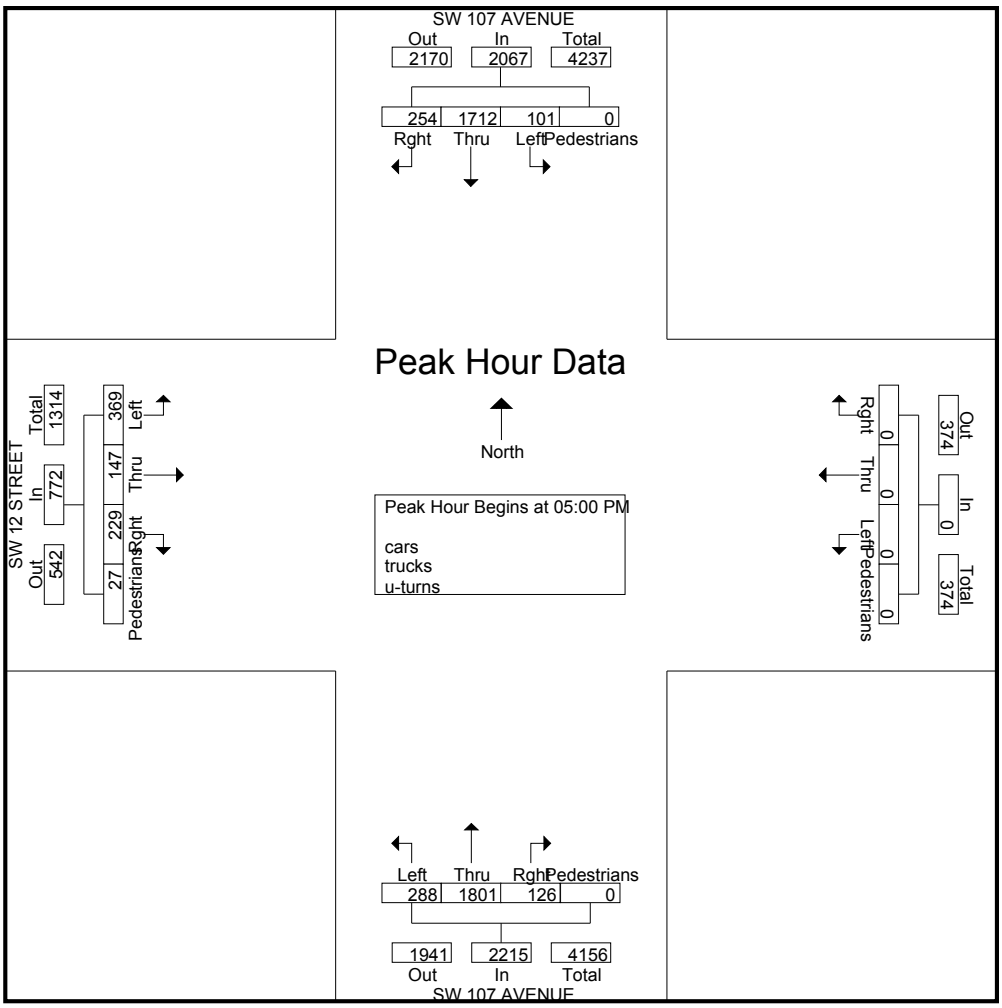
File Name : SW 107 AVENUE & SW 12 STREET
Site Code : 00000000
Start Date : 09/19/2012
Page No : 2



SW 107 AVENUE & SW 12 STREET

File Name : SW 107 AVENUE & SW 12 STREET
Site Code : 00000000
Start Date : 09/19/2012
Page No : 3

	SW 107 AVENUE Northbound					SW 107 AVENUE Southbound					SW 12 STREET Eastbound					Westbound					
Start Time	Left	Thru	Rght	Pedestrians	App. Total	Left	Thru	Rght	Pedestrians	App. Total	Left	Thru	Rght	Pedestrians	App. Total	Left	Thru	Rght	Pedestrians	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	77	462	30	0	569	14	415	64	0	493	87	33	53	1	174	0	0	0	0	0	1236
05:15 PM	63	416	32	0	511	13	428	**84**	0	525	69	**65**	55	**26**	**215**	0	0	0	0	0	1251
05:30 PM	**89**	456	29	0	**574**	**46**	411	52	0	509	101	23	56	0	180	0	0	0	0	0	1263
05:45 PM	59	**467**	**35**	0	561	28	**458**	54	0	**540**	**112**	26	**65**	0	203	0	0	0	0	0	**1304**
Total Volume	288	1801	126	0	2215	101	1712	254	0	2067	369	147	229	27	772	0	0	0	0	0	5054
% App. Total	13	81.3	5.7	0		4.9	82.8	12.3	0		47.8	19	29.7	3.5		0	0	0	0		
PHF	.809	.964	.900	.000	.965	.549	.934	.756	.000	.957	.824	.565	.881	.260	.898	.000	.000	.000	.000	.000	.969



SW 8 STREET AND SW 109 AVENUE

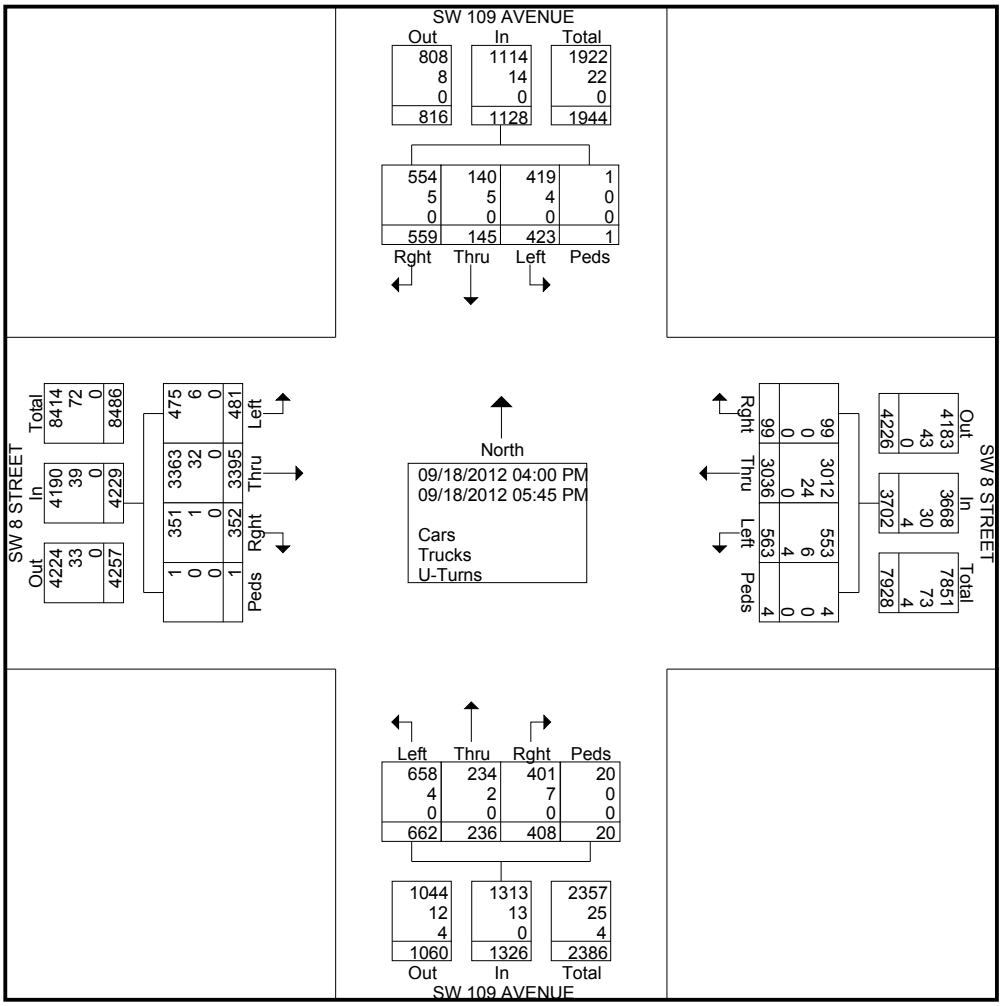
File Name : SW 8 Street and SW 109 Avenue
Site Code : 00000000
Start Date : 09/18/2012
Page No : 1

Groups Printed- Cars - Trucks - Turns

	SW 109 AVENUE Northbound				SW 109 AVENUE Southbound				SW 8 STREET Eastbound				SW 8 STREET Westbound				
Start Time	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Int. Total
04:00 PM	68	16	41	3	52	22	39	1	82	362	29	0	30	295	0	0	1040
04:15 PM	84	12	45	4	56	18	36	0	43	442	39	0	56	295	0	0	1130
04:30 PM	63	23	47	0	36	18	61	0	43	400	81	0	71	373	9	0	1225
04:45 PM	80	22	41	3	60	26	93	0	24	466	74	0	122	410	16	0	1437
Total	295	73	174	10	204	84	229	1	192	1670	223	0	279	1373	25	0	4832
05:00 PM	89	30	72	0	53	33	61	0	56	477	22	1	84	285	19	0	1282
05:15 PM	97	58	66	6	45	3	80	0	59	448	27	0	59	436	21	1	1406
05:30 PM	86	42	43	2	62	15	92	0	74	407	29	0	41	524	21	3	1441
05:45 PM	95	33	53	2	59	10	97	0	100	393	51	0	100	418	13	0	1424
Total	367	163	234	10	219	61	330	0	289	1725	129	1	284	1663	74	4	5553
Grand Total	662	236	408	20	423	145	559	1	481	3395	352	1	563	3036	99	4	10385
Apprch %	49.9	17.8	30.8	1.5	37.5	12.9	49.6	0.1	11.4	80.3	8.3	0	15.2	82	2.7	0.1	
Total %	6.4	2.3	3.9	0.2	4.1	1.4	5.4	0	4.6	32.7	3.4	0	5.4	29.2	1	0	
Cars	658	234	401	20	419	140	554	1	475	3363	351	1	553	3012	99	4	10285
% Cars	99.4	99.2	98.3	100	99.1	96.6	99.1	100	98.8	99.1	99.7	100	98.2	99.2	100	100	99
Trucks	4	2	7	0	4	5	5	0	6	32	1	0	6	24	0	0	96
% Trucks	0.6	0.8	1.7	0	0.9	3.4	0.9	0	1.2	0.9	0.3	0	1.1	0.8	0	0	0.9
U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
% U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	0.7	0	0	0	0

SW 8 STREET AND SW 109 AVENUE

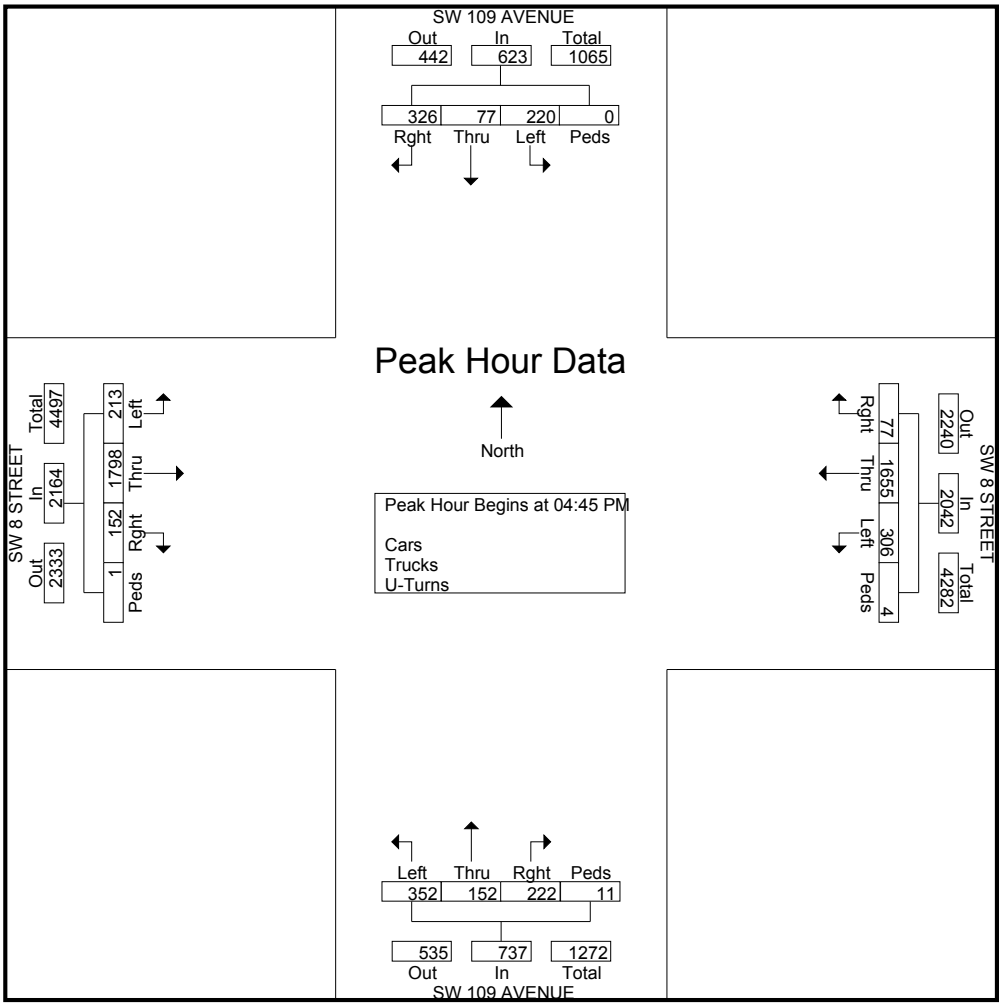
File Name : SW 8 Street and SW 109 Avenue
Site Code : 00000000
Start Date : 09/18/2012
Page No : 2



SW 8 STREET AND SW 109 AVENUE

File Name : SW 8 Street and SW 109 Avenue
Site Code : 00000000
Start Date : 09/18/2012
Page No : 3

	SW 109 AVENUE Northbound					SW 109 AVENUE Southbound					SW 8 STREET Eastbound					SW 8 STREET Westbound					
Start Time	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	80	22	41	3	146	60	26	**93**	0	**179**	24	466	**74**	0	**564**	**122**	410	16	0	548	1437
05:00 PM	89	30	**72**	0	191	53	**33**	61	0	147	56	**477**	22	**1**	556	84	285	19	0	388	1282
05:15 PM	**97**	**58**	66	**6**	**227**	45	3	80	0	128	59	448	27	0	534	59	436	**21**	1	517	1406
05:30 PM	86	42	43	2	173	**62**	15	92	0	169	**74**	407	29	0	510	41	**524**	21	**3**	**589**	**1441**
Total Volume	352	152	222	11	737	220	77	326	0	623	213	1798	152	1	2164	306	1655	77	4	2042	5566
% App. Total	47.8	20.6	30.1	1.5		35.3	12.4	52.3	0		9.8	83.1	7	0		15	81	3.8	0.2		
PHF	.907	.655	.771	.458	.812	.887	.583	.876	.000	.870	.720	.942	.514	.250	.959	.627	.790	.917	.333	.867	.966



SW 107 AVENUE & SW 16 STREET

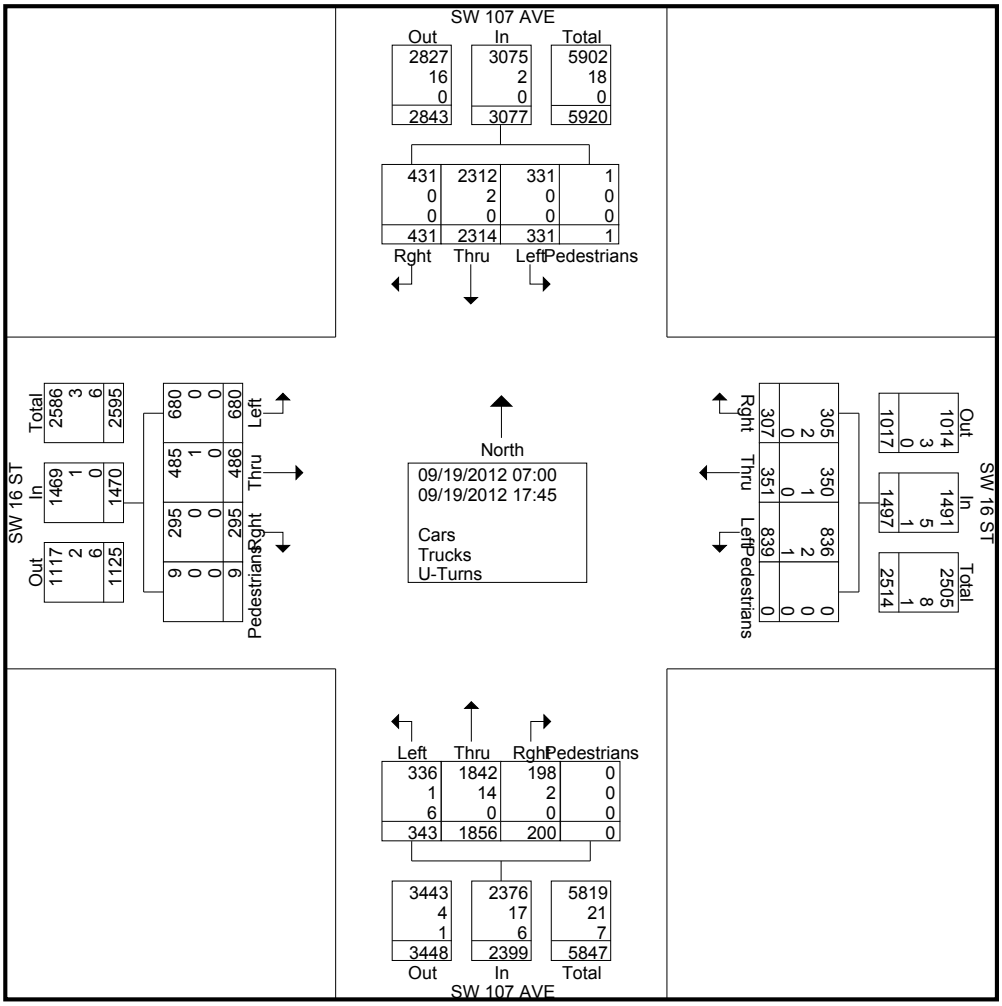
File Name : Not Named 1
Site Code : F I U
Start Date : 09/19/2012
Page No : 1

Groups Printed- Cars - Trucks - Turns

	SW 107 AVE Northbound				SW 107 AVE Southbound				SW 16 ST Eastbound				SW 16 ST Westbound				
Start Time	Left	Thru	Rght	Pedestrians	Left	Thru	Rght	Pedestrians	Left	Thru	Rght	Pedestrians	Left	Thru	Rght	Pedestrians	Int. Total
*** BREAK ***																	
16:00	37	204	14	0	47	326	40	0	74	48	26	0	81	44	42	0	983
16:15	50	241	20	0	38	388	99	1	87	59	37	9	79	44	30	0	1182
16:30	66	200	20	0	24	255	58	0	89	90	51	0	91	67	33	0	1044
16:45	54	222	26	0	17	270	87	0	86	39	27	0	126	48	44	0	1046
Total	207	867	80	0	126	1239	284	1	336	236	141	9	377	203	149	0	4255
17:00	35	273	51	0	57	244	34	0	109	90	56	0	148	37	51	0	1185
17:15	41	230	22	0	52	269	23	0	75	61	32	0	113	37	42	0	997
17:30	20	276	28	0	45	300	54	0	79	61	30	0	95	29	30	0	1047
17:45	40	210	19	0	51	262	36	0	81	38	36	0	106	45	35	0	959
Total	136	989	120	0	205	1075	147	0	344	250	154	0	462	148	158	0	4188
Grand Total	343	1856	200	0	331	2314	431	1	680	486	295	9	839	351	307	0	8443
Apprch %	14.3	77.4	8.3	0	10.8	75.2	14	0	46.3	33.1	20.1	0.6	56	23.4	20.5	0	
Total %	4.1	22	2.4	0	3.9	27.4	5.1	0	8.1	5.8	3.5	0.1	9.9	4.2	3.6	0	
Cars	336	1842	198	0	331	2312	431	1	680	485	295	9	836	350	305	0	8411
% Cars	98	99.2	99	0	100	99.9	100	100	100	99.8	100	100	99.6	99.7	99.3	0	99.6
Trucks	1	14	2	0	0	2	0	0	0	1	0	0	2	1	2	0	25
% Trucks	0.3	0.8	1	0	0	0.1	0	0	0	0.2	0	0	0.2	0.3	0.7	0	0.3
U-Turns	6	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	7
% U-Turns	1.7	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0.1

SW 107 AVENUE & SW 16 STREET

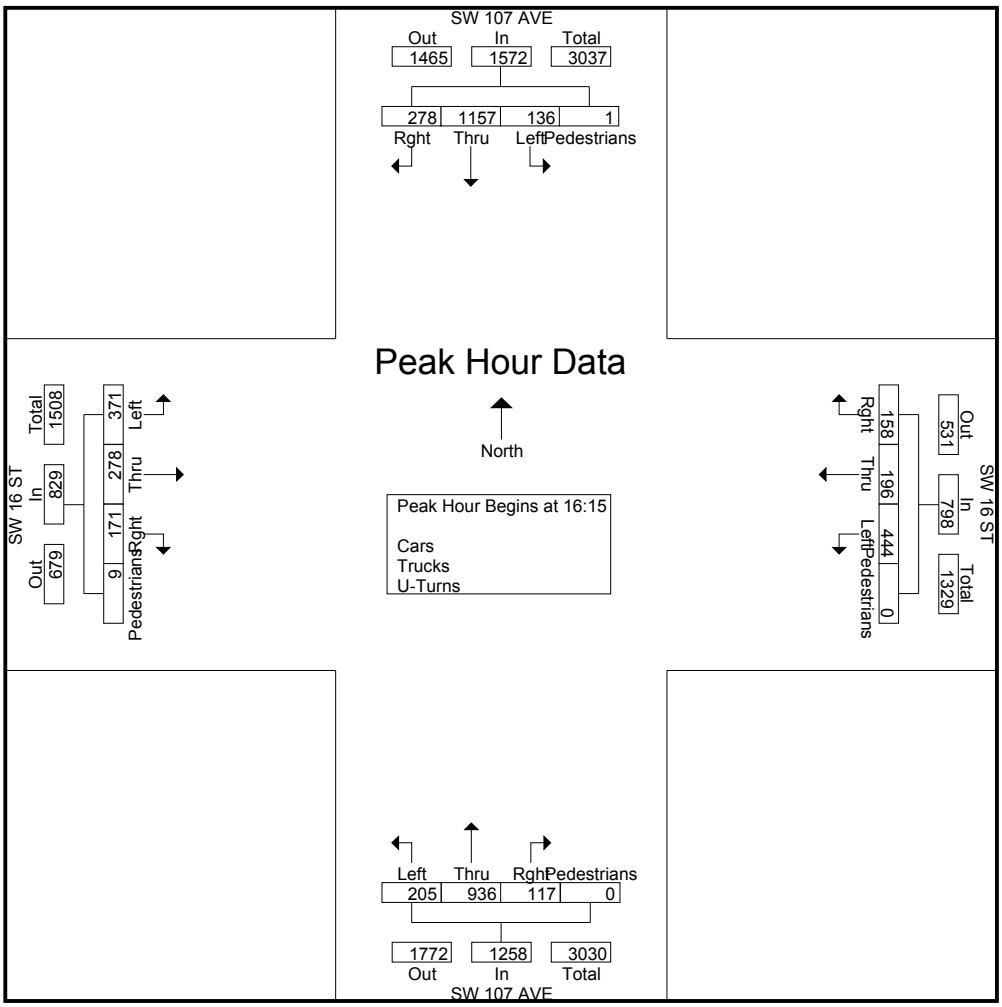
File Name : Not Named 1
Site Code : F I U
Start Date : 09/19/2012
Page No : 2



SW 107 AVENUE & SW 16 STREET

File Name : Not Named 1
Site Code : F I U
Start Date : 09/19/2012
Page No : 3

	SW 107 AVE Northbound					SW 107 AVE Southbound					SW 16 ST Eastbound					SW 16 ST Westbound					
Start Time	Left	Thru	Rght	Pedestrians	App. Total	Left	Thru	Rght	Pedestrians	App. Total	Left	Thru	Rght	Pedestrians	App. Total	Left	Thru	Rght	Pedestrians	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:15																					
16:15	50	241	20	0	311	38	**388**	**99**	**1**	**526**	87	59	37	**9**	192	79	44	30	0	153	1182
16:30	**66**	200	20	0	286	24	255	58	0	337	89	**90**	51	0	230	91	**67**	33	0	191	1044
16:45	54	222	26	0	302	17	270	87	0	374	86	39	27	0	152	126	48	44	0	218	1046
17:00	35	**273**	**51**	0	**359**	**57**	244	34	0	335	**109**	90	**56**	0	**255**	**148**	37	**51**	0	**236**	**1185**
Total Volume	205	936	117	0	1258	136	1157	278	1	1572	371	278	171	9	829	444	196	158	0	798	4457
% App. Total	16.3	74.4	9.3	0		8.7	73.6	17.7	0.1		44.8	33.5	20.6	1.1		55.6	24.6	19.8	0		
PHF	.777	.857	.574	.000	.876	.596	.745	.702	.250	.747	.851	.772	.763	.250	.813	.750	.731	.775	.000	.845	.940



SW 107 AVENUE AND SW 108 AVENUE

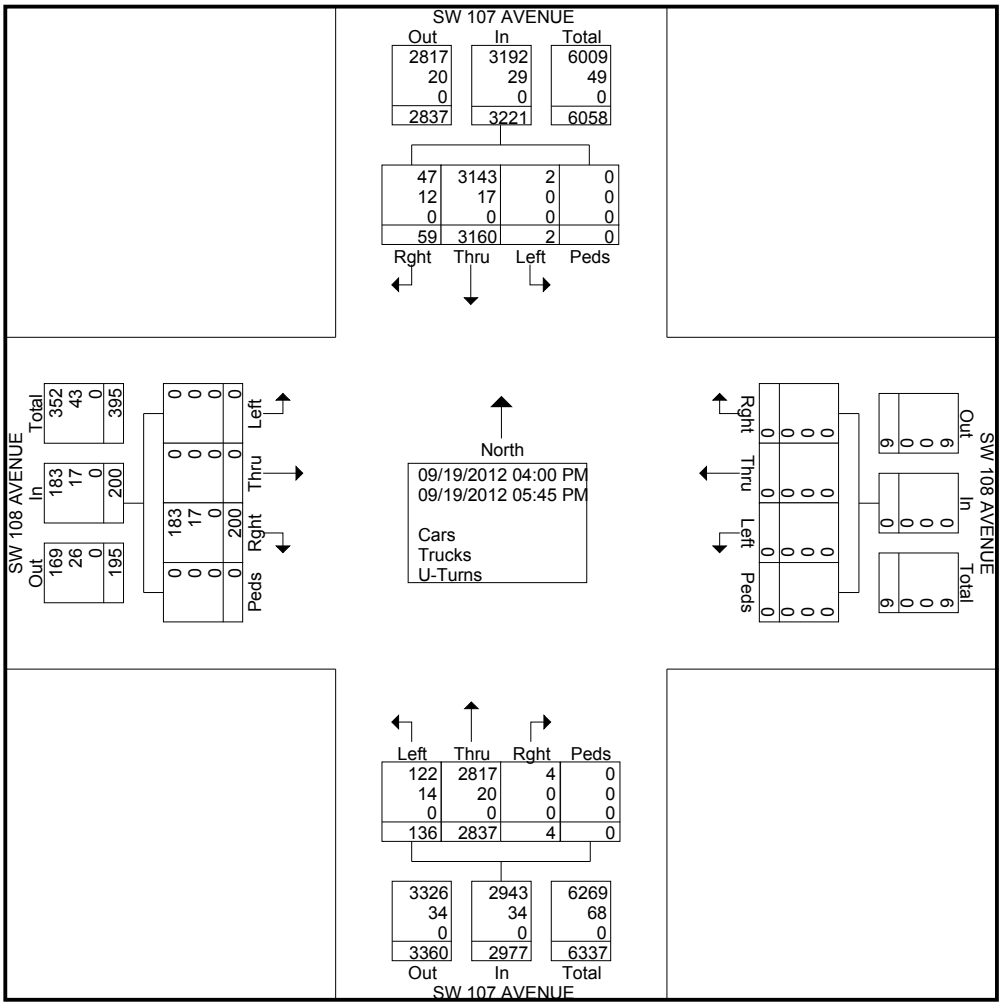
File Name : SW 107 Avenue and SW 108 Avenue
Site Code : 00000000
Start Date : 09/19/2012
Page No : 1

Groups Printed- Cars - Trucks - Turns

	SW 107 AVENUE Northbound				SW 107 AVENUE Southbound				SW 108 AVENUE Eastbound				SW 108 AVENUE Westbound				
Start Time	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Int. Total
04:00 PM	14	252	4	0	0	306	6	0	0	0	24	0	0	0	0	0	606
04:15 PM	7	324	0	0	0	351	4	0	0	0	24	0	0	0	0	0	710
04:30 PM	28	330	0	0	0	400	5	0	0	0	20	0	0	0	0	0	783
04:45 PM	25	404	0	0	2	444	9	0	0	0	10	0	0	0	0	0	894
Total	74	1310	4	0	2	1501	24	0	0	0	78	0	0	0	0	0	2993
05:00 PM	19	389	0	0	0	482	6	0	0	0	47	0	0	0	0	0	943
05:15 PM	16	402	0	0	0	444	8	0	0	0	20	0	0	0	0	0	890
05:30 PM	11	301	0	0	0	362	10	0	0	0	32	0	0	0	0	0	716
05:45 PM	16	435	0	0	0	371	11	0	0	0	23	0	0	0	0	0	856
Total	62	1527	0	0	0	1659	35	0	0	0	122	0	0	0	0	0	3405
Grand Total	136	2837	4	0	2	3160	59	0	0	0	200	0	0	0	0	0	6398
Apprch %	4.6	95.3	0.1	0	0.1	98.1	1.8	0	0	0	100	0	0	0	0	0	
Total %	2.1	44.3	0.1	0	0	49.4	0.9	0	0	0	3.1	0	0	0	0	0	
Cars	122	2817	4	0	2	3143	47	0	0	0	183	0	0	0	0	0	6318
% Cars	89.7	99.3	100	0	100	99.5	79.7	0	0	0	91.5	0	0	0	0	0	98.7
Trucks	14	20	0	0	0	17	12	0	0	0	17	0	0	0	0	0	80
% Trucks	10.3	0.7	0	0	0	0.5	20.3	0	0	0	8.5	0	0	0	0	0	1.3
U-Turns	0	0	0	0	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	0	0	0	0

SW 107 AVENUE AND SW 108 AVENUE

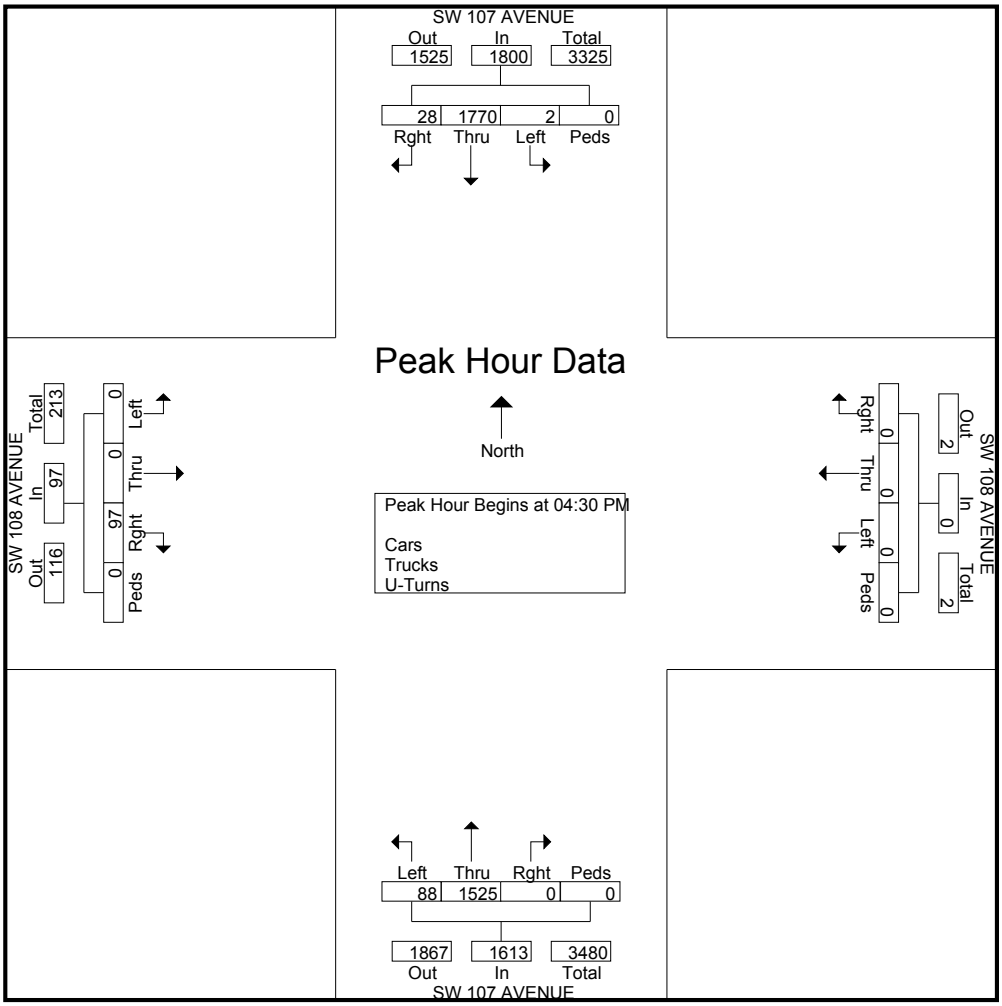
File Name : SW 107 Avenue and SW 108 Avenue
Site Code : 00000000
Start Date : 09/19/2012
Page No : 2



SW 107 AVENUE AND SW 108 AVENUE

File Name : SW 107 Avenue and SW 108 Avenue
Site Code : 00000000
Start Date : 09/19/2012
Page No : 3

	SW 107 AVENUE Northbound					SW 107 AVENUE Southbound					SW 108 AVENUE Eastbound					SW 108 AVENUE Westbound					
Start Time	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	**28**	330	0	0	358	0	400	5	0	405	0	0	20	0	20	0	0	0	0	0	783
04:45 PM	25	**404**	0	0	**429**	**2**	444	**9**	0	455	0	0	10	0	10	0	0	0	0	0	894
05:00 PM	19	389	0	0	408	0	**482**	6	0	**488**	0	0	**47**	0	**47**	0	0	0	0	0	**943**
05:15 PM	16	402	0	0	418	0	444	8	0	452	0	0	20	0	20	0	0	0	0	0	890
Total Volume	88	1525	0	0	1613	2	1770	28	0	1800	0	0	97	0	97	0	0	0	0	0	3510
% App. Total	5.5	94.5	0	0		0.1	98.3	1.6	0		0	0	100	0		0	0	0	0		
PHF	.786	.944	.000	.000	.940	.250	.918	.778	.000	.922	.000	.000	.516	.000	.516	.000	.000	.000	.000	.000	.931



SW 112 AVENUE SW 8 STREET

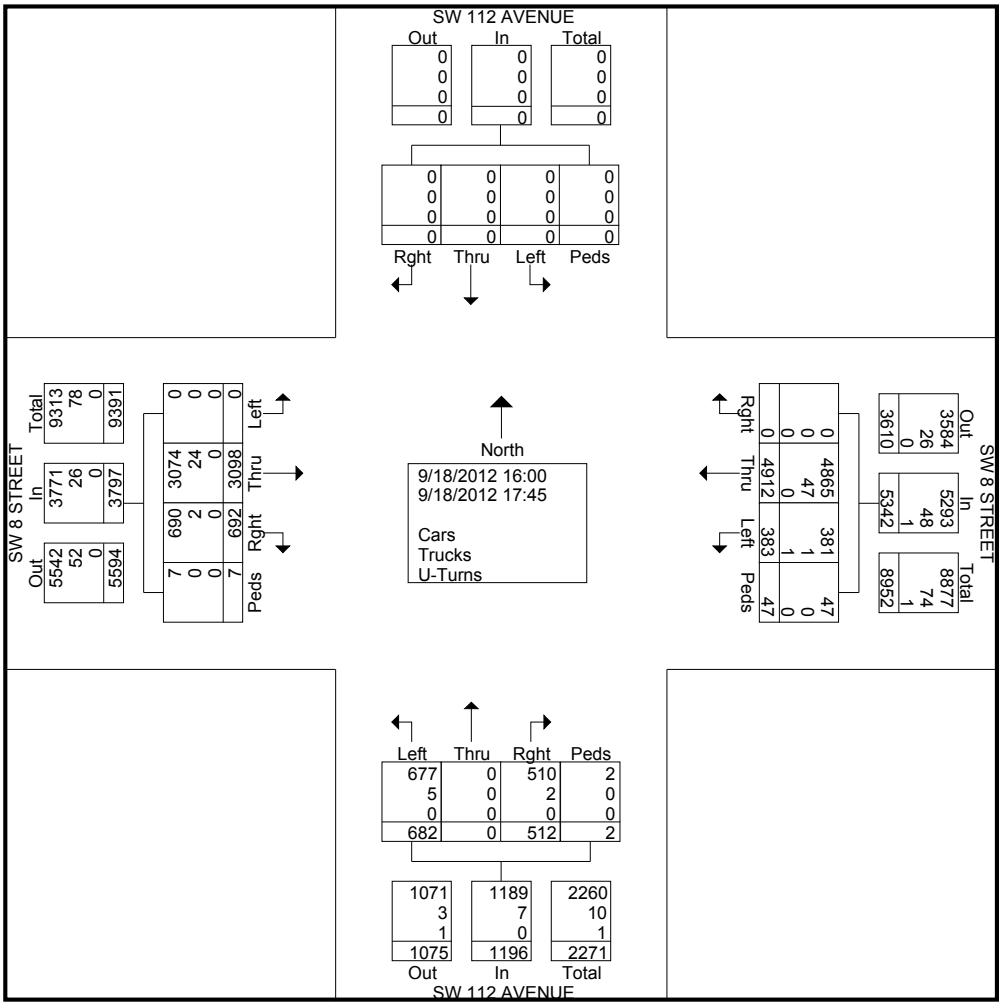
File Name : SW 8 Street and SW 112 Avenue
Site Code : 00000000
Start Date : 9/18/2012
Page No : 1

Groups Printed- Cars - Trucks - Turns

	SW 112 AVENUE Southbound				SW 112 AVENUE Northbound				SW 8 STREET Westbound				SW 8 STREET Eastbound				
Start Time	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Left	Thru	Rght	Peds	Int. Total
16:00	0	0	0	0	81	0	74	2	40	533	0	5	0	333	35	0	1103
16:15	0	0	0	0	102	0	91	0	33	490	0	10	0	389	113	0	1228
16:30	0	0	0	0	79	0	82	0	79	548	0	9	0	461	169	1	1428
16:45	0	0	0	0	109	0	60	0	91	689	0	6	0	399	157	5	1516
Total	0	0	0	0	371	0	307	2	243	2260	0	30	0	1582	474	6	5275
17:00	0	0	0	0	122	0	55	0	54	675	0	6	0	459	42	0	1413
17:15	0	0	0	0	71	0	49	0	23	616	0	3	0	384	49	1	1196
17:30	0	0	0	0	62	0	56	0	27	688	0	1	0	318	69	0	1221
17:45	0	0	0	0	56	0	45	0	36	673	0	7	0	355	58	0	1230
Total	0	0	0	0	311	0	205	0	140	2652	0	17	0	1516	218	1	5060
Grand Total	0	0	0	0	682	0	512	2	383	4912	0	47	0	3098	692	7	10335
Apprch %	0	0	0	0	57	0	42.8	0.2	7.2	92	0	0.9	0	81.6	18.2	0.2	
Total %	0	0	0	0	6.6	0	5	0	3.7	47.5	0	0.5	0	30	6.7	0.1	
Cars	0	0	0	0	677	0	510	2	381	4865	0	47	0	3074	690	7	10253
% Cars	0	0	0	0	99.3	0	99.6	100	99.5	99	0	100	0	99.2	99.7	100	99.2
Trucks	0	0	0	0	5	0	2	0	1	47	0	0	0	24	2	0	81
% Trucks	0	0	0	0	0.7	0	0.4	0	0.3	1	0	0	0	0.8	0.3	0	0.8
U-Turns	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
% U-Turns	0	0	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0

SW 112 AVENUE SW 8 STREET

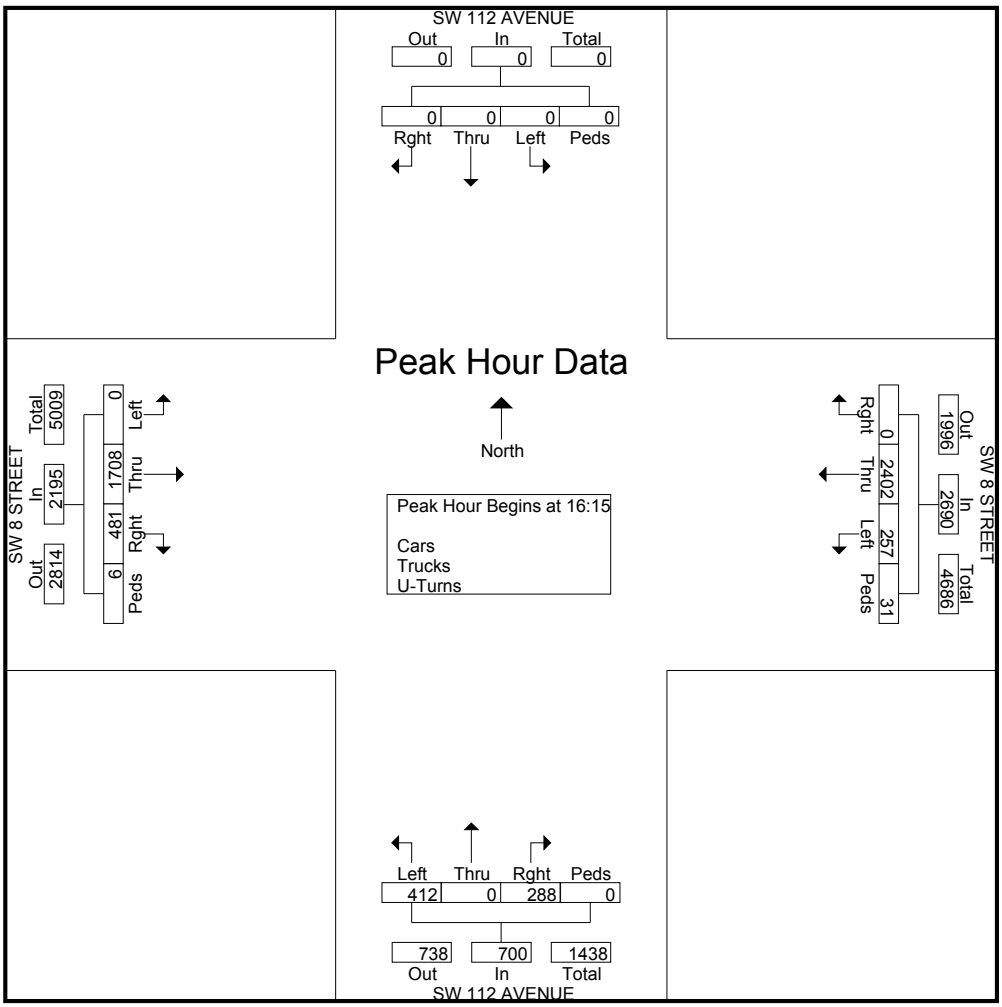
File Name : SW 8 Street and SW 112 Avenue
Site Code : 00000000
Start Date : 9/18/2012
Page No : 2



SW 112 AVENUE SW 8 STREET

File Name : SW 8 Street and SW 112 Avenue
Site Code : 00000000
Start Date : 9/18/2012
Page No : 3

	SW 112 AVENUE Southbound					SW 112 AVENUE Northbound					SW 8 STREET Westbound					SW 8 STREET Eastbound					
Start Time	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:15																					
16:15	0	0	0	0	0	102	0	**91**	0	**193**	33	490	0	**10**	533	0	389	113	0	502	1228
16:30	0	0	0	0	0	79	0	82	0	161	79	548	0	9	636	0	**461**	**169**	1	**631**	1428
16:45	0	0	0	0	0	109	0	60	0	169	**91**	**689**	0	6	**786**	0	399	157	**5**	561	**1516**
17:00	0	0	0	0	0	**122**	0	55	0	177	54	675	0	6	735	0	459	42	0	501	1413
Total Volume	0	0	0	0	0	412	0	288	0	700	257	2402	0	31	2690	0	1708	481	6	2195	5585
% App. Total	0	0	0	0		58.9	0	41.1	0		9.6	89.3	0	1.2		0	77.8	21.9	0.3		
PHF	.000	.000	.000	.000	.000	.844	.000	.791	.000	.907	.706	.872	.000	.775	.856	.000	.926	.712	.300	.870	.921



SW 112 AVENUE & UNIVERSITY DR

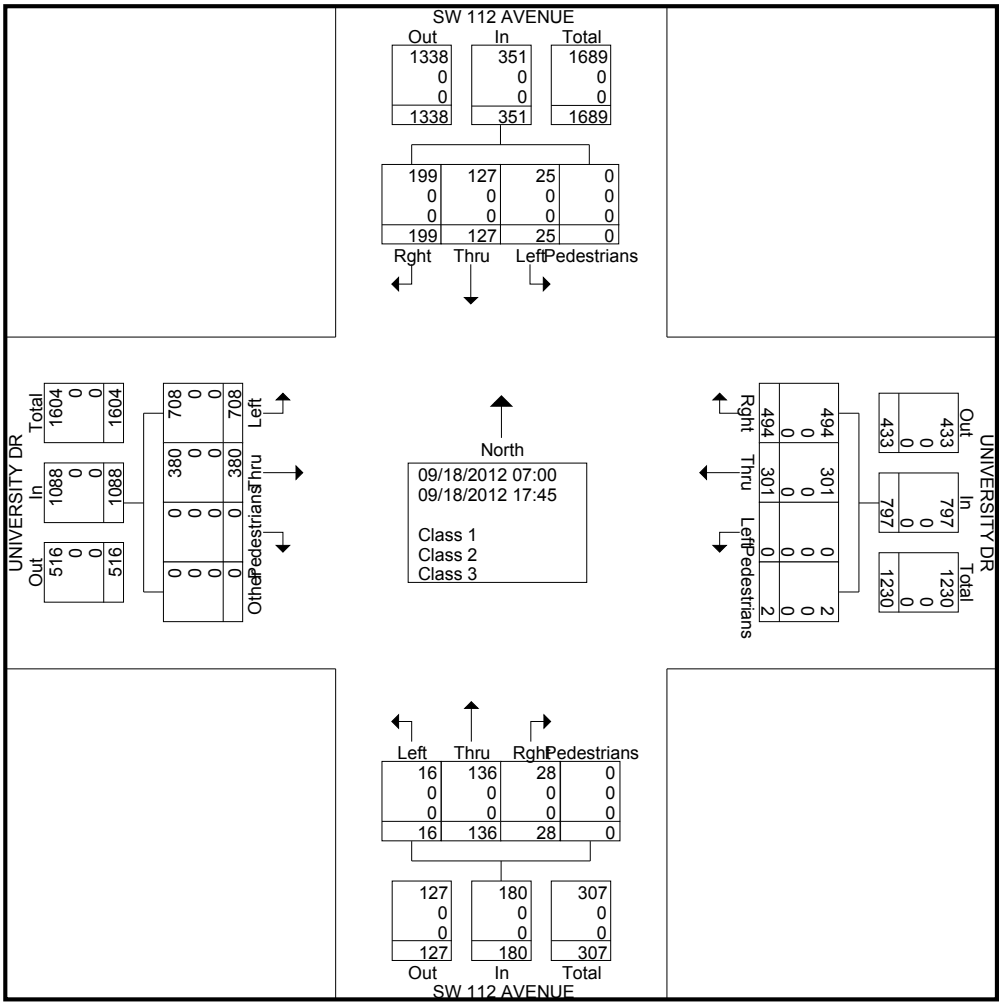
File Name : Not Named 1
Site Code : 00000000
Start Date : 09/18/2012
Page No : 1

Groups Printed- Class 1 - Class 2 - Class 3

	SW 112 AVENUE Northbound				SW 112 AVENUE Southbound				UNIVERSITY DR Eastbound				UNIVERSITY DR Westbound				
Start Time	Left	Thru	Rght	Pedestrians	Left	Thru	Rght	Pedestrians	Left	Thru	Pedestrians	Other	Left	Thru	Rght	Pedestrians	Int. Total
*** BREAK ***																	
16:00	2	21	4	0	0	35	21	0	111	61	0	0	0	36	64	0	355
16:15	2	17	5	0	0	25	46	0	98	53	0	0	0	43	49	0	338
16:30	2	15	2	0	16	8	30	0	73	59	0	0	0	36	65	0	306
16:45	3	27	6	0	4	21	37	0	71	70	0	0	0	44	56	1	340
Total	9	80	17	0	20	89	134	0	353	243	0	0	0	159	234	1	1339
17:00	2	35	5	0	3	8	15	0	99	51	0	0	0	50	107	1	376
17:15	0	6	1	0	0	10	18	0	108	45	0	0	0	41	96	0	325
17:30	2	7	0	0	0	9	14	0	83	21	0	0	0	28	27	0	191
17:45	3	8	5	0	2	11	18	0	65	20	0	0	0	23	30	0	185
Total	7	56	11	0	5	38	65	0	355	137	0	0	0	142	260	1	1077
Grand Total	16	136	28	0	25	127	199	0	708	380	0	0	0	301	494	2	2416
Apprch %	8.9	75.6	15.6	0	7.1	36.2	56.7	0	65.1	34.9	0	0	0	37.8	62	0.3	
Total %	0.7	5.6	1.2	0	1	5.3	8.2	0	29.3	15.7	0	0	0	12.5	20.4	0.1	
Class 1	16	136	28	0	25	127	199	0	708	380	0	0	0	301	494	2	2416
% Class 1	100	100	100	0	100	100	100	0	100	100	0	0	0	100	100	100	100
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Class 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Class 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW 112 AVENUE & UNIVERSITY DR

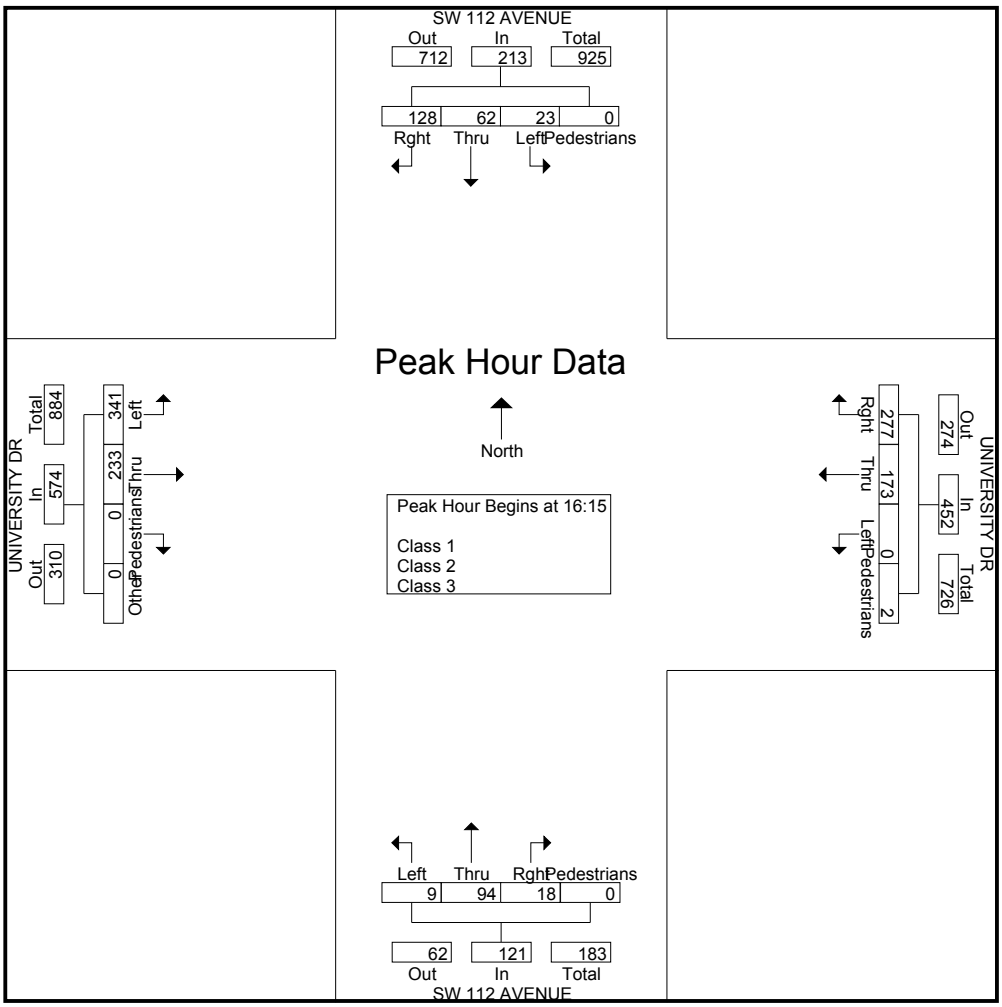
File Name : Not Named 1
Site Code : 00000000
Start Date : 09/18/2012
Page No : 2



SW 112 AVENUE & UNIVERSITY DR

File Name : Not Named 1
Site Code : 00000000
Start Date : 09/18/2012
Page No : 3

	SW 112 AVENUE Northbound					SW 112 AVENUE Southbound					UNIVERSITY DR Eastbound					UNIVERSITY DR Westbound					
Start Time	Left	Thru	Rght	Pedestrians	App. Total	Left	Thru	Rght	Pedestrians	App. Total	Left	Thru	Pedestrians	Other	App. Total	Left	Thru	Rght	Pedestrians	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:15																					
16:15	2	17	5	0	24	0	**25**	**46**	0	**71**	98	53	0	0	**151**	0	43	49	0	92	338
16:30	2	15	2	0	19	**16**	8	30	0	54	73	59	0	0	132	0	36	65	0	101	306
16:45	**3**	27	**6**	0	36	4	21	37	0	62	71	**70**	0	0	141	0	44	56	**1**	101	340
17:00	2	**35**	5	0	**42**	3	8	15	0	26	**99**	51	0	0	150	0	**50**	**107**	1	**158**	**376**
Total Volume	9	94	18	0	121	23	62	128	0	213	341	233	0	0	574	0	173	277	2	452	1360
% App. Total	7.4	77.7	14.9	0		10.8	29.1	60.1	0		59.4	40.6	0	0		0	38.3	61.3	0.4		
PHF	.750	.671	.750	.000	.720	.359	.620	.696	.000	.750	.861	.832	.000	.000	.950	.000	.865	.647	.500	.715	.904



SW 115 AVENUE & SW 17 STREET

Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

File Name : Not Named 2
Site Code : 00000000
Start Date : 09/18/2012
Page No : 1

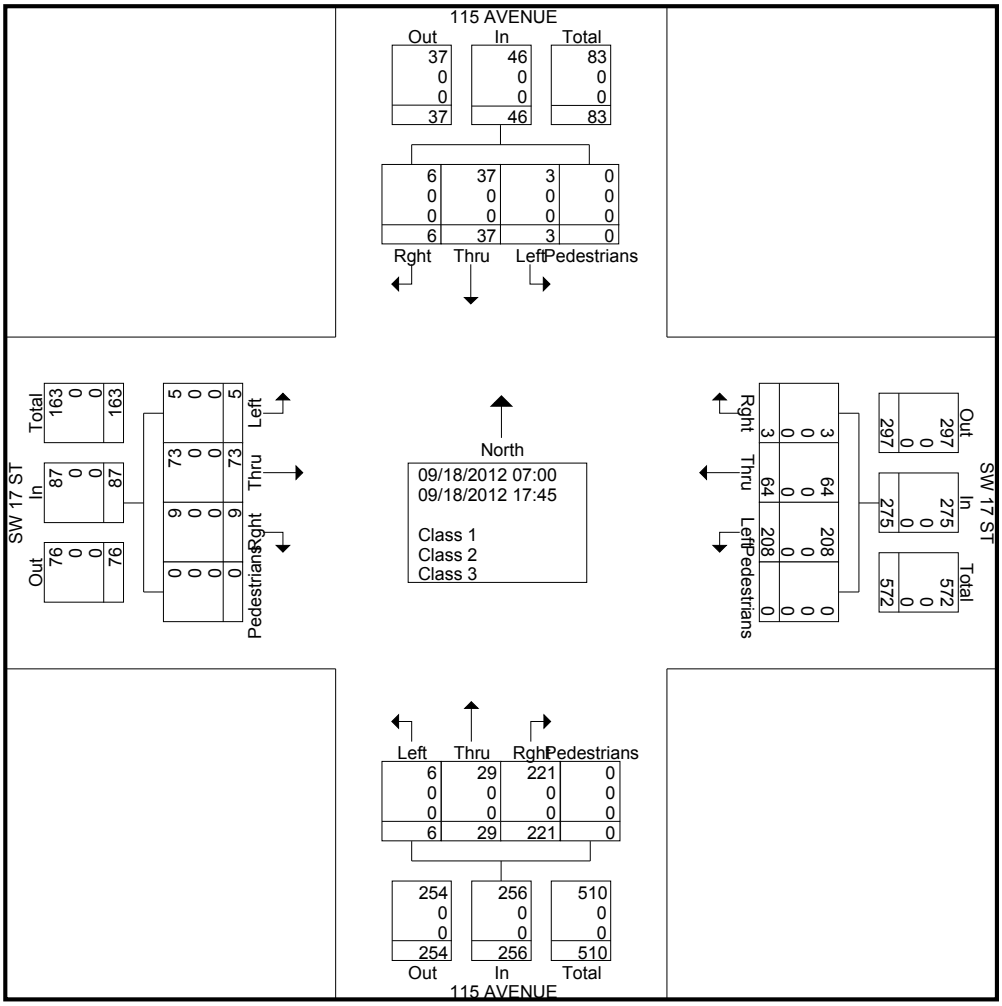
Groups Printed- Class 1 - Class 2 - Class 3

	115 AVENUE Northbound				115 AVENUE Southbound				SW 17 ST Eastbound				SW 17 ST Westbound				
Start Time	Left	Thru	Rght	Pedestrians	Left	Thru	Rght	Pedestrians	Left	Thru	Rght	Pedestrians	Left	Thru	Rght	Pedestrians	Int. Total
*** BREAK ***																	
11:00	1	5	35	0	1	12	0	0	1	10	1	0	45	14	1	0	126
11:15	0	9	30	0	1	8	1	0	0	5	0	0	46	11	0	0	111
11:30	0	3	25	0	0	11	3	0	1	3	1	0	27	21	1	0	96
11:45	2	2	27	0	1	4	2	0	1	5	3	0	46	9	0	0	102
Total	3	19	117	0	3	35	6	0	3	23	5	0	164	55	2	0	435
12:00	3	4	15	0	0	0	0	0	1	1	0	0	30	6	1	0	61
12:15	0	2	28	0	0	0	0	0	1	20	0	0	7	2	0	0	60
12:30	0	2	28	0	0	1	0	0	0	15	2	0	3	1	0	0	52
12:45	0	2	33	0	0	1	0	0	0	14	2	0	4	0	0	0	56
Total	3	10	104	0	0	2	0	0	2	50	4	0	44	9	1	0	229
*** BREAK ***																	
Grand Total	6	29	221	0	3	37	6	0	5	73	9	0	208	64	3	0	664
Apprch %	2.3	11.3	86.3	0	6.5	80.4	13	0	5.7	83.9	10.3	0	75.6	23.3	1.1	0	
Total %	0.9	4.4	33.3	0	0.5	5.6	0.9	0	0.8	11	1.4	0	31.3	9.6	0.5	0	
Class 1	6	29	221	0	3	37	6	0	5	73	9	0	208	64	3	0	664
% Class 1	100	100	100	0	100	100	100	0	100	100	100	0	100	100	100	0	100
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Class 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Class 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW 115 AVENUE & SW 17 STREET

Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

File Name : Not Named 2
Site Code : 00000000
Start Date : 09/18/2012
Page No : 2

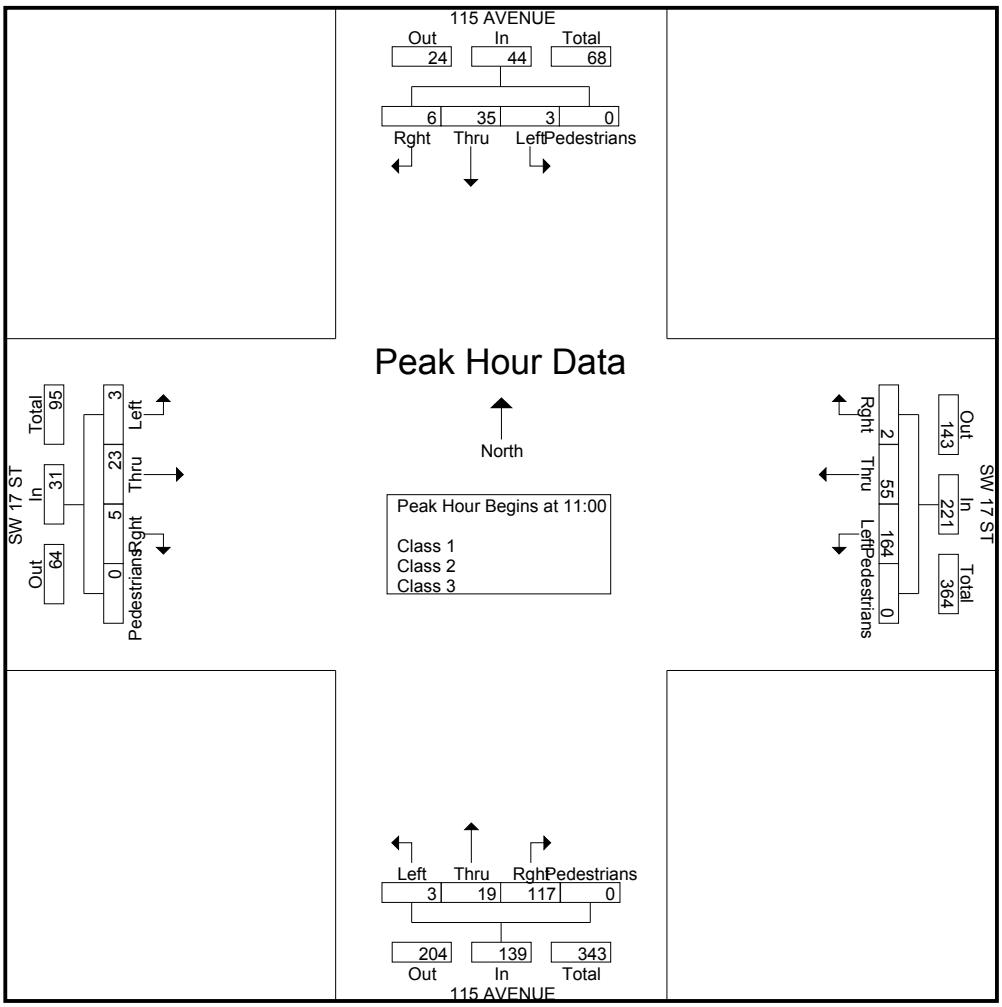


SW 115 AVENUE & SW 17 STREET

Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

File Name : Not Named 2
Site Code : 00000000
Start Date : 09/18/2012
Page No : 3

	115 AVENUE Northbound					115 AVENUE Southbound					SW 17 ST Eastbound					SW 17 ST Westbound					
Start Time	Left	Thru	Rght	Pedestrians	App. Total	Left	Thru	Rght	Pedestrians	App. Total	Left	Thru	Rght	Pedestrians	App. Total	Left	Thru	Rght	Pedestrians	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:00																					
11:00	1	5	**35**	0	**41**	**1**	**12**	0	0	13	**1**	**10**	1	0	**12**	45	14	**1**	0	**60**	**126**
11:15	0	**9**	30	0	39	1	8	1	0	10	0	5	0	0	5	**46**	11	0	0	57	111
11:30	0	3	25	0	28	0	11	**3**	0	**14**	1	3	1	0	5	27	**21**	1	0	49	96
11:45	**2**	2	27	0	31	1	4	2	0	7	1	5	**3**	0	9	46	9	0	0	55	102
Total Volume	3	19	117	0	139	3	35	6	0	44	3	23	5	0	31	164	55	2	0	221	435
% App. Total	2.2	13.7	84.2	0		6.8	79.5	13.6	0		9.7	74.2	16.1	0		74.2	24.9	0.9	0		
PHF	.375	.528	.836	.000	.848	.750	.729	.500	.000	.786	.750	.575	.417	.000	.646	.891	.655	.500	.000	.921	.863



SW 117 AVENUE & SW 17 STREET

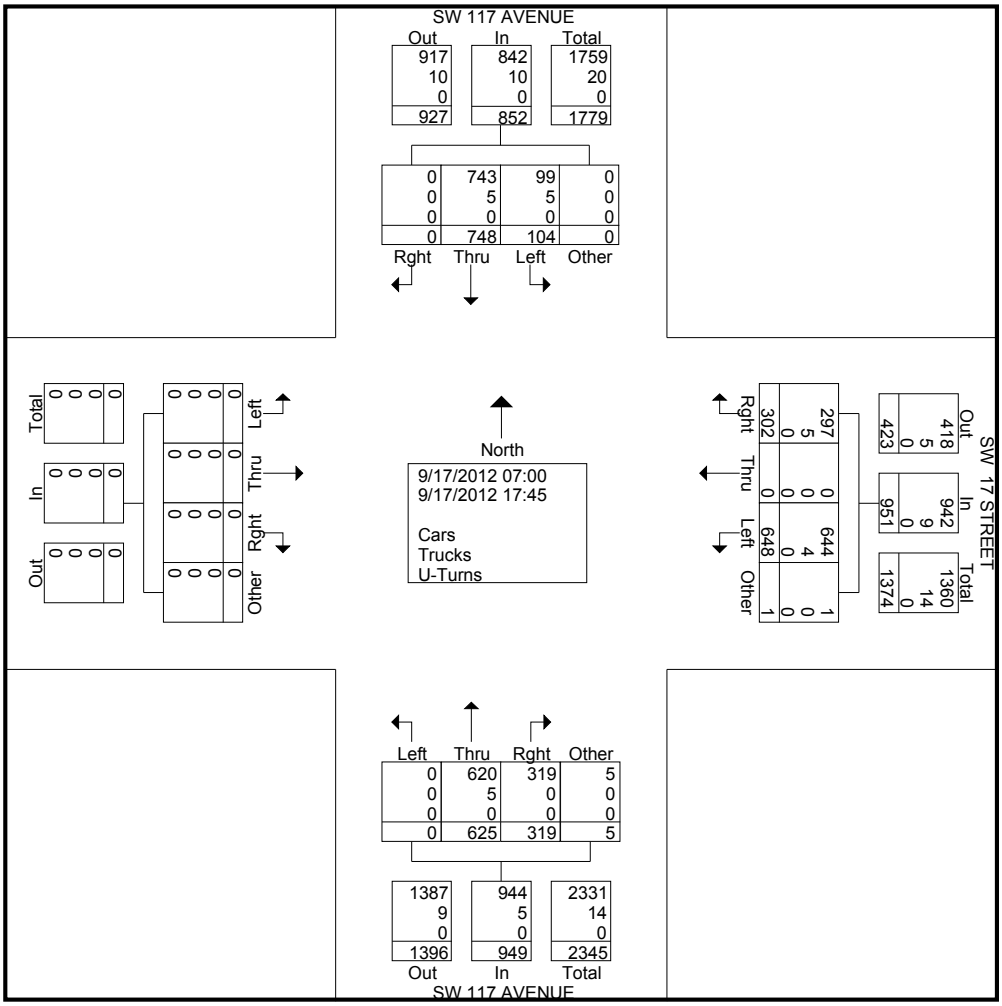
File Name : Not Named 1
Site Code : 00000000
Start Date : 9/18/2012
Page No : 1

Groups Printed- Cars - Trucks - Turns

	SW 117 AVENUE Northbound				SW 117 AVENUE Southbound				Eastbound				SW 17 STREET Westbound				
Start Time	Left	Thru	Rght	Other	Left	Thru	Rght	Other	Left	Thru	Rght	Other	Left	Thru	Rght	Other	Int. Total
*** BREAK ***																	
16:00	0	26	21	2	6	55	0	0	0	0	0	0	18	0	14	0	142
16:15	0	69	39	2	9	60	0	0	0	0	0	0	53	0	27	0	259
16:30	0	78	64	0	13	85	0	0	0	0	0	0	64	0	24	0	328
16:45	0	97	67	1	14	98	0	0	0	0	0	0	62	0	41	0	380
Total	0	270	191	5	42	298	0	0	0	0	0	0	197	0	106	0	1109
17:00	0	97	33	0	17	113	0	0	0	0	0	0	111	0	48	1	420
17:15	0	87	24	0	11	101	0	0	0	0	0	0	144	0	51	0	418
17:30	0	104	31	0	20	132	0	0	0	0	0	0	116	0	70	0	473
17:45	0	67	40	0	14	104	0	0	0	0	0	0	80	0	27	0	332
Total	0	355	128	0	62	450	0	0	0	0	0	0	451	0	196	1	1643
Grand Total	0	625	319	5	104	748	0	0	0	0	0	0	648	0	302	1	2752
Apprch %	0	65.9	33.6	0.5	12.2	87.8	0	0	0	0	0	0	68.1	0	31.8	0.1	
Total %	0	22.7	11.6	0.2	3.8	27.2	0	0	0	0	0	0	23.5	0	11	0	
Cars	0	620	319	5	99	743	0	0	0	0	0	0	644	0	297	1	2728
% Cars	0	99.2	100	100	95.2	99.3	0	0	0	0	0	0	99.4	0	98.3	100	99.1
Trucks	0	5	0	0	5	5	0	0	0	0	0	0	4	0	5	0	24
% Trucks	0	0.8	0	0	4.8	0.7	0	0	0	0	0	0	0.6	0	1.7	0	0.9
U-Turns	0	0	0	0	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	0	0	0	0

SW 117 AVENUE & SW 17 STREET

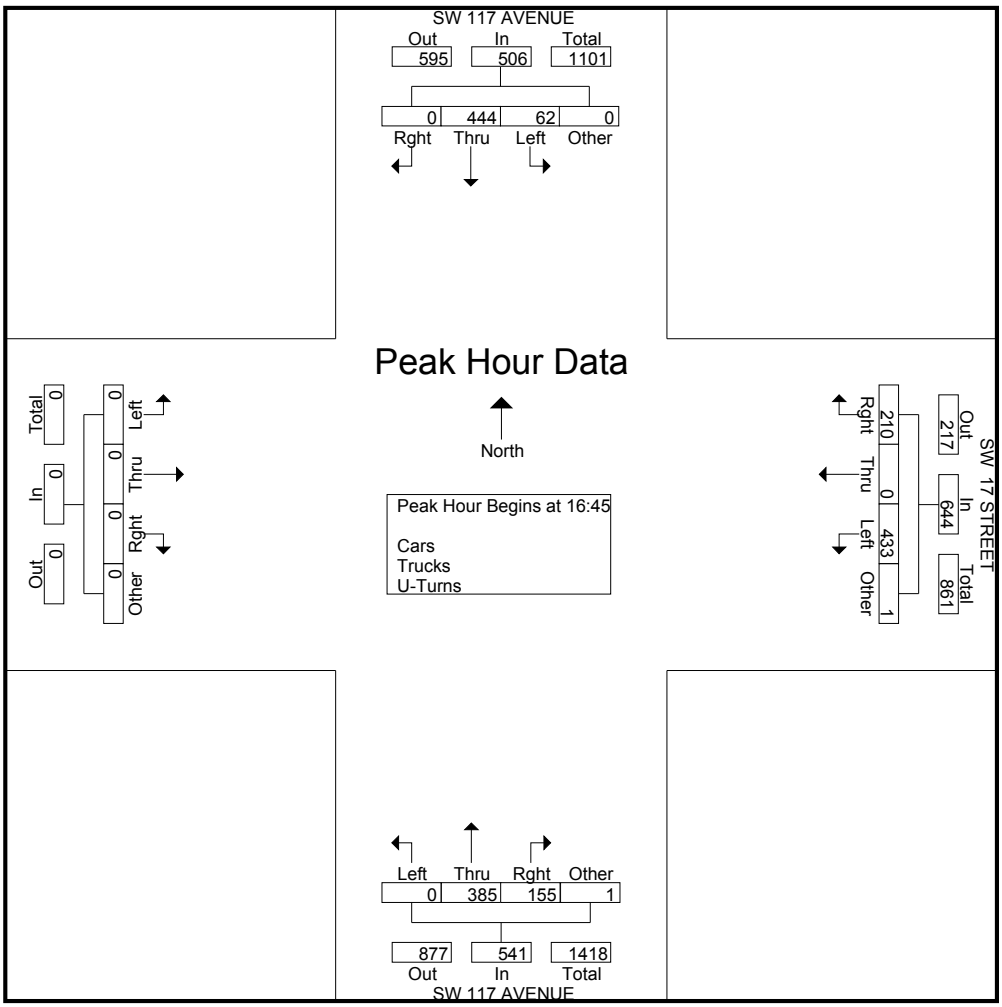
File Name : Not Named 1
Site Code : 00000000
Start Date : 9/18/2012
Page No : 2



SW 117 AVENUE & SW 17 STREET

File Name : Not Named 1
Site Code : 00000000
Start Date : 9/18/2012
Page No : 3

	SW 117 AVENUE Northbound					SW 117 AVENUE Southbound					Eastbound					SW 17 STREET Westbound					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:45																					
16:45	0	97	**67**	**1**	**165**	14	98	0	0	112	0	0	0	0	0	62	0	41	0	103	380
17:00	0	97	33	0	130	17	113	0	0	130	0	0	0	0	0	111	0	48	**1**	160	420
17:15	0	87	24	0	111	11	101	0	0	112	0	0	0	0	0	**144**	0	51	0	**195**	418
17:30	0	**104**	31	0	135	**20**	**132**	0	0	**152**	0	0	0	0	0	116	0	**70**	0	186	**473**
Total Volume	0	385	155	1	541	62	444	0	0	506	0	0	0	0	0	433	0	210	1	644	1691
% App. Total	0	71.2	28.7	0.2		12.3	87.7	0	0		0	0	0	0		67.2	0	32.6	0.2		
PHF	.000	.925	.578	.250	.820	.775	.841	.000	.000	.832	.000	.000	.000	.000	.000	.752	.000	.750	.250	.826	.894



SW 107 AVENUE & SW 16 STREET

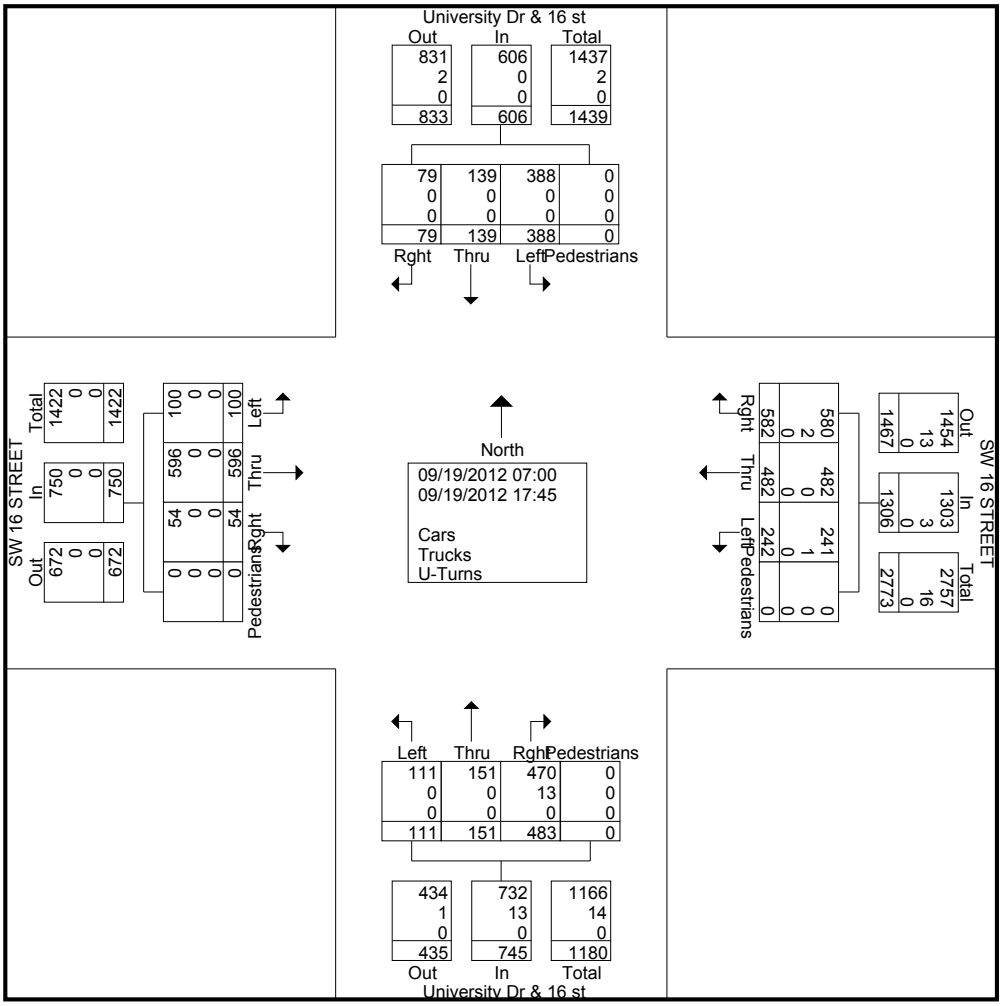
File Name : Not Named 1
Site Code : 00000000
Start Date : 09/19/2012
Page No : 1

Groups Printed- Cars - Trucks - Turns

	University Dr & 16 st Northbound				University Dr & 16 st Southbound				SW 16 STREET Eastbound				SW 16 STREET Westbound				
Start Time	Left	Thru	Rght	Pedestrians	Left	Thru	Rght	Pedestrians	Left	Thru	Rght	Pedestrians	Left	Thru	Rght	Pedestrians	Int. Total
*** BREAK ***																	
16:00	10	23	58	0	55	11	7	0	14	77	15	0	21	48	75	0	414
16:15	14	20	51	0	45	12	10	0	14	63	2	0	30	65	80	0	406
16:30	24	19	67	0	39	14	14	0	6	49	2	0	26	89	99	0	448
16:45	13	26	64	0	64	25	4	0	15	82	6	0	39	91	101	0	530
Total	61	88	240	0	203	62	35	0	49	271	25	0	116	293	355	0	1798
17:00	9	22	62	0	54	19	12	0	22	105	9	0	34	53	59	0	460
17:15	16	19	64	0	49	17	3	0	9	80	8	0	37	37	68	0	407
17:30	12	14	68	0	37	16	15	0	7	70	7	0	17	45	38	0	346
17:45	13	8	49	0	45	25	14	0	13	70	5	0	38	54	62	0	396
Total	50	63	243	0	185	77	44	0	51	325	29	0	126	189	227	0	1609
Grand Total	111	151	483	0	388	139	79	0	100	596	54	0	242	482	582	0	3407
Apprch %	14.9	20.3	64.8	0	64	22.9	13	0	13.3	79.5	7.2	0	18.5	36.9	44.6	0	
Total %	3.3	4.4	14.2	0	11.4	4.1	2.3	0	2.9	17.5	1.6	0	7.1	14.1	17.1	0	
Cars	111	151	470	0	388	139	79	0	100	596	54	0	241	482	580	0	3391
% Cars	100	100	97.3	0	100	100	100	0	100	100	100	0	99.6	100	99.7	0	99.5
Trucks	0	0	13	0	0	0	0	0	0	0	0	0	1	0	2	0	16
% Trucks	0	0	2.7	0	0	0	0	0	0	0	0	0	0.4	0	0.3	0	0.5
U-Turns	0	0	0	0	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	0	0	0	0

SW 107 AVENUE & SW 16 STREET

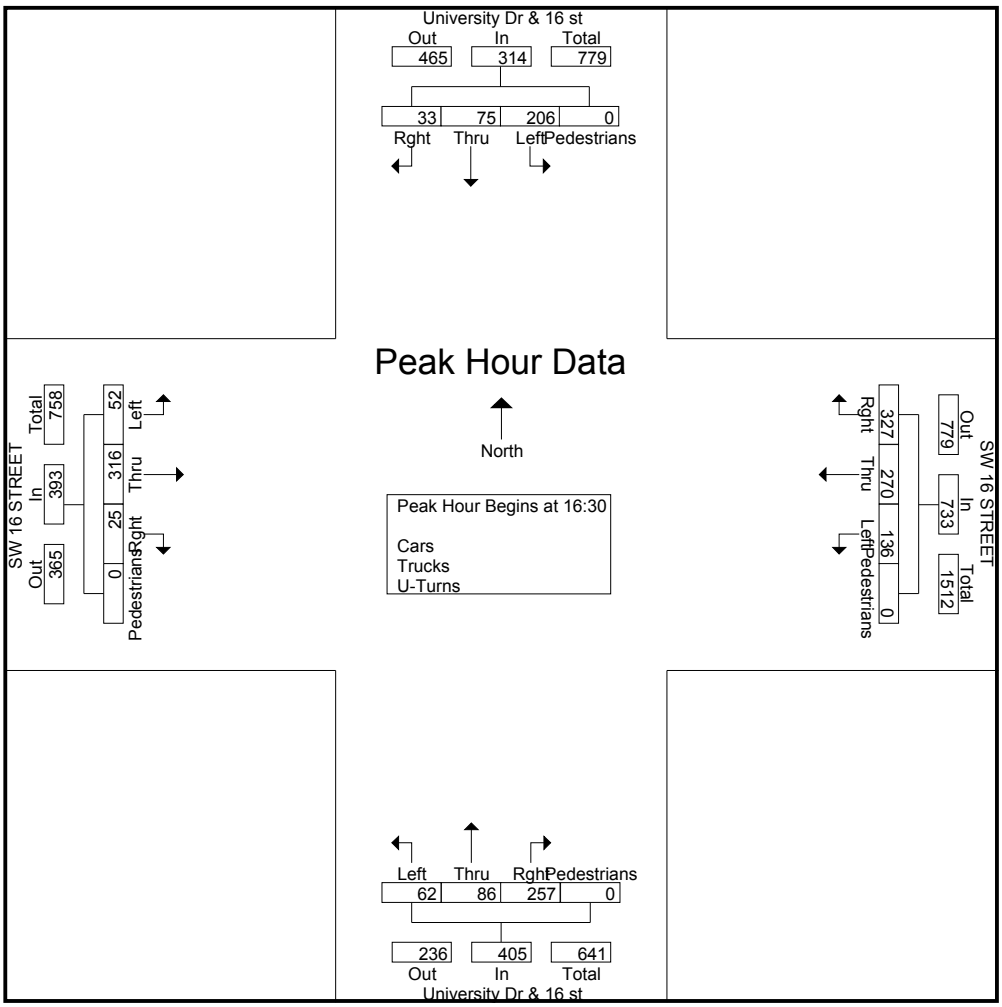
File Name : Not Named 1
Site Code : 00000000
Start Date : 09/19/2012
Page No : 2

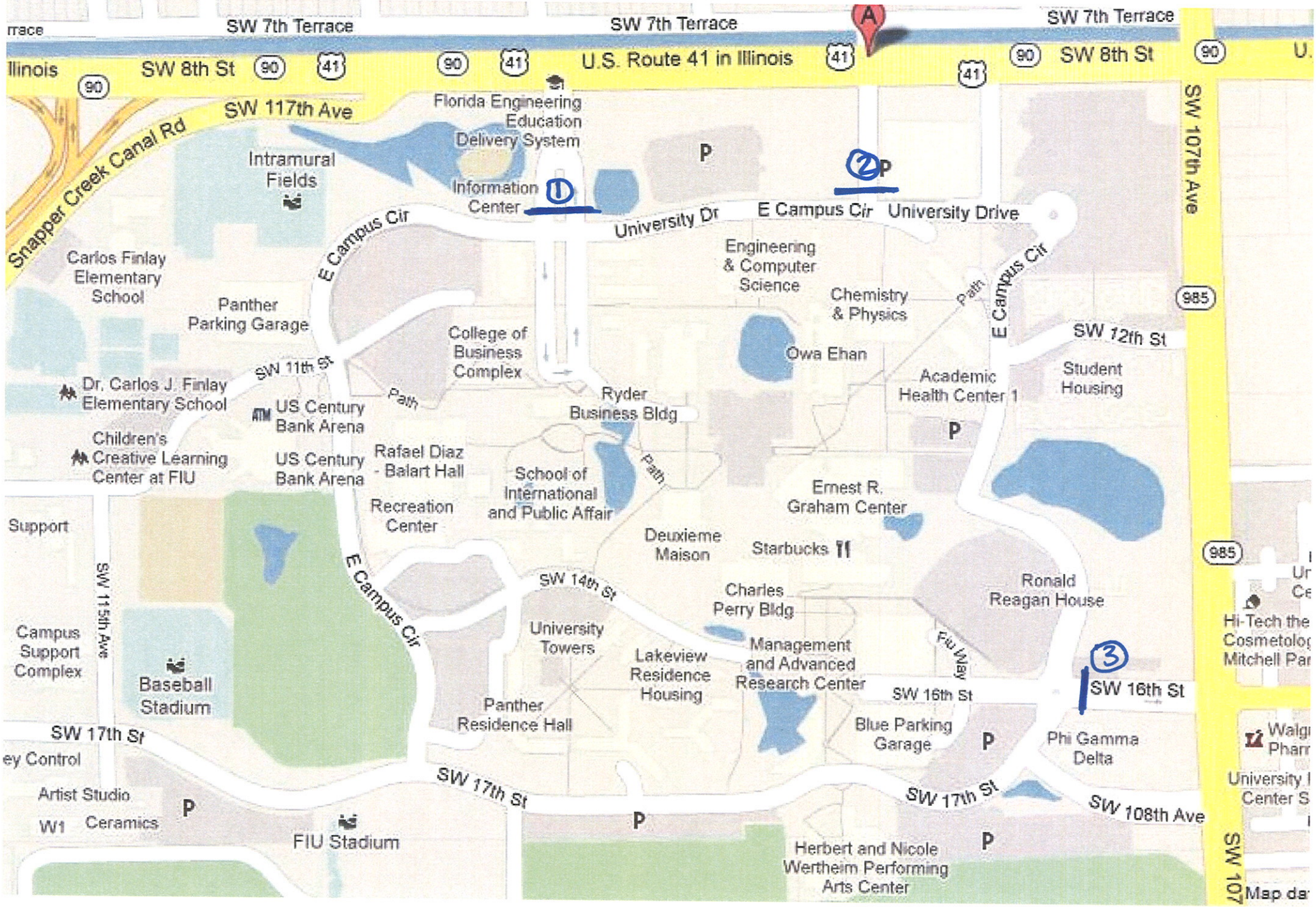


SW 107 AVENUE & SW 16 STREET

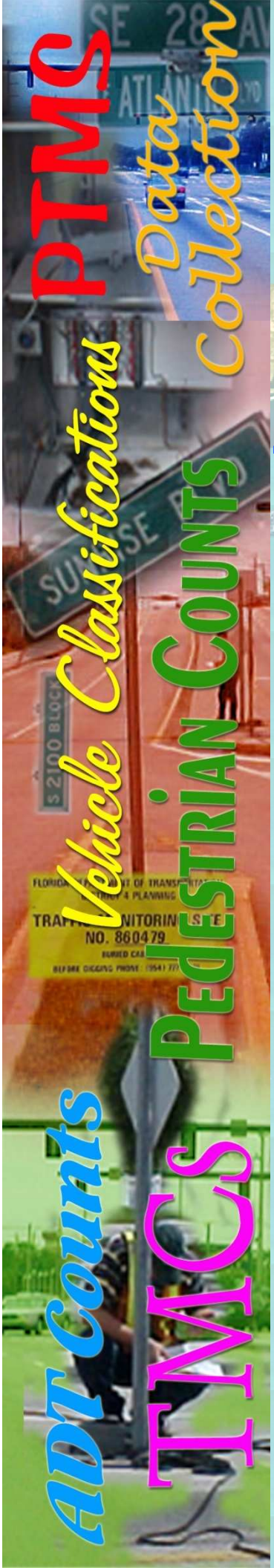
File Name : Not Named 1
Site Code : 00000000
Start Date : 09/19/2012
Page No : 3

	University Dr & 16 st Northbound					University Dr & 16 st Southbound					SW 16 STREET Eastbound					SW 16 STREET Westbound					
Start Time	Left	Thru	Rght	Pedestrians	App. Total	Left	Thru	Rght	Pedestrians	App. Total	Left	Thru	Rght	Pedestrians	App. Total	Left	Thru	Rght	Pedestrians	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	**24**	19	**67**	0	**110**	39	14	**14**	0	67	6	49	2	0	57	26	89	99	0	214	448
16:45	13	**26**	64	0	103	**64**	**25**	4	0	**93**	15	82	6	0	103	**39**	**91**	**101**	0	**231**	**530**
17:00	9	22	62	0	93	54	19	12	0	85	**22**	**105**	**9**	0	**136**	34	53	59	0	146	460
17:15	16	19	64	0	99	49	17	3	0	69	9	80	8	0	97	37	37	68	0	142	407
Total Volume	62	86	257	0	405	206	75	33	0	314	52	316	25	0	393	136	270	327	0	733	1845
% App. Total	15.3	21.2	63.5	0		65.6	23.9	10.5	0		13.2	80.4	6.4	0		18.6	36.8	44.6	0		
PHF	.646	.827	.959	.000	.920	.805	.750	.589	.000	.844	.591	.752	.694	.000	.722	.872	.742	.809	.000	.793	.870





— 24 HOUR APT LOCATIONS



Traffic Data Collection

FRA PM: AMAZIA L. KIBOKO, P.E., PTOE

Turning Movement Counts and Volume Counts At Florida International University

Submitted to :

Al-Ahad Ekram, P.E.
Corzo Castella Carballo Thompson Salman, P.A.

FRA 2378 TWO 8

Submitted by:

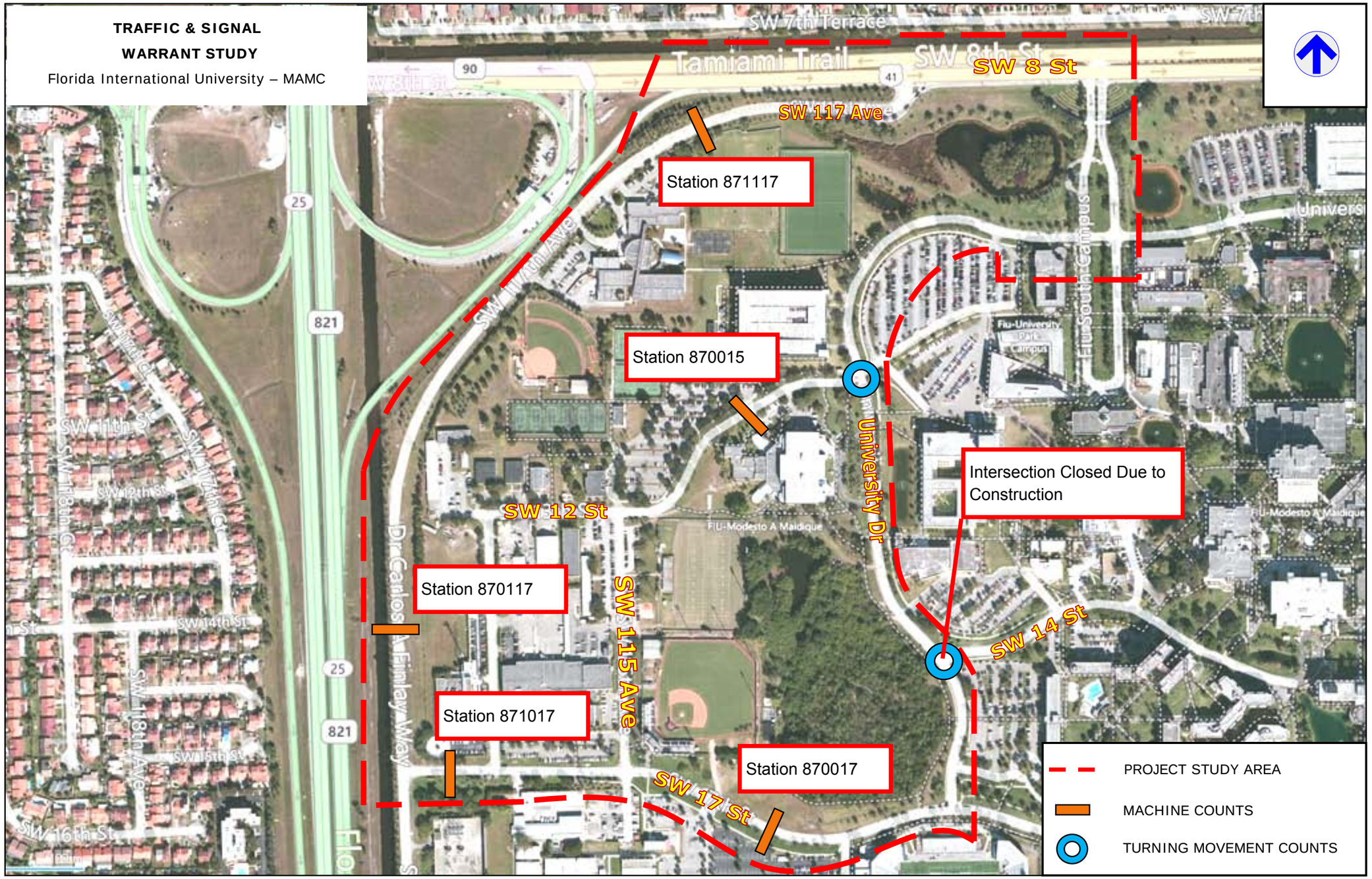
F.R. ALEMAN
& Associates, Inc.
CONSULTING ENGINEERS & SURVEYORS

January 18, 2013

TRAFFIC & SIGNAL

WARRANT STUDY

Florida International University – MAMC



TURNING MOVEMENT COUNTS

F.R. Aleman & Associates, Inc.

10305 NW 41st Street, Suite 200
Miami, FL. 33178
Ph: 305-591-8777
Fax: 305-599-8749

File Name : University Dr at 11th Street
Site Code : 00000000
Start Date : 1/9/2013
Page No : 1

Groups Printed- Passanger Vehicles - Heavy Vehicles

	University Dr / E Campus Cir Northbound					University Dr / E Campus Cir Southbound					SW 11th Street Eastbound					SW 11th Street Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	6	5	0	3	14	4	12	8	7	31	12	12	10	3	37	0	1	0	7	8	90
07:15 AM	2	6	3	2	13	1	10	8	12	31	25	21	6	3	55	0	2	0	12	14	113
07:30 AM	6	9	3	2	20	4	12	14	32	62	36	18	17	2	73	3	5	2	35	45	200
07:45 AM	10	12	3	3	28	4	23	15	62	104	33	16	22	7	78	1	2	10	67	80	290
Total	24	32	9	10	75	13	57	45	113	228	106	67	55	15	243	4	10	12	121	147	693
08:00 AM	13	9	0	8	30	1	35	16	34	86	24	22	18	7	71	3	6	19	36	64	251
08:15 AM	8	17	2	4	31	3	32	21	74	130	37	21	18	7	83	3	12	18	73	106	350
08:30 AM	20	5	5	0	30	2	32	29	73	136	36	12	22	12	82	2	10	13	72	97	345
08:45 AM	10	10	1	13	34	5	18	18	107	148	47	18	13	12	90	1	6	7	112	126	398
Total	51	41	8	25	125	11	117	84	288	500	144	73	71	38	326	9	34	57	293	393	1344
*** BREAK ***																					
11:00 AM	17	23	3	7	50	6	21	26	117	170	34	12	14	7	67	3	8	17	98	126	413
11:15 AM	9	15	6	7	37	3	20	16	67	106	20	7	5	8	40	3	5	13	68	89	272
11:30 AM	10	18	3	14	45	4	20	32	56	112	31	15	9	14	69	0	6	9	52	67	293
11:45 AM	7	15	2	6	30	10	9	47	145	211	26	10	9	13	58	2	9	16	145	172	471
Total	43	71	14	34	162	23	70	121	385	599	111	44	37	42	234	8	28	55	363	454	1449
12:00 PM	7	19	1	2	29	3	19	37	85	144	27	8	14	12	61	1	7	6	85	99	333
12:15 PM	12	16	7	5	40	7	16	18	60	101	27	8	11	12	58	0	7	8	55	70	269
12:30 PM	9	17	2	7	35	1	21	23	75	120	26	16	14	11	67	1	9	16	67	93	315
12:45 PM	9	19	2	9	39	6	20	32	131	189	26	13	11	13	63	3	9	14	122	148	439
Total	37	71	12	23	143	17	76	110	351	554	106	45	50	48	249	5	32	44	329	410	1356
*** BREAK ***																					
04:00 PM	14	15	0	19	48	3	10	37	104	154	36	15	9	27	87	0	22	7	99	128	417
04:15 PM	15	21	0	6	42	9	24	45	104	182	39	13	13	25	90	1	10	13	102	126	440
04:30 PM	18	26	0	17	61	7	20	27	133	187	28	16	10	21	75	1	18	34	117	170	493
04:45 PM	18	24	2	6	50	3	19	31	185	238	32	18	16	21	87	3	15	22	191	231	606
Total	65	86	2	48	201	22	73	140	526	761	135	62	48	94	339	5	65	76	509	655	1956
05:00 PM	29	27	0	6	62	3	12	46	118	179	25	15	15	11	66	8	21	15	111	155	462
05:15 PM	22	25	1	8	56	0	16	60	109	185	29	11	13	25	78	10	16	18	110	154	473
05:30 PM	16	21	1	5	43	5	17	42	75	139	25	5	7	9	46	7	20	11	75	113	341
05:45 PM	11	16	2	7	36	3	15	28	79	125	29	8	3	31	71	1	10	17	77	105	337
Total	78	89	4	26	197	11	60	176	381	628	108	39	38	76	261	26	67	61	373	527	1613
Grand Total	298	390	49	166	903	97	453	676	2044	3270	710	330	299	313	1652	57	236	305	1988	2586	8411
Apprch %	33	43.2	5.4	18.4		3	13.9	20.7	62.5		43	20	18.1	18.9		2.2	9.1	11.8	76.9		
Total %	3.5	4.6	0.6	2	10.7	1.2	5.4	8	24.3	38.9	8.4	3.9	3.6	3.7	19.6	0.7	2.8	3.6	23.6	30.7	

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Fax: 305-599-8749

File Name : University Dr at 11th Street
Site Code : 00000000
Start Date : 1/9/2013

Groups Printed- Passanger Vehicles - Heavy Vehicles

	University Dr / E Campus Cir Northbound					University Dr / E Campus Cir Southbound					SW 11th Street Eastbound					SW 11th Street Westbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Passanger Vehicles	292	385	49	166	892	97	444	670	2044	3255	703	330	291	313	1637	57	236	305	1988	2586	8370
% Passanger Vehicles	98	98.7	100	100	98.8	100	98	99.1	100	99.5	99	100	97.3	100	99.1	100	100	100	100	100	99.5
Heavy Vehicles	6	5	0	0	11	0	9	6	0	15	7	0	8	0	15	0	0	0	0	0	41
% Heavy Vehicles	2	1.3	0	0	1.2	0	2	0.9	0	0.5	1	0	2.7	0	0.9	0	0	0	0	0	0.5

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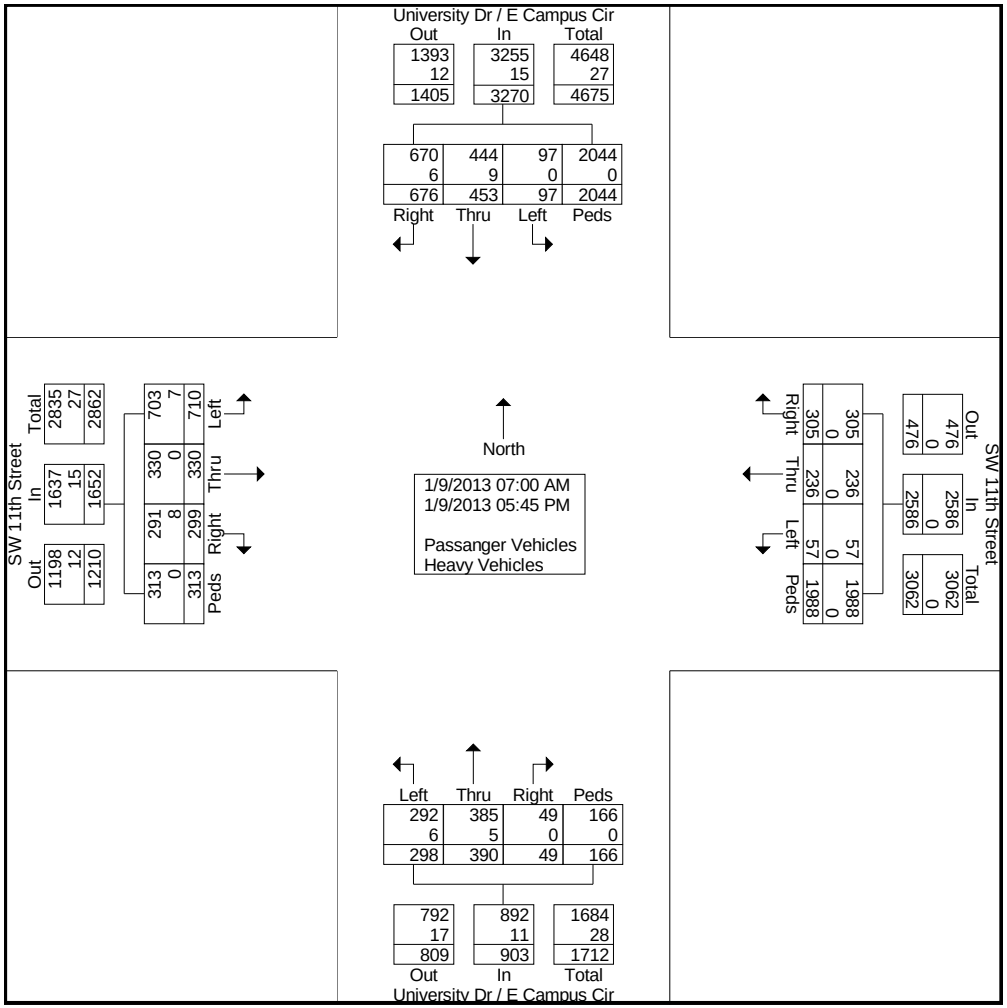
File Name : University Dr at 11th Street
Site Code : 00000000
Start Date : 1/9/2013
Page No : 3



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File Name : University Dr at 11th Street
Site Code : 00000000
Start Date : 1/9/2013
Page No : 4

	University Dr / E Campus Cir Northbound					University Dr / E Campus Cir Southbound					SW 11th Street Eastbound					SW 11th Street Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	13	9	0	8	30	1	**35**	16	34	86	24	**22**	18	7	71	**3**	6	**19**	36	64	251
08:15 AM	8	**17**	2	4	31	3	32	21	74	130	37	21	18	7	83	3	**12**	18	73	106	350
08:30 AM	**20**	5	**5**	0	30	2	32	**29**	73	136	36	12	**22**	**12**	82	2	10	13	72	97	345
08:45 AM	10	10	1	**13**	**34**	**5**	18	18	**107**	**148**	**47**	18	13	12	**90**	1	6	7	**112**	**126**	**398**
Total Volume	51	41	8	25	125	11	117	84	288	500	144	73	71	38	326	9	34	57	293	393	1344
% App. Total	40.8	32.8	6.4	20		2.2	23.4	16.8	57.6		44.2	22.4	21.8	11.7		2.3	8.7	14.5	74.6		
PHF	.638	.603	.400	.481	.919	.550	.836	.724	.673	.845	.766	.830	.807	.792	.906	.750	.708	.750	.654	.780	.844
Passanger Vehicles	51	40	8	25	124	11	116	83	288	498	143	73	69	38	323	9	34	57	293	393	1338
% Passanger Vehicles	100	97.6	100	100	99.2	100	99.1	98.8	100	99.6	99.3	100	97.2	100	99.1	100	100	100	100	100	99.6
Heavy Vehicles	0	1	0	0	1	0	1	1	0	2	1	0	2	0	3	0	0	0	0	0	6
% Heavy Vehicles	0	2.4	0	0	0.8	0	0.9	1.2	0	0.4	0.7	0	2.8	0	0.9	0	0	0	0	0	0.4

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File Name : University Dr at 11th Street
Site Code : 00000000
Start Date : 1/9/2013
Page No : 5

Peak Hour Data

Peak Hour Begins at 08:00 AM

Passanger Vehicles
Heavy Vehicles

North

University Dr / E Campus Cir

Out	In	Total
240	498	738
2	2	4
242	500	742

Right	Thru	Left	Peds
83	116	11	288
1	1	0	0
84	117	11	288

SW 11th Street

Out	In	Total
92	393	485
0	0	0
92	393	485

Right	Thru	Left	Peds
57	34	9	293
0	0	0	0
57	34	9	293

SW 11th Street

Out	In	Total
168	323	491
1	3	4
169	326	495

Peds	Right	Thru	Left
38	69	73	143
0	2	0	1
38	71	73	144

University Dr / E Campus Cir

Left	Thru	Right	Peds
51	40	8	25
0	1	0	0
51	41	8	25

Out	In	Total
194	124	318
3	1	4
197	125	322

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File Name : University Dr at 11th Street
Site Code : 00000000
Start Date : 1/9/2013
Page No : 6

	University Dr / E Campus Cir Northbound					University Dr / E Campus Cir Southbound					SW 11th Street Eastbound					SW 11th Street Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:00 AM																					
11:00 AM	**17**	**23**	3	7	**50**	6	**21**	26	117	170	**34**	12	**14**	7	67	**3**	8	**17**	98	126	413
11:15 AM	9	15	**6**	7	37	3	20	16	67	106	20	7	5	8	40	3	5	13	68	89	272
11:30 AM	10	18	3	**14**	45	4	20	32	56	112	31	**15**	9	**14**	**69**	0	6	9	52	67	293
11:45 AM	7	15	2	6	30	**10**	9	**47**	**145**	**211**	26	10	9	13	58	2	**9**	16	**145**	**172**	**471**
Total Volume	43	71	14	34	162	23	70	121	385	599	111	44	37	42	234	8	28	55	363	454	1449
% App. Total	26.5	43.8	8.6	21		3.8	11.7	20.2	64.3		47.4	18.8	15.8	17.9		1.8	6.2	12.1	80		
PHF	.632	.772	.583	.607	.810	.575	.833	.644	.664	.710	.816	.733	.661	.750	.848	.667	.778	.809	.626	.660	.769
Passanger Vehicles	40	69	14	34	157	23	67	120	385	595	110	44	37	42	233	8	28	55	363	454	1439
% Passanger Vehicles	93.0	97.2	100	100	96.9	100	95.7	99.2	100	99.3	99.1	100	100	100	99.6	100	100	100	100	100	99.3
Heavy Vehicles	3	2	0	0	5	0	3	1	0	4	1	0	0	0	1	0	0	0	0	0	10
% Heavy Vehicles	7.0	2.8	0	0	3.1	0	4.3	0.8	0	0.7	0.9	0	0	0	0.4	0	0	0	0	0	0.7

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File Name : University Dr at 11th Street
Site Code : 00000000
Start Date : 1/9/2013
Page No : 7

Peak Hour Data

Peak Hour Begins at 11:00 AM

Passanger Vehicles
Heavy Vehicles

North

University Dr / E Campus Cir

	Out	In	Total
	234	595	829
	3	4	7
	237	599	836

Right	Thru	Left	Peds
120	67	23	385
1	3	0	0
121	70	23	385

SW 11th Street

	Out	In	Total
	188	233	421
	4	1	5
	192	234	426

Peds	Right	Thru	Left
42	37	44	110
0	0	0	1
42	37	44	111

SW 11th Street

Peds	Left	Thru	Right
363	8	28	55
0	0	0	0
363	8	28	55

	Out	In	Total
	81	454	535
	0	0	0
	81	454	535

University Dr / E Campus Cir

Left	Thru	Right	Peds
40	69	14	34
3	2	0	0
43	71	14	34

	Out	In	Total
	112	157	269
	3	5	8
	115	162	277

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File Name : University Dr at 11th Street
Site Code : 00000000
Start Date : 1/9/2013
Page No : 8

	University Dr / E Campus Cir Northbound					University Dr / E Campus Cir Southbound					SW 11th Street Eastbound					SW 11th Street Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	18	26	0	**17**	61	**7**	**20**	27	133	187	28	16	10	21	75	1	18	**34**	117	170	493
04:45 PM	18	24	**2**	6	50	3	19	31	**185**	**238**	**32**	**18**	**16**	21	**87**	3	15	22	**191**	**231**	**606**
05:00 PM	**29**	**27**	0	6	**62**	3	12	46	118	179	25	15	15	11	66	8	**21**	15	111	155	462
05:15 PM	22	25	1	8	56	0	16	**60**	109	185	29	11	13	**25**	78	**10**	16	18	110	154	473
Total Volume	87	102	3	37	229	13	67	164	545	789	114	60	54	78	306	22	70	89	529	710	2034
% App. Total	38	44.5	1.3	16.2		1.6	8.5	20.8	69.1		37.3	19.6	17.6	25.5		3.1	9.9	12.5	74.5		
PHF	.750	.944	.375	.544	.923	.464	.838	.683	.736	.829	.891	.833	.844	.780	.879	.550	.833	.654	.692	.768	.839
Passanger Vehicles	86	102	3	37	228	13	65	164	545	787	114	60	53	78	305	22	70	89	529	710	2030
% Passanger Vehicles	98.9	100	100	100	99.6	100	97.0	100	100	99.7	100	100	98.1	100	99.7	100	100	100	100	100	99.8
Heavy Vehicles	1	0	0	0	1	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	4
% Heavy Vehicles	1.1	0	0	0	0.4	0	3.0	0	0	0.3	0	0	1.9	0	0.3	0	0	0	0	0	0.2

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File Name : University Dr at 11th Street
Site Code : 00000000
Start Date : 1/9/2013
Page No : 9

Peak Hour Data

Peak Hour Begins at 04:30 PM

Passanger Vehicles
Heavy Vehicles

North

University Dr / E Campus Cir

	Out	In	Total
Passanger Vehicles	305	787	1092
Heavy Vehicles	0	2	2
	305	789	1094

	Right	Thru	Left	Peds
Passanger Vehicles	164	65	13	545
Heavy Vehicles	0	2	0	0
	164	67	13	545

SW 11th Street

	Out	In	Total
Passanger Vehicles	320	305	625
Heavy Vehicles	1	1	2
	321	306	627

	Peds	Right	Thru	Left
Passanger Vehicles	78	53	60	114
Heavy Vehicles	0	1	0	0
	78	54	60	114

SW 11th Street

	Right	Thru	Left	Peds
Passanger Vehicles	89	70	22	529
Heavy Vehicles	0	0	0	0
	89	70	22	529

	Out	In	Total
Passanger Vehicles	76	710	786
Heavy Vehicles	0	0	0
	76	710	786

University Dr / E Campus Cir

	Left	Thru	Right	Peds
Passanger Vehicles	86	102	3	37
Heavy Vehicles	1	0	0	0
	87	102	3	37

	Out	In	Total
Passanger Vehicles	140	228	368
Heavy Vehicles	3	1	4
	143	229	372

PEDESTRIAN COUNTS BY DIRECTION

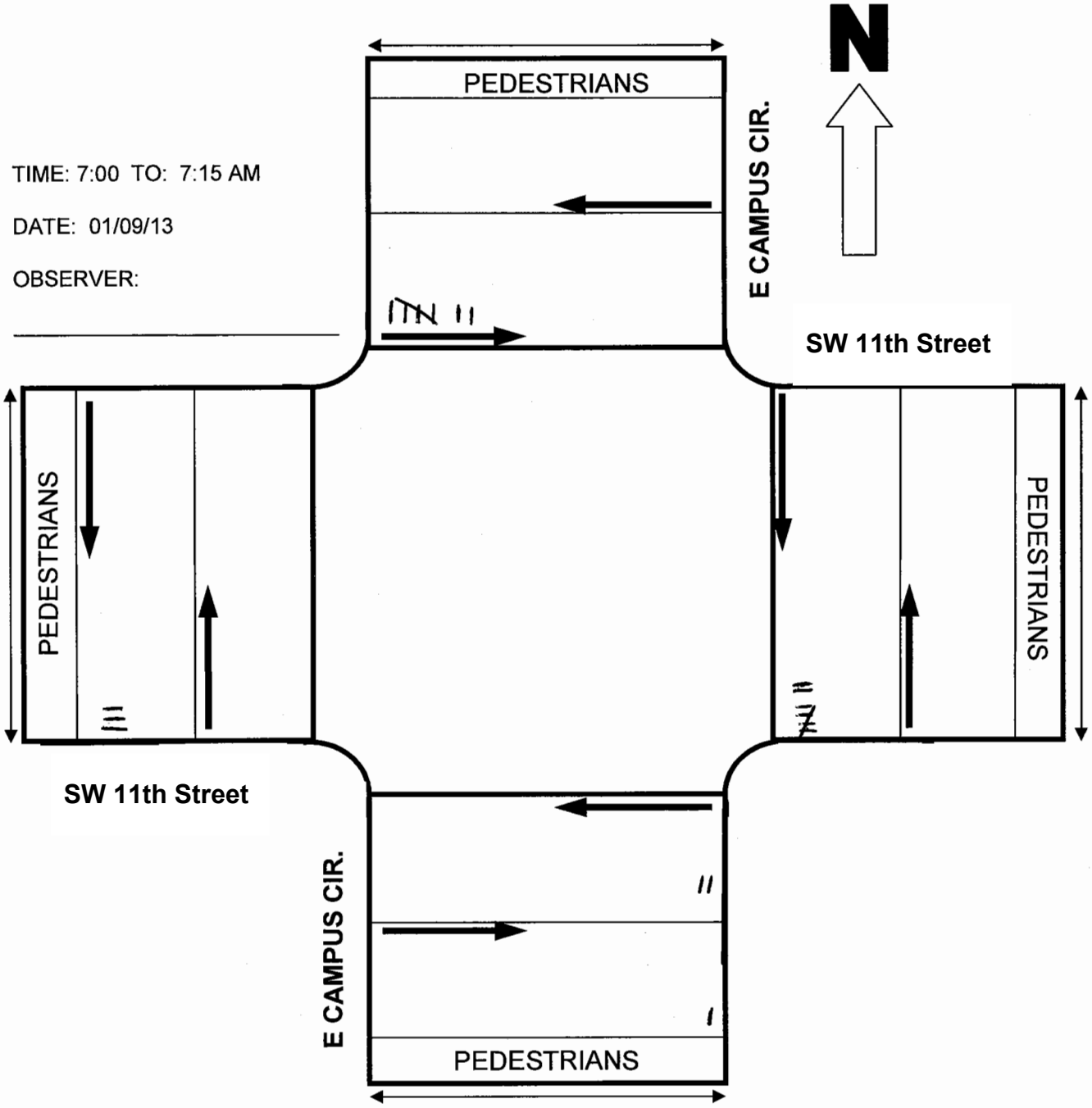
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
EDESTRIAN CROSSING COUNT

TIME: 7:00 TO: 7:15 AM

DATE: 01/09/13

OBSERVER:



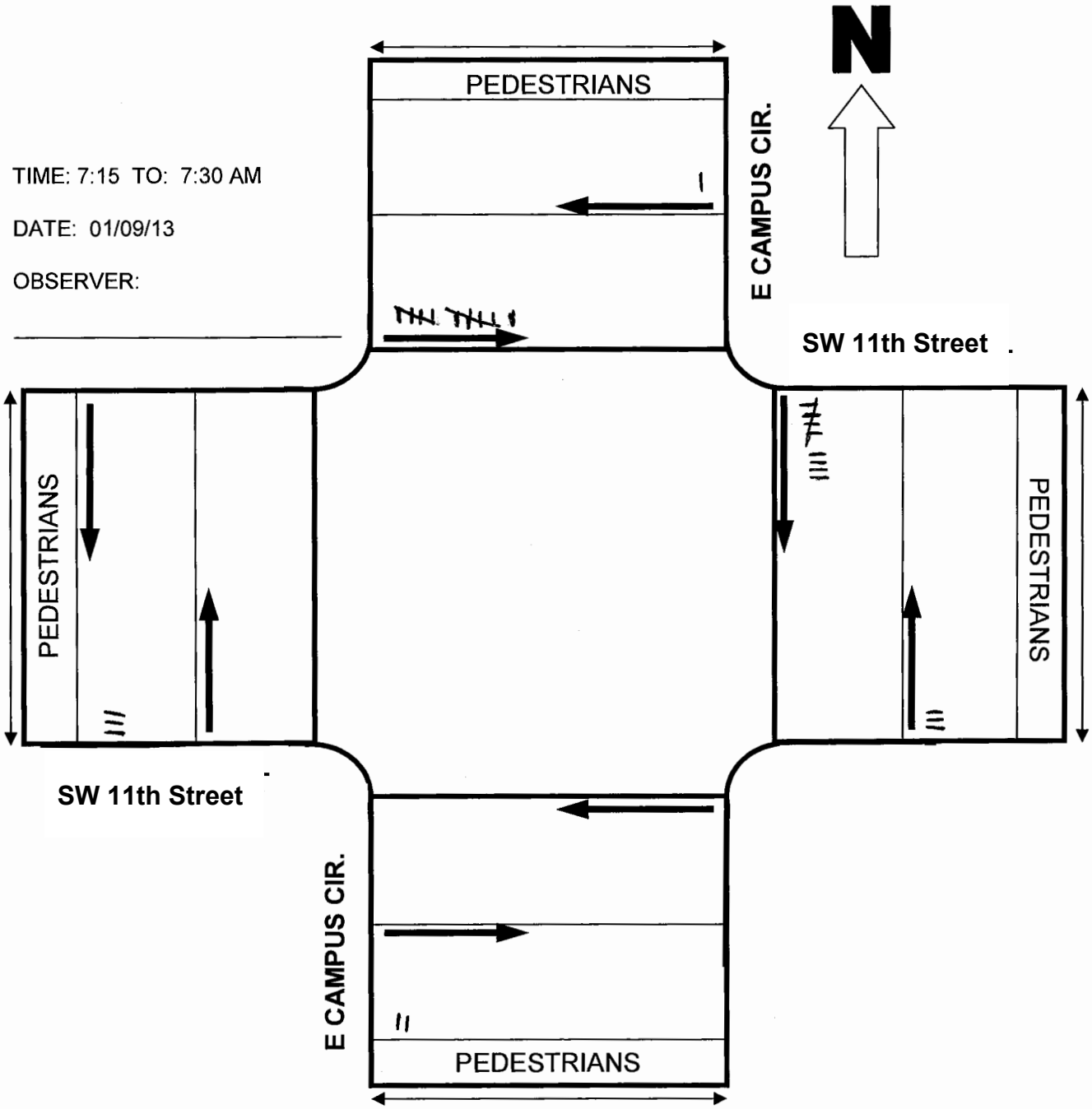
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 7:15 TO: 7:30 AM

DATE: 01/09/13

OBSERVER:



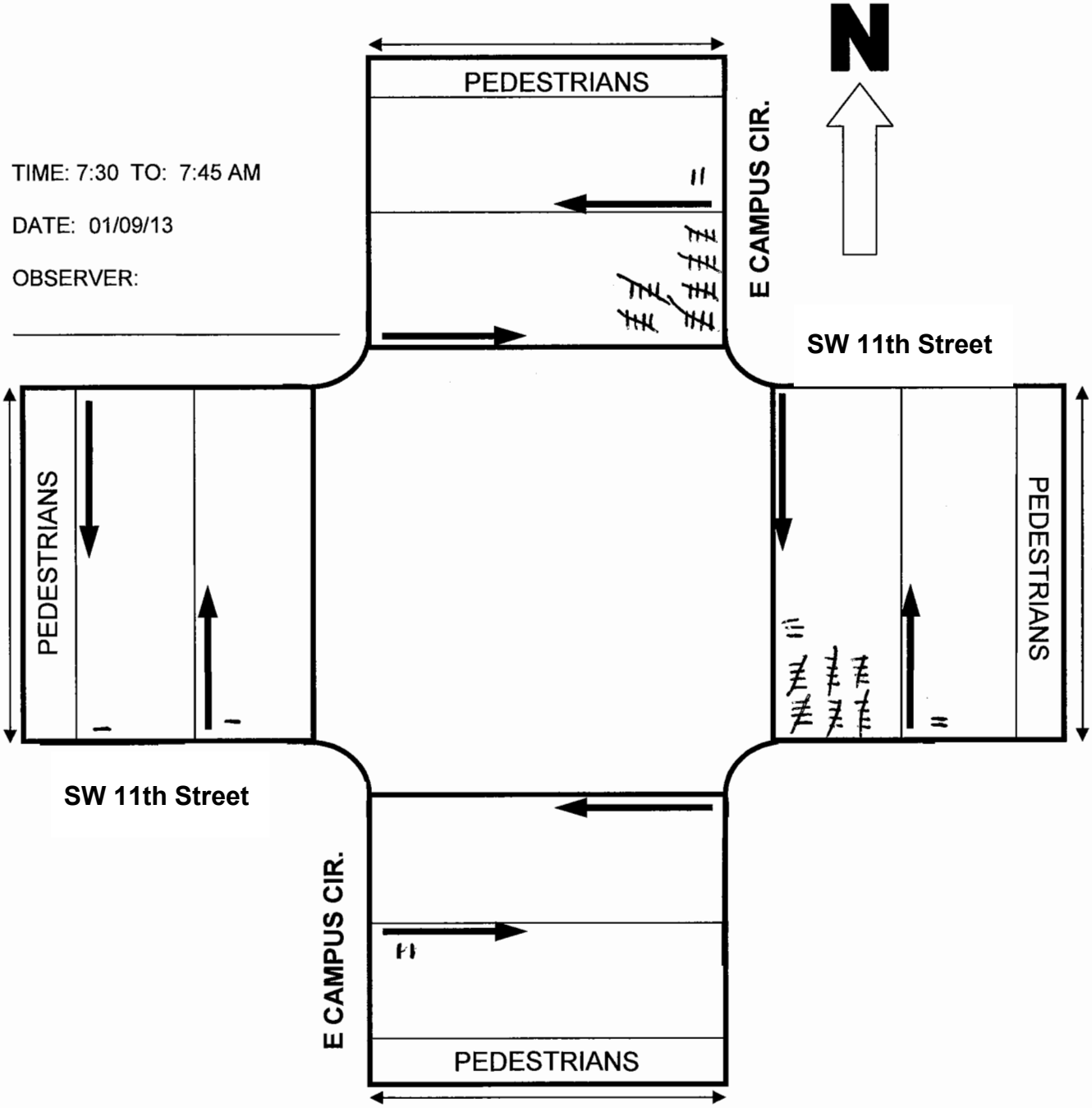
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
EDESTRIAN CROSSING COUNT

TIME: 7:30 TO: 7:45 AM

DATE: 01/09/13

OBSERVER:



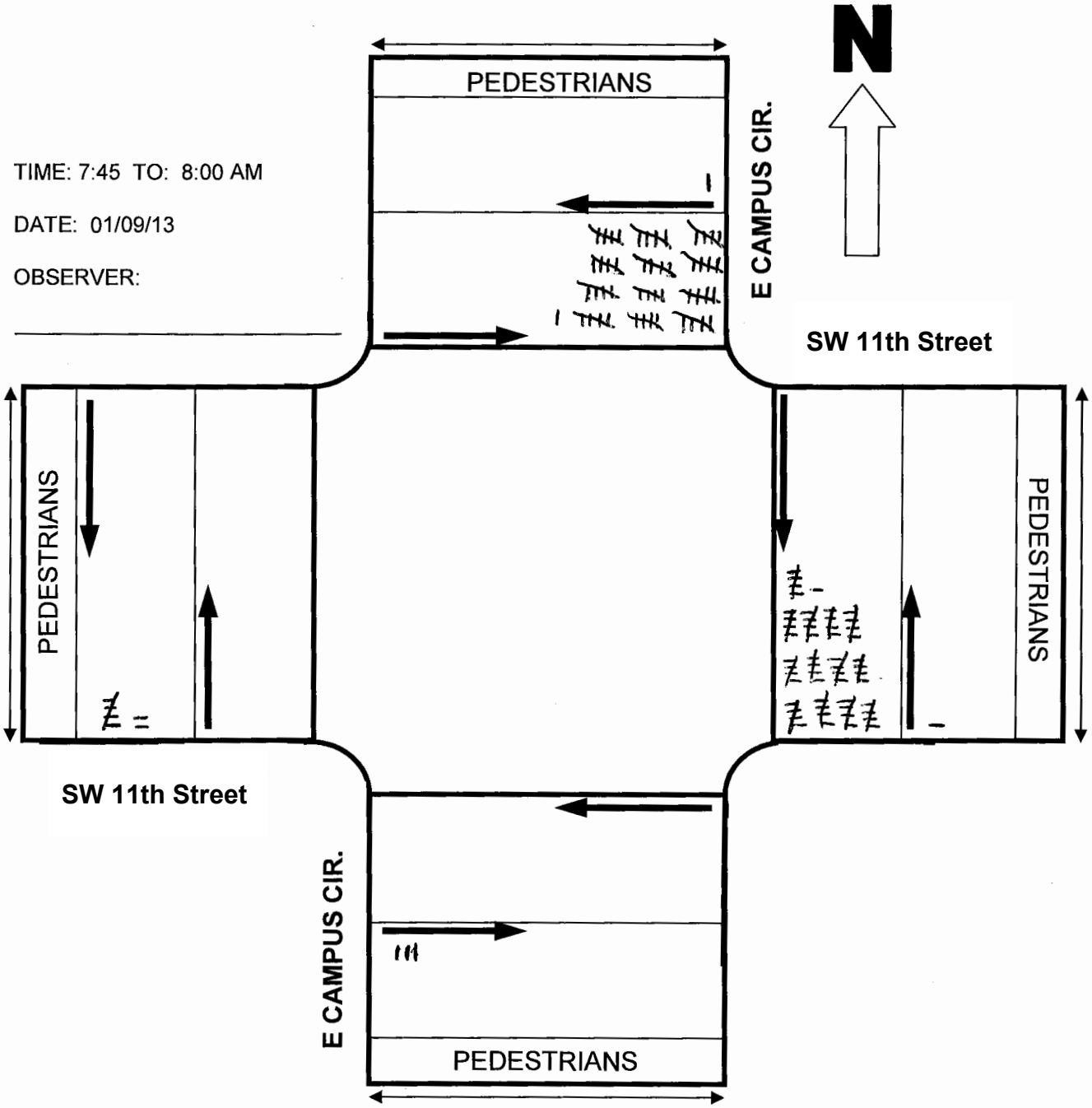
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 7:45 TO: 8:00 AM

DATE: 01/09/13

OBSERVER:



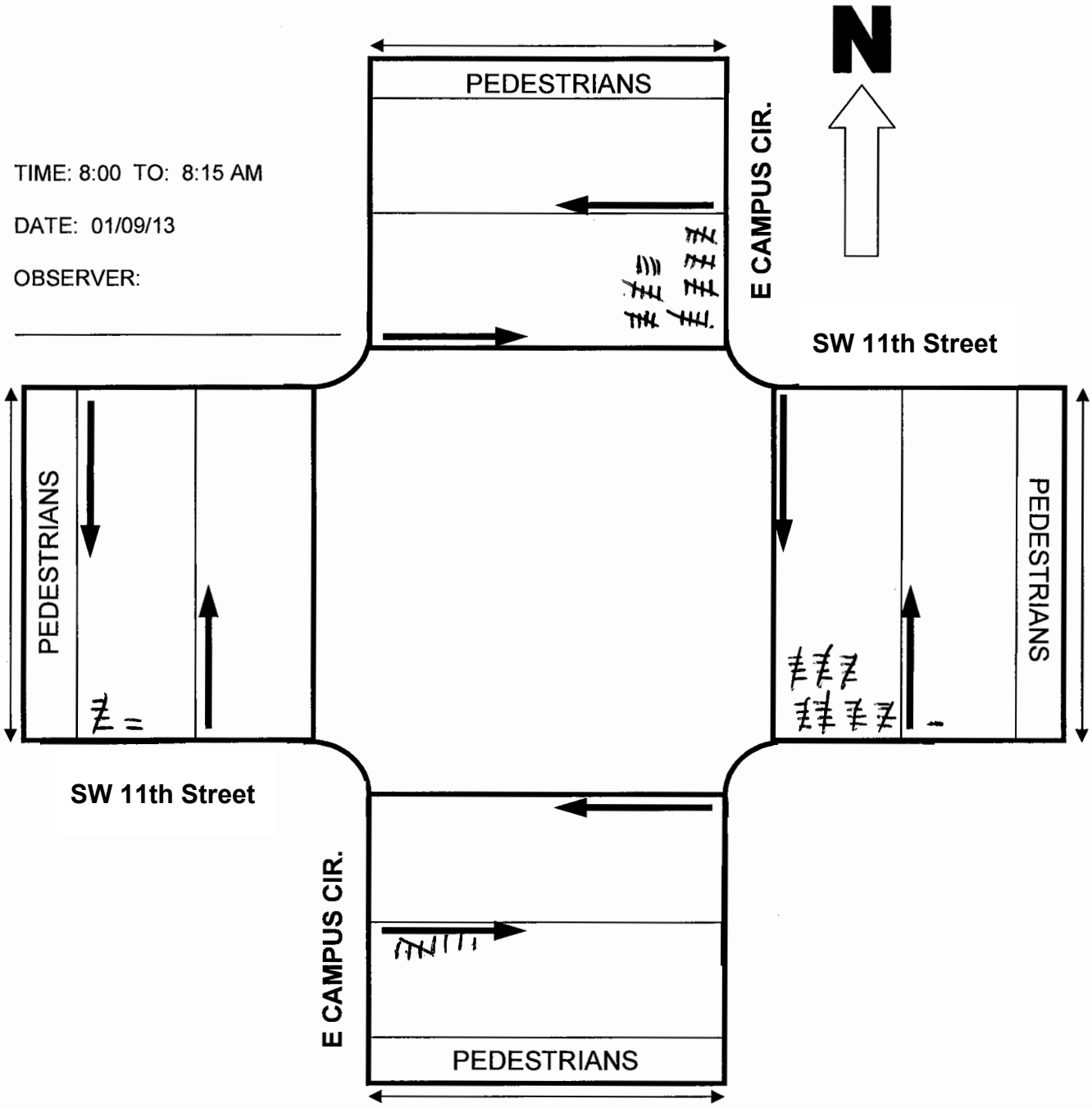
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 8:00 TO: 8:15 AM

DATE: 01/09/13

OBSERVER:



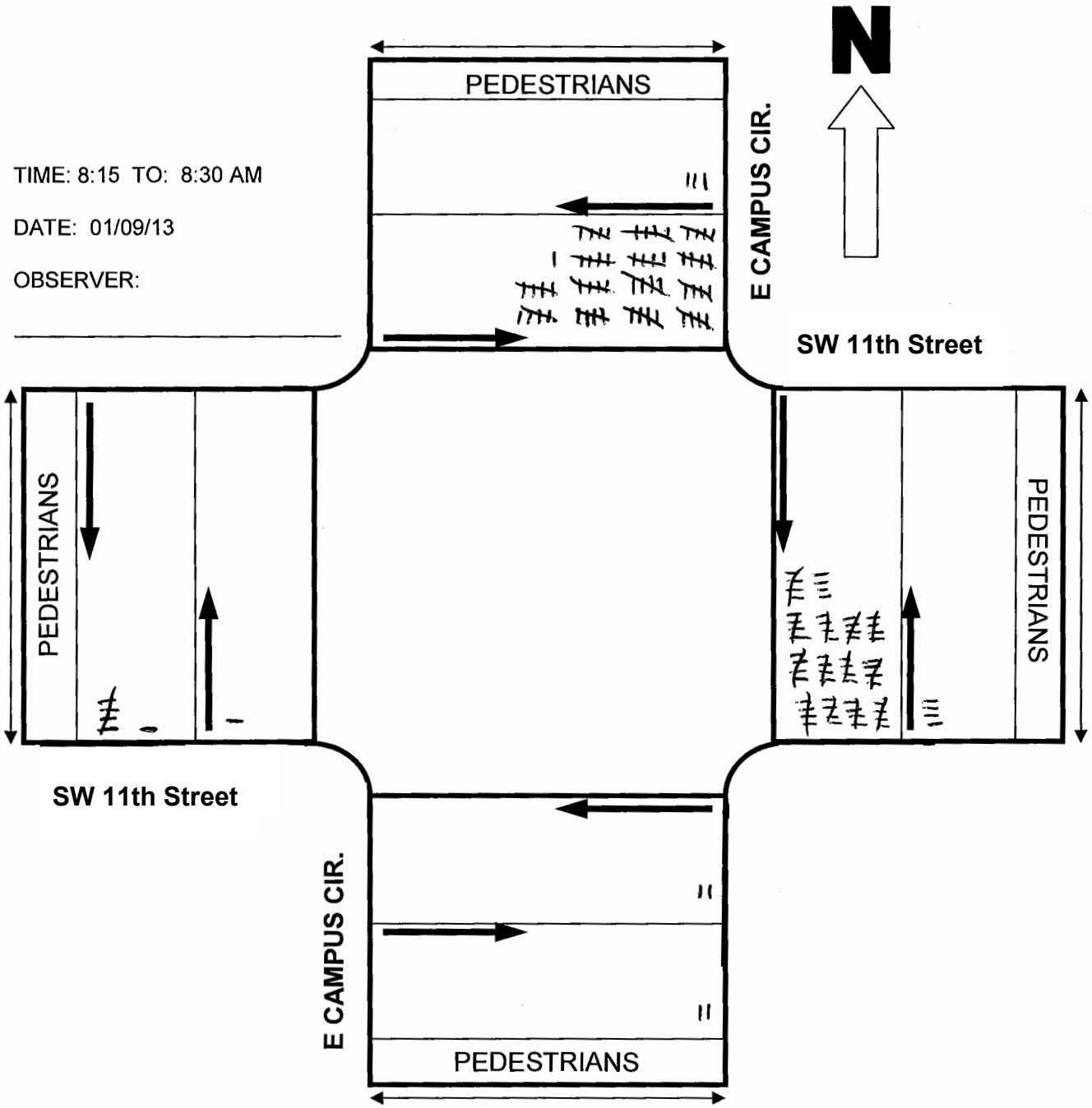
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 8:15 TO: 8:30 AM

DATE: 01/09/13

OBSERVER:



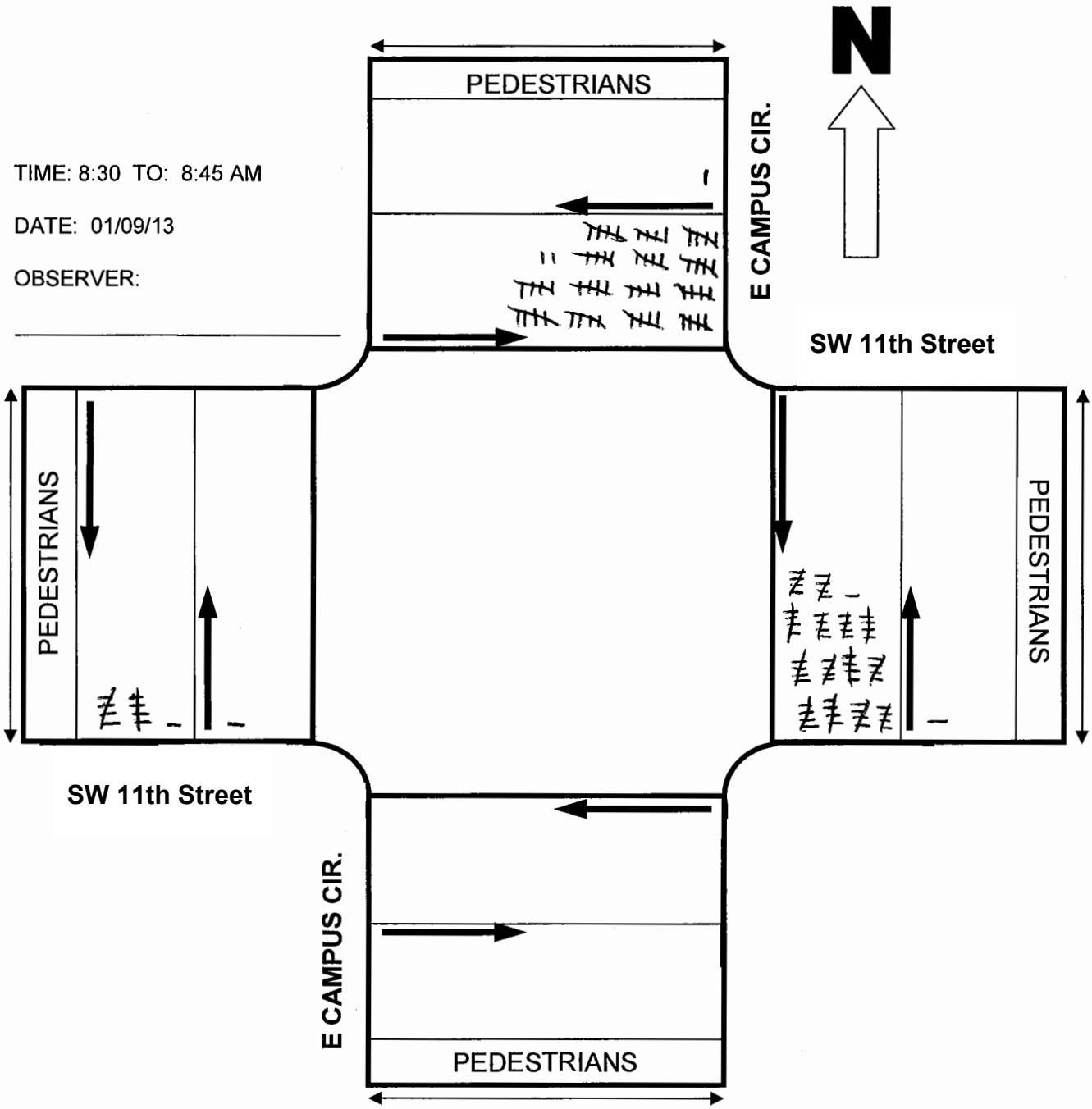
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 8:30 TO: 8:45 AM

DATE: 01/09/13

OBSERVER:



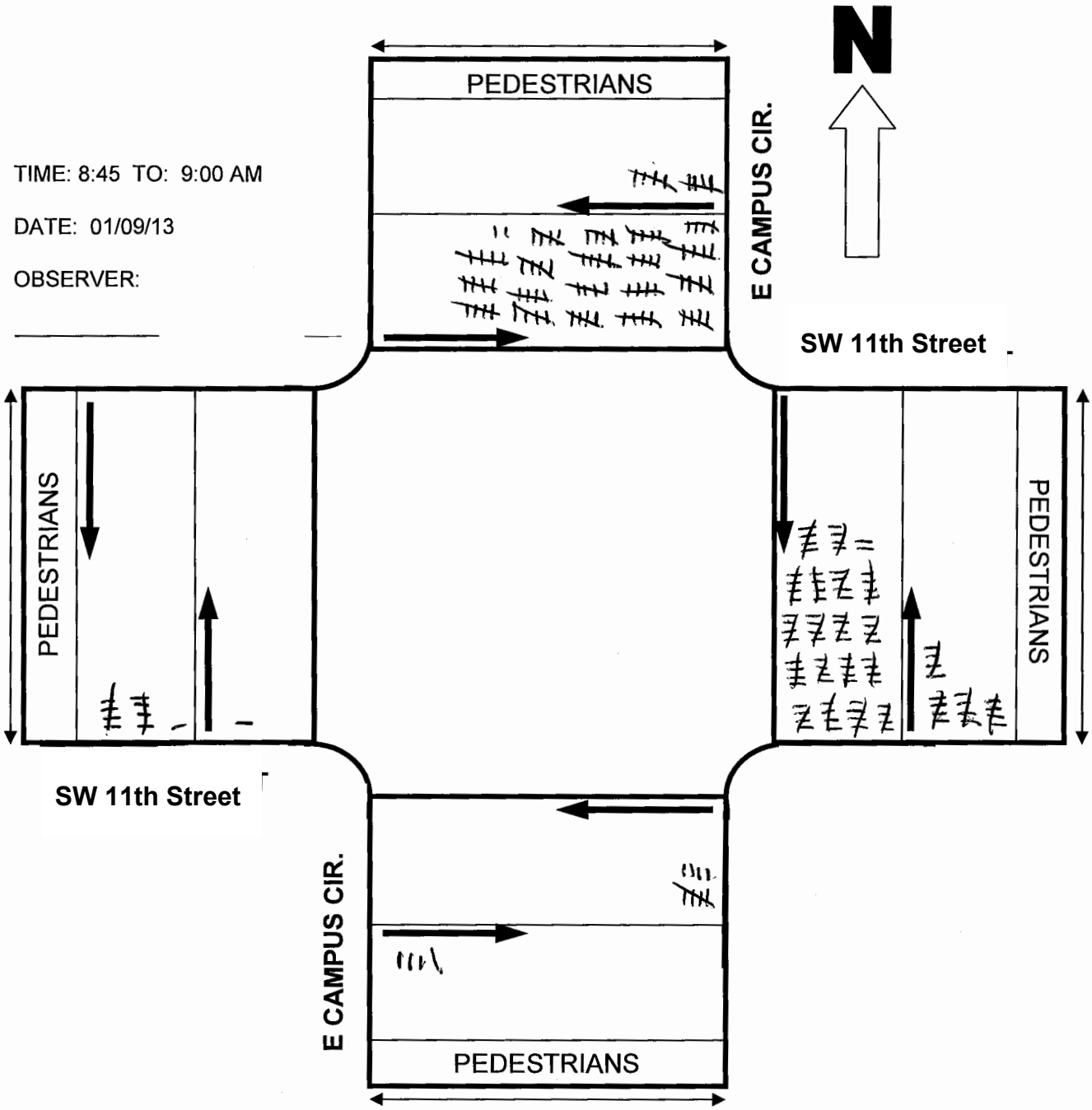
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 8:45 TO: 9:00 AM

DATE: 01/09/13

OBSERVER:



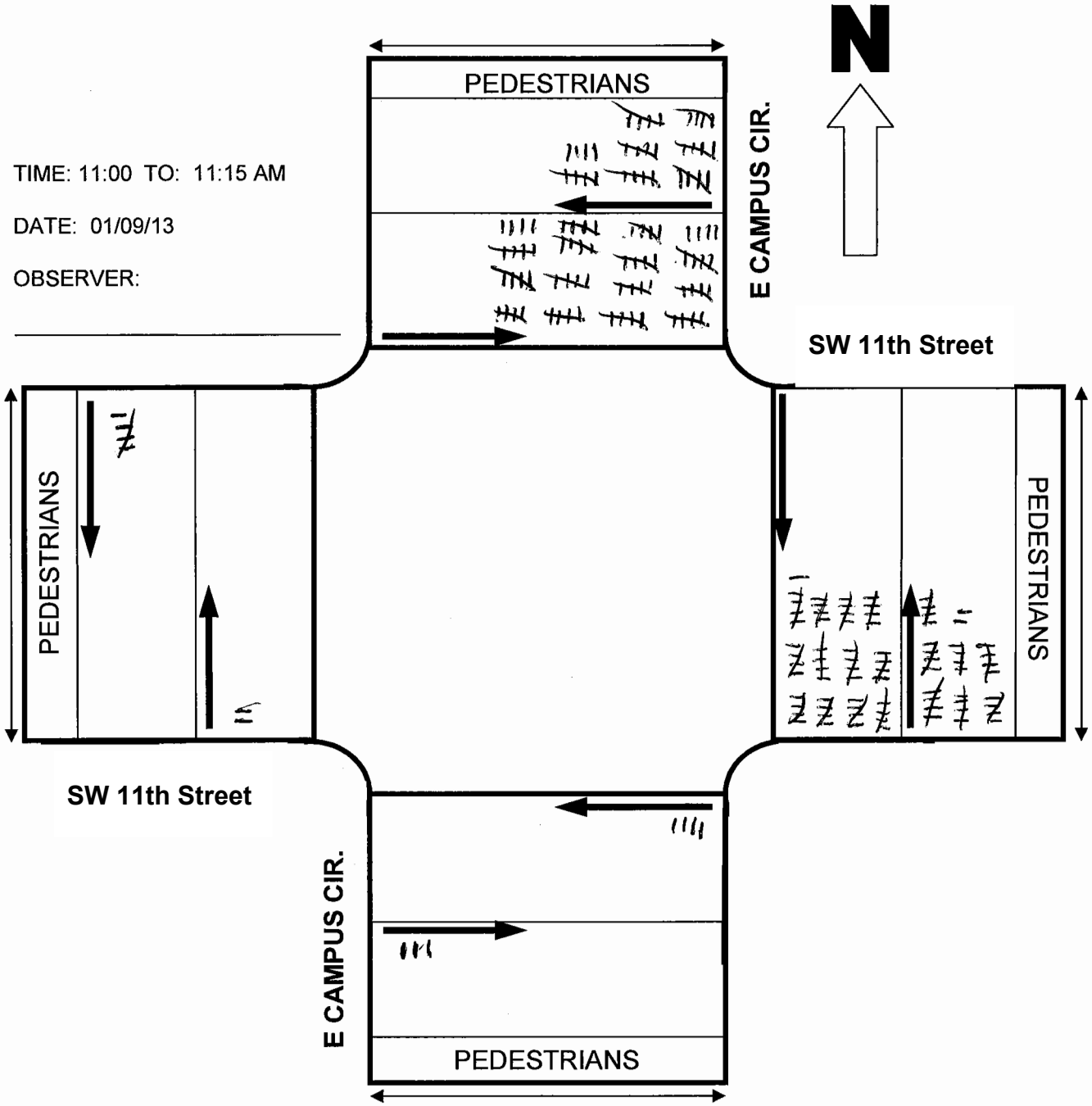
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 11:00 TO: 11:15 AM

DATE: 01/09/13

OBSERVER:



E CAMPUS CIR @ **SW 11th Street**

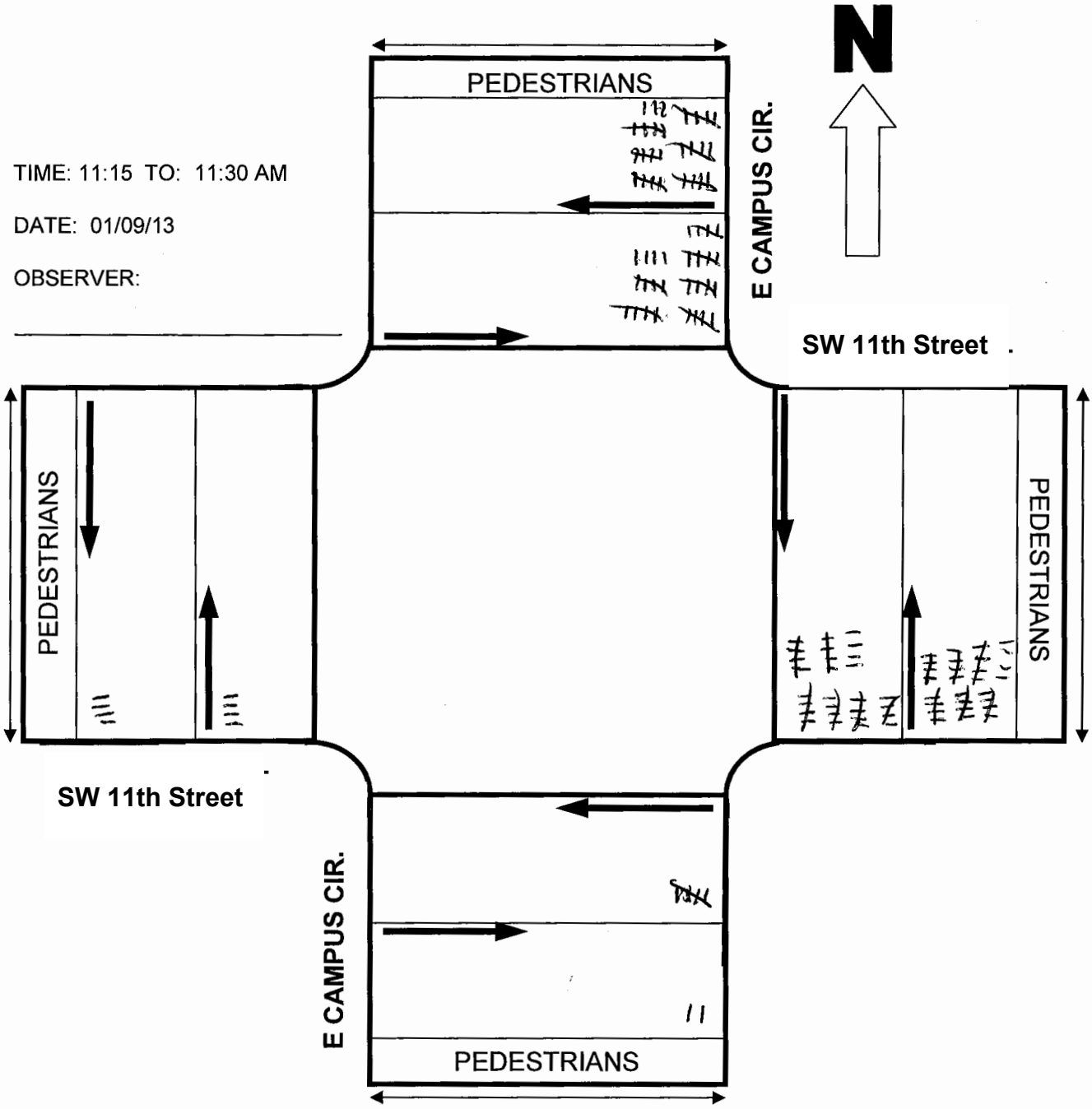
CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 11:15 TO: 11:30 AM

DATE: 01/09/13

OBSERVER:

_____



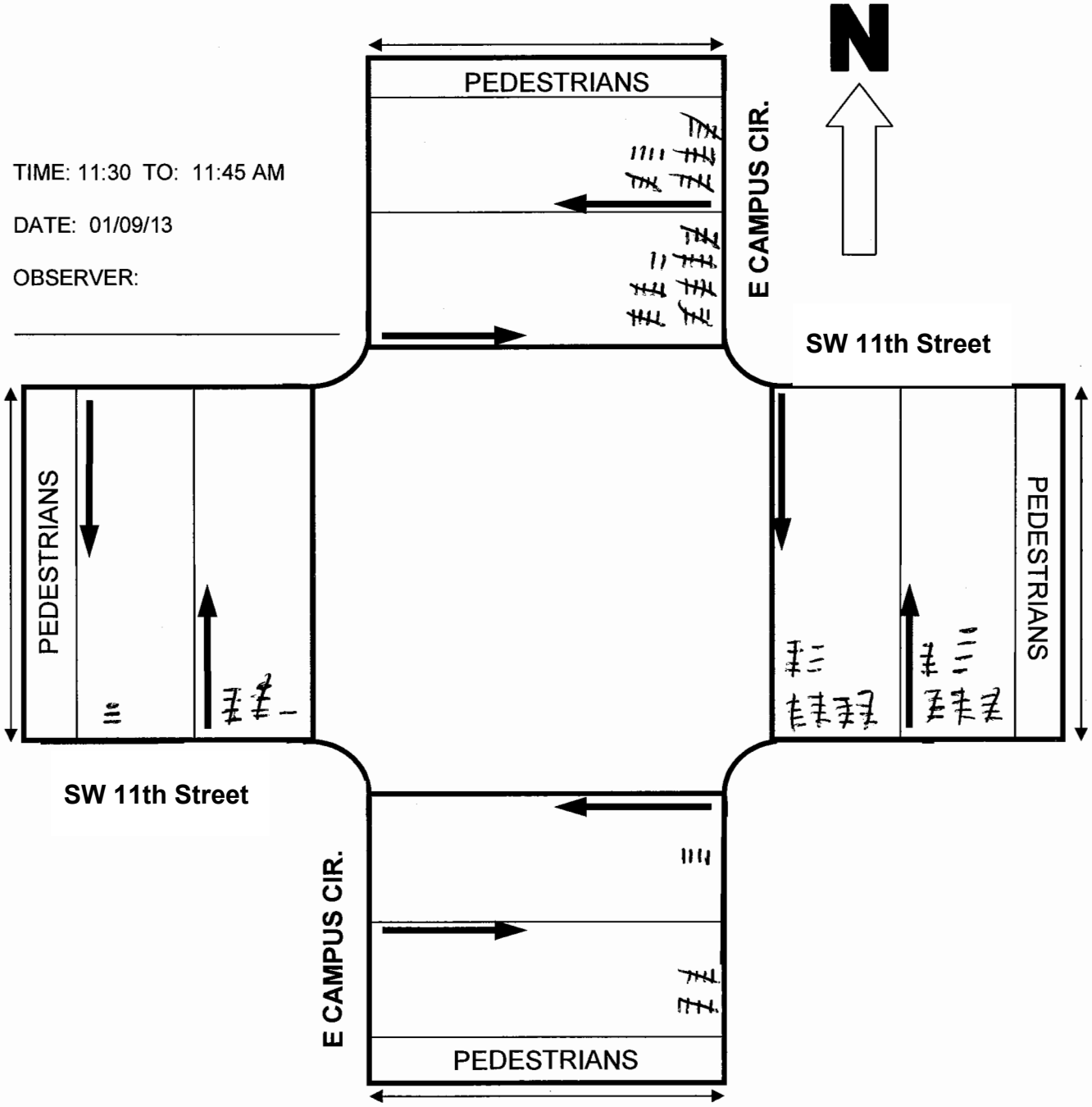
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 11:30 TO: 11:45 AM

DATE: 01/09/13

OBSERVER:



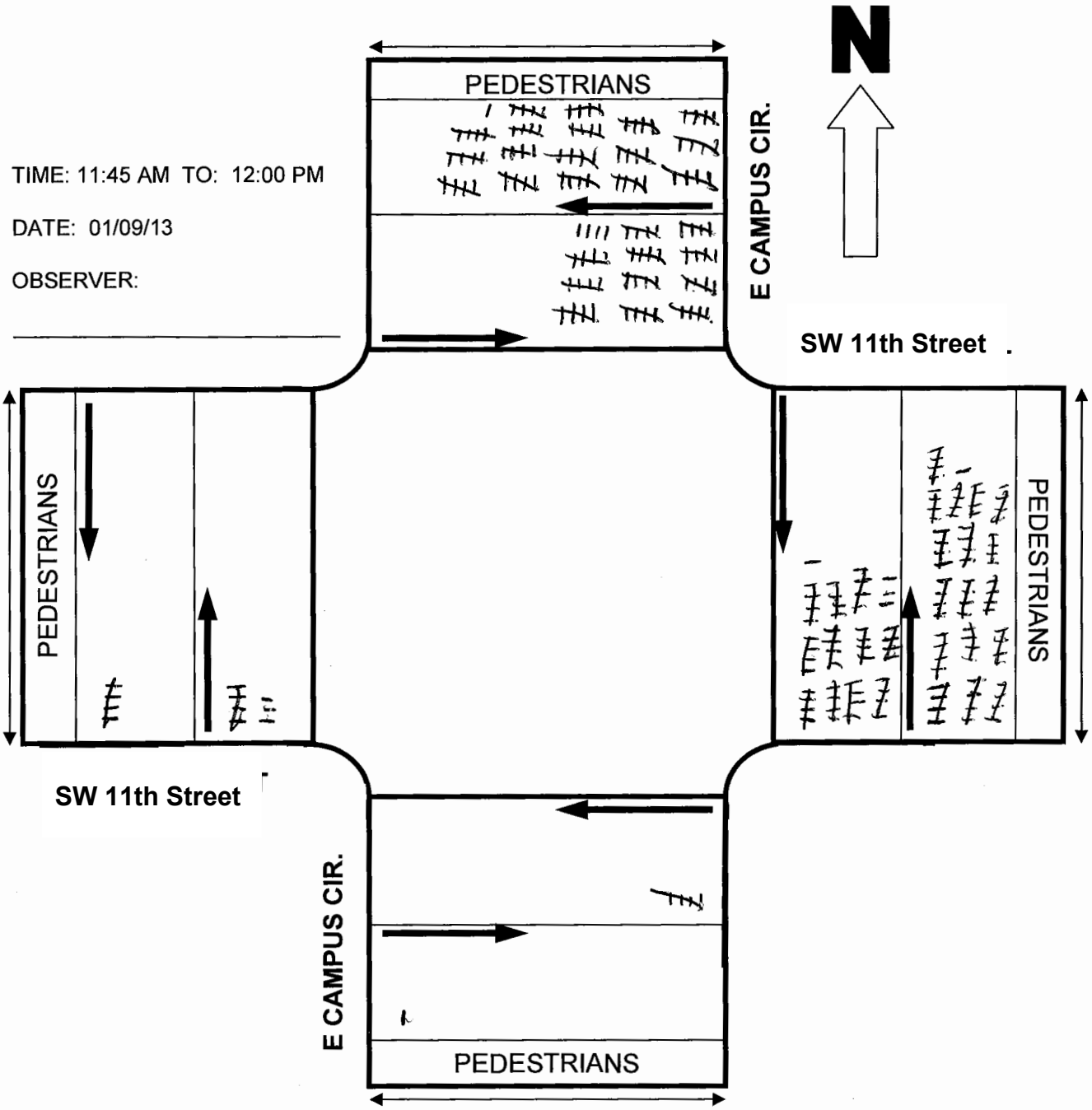
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 11:45 AM TO: 12:00 PM

DATE: 01/09/13

OBSERVER:



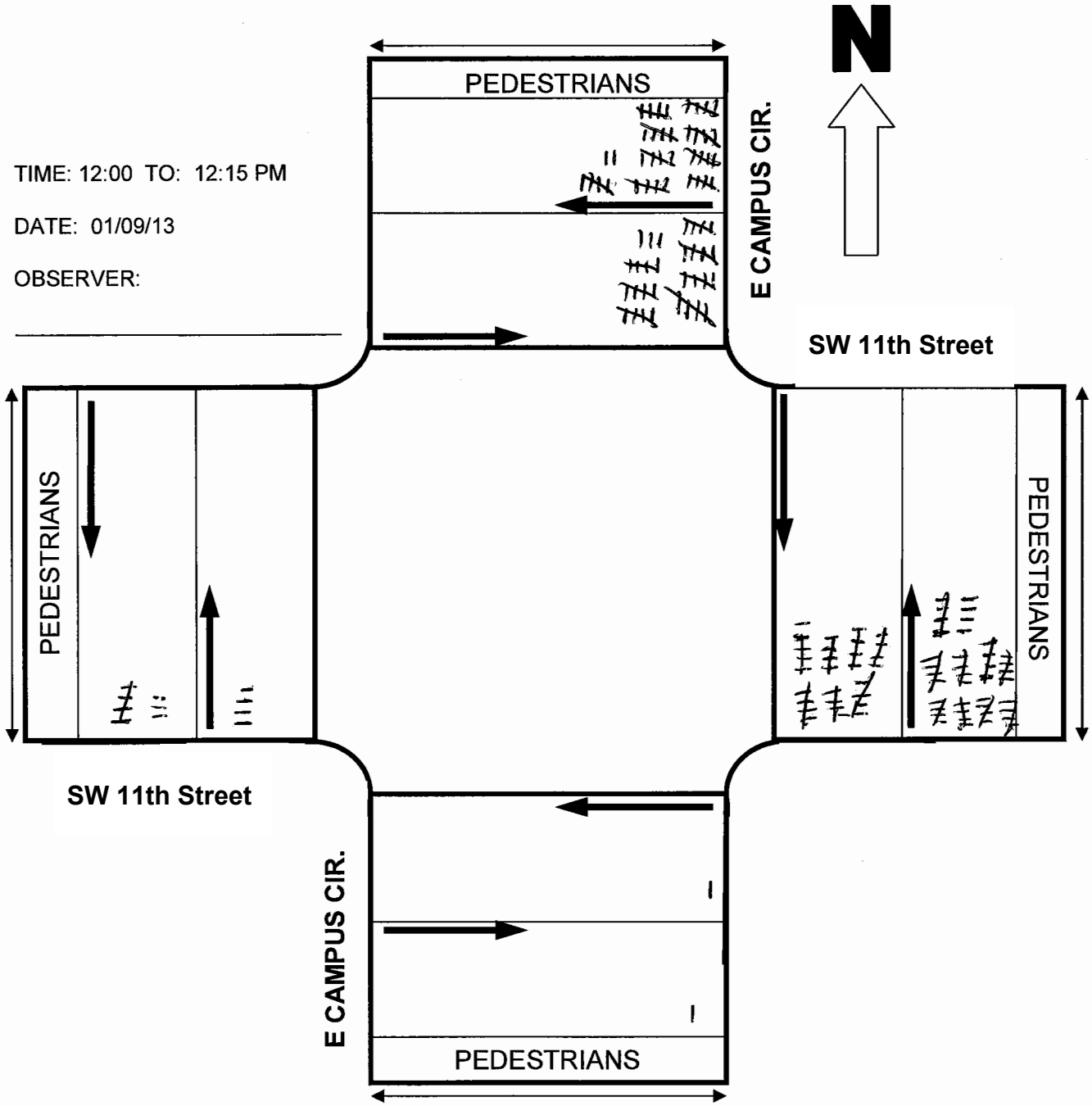
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 12:00 TO: 12:15 PM

DATE: 01/09/13

OBSERVER:



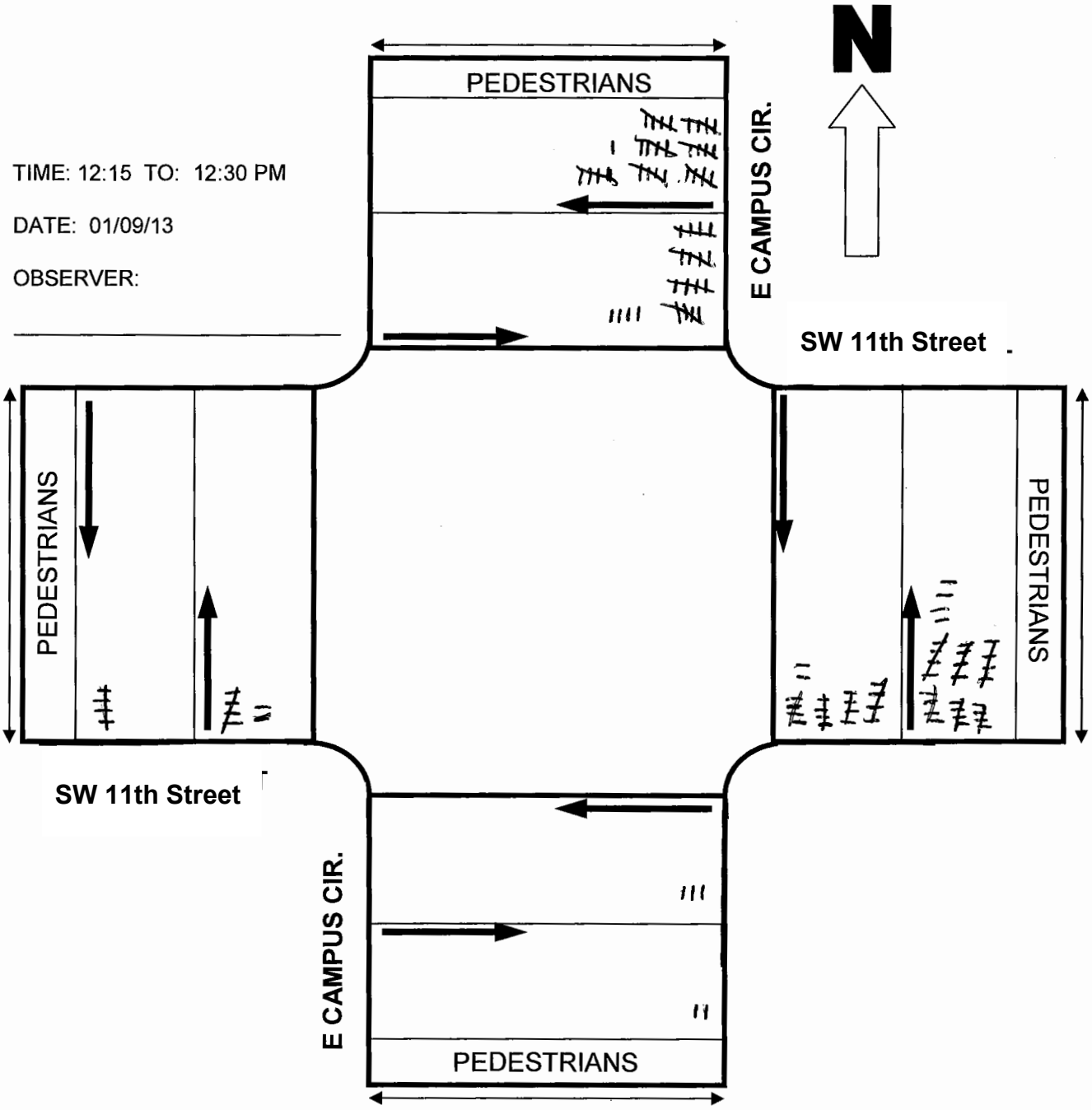
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 12:15 TO: 12:30 PM

DATE: 01/09/13

OBSERVER:



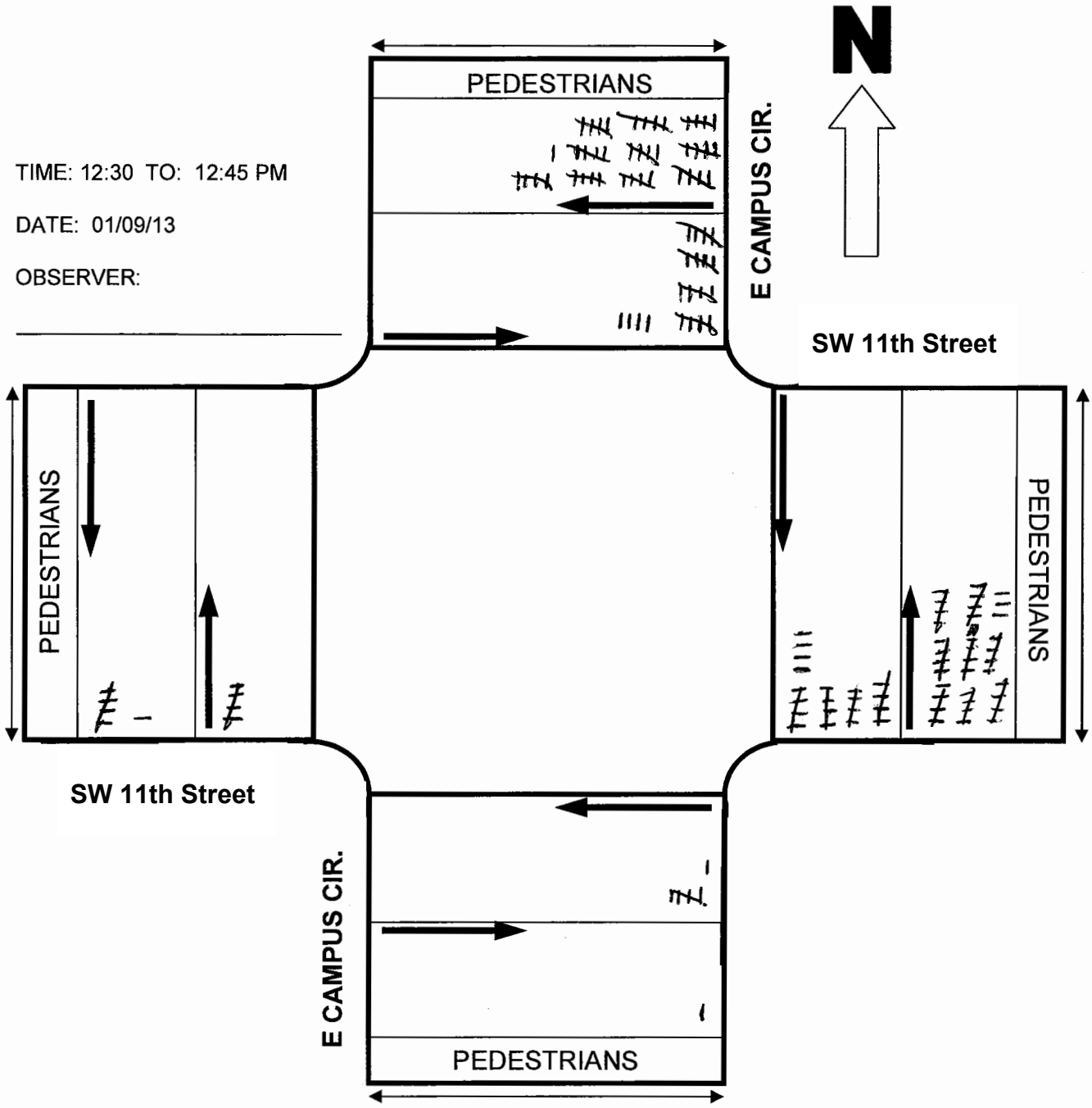
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 12:30 TO: 12:45 PM

DATE: 01/09/13

OBSERVER:



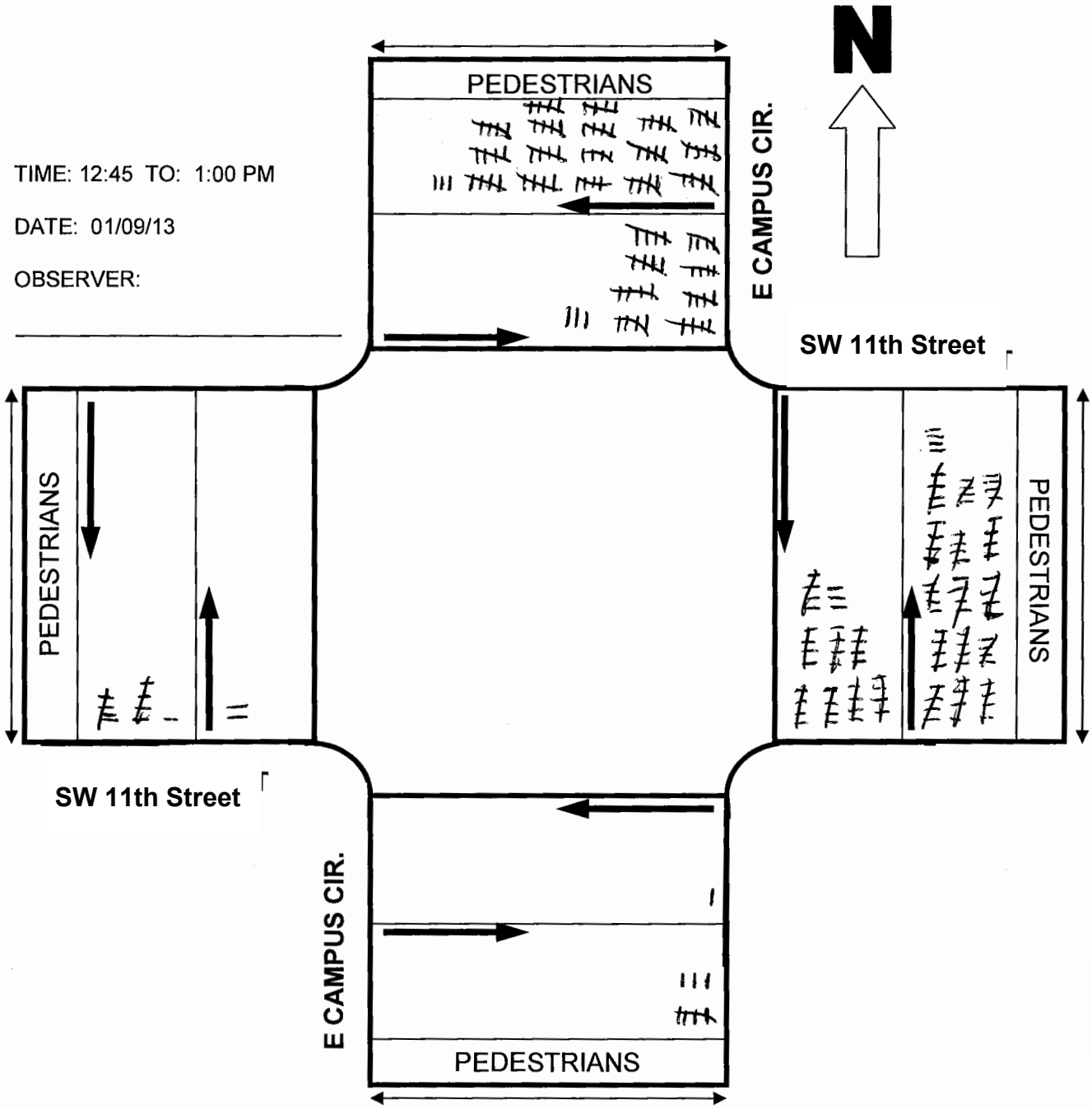
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 12:45 TO: 1:00 PM

DATE: 01/09/13

OBSERVER:



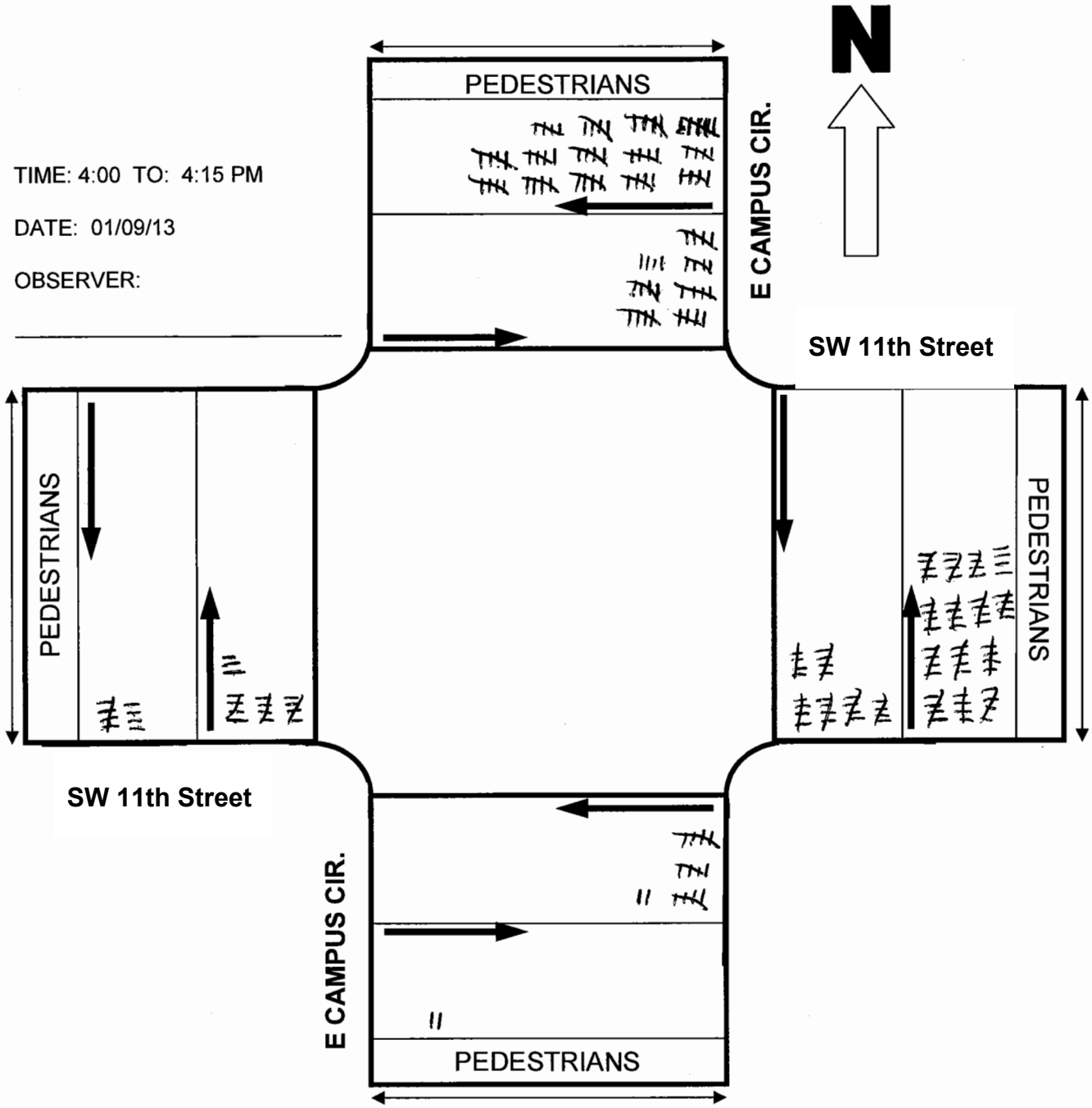
E CAMPUS CIR @ SW 11th Street

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 4:00 TO: 4:15 PM

DATE: 01/09/13

OBSERVER:



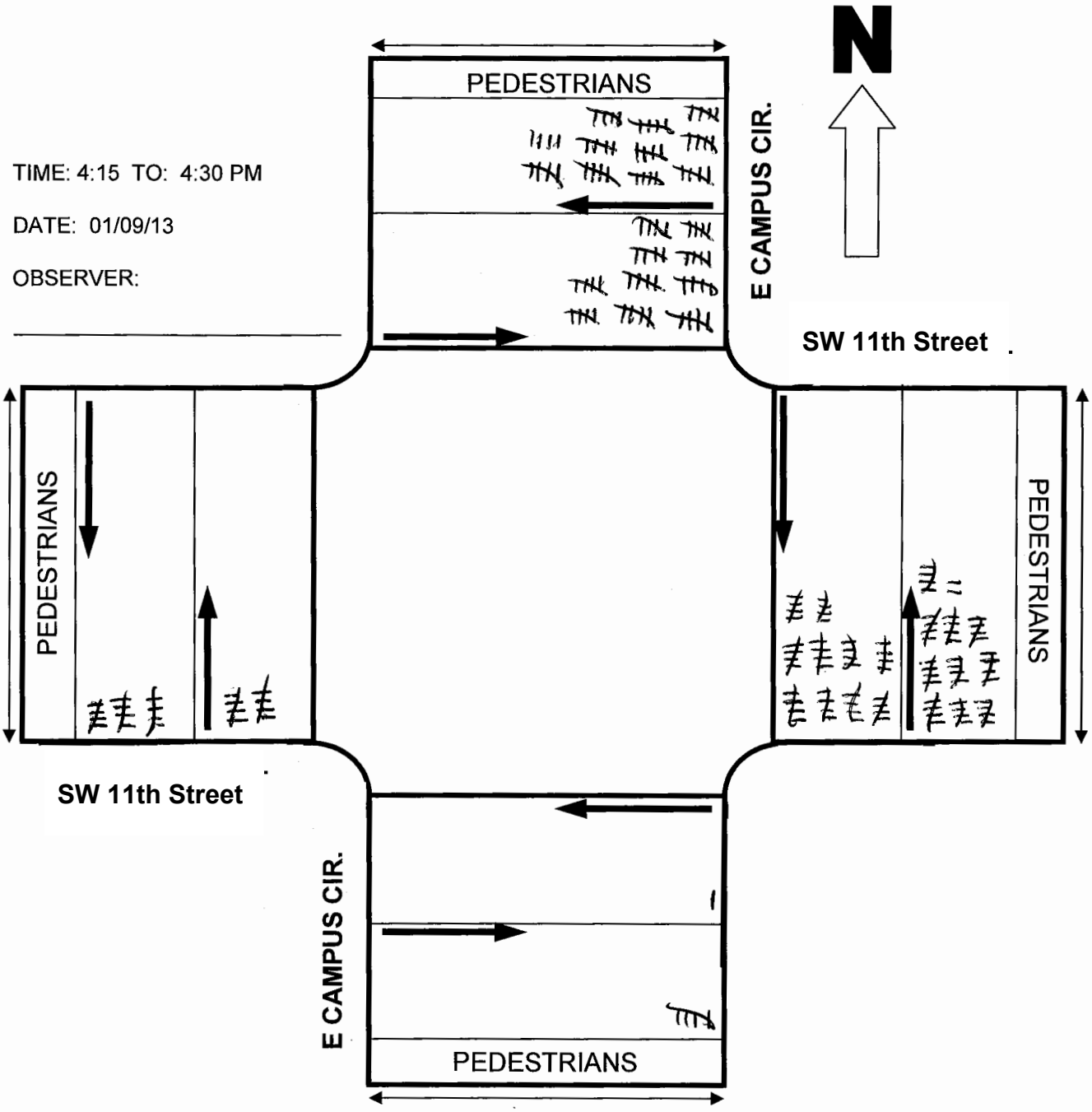
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 4:15 TO: 4:30 PM

DATE: 01/09/13

OBSERVER:



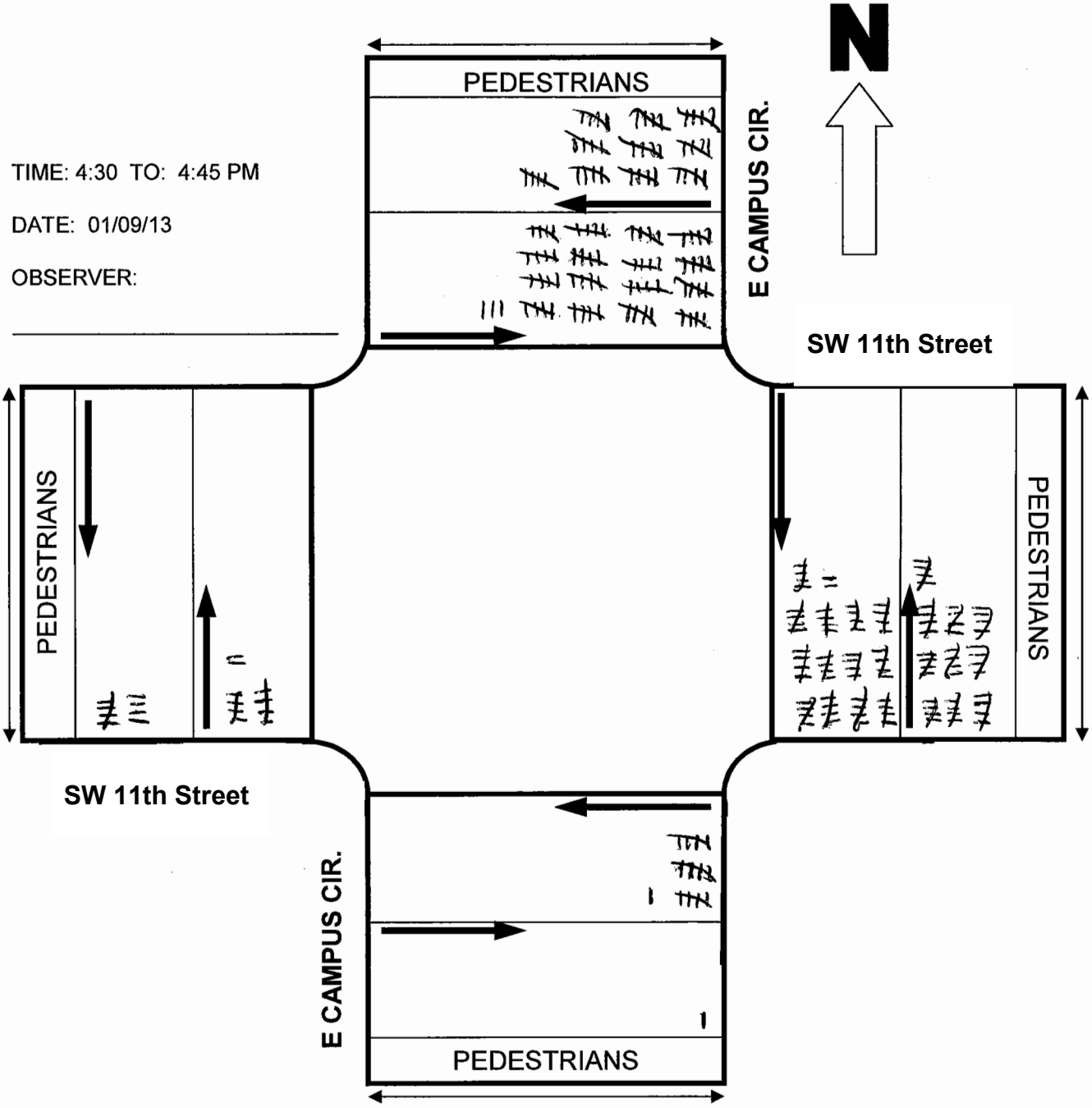
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 4:30 TO: 4:45 PM

DATE: 01/09/13

OBSERVER:



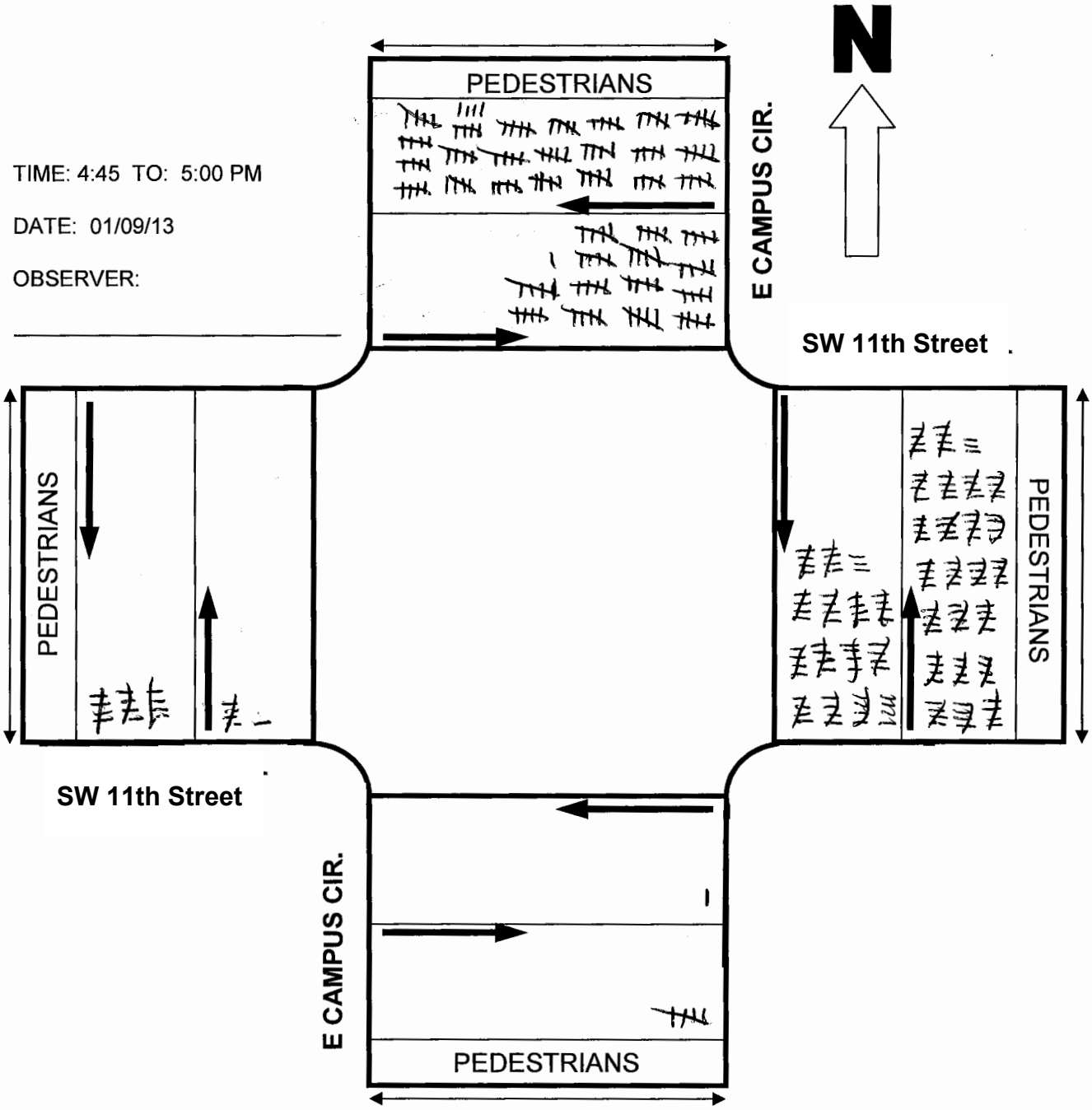
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 4:45 TO: 5:00 PM

DATE: 01/09/13

OBSERVER:



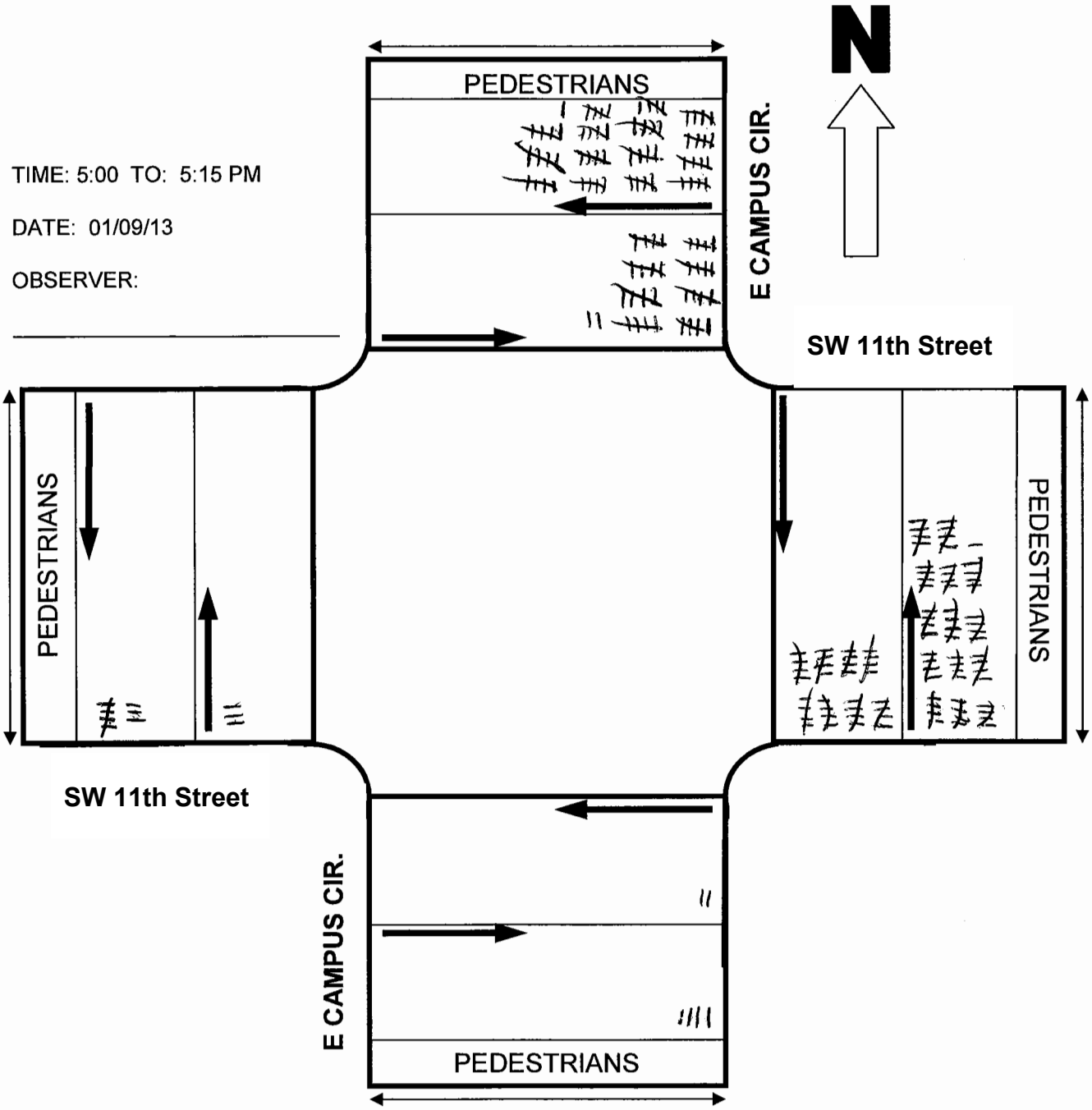
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 5:00 TO: 5:15 PM

DATE: 01/09/13

OBSERVER:



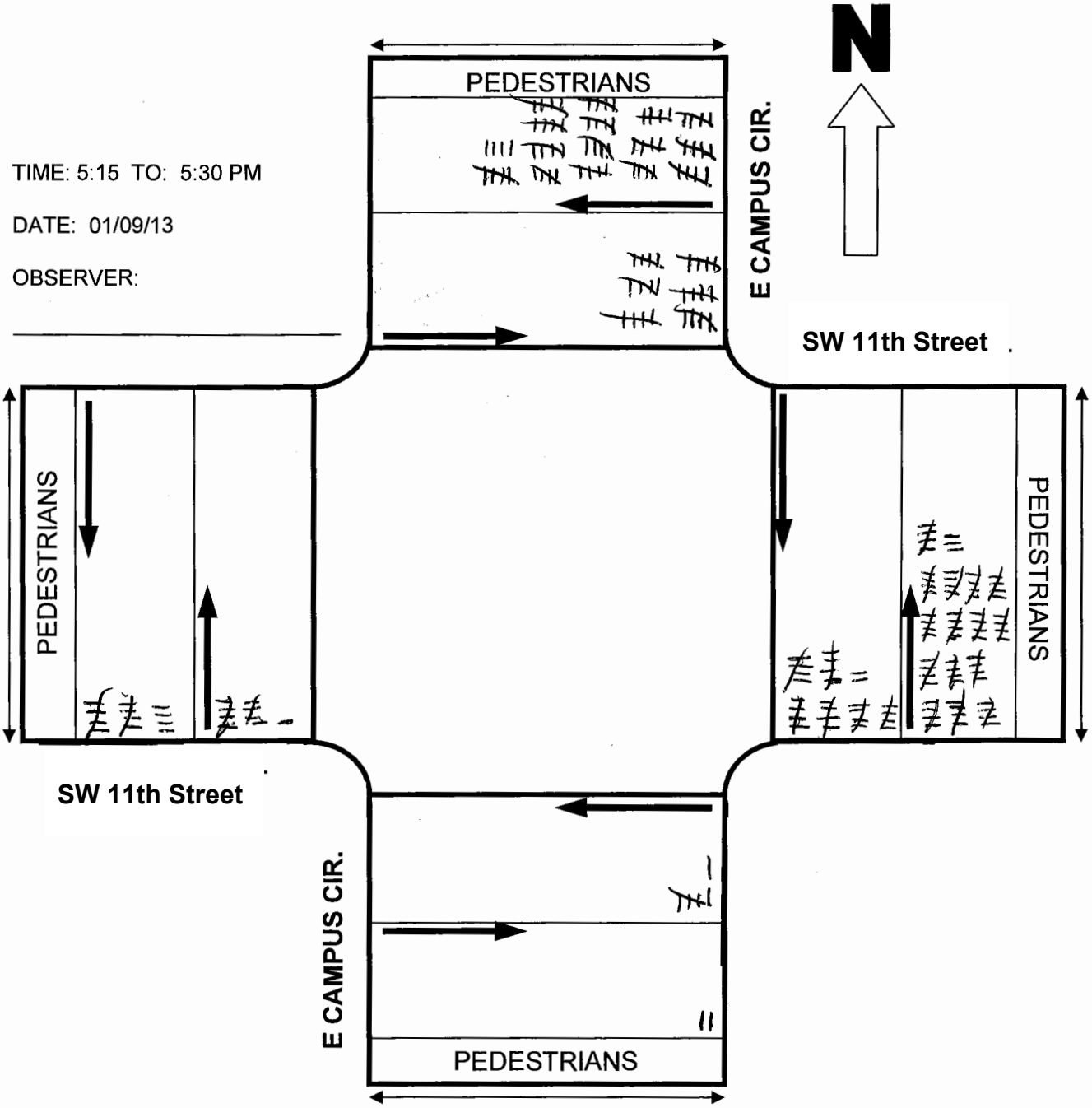
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 5:15 TO: 5:30 PM

DATE: 01/09/13

OBSERVER:



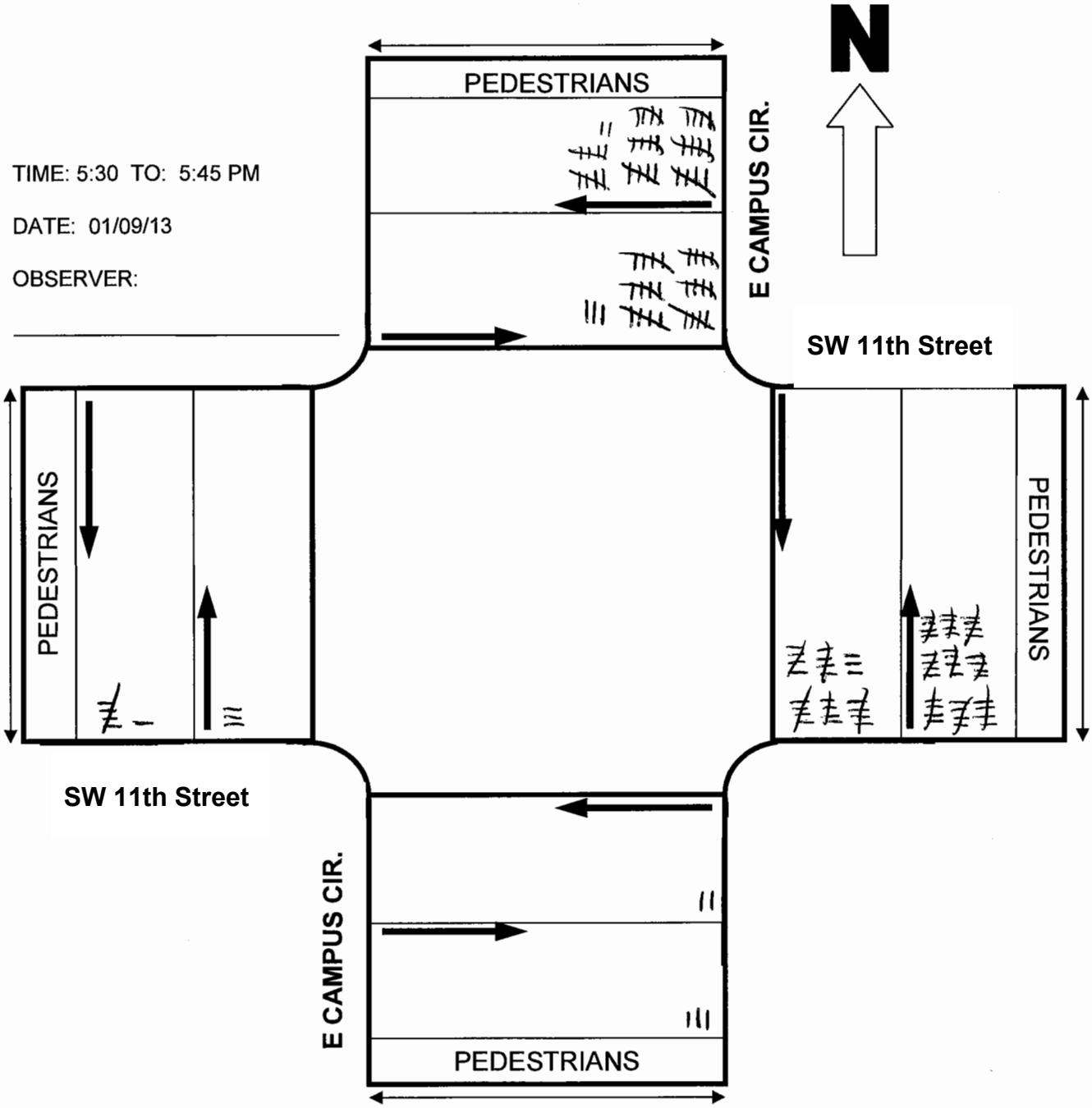
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 5:30 TO: 5:45 PM

DATE: 01/09/13

OBSERVER:



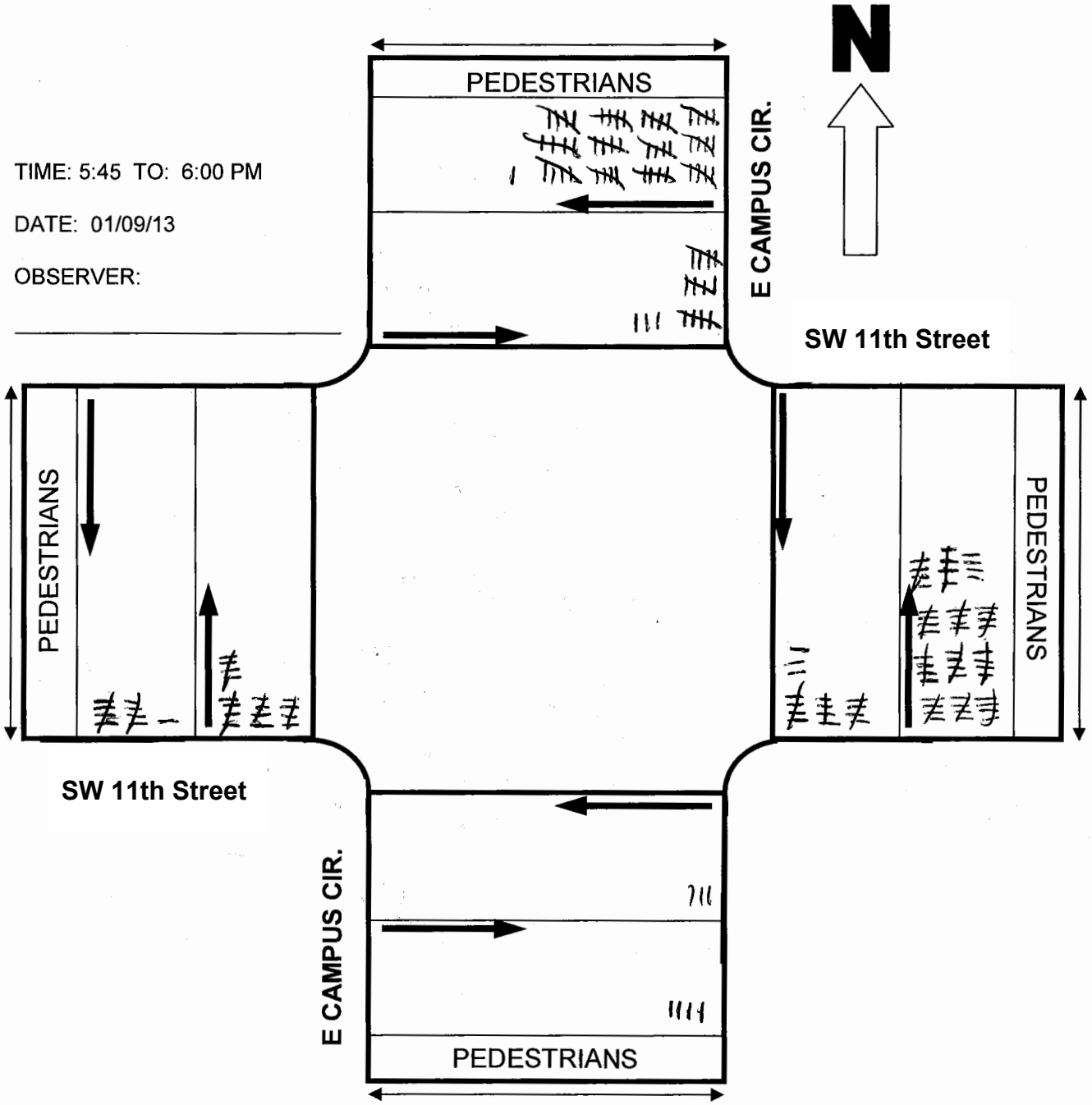
E CAMPUS CIR @ **SW 11th Street**

CROSSWALK FIELD SHEET
PEDESTRIAN CROSSING COUNT

TIME: 5:45 TO: 6:00 PM

DATE: 01/09/13

OBSERVER:



24-HOUR BI-DIRECTIONAL VOLUME COUNTS

County: 87
Station: 1117
Description: SW 117 AVE S/O SW 8 ST
Start Date: 01/10/2013
Start Time: 0000

	Direction: N					Direction: S					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	12	13	11	13	49	10	9	4	8	31	80
0100	12	3	8	5	28	9	5	1	3	18	46
0200	3	3	9	6	21	2	2	4	2	10	31
0300	5	3	4	3	15	3	2	2	3	10	25
0400	2	5	5	5	17	3	2	5	5	15	32
0500	4	8	14	17	43	8	7	17	30	62	105
0600	31	32	58	61	182	20	26	41	77	164	346
0700	72	94	130	193	489	52	63	77	99	291	780
0800	204	203	174	122	703	143	187	103	95	528	1231
0900	100	119	108	71	398	81	96	65	93	335	733
1000	74	103	82	92	351	45	69	53	71	238	589
1100	112	105	95	95	407	78	55	59	55	247	654
1200	88	113	112	98	411	66	72	73	72	283	694
1300	93	89	108	108	398	68	73	92	105	338	736
1400	194	140	101	97	532	78	93	67	104	342	874
1500	129	264	209	171	773	126	95	105	82	408	1181
1600	117	129	113	134	493	93	74	83	118	368	861
1700	141	173	126	148	588	134	156	148	154	592	1180
1800	135	131	97	115	478	161	147	160	147	615	1093
1900	82	105	111	87	385	151	99	55	85	390	775
2000	99	92	78	62	331	75	53	41	37	206	537
2100	59	76	55	54	244	53	45	39	29	166	410
2200	63	93	44	29	229	25	15	22	16	78	307
2300	35	25	21	14	95	16	26	13	17	72	167
24-Hour Totals:					7660					5807	13467

Peak Volume Information

	Direction: N		Direction: S		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	745	774	745	532	745	1306
P.M.	1500	773	1745	622	1715	1201
Daily	745	774	1745	622	745	1306

Generated by SPS 5.0.30P

County: 87
Station: 1117
Description: SW 117 AVE S/O SW 8 ST
Start Date: 01/09/2013
Start Time: 0000

	Direction: N					Direction: S					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	13	15	13	9	50	12	9	11	3	35	85
0100	7	4	6	10	27	10	5	8	3	26	53
0200	3	3	2	6	14	1	0	2	3	6	20
0300	0	4	6	3	13	0	1	1	6	8	21
0400	1	2	11	4	18	3	2	5	8	18	36
0500	3	9	16	17	45	9	14	12	18	53	98
0600	16	28	56	73	173	25	34	39	59	157	330
0700	94	101	174	181	550	67	58	82	83	290	840
0800	179	227	252	149	807	132	169	142	82	525	1332
0900	126	108	86	92	412	67	81	84	66	298	710
1000	75	81	105	94	355	72	71	51	62	256	611
1100	99	85	98	104	386	63	53	61	55	232	618
1200	108	104	102	84	398	76	74	71	72	293	691
1300	99	98	112	101	410	73	81	96	111	361	771
1400	256	85	83	96	520	104	65	78	82	329	849
1500	96	157	157	139	549	94	88	80	76	338	887
1600	119	130	102	138	489	91	93	93	100	377	866
1700	136	156	168	144	604	116	105	159	142	522	1126
1800	124	122	125	123	494	126	145	103	153	527	1021
1900	91	107	101	96	395	160	115	71	84	430	825
2000	104	100	72	46	322	66	50	45	34	195	517
2100	71	80	47	44	242	31	37	34	25	127	369
2200	66	131	57	36	290	22	25	16	20	83	373
2300	34	25	21	19	99	13	20	13	14	60	159
24-Hour Totals:					7662					5546	13208

Peak Volume Information

	Direction: N		Direction: S		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	745	839	745	526	745	1365
P.M.	1700	604	1730	572	1730	1130
Daily	745	839	1730	572	745	1365

Generated by SPS 5.0.30P

County: 87
Station: 1017
Description: SW 17 ST E/O SW 117 AVE
Start Date: 01/10/2013
Start Time: 0000

	Direction: E					Direction: W					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	8	9	4	4	25	7	2	2	11	22	47
0100	5	5	1	0	11	2	9	3	2	16	27
0200	1	2	0	1	4	1	1	1	2	5	9
0300	2	0	2	1	5	0	0	0	1	1	6
0400	1	0	1	2	4	1	1	2	3	7	11
0500	0	2	2	2	6	2	6	2	7	17	23
0600	1	2	1	0	4	10	21	31	50	112	116
0700	2	6	9	23	40	49	45	59	97	250	290
0800	40	28	19	16	103	98	95	116	123	432	535
0900	28	49	34	27	138	147	135	131	67	480	618
1000	30	40	23	47	140	49	36	69	88	242	382
1100	43	31	33	24	131	59	33	64	54	210	341
1200	48	69	74	45	236	75	87	60	50	272	508
1300	36	52	65	65	218	42	45	66	55	208	426
1400	87	49	63	45	244	55	49	38	34	176	420
1500	73	76	110	90	349	38	41	65	52	196	545
1600	51	47	60	70	228	35	44	61	67	207	435
1700	87	98	78	64	327	55	61	44	47	207	534
1800	41	101	64	46	252	48	57	52	43	200	452
1900	44	50	58	53	205	43	48	33	42	166	371
2000	70	32	17	20	139	21	19	22	23	85	224
2100	48	41	28	19	136	21	16	12	8	57	193
2200	32	16	16	14	78	11	19	10	12	52	130
2300	15	7	15	5	42	11	13	10	10	44	86
24-Hour Totals:					3065					3664	6729

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	845	127	845	536	845	663
P.M.	1500	349	1200	272	1645	560
Daily	1500	349	845	536	845	663

Generated by SPS 5.0.30P

County: 87
Station: 1017
Description: SW 17 ST E/O SW 117 AVE
Start Date: 01/09/2013
Start Time: 0000

	Direction: E					Direction: W					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	1	6	3	2	12	3	7	4	1	15	27
0100	3	2	4	0	9	0	2	2	6	10	19
0200	2	1	2	0	5	1	0	0	0	1	6
0300	0	0	2	5	7	3	0	1	1	5	12
0400	0	0	0	0	0	2	0	1	4	7	7
0500	1	2	2	2	7	5	6	7	6	24	31
0600	2	0	2	5	9	13	18	34	53	118	127
0700	4	22	14	30	70	53	46	82	105	286	356
0800	30	15	19	28	92	124	120	138	160	542	634
0900	35	21	40	28	124	108	115	101	76	400	524
1000	43	37	22	44	146	58	61	93	72	284	430
1100	53	58	30	32	173	71	52	50	93	266	439
1200	39	66	53	33	191	75	66	65	61	267	458
1300	59	59	59	49	226	46	51	47	56	200	426
1400	56	58	57	39	210	52	34	35	46	167	377
1500	60	81	82	77	300	46	52	37	56	191	491
1600	69	137	72	107	385	50	51	42	51	194	579
1700	87	112	91	66	356	59	56	57	55	227	583
1800	44	61	87	61	253	70	69	29	45	213	466
1900	40	73	61	57	231	41	47	27	28	143	374
2000	69	42	32	15	158	29	22	16	16	83	241
2100	22	43	25	23	113	24	19	14	13	70	183
2200	24	32	20	17	93	8	6	17	5	36	129
2300	11	9	9	6	35	6	3	1	2	12	47
24-Hour Totals:					3205					3761	6966

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	845	124	800	542	800	634
P.M.	1615	403	1200	267	1645	620
Daily	1615	403	800	542	800	634

Generated by SPS 5.0.30P

County: 87
Station: 0117
Description: SW 117 AVE N/O SW 17 ST
Start Date: 01/10/2013
Start Time: 0000

	Direction: N					Direction: S					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	13	17	10	9	49	8	16	6	9	39	88
0100	13	5	6	6	30	11	8	0	5	24	54
0200	4	3	7	7	21	2	2	3	3	10	31
0300	7	0	6	2	15	4	3	2	4	13	28
0400	2	5	7	4	18	5	2	6	7	20	38
0500	6	11	19	22	58	10	8	24	35	77	135
0600	28	31	61	67	187	34	44	64	110	252	439
0700	76	90	110	153	429	97	78	82	101	358	787
0800	160	153	109	128	550	92	143	142	148	525	1075
0900	100	124	100	85	409	128	152	120	154	554	963
1000	84	95	82	93	354	52	90	86	124	352	706
1100	111	96	93	94	394	115	81	93	87	376	770
1200	91	110	104	104	409	92	125	109	113	439	848
1300	81	87	95	115	378	114	104	111	134	463	841
1400	105	107	97	99	408	122	130	121	99	472	880
1500	121	113	171	160	565	112	153	167	138	570	1135
1600	108	107	127	131	473	135	112	111	162	520	993
1700	139	164	115	146	564	188	282	253	247	970	1534
1800	143	145	90	123	501	265	211	294	248	1018	1519
1900	103	113	111	103	430	249	154	87	108	598	1028
2000	107	94	82	51	334	116	80	57	53	306	640
2100	62	84	64	59	269	78	51	57	49	235	504
2200	63	85	50	33	231	30	23	34	16	103	334
2300	36	32	21	16	105	23	38	14	19	94	199
24-Hour Totals:					7181					8388	15569

Peak Volume Information

	Direction: N		Direction: S		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	730	576	830	570	800	1075
P.M.	1715	568	1715	1047	1715	1615
Daily	730	576	1715	1047	1715	1615

Generated by SPS 5.0.30P

County: 87
Station: 0117
Description: SW 117 AVE N/O SW 17 ST
Start Date: 01/09/2013
Start Time: 0000

	Direction: N					Direction: S					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	19	12	12	9	52	14	15	12	5	46	98
0100	8	5	6	8	27	13	8	9	8	38	65
0200	3	3	1	6	13	2	0	3	4	9	22
0300	0	3	4	4	11	0	1	1	7	9	20
0400	1	2	10	6	19	3	3	9	11	26	45
0500	3	11	16	18	48	10	22	16	30	78	126
0600	17	30	57	69	173	35	62	62	104	263	436
0700	88	96	132	148	464	94	78	92	78	342	806
0800	122	138	132	116	508	109	129	167	116	521	1029
0900	115	113	101	84	413	91	159	129	92	471	884
1000	77	87	95	106	365	129	104	84	109	426	791
1100	90	90	103	113	396	92	70	89	81	332	728
1200	109	109	115	88	421	115	117	92	122	446	867
1300	109	100	116	108	433	99	117	130	81	427	860
1400	99	83	89	112	383	138	101	125	108	472	855
1500	102	121	166	137	526	129	132	124	107	492	1018
1600	140	135	105	139	519	133	127	151	153	564	1083
1700	143	165	173	140	621	173	181	252	238	844	1465
1800	138	123	107	135	503	216	222	180	257	875	1378
1900	114	120	109	102	445	267	173	135	104	679	1124
2000	117	108	81	44	350	98	79	59	46	282	632
2100	78	76	53	45	252	48	50	52	30	180	432
2200	69	124	56	37	286	33	31	28	27	119	405
2300	36	27	21	19	103	16	27	17	17	77	180
24-Hour Totals:					7331					8018	15349

Peak Volume Information

	Direction: N		Direction: S		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	730	540	830	533	800	1029
P.M.	1700	621	1730	928	1715	1503
Daily	1700	621	1730	928	1715	1503

Generated by SPS 5.0.30P

County: 87
Station: 0017
Description: SW 17 ST E/O SW 115 AVE
Start Date: 01/10/2013
Start Time: 0000

	Direction: E					Direction: W					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	6	8	4	7	25	7	10	4	6	27	52
0100	3	5	4	5	17	3	3	7	9	22	39
0200	1	0	2	0	3	1	1	1	0	3	6
0300	1	0	2	1	4	1	0	2	1	4	8
0400	2	1	3	5	11	4	0	0	2	6	17
0500	10	5	17	21	53	5	4	3	1	13	66
0600	30	41	57	95	223	5	10	10	8	33	256
0700	92	83	110	151	436	20	16	16	11	63	499
0800	176	173	196	198	743	31	14	24	36	105	848
0900	307	228	218	96	849	20	47	48	22	137	986
1000	72	75	93	139	379	22	33	12	41	108	487
1100	116	57	71	80	324	56	37	50	45	188	512
1200	132	124	113	91	460	67	74	100	93	334	794
1300	94	87	110	123	414	61	49	58	93	261	675
1400	108	87	72	69	336	133	87	72	65	357	693
1500	85	92	131	137	445	95	100	200	205	600	1045
1600	77	85	114	143	419	84	75	68	84	311	730
1700	142	155	123	92	512	135	242	149	121	647	1159
1800	109	116	110	88	423	81	160	137	95	473	896
1900	69	93	94	99	355	56	87	81	92	316	671
2000	75	46	40	41	202	92	50	41	33	216	418
2100	69	60	48	38	215	84	103	60	35	282	497
2200	37	35	26	21	119	41	30	28	20	119	238
2300	34	19	18	9	80	37	18	20	3	78	158
24-Hour Totals:					7047					4703	11750

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	845	951	845	151	845	1102
P.M.	1645	563	1700	647	1645	1173
Daily	845	951	1700	647	1645	1173

Generated by SPS 5.0.30P

County: 87
Station: 0017
Description: SW 17 ST E/O SW 115 AVE
Start Date: 01/09/2013
Start Time: 0000

	Direction: E					Direction: W					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	7	10	8	4	29	6	9	5	3	23	52
0100	2	0	4	9	15	2	0	6	6	14	29
0200	0	0	2	2	4	1	0	2	3	6	10
0300	1	0	1	2	4	0	0	4	4	8	12
0400	0	1	5	7	13	0	0	1	3	4	17
0500	8	18	16	23	65	4	3	3	3	13	78
0600	14	25	58	77	174	1	3	15	9	28	202
0700	104	93	135	168	500	8	32	19	22	81	581
0800	186	218	216	227	847	12	21	17	24	74	921
0900	207	167	152	120	646	35	30	29	21	115	761
1000	104	113	107	111	435	36	52	31	36	155	590
1100	103	74	76	102	355	57	47	47	47	198	553
1200	100	116	99	99	414	100	124	65	68	357	771
1300	89	101	105	120	415	71	57	67	62	257	672
1400	93	91	76	87	347	73	89	54	74	290	637
1500	97	107	112	109	425	95	125	164	126	510	935
1600	103	157	104	150	514	113	193	106	153	565	1079
1700	129	144	167	136	576	189	268	251	164	872	1448
1800	120	116	112	110	458	128	117	163	138	546	1004
1900	84	114	87	87	372	73	104	109	112	398	770
2000	77	52	42	42	213	145	88	54	36	323	536
2100	68	63	47	34	212	63	80	48	40	231	443
2200	41	32	30	32	135	46	37	29	29	141	276
2300	17	10	8	10	45	17	12	9	11	49	94
24-Hour Totals:					7213					5258	12471

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	815	868	845	118	815	965
P.M.	1645	590	1700	872	1645	1451
Daily	815	868	1700	872	1645	1451

Generated by SPS 5.0.30P

County: 87
Station: 0015
Description: SW 12 ST E/O SW 115 AVE
Start Date: 01/10/2013
Start Time: 0000

	Direction: E					Direction: W					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	1	4	5	3	13	4	7	3	8	22	35
0100	6	5	1	0	12	7	10	4	2	23	35
0200	1	0	0	2	3	0	1	0	2	3	6
0300	1	0	0	1	2	0	0	0	2	2	4
0400	0	0	1	3	4	0	1	0	1	2	6
0500	0	8	3	0	11	1	1	11	5	18	29
0600	6	8	13	15	42	2	2	10	6	20	62
0700	31	47	51	75	204	15	5	14	12	46	250
0800	73	65	80	67	285	21	24	34	45	124	409
0900	87	82	96	52	317	27	19	43	32	121	438
1000	42	61	63	69	235	24	19	27	31	101	336
1100	55	40	34	52	181	48	43	31	35	157	338
1200	54	64	55	58	231	38	39	52	33	162	393
1300	46	85	95	63	289	31	50	40	47	168	457
1400	64	49	32	32	177	58	46	32	31	167	344
1500	43	44	66	48	201	36	41	67	66	210	411
1600	30	38	61	77	206	43	40	35	65	183	389
1700	68	47	49	33	197	38	77	32	45	192	389
1800	34	55	46	33	168	34	57	58	45	194	362
1900	26	29	44	48	147	27	37	31	47	142	289
2000	34	25	13	10	82	28	25	21	17	91	173
2100	24	25	12	9	70	33	63	25	19	140	210
2200	9	24	10	8	51	19	31	22	13	85	136
2300	8	9	5	5	27	14	12	13	4	43	70
24-Hour Totals:					3155					2416	5571

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	845	332	845	134	845	466
P.M.	1315	307	1515	217	1315	502
Daily	845	332	1515	217	1315	502

Generated by SPS 5.0.30P

County: 87
Station: 0015
Description: SW 12 ST E/O SW 115 AVE
Start Date: 01/09/2013
Start Time: 0000

	Direction: E					Direction: W					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	5	1	2	1	9	10	7	3	2	22	31
0100	9	4	4	0	17	7	4	3	2	16	33
0200	1	0	0	0	1	1	0	0	0	1	2
0300	0	0	0	1	1	1	0	1	2	4	5
0400	1	0	0	1	2	0	0	0	2	2	4
0500	3	11	5	3	22	3	5	5	5	18	40
0600	2	7	12	16	37	1	2	7	8	18	55
0700	35	47	66	80	228	19	16	10	22	67	295
0800	84	68	90	113	355	22	30	40	45	137	492
0900	97	73	78	71	319	34	26	25	22	107	426
1000	61	71	61	74	267	28	27	32	43	130	397
1100	71	66	35	64	236	55	44	25	39	163	399
1200	57	67	57	55	236	54	51	39	37	181	417
1300	55	47	68	72	242	48	38	35	30	151	393
1400	67	42	45	44	198	57	48	27	45	177	375
1500	49	47	59	48	203	53	61	54	57	225	428
1600	52	87	57	115	311	48	75	50	60	233	544
1700	97	62	58	44	261	79	102	102	50	333	594
1800	56	47	44	48	195	60	51	54	65	230	425
1900	35	38	42	51	166	36	43	42	60	181	347
2000	33	20	17	15	85	48	31	22	27	128	213
2100	21	19	14	11	65	44	41	29	26	140	205
2200	11	20	13	9	53	28	20	22	19	89	142
2300	9	4	2	4	19	5	4	3	4	16	35
24-Hour Totals:					3528					2769	6297

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	830	373	815	149	830	518
P.M.	1615	356	1645	343	1645	675
Daily	830	373	1645	343	1645	675

Generated by SPS 5.0.30P

Table 1
Peak Hour Vehicular & Pedestrian Volumes

Location	Peak Hour	Southbound					Westbound					Northbound					Eastbound					Intersection Total
		Left	Thru	Right	Pedestrians	Approach Total	Left	Thru	Right	Pedestrians	Approach Total	Left	Thru	Right	Pedestrians	Approach Total	Left	Thru	Right	Pedestrians	Approach Total	
SW 108 Avenue & Campus Drive	9:00 AM	40	--	59	477	576	--	197	140	3	340	--	--	--	--	--	54	190	--	175	419	1,335
	12:00 PM	51	--	80	807	938	--	165	51	0	216	--	--	--	--	--	57	166	--	77	300	1,454
	4:15 PM	59	--	48	488	595	--	275	72	0	347	--	--	--	--	--	47	205	--	15	267	1,209
SW 109 Avenue & Campus Drive	9:00 AM	103	--	54	591	748	--	130	64	6	200	--	--	--	--	--	79	122	--	764	965	1,913
	11:45 AM	109	--	86	570	765	--	152	120	3	275	--	--	--	--	--	77	133	--	605	815	1,855
	5:45 PM	107	--	71	421	599	--	123	156	0	279	--	--	--	--	--	104	81	--	491	676	1,554
SW 11 Street & Campus Drive	8:30 AM	14	100	65	237	416	19	20	59	267	365	23	137	61	9	230	116	58	18	64	256	1,267
	12:15 PM	17	113	77	400	607	27	16	70	369	482	34	99	32	9	174	76	23	26	42	167	1,430
	5:00 PM	21	133	111	354	619	31	30	46	324	431	33	131	33	25	222	79	15	25	62	181	1,453

County: 87
Station: 8701
Description: FIU ENTRANCE (SW 8 ST & 109 AVE)
Start Date: 09/18/2012
Start Time: 0000

	Direction: N					Direction: S					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	24	42	12	16	94	1	4	0	3	8	102
0100	31	7	9	2	49	4	2	0	1	7	56
0200	3	5	5	3	16	0	2	1	1	4	20
0300	3	2	0	1	6	0	0	2	0	2	8
0400	2	2	0	1	5	0	0	2	0	2	7
0500	1	0	1	1	3	3	1	3	8	15	18
0600	1	6	13	11	31	19	40	70	72	201	232
0700	17	18	21	54	110	116	194	251	333	894	1004
0800	42	36	22	23	123	245	200	223	312	980	1103
0900	42	103	69	36	250	294	335	219	162	1010	1260
1000	52	43	49	145	289	160	158	181	176	675	964
1100	80	54	105	73	312	102	95	76	116	389	701
1200	114	147	143	107	511	132	121	98	87	438	949
1300	114	76	125	163	478	90	105	135	141	471	949
1400	181	122	104	94	501	72	56	61	63	252	753
1500	142	161	214	146	663	78	80	81	76	315	978
1600	108	115	104	114	441	108	141	204	181	634	1075
1700	151	148	150	129	578	95	84	84	112	375	953
1800	175	182	194	155	706	156	110	90	86	442	1148
1900	101	120	128	202	551	52	110	123	121	406	957
2000	170	126	74	85	455	75	32	15	25	147	602
2100	152	118	110	128	508	22	13	18	11	64	572
2200	129	138	134	89	490	23	19	16	11	69	559
2300	75	60	31	18	184	10	4	9	5	28	212
24-Hour Totals:					7354					7828	15182

Peak Volume Information

	Direction: N		Direction: S		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	845	237	830	1164	845	1397
P.M.	1800	706	1600	634	1745	1148
Daily	1800	706	830	1164	845	1397

Generated by SPS 5.0.29

County: 87
Station: 8702
Description: FIU SW 8 Street and 112 Avenue
Start Date: 09/18/2012
Start Time: 0000

	Direction: N					Direction: S					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	9	4	3	3	19	48	29	16	12	105	124
0100	2	4	1	2	9	12	7	8	6	33	42
0200	0	2	0	1	3	5	4	3	4	16	19
0300	0	0	0	1	1	1	1	4	3	9	10
0400	0	0	0	1	1	1	1	0	0	2	3
0500	2	10	17	17	46	1	0	1	2	4	50
0600	16	31	46	77	170	2	6	7	11	26	196
0700	87	171	238	311	807	9	16	20	30	75	882
0800	215	198	224	298	935	24	25	31	29	109	1044
0900	298	279	235	157	969	47	64	36	20	167	1136
1000	171	225	245	149	790	22	34	32	95	183	973
1100	122	83	112	155	472	57	38	48	45	188	660
1200	145	129	107	98	479	48	71	53	41	213	692
1300	99	139	195	187	620	52	48	60	142	302	922
1400	98	82	62	69	311	75	60	45	42	222	533
1500	72	76	77	86	311	61	68	78	73	280	591
1600	97	169	246	239	751	59	59	69	115	302	1053
1700	97	84	121	123	425	181	64	64	49	358	783
1800	134	129	135	103	501	68	115	90	68	341	842
1900	82	133	162	126	503	65	69	109	91	334	837
2000	65	37	25	24	151	101	65	61	67	294	445
2100	37	25	24	24	110	90	69	80	78	317	427
2200	37	26	20	11	94	60	34	31	26	151	245
2300	11	2	7	5	25	35	42	29	25	131	156
24-Hour Totals:					8503					4162	12665

Peak Volume Information

	Direction: N		Direction: S		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	845	1110	845	176	845	1286
P.M.	1600	751	1630	429	1615	1175
Daily	845	1110	1630	429	845	1286

Generated by SPS 5.0.29

County: 87
Station: 0000
Description: SW 16 Street west of SW 107 Avenue (east of roundabout)
Start Date: 09/24/2012
Start Time: 1545

	Direction: N					Direction: S					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	48	57	35	23	163	15	18	22	10	65	228
0100	25	25	19	18	87	10	9	9	9	37	124
0200	8	6	7	7	28	8	5	6	0	19	47
0300	9	7	7	5	28	2	2	0	3	7	35
0400	2	5	3	3	13	1	3	1	9	14	27
0500	3	6	4	6	19	2	5	13	14	34	53
0600	6	12	13	28	59	26	33	90	101	250	309
0700	32	37	50	54	173	97	186	301	367	951	1124
0800	76	42	42	56	216	306	236	292	257	1091	1307
0900	62	130	110	69	371	321	321	203	143	988	1359
1000	75	75	88	181	419	138	166	220	237	761	1180
1100	156	82	76	115	429	155	123	134	124	536	965
1200	148	219	240	166	773	182	192	188	118	680	1453
1300	119	113	148	181	561	139	145	208	206	698	1259
1400	277	153	134	114	678	152	95	84	98	429	1107
1500	146	222	374	190	932	100	145	150	188	583	1515
1600	242	176	167	189	774	161	206	253	243	863	1637
1700	250	315	204	166	935	191	165	122	126	604	1539
1800	210	252	230	159	851	201	181	129	128	639	1490
1900	154	187	213	269	823	147	143	163	128	581	1404
2000	257	154	143	130	684	105	59	71	60	295	979
2100	216	279	149	110	754	60	50	45	62	217	971
2200	95	112	135	105	447	35	53	49	35	172	619
2300	76	67	54	32	229	27	21	28	23	99	328
24-Hour Totals:					10446					10613	21059

Peak Volume Information

	Direction: N		Direction: S		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	845	358	730	1210	830	1481
P.M.	1515	1028	1615	893	1630	1773
Daily	1515	1028	730	1210	1630	1773

Generated by SPS 5.0.30P

County: 87
Station: 0000
Description: SW 16 Street west of SW 107 Avenue (east of roundabout)
Start Date: 09/25/2012
Start Time: 1545

	Direction: N					Direction: S					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	56	39	30	32	157	18	15	14	12	59	216
0100	35	33	13	18	99	10	12	5	2	29	128
0200	20	13	10	11	54	8	3	5	3	19	73
0300	4	3	6	4	17	6	1	2	1	10	27
0400	4	3	3	6	16	3	4	2	3	12	28
0500	4	6	4	10	24	6	7	12	15	40	64
0600	5	10	20	16	51	24	33	54	61	172	223
0700	37	38	62	60	197	99	180	294	391	964	1161
0800	64	43	40	60	207	285	276	334	306	1201	1408
0900	118	78	71	107	374	247	207	197	220	871	1245
1000	189	88	78	111	466	156	141	182	213	692	1158
1100	180	87	80	139	486	158	117	141	166	582	1068
1200	199	168	136	108	611	134	129	165	190	618	1229
1300	222	143	141	155	661	147	168	219	197	731	1392
1400	276	158	110	123	667	175	133	134	119	561	1228
1500	249	196	204	240	889	128	135	166	154	583	1472
1600	177	121	140	218	656	116	156	278	252	802	1458
1700	260	308	185	173	926	158	132	141	140	571	1497
1800	163	219	242	175	799	191	170	166	125	652	1451
1900	152	153	194	274	773	144	131	156	144	575	1348
2000	200	135	166	135	636	100	80	67	67	314	950
2100	173	264	151	180	768	77	55	51	35	218	986
2200	149	127	132	104	512	57	54	42	34	187	699
2300	94	76	60	51	281	39	23	25	18	105	386
24-Hour Totals:					10327					10568	20895

Peak Volume Information

	Direction: N		Direction: S		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	845	327	745	1286	745	1493
P.M.	1645	971	1615	844	1630	1746
Daily	1645	971	745	1286	1630	1746

Generated by SPS 5.0.30P

County: 87
Station: 0000
Description: SW 16 Street west of SW 107 Avenue (east of roundabout)
Start Date: 09/26/2012
Start Time: 1545

	Direction: N					Direction: S					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	40	38	28	25	131	10	9	10	15	44	175
0100	39	36	14	23	112	18	7	8	11	44	156
0200	11	9	7	6	33	4	8	4	5	21	54
0300	15	4	7	2	28	6	6	0	7	19	47
0400	4	5	4	7	20	3	3	2	14	22	42
0500	5	4	6	8	23	3	13	15	17	48	71
0600	9	11	12	28	60	19	42	75	82	218	278
0700	26	33	40	72	171	80	155	259	336	830	1001
0800	60	41	32	53	186	262	203	226	265	956	1142
0900	58	117	115	58	348	289	294	205	120	908	1256
1000	51	67	94	169	381	128	139	191	234	692	1073
1100	219	98	105	94	516	143	104	143	139	529	1045
1200	128	194	249	144	715	193	188	172	148	701	1416
1300	124	115	145	252	636	97	143	202	209	651	1287
1400	302	172	102	153	729	168	109	110	139	526	1255
1500	163	226	334	142	865	136	125	152	169	582	1447
1600	229	171	159	210	769	129	159	243	246	777	1546
1700	306	292	177	168	943	157	127	124	153	561	1504
1800	148	243	250	139	780	166	163	119	106	554	1334
1900	183	216	214	241	854	106	132	130	143	511	1365
2000	243	196	142	136	717	89	74	86	80	329	1046
2100	167	148	118	93	526	62	51	50	55	218	744
2200	112	101	112	99	424	39	48	44	33	164	588
2300	80	67	99	56	302	21	25	36	18	100	402
24-Hour Totals:					10269					10005	20274

Peak Volume Information

	Direction: N		Direction: S		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	845	343	830	1074	845	1396
P.M.	1645	985	1615	805	1630	1740
Daily	1645	985	830	1074	1630	1740

Generated by SPS 5.0.30P

APPENDIX C

Capacity Analysis (Intersections) (HCS 2010 Capacity Analysis) – Year 2012 (MMC)

Capacity Analysis (Intersections) (HCS 2010 Capacity Analysis) – Year 2012 (EC)

Capacity Analysis (Intersections) (HCS 2010 Capacity Analysis) – Year 2012 (BBC)

Phone: Fax:
E-Mail:

ROUNDABOUT ANALYSIS

Analyst: Mo
Agency/Co.: FIU Modesto Campus
Date Performed: 1/7/2013
Analysis Time Period: 2012 Existing PM Peak
Intersection: SW 16_St/University Dr
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2012
Project ID: Existing 2012 PM peak TMC's
East/West Street:
North/South Street:

Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	20	650	9	40	600	39	20	23	5	80	97	88
U-Turn Vol	0			0			0			0		
% Thrus Left Lane		47			47							

	Eastbound			Westbound			Northbound			Southbound		
	Left	Right	BP	Left	Right	BP	Left	Right	BP	Left	Right	BP
Lane Assn.	LT	TR		LT	TR		LTR			LTR		
RT Bypass			0			0			0			0
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
%HV	3	3	3	3	3	3	3	3	3	3	3	3
NumPeds	0			0			0			0		
U-Turn PHF	0.92			0.92			0.92			0.92		
U-Turn %HV	3			3			3			3		
Flow Rate	22	728	10	45	672	44	22	26	6	90	109	99
No. Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Cnfl. Lanes	1			1			1			1		

Duration, T 0.25 hrs.

Critical and Follow-Up Headway Adjustment

	Eastbound			Westbound		
Crit. Hdwy	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929
	Northbound			Southbound		
Crit. Hdwy	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929
	Eastbound			Westbound		
Flup. Hdwy	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858
	Northbound			Southbound		
Flup. Hdwy	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	Eastbound	Westbound	Northbound	Southbound
Circ. Flow	244	70	840	739
Exit. Flow	823	793	92	163

Capacity and Level of Service

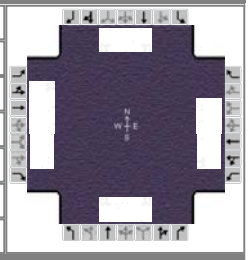
	Eastbound	Westbound	Northbound	Southbound

	Left	Right	BP	Left	Right	BP	Left	Right	BP	Left	Right	BP
Entry Flow	357	403		357	403			54			297	
Entry Cap.	886	886		1053	1053			488			540	
Volume (vph)	347	391		347	391			52			288	
Cap. (vph)	860	860		1022	1022			474			524	
v/c Ratio	0.40	0.45		0.34	0.38			0.11			0.55	
Critical Lane		*			*			*			*	
Lane Delay	9.0	9.9		7.0	7.6			9.1			17.7	
Lane LOS	A	A		A	A			A			C	
95 % Queue	2.0	2.4		1.5	1.8			0.4			3.3	
Approach:												
Delay		9.48			7.33			9.09			17.71	
LOS		A			A			A			C	

Intersection Delay 9.90 Intersection LOS A

HCS 2010 Signalized Intersection Results Summary

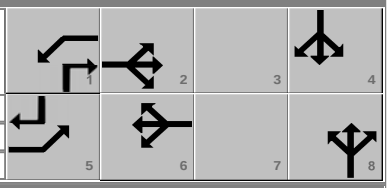
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/29/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	SW 8th Street / SW 109th A	Analysis Year	2012	Analysis Period	1> 7:00
File Name	EXISTING_SW 8 ST & SW 109 AVE.xus				
Project Description	Existing 2012 PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	213	1798	152	306	1655	77	352	152	222	220	77	326

Signal Information			
Cycle, s	138.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	15.4	4.6	40.0	28.0	30.0	0.0
Yellow	4.0	0.0	4.0	4.0	4.0	0.0
Red	1.0	0.0	1.0	1.0	1.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	4.0		9.0		9.0
Phase Duration, s	20.4	45.0	25.0	49.6		35.0		33.0
Change Period, *(Y+Rc)*, s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway *(MAH)*, s	3.0	2.9	3.0	2.9		3.4		3.3
Queue Clearance Time *(g_s)*, s	15.3	41.8	22.0	46.6		31.3		29.0
Green Extension Time *(g_e)*, s	0.2	0.0	0.0	0.0		0.0		0.0
Phase Call Probability	1.00	1.00	1.00	1.00		1.00		1.00
Max Out Probability	0.19	1.00	1.00	1.00		1.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate *(v)*, veh/h	232	1612	508	333	1265	618	383	165	241	239	84	354
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1792	1863	1759	1792	1881	1835	1792	1881	1555	1792	1827	1594
Queue Service Time *(g_s)*, s	13.3	39.7	39.8	20.0	44.6	44.6	29.3	10.4	16.2	16.9	5.3	27.0
Cycle Queue Clearance Time *(g_c)*, s	13.3	39.7	39.8	20.0	44.6	44.6	29.3	10.4	16.2	16.9	5.3	27.0
Capacity *(c)*, veh/h	256	1620	510	312	1215	592	389	409	567	364	371	502
Volume-to-Capacity Ratio *(X)*	0.904	0.995	0.996	1.065	1.041	1.043	0.982	0.404	0.426	0.658	0.226	0.706
Available Capacity *(c_a)*, veh/h	315	1620	510	312	1215	592	389	409	567	364	371	502
Back of Queue *(Q)*, veh/ln (50th percentile)	7.2	21.0	22.3	16.6	26.4	27.6	17.8	5.0	6.3	8.0	2.4	11.2
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	0.91	0.00	0.00	2.33	0.00	0.00	5.98	0.00	0.00	4.02	0.00	0.00
Uniform Delay *(d_1)*, s/veh	38.8	48.9	48.9	45.2	46.7	46.7	53.7	46.3	33.2	50.6	45.9	41.7
Incremental Delay *(d_2)*, s/veh	22.3	21.2	38.7	69.3	37.1	48.7	40.7	0.2	0.2	3.5	0.1	3.8
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	61.2	70.1	87.6	114.6	83.8	95.4	94.4	46.6	33.4	54.0	46.1	45.5
Level of Service (LOS)	E	E	F	F	F	F	F	D	C	D	D	D
Approach Delay, s/veh / LOS	73.0	E		91.7	F		65.7	E		48.6	D	
Intersection Delay, s/veh / LOS	76.1						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.4	B	3.6	D	3.4	C
Bicycle LOS Score / LOS	1.5	A	1.7	A	1.8	A	1.6	A

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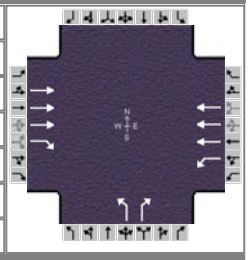
HCS 2010 Signalized Intersection Results Summary

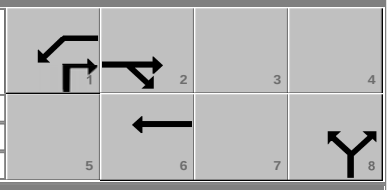
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/29/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	SW 8th Street / SW 112th A	Analysis Year	2012	Analysis Period	1> 7:00
File Name	EXISTING_SW 8 ST & SW 112 AVE.xus				
Project Description	Existing 2012 PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h		2046	474	243	2596		371		307			

Signal Information			
Cycle, s	110.5	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	18.1	49.4	28.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		
Case Number		7.3	2.0	4.0		9.0		
Phase Duration, s		54.4	23.1	77.5		33.0		
Change Period, $(Y+R_c)$, s		5.0	5.0	5.0		5.0		
Max Allow Headway *(MAH)*, s		3.0	3.0	3.0		3.5		
Queue Clearance Time (g_s), s		48.8	18.0	49.6		26.0		
Green Extension Time (g_e), s		0.5	0.1	18.1		0.9		
Phase Call Probability		1.00	1.00	1.00		1.00		
Max Out Probability		1.00	1.00	0.86		0.80		

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6		3		18			
Adjusted Flow Rate *(v)*, veh/h		2224	515	264	2822		403		334			
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1708	1584	1792	1691		1792		1573			
Queue Service Time (g_s), s		46.8	29.5	16.0	47.6		24.0		17.3			
Cycle Queue Clearance Time (g_c), s		46.8	29.5	16.0	47.6		24.0		17.3			
Capacity *(c)*, veh/h		2291	708	293	3329		454		660			
Volume-to-Capacity Ratio *(X)*		0.971	0.728	0.900	0.848		0.888		0.506			
Available Capacity (c_a), veh/h		2318	716	324	3329		486		688			
Back of Queue *(Q)*, veh/ln (50th percentile)		20.2	10.9	8.8	15.5		12.7		6.6			
Overflow Queue (Q_3), veh/ln		0.0	0.0	0.0	0.0		0.0		0.0			
Queue Storage Ratio *(RQ)* (50th percentile)		0.00	1.10	1.11	0.00		0.00		0.00			
Uniform Delay (d_1), s/veh		29.8	25.0	45.3	14.7		39.8		23.8			
Incremental Delay (d_2), s/veh		12.4	3.2	23.8	2.1		16.3		0.2			
Initial Queue Delay (d_3), s/veh		0.0	0.0	0.0	0.0		0.0		0.0			
Control Delay *(d)*, s/veh		42.2	28.2	69.2	16.8		56.1		24.1			
Level of Service (LOS)		D	C	E	B		E		C			
Approach Delay, s/veh / LOS	39.6	D		21.3	C		41.6	D		0.0		
Intersection Delay, s/veh / LOS	31.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	0.7	A	3.3	C	3.3	C
Bicycle LOS Score / LOS	2.0	A	2.2	B		F		

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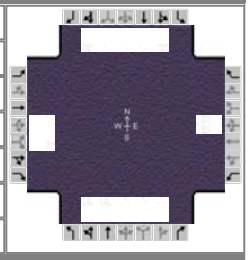
HCS 2010 Signalized Intersection Results Summary

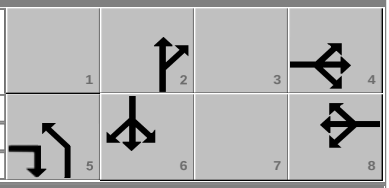
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/30/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	SW 107th Avenue / SW 12	Analysis Year	2012	Analysis Period	1> 7:00
File Name	EXISTING_SW 107 AVE & SW 12 ST.xus				
Project Description	Existing 2012 PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	369	147	229	0	0	0	288	1801	126	101	1712	254

Signal Information			
Cycle, s	100.9	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	12.0	40.0	33.9	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	4.0	0.0	0.0
Red	1.0	1.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2		6
Case Number		11.0		12.0	2.0	4.0		5.3
Phase Duration, s		38.9		0.0	17.0	62.0		45.0
Change Period, *(Y+R$_c$)*, s		5.0		5.0	5.0	5.0		5.0
Max Allow Headway *(MAH)*, s		3.4		0.0	3.1	3.4		3.4
Queue Clearance Time *(g$_s$)*, s		32.4			10.8	28.6		42.0
Green Extension Time *(g$_e$)*, s		1.5		0.0	0.5	10.0		0.0
Phase Call Probability		1.00			1.00	1.00		1.00
Max Out Probability		0.23			0.00	0.89		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h		561	249		0		313	1410	685	110	1861	276
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1798	1556		0		1740	1881	1816	197	1708	1548
Queue Service Time *(g$_s$)*, s		30.4	10.5		0.0		8.8	26.3	26.6	30.4	34.7	13.2
Cycle Queue Clearance Time *(g$_c$)*, s		30.4	10.5		0.0		8.8	26.3	26.6	40.0	34.7	13.2
Capacity *(c)*, veh/h		604	712				414	2126	1026	131	2032	614
Volume-to-Capacity Ratio *(X)*		0.929	0.350		0.000		0.756	0.663	0.667	0.840	0.916	0.450
Available Capacity *(c$_a$)*, veh/h		713	807				690	2126	1026	131	2032	614
Back of Queue *(Q)*, veh/ln (50th percentile)		15.8	3.8				3.7	10.2	10.1	4.0	14.5	4.6
Overflow Queue *(Q$_3$)*, veh/ln		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00	0.00		0.00		0.22	0.00	0.00	0.50	0.00	0.48
Uniform Delay *(d$_1$)*, s/veh		32.3	17.9				43.0	15.3	15.3	42.2	28.8	22.3
Incremental Delay *(d$_2$)*, s/veh		15.8	0.1		0.0		1.1	0.6	1.4	34.4	6.9	0.2
Initial Queue Delay *(d$_3$)*, s/veh		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh		48.2	18.0				44.1	15.9	16.7	76.6	35.7	22.5
Level of Service (LOS)		D	B				D	B	B	E	D	C
Approach Delay, s/veh / LOS	38.9	D		0.0			19.8	B		36.1	D	
Intersection Delay, s/veh / LOS	29.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.4	C	3.4	C	2.1	B	2.7	B
Bicycle LOS Score / LOS	1.8	A	0.5	A	1.8	A	1.7	A

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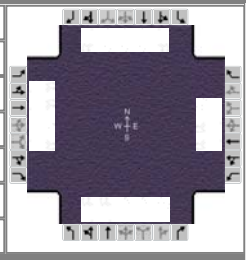
HCS 2010 Signalized Intersection Results Summary

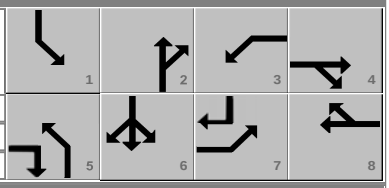
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/30/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	SW 107th Avenue / SW 16t	Analysis Year	2012	Analysis Period	1> 7:00
File Name	EXISTING_SW 107 AVE & SW 16 ST.xus				
Project Description	Existing 2012 PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	371	278	171	444	196	158	205	936	117	136	1157	278

Signal Information			
Cycle, s	104.1	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	9.9	0.1	32.2	10.0	32.0	0.0
Yellow	4.0	0.0	4.0	4.0	4.0	0.0
Red	1.0	0.0	1.0	1.0	1.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	3.0	2.0	4.0	2.0	4.0	1.1	3.0
Phase Duration, s	15.0	37.0	15.0	37.0	15.0	37.3	14.9	37.2
Change Period, *(Y+R$_c$)*, s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway *(MAH)*, s	3.3	3.3	3.2	3.3	3.1	3.0	3.1	3.0
Queue Clearance Time *(g$_s$)*, s	12.0	15.8	12.0	22.5	8.4	20.8	7.5	25.4
Green Extension Time *(g$_e$)*, s	0.0	2.0	0.0	1.9	0.4	7.6	0.2	6.7
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00
Max Out Probability	1.00	0.00	1.00	0.01	0.00	0.22	0.00	0.34

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	403	302	186	483	385		223	778	367	148	1258	302
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1757	1881	1596	1740	1741		1740	1881	1771	1810	1708	1609
Queue Service Time *(g$_s$)*, s	10.0	13.8	8.2	10.0	20.5		6.4	18.7	18.8	5.5	23.4	14.3
Cycle Queue Clearance Time *(g$_c$)*, s	10.0	13.8	8.2	10.0	20.5		6.4	18.7	18.8	5.5	23.4	14.3
Capacity *(c)*, veh/h	337	578	645	334	535		334	1166	549	305	1583	651
Volume-to-Capacity Ratio *(X)*	1.195	0.523	0.288	1.445	0.719		0.668	0.667	0.668	0.484	0.795	0.464
Available Capacity *(c$_a$)*, veh/h	337	722	767	334	669		668	1445	680	481	1968	772
Back of Queue *(Q)*, veh/ln (50th percentile)	9.7	6.4	3.1	14.3	8.8		2.8	8.2	7.8	2.3	9.5	5.2
Overflow Queue *(Q$_3$)*, veh/ln	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	1.06	0.00	0.60	1.57	0.00		0.29	0.00	0.00	0.19	0.00	0.35
Uniform Delay *(d$_1$)*, s/veh	47.1	29.8	21.0	47.1	32.1		45.5	31.3	31.3	22.5	33.0	22.7
Incremental Delay *(d$_2$)*, s/veh	113.2	0.3	0.1	216.3	1.9		0.9	0.5	1.0	0.4	1.5	0.2
Initial Queue Delay *(d$_3$)*, s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	160.3	30.0	21.1	263.4	33.9		46.3	31.7	32.3	23.0	34.4	22.9
Level of Service (LOS)	F	C	C	F	C		D	C	C	C	C	C
Approach Delay, s/veh / LOS	87.1	F		161.6	F		34.3	C		31.4	C	
Intersection Delay, s/veh / LOS	65.8						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.4	C	3.4	C	2.4	B	3.0	C
Bicycle LOS Score / LOS	2.0	A	1.9	A	1.2	A	1.4	A

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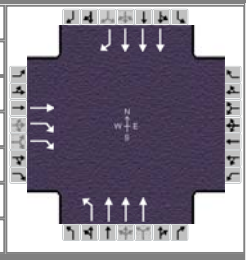
HCS 2010 Signalized Intersection Results Summary

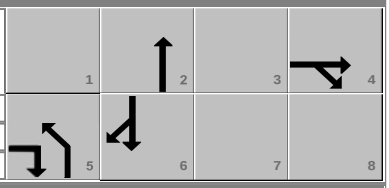
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/30/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	SW 107th Avenue / SW 10	Analysis Year	2012	Analysis Period	1> 7:00
File Name	EXISTING_SW 107 AVE & SW 108 AVE.xus				
Project Description	Existing 2012 PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h		0	97				88	1525			1770	28

Signal Information			
Cycle, s	61.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.1	30.1	8.4	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		11.0			2.0	4.0		7.3
Phase Duration, s		13.4			13.1	48.2		35.1
Change Period, *(Y+R$_c$)*, s		5.0			5.0	5.0		5.0
Max Allow Headway *(MAH)*, s		3.6			3.1	3.0		3.0
Queue Clearance Time *(g$_s$)*, s		3.9			5.3	10.8		20.9
Green Extension Time *(g$_e$)*, s		0.3			0.1	15.0		8.8
Phase Call Probability		0.84			0.81	1.00		1.00
Max Out Probability		0.00			0.00	0.30		0.47

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		4	14				5	2			6	16
Adjusted Flow Rate *(v)*, veh/h		0	105				96	1658			1924	30
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1900	1307				1645	1708			1708	1342
Queue Service Time *(g$_s$)*, s		0.0	1.9				3.3	8.8			18.9	0.7
Cycle Queue Clearance Time *(g$_c$)*, s		0.0	1.9				3.3	8.8			18.9	0.7
Capacity *(c)*, veh/h		258	698				215	3596			2509	657
Volume-to-Capacity Ratio *(X)*		0.000	0.151				0.444	0.461			0.767	0.046
Available Capacity *(c$_a$)*, veh/h		926	1616				801	3596			3328	871
Back of Queue *(Q)*, veh/ln (50th percentile)		0.0	0.6				1.2	1.5			5.7	0.2
Overflow Queue *(Q$_3$)*, veh/ln		0.0	0.0				0.0	0.0			0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00	0.00				0.06	0.00			0.00	0.04
Uniform Delay *(d$_1$)*, s/veh		0.0	17.2				24.7	4.1			12.8	8.2
Incremental Delay *(d$_2$)*, s/veh		0.0	0.0				0.5	0.0			0.5	0.0
Initial Queue Delay *(d$_3$)*, s/veh		0.0	0.0				0.0	0.0			0.0	0.0
Control Delay *(d)*, s/veh		0.0	17.3				25.2	4.1			13.4	8.2
Level of Service (LOS)			B				C	A			B	A
Approach Delay, s/veh / LOS	17.3	B		0.0			5.2	A		13.3	B	
Intersection Delay, s/veh / LOS	9.7						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.3	C	3.3	C	1.8	A	2.4	B
Bicycle LOS Score / LOS	0.7	A			1.5	A	1.6	A

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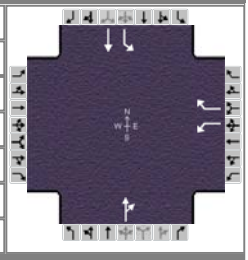
HCS 2010 Signalized Intersection Results Summary

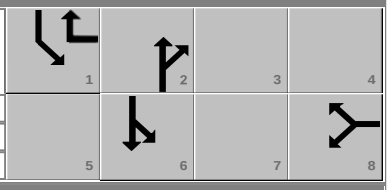
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/30/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.85
Intersection	SW 117th Avenue / SW 17t	Analysis Year	2012	Analysis Period	1> 7:00
File Name	EXISTING_SW 117 AVE & SW 17 ST.xus				
Project Description	Existing 2012 PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				433		210		385	155	62	444	

Signal Information			
Cycle, s	95.1	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.3	35.6	32.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				9.0		8.3	1.0	4.0
Phase Duration, s				37.0		40.6	9.3	49.9
Change Period, *(Y+Rc)*, s				5.0		5.0	5.0	5.0
Max Allow Headway *(MAH)*, s				3.3		3.1	3.2	3.1
Queue Clearance Time *(g_s)*, s				27.1		34.8	4.4	21.3
Green Extension Time *(g_e)*, s				1.5		0.9	0.0	2.5
Phase Call Probability				1.00		1.00	0.85	1.00
Max Out Probability				0.02		0.56	0.03	0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate *(v)*, veh/h				509		247		635		73	522	
Adjusted Saturation Flow Rate *(s)*, veh/h/ln				1792		1579		1788		1723	1881	
Queue Service Time *(g_s)*, s				25.1		10.9		32.8		2.4	19.3	
Cycle Queue Clearance Time *(g_c)*, s				25.1		10.9		32.8		2.4	19.3	
Capacity *(c)*, veh/h				603		602		670		176	889	
Volume-to-Capacity Ratio *(X)*				0.845		0.410		0.948		0.413	0.588	
Available Capacity *(c_a)*, veh/h				754		735		752		280	889	
Back of Queue *(Q)*, veh/ln (50th percentile)				11.4		4.0		17.0		0.9	8.2	
Overflow Queue *(Q_3)*, veh/ln				0.0		0.0		0.0		0.0	0.0	
Queue Storage Ratio *(RQ)* (50th percentile)				0.00		0.00		0.00		0.08	0.00	
Uniform Delay *(d_1)*, s/veh				29.2		21.6		28.8		22.5	18.3	
Incremental Delay *(d_2)*, s/veh				6.0		0.2		19.2		0.6	0.7	
Initial Queue Delay *(d_3)*, s/veh				0.0		0.0		0.0		0.0	0.0	
Control Delay *(d)*, s/veh				35.3		21.7		48.0		23.1	19.0	
Level of Service (LOS)				D		C		D		C	B	
Approach Delay, s/veh / LOS	0.0			30.9		C	48.0		D	19.5		B
Intersection Delay, s/veh / LOS	32.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.1	B	2.3	B	2.3	B	0.7	A
Bicycle LOS Score / LOS				F	1.5	A	1.5	A

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: MG
Agency/Co.: Miller Legg
Date Performed: 1/7/2013
Analysis Time Period: PM Peak Hour
Intersection: SW 17 St & SW 115 Ave
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2012
Project ID:
East/West Street: SW 17 Street
North/South Street: SW 115 Avenue
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	10	10	39	5	0
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR	10	10	10	39	5	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	493	50	100	117	5
Peak Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR	10	493	50	100	117	5
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	1	1	0	0	1	1
Configuration	L	TR		LT	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR	L		TR	LT		R
v (vph)	10	39	10		543	217		5
C(m) (vph)	1630	1604	670		770	392		1084
v/c	0.01	0.02	0.01		0.71	0.55		0.00
95% queue length	0.02	0.07	0.05		5.93	3.24		0.01
Control Delay	7.2	7.3	10.5		20.0	25.0-		8.3
LOS	A	A	B		C	C		A
Approach Delay				19.9			24.6	
Approach LOS				C			C	

HCS+: Unsignalized Intersections Release 5.6

Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: MG
Agency/Co.: Miller Legg
Date Performed: 1/7/2013
Analysis Time Period: PM Peak Hour
Intersection: SW 17 St & SW 115 Ave
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2012
Project ID:
East/West Street: SW 17 Street
North/South Street: SW 115 Avenue
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	10	10	39	5	0
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Peak-15 Minute Volume	2	2	2	10	1	0
Hourly Flow Rate, HFR	10	10	10	39	5	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal?		No			No	

Minor Street Movements	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	493	50	100	117	5
Peak Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Peak-15 Minute Volume	2	123	12	25	29	1
Hourly Flow Rate, HFR	10	493	50	100	117	5
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						No
Lanes	1	1	0	0	1	1
Configuration	L		TR	LT		R

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	2	0

Lane Width (ft)	12.0	12.0	12.0	12.0
Walking Speed (ft/sec)	4.0	4.0	4.0	4.0
Percent Blockage	0	0	0	0

Upstream Signal Data

	Prog. Flow vph	Sat Flow vph	Arrival Type	Green Time sec	Cycle Length sec	Prog. Speed mph	Distance to Signal feet
S2 Left-Turn							
Through							
S5 Left-Turn							
Through							

Worksheet 3-Data for Computing Effect of Delay to Major Street Vehicles

	Movement 2	Movement 5
Shared ln volume, major th vehicles:	10	5
Shared ln volume, major rt vehicles:	10	0
Sat flow rate, major th vehicles:	1700	1700
Sat flow rate, major rt vehicles:	1700	1700
Number of major street through lanes:	1	1

Worksheet 4-Critical Gap and Follow-up Time Calculation

Critical Gap Calculation

Movement	1 L	4 L	7 L	8 T	9 R	10 L	11 T	12 R
t(c,base)	4.1	4.1	7.1	6.5	6.2	7.1	6.5	6.2
t(c,hv)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P(hv)	0	0	0	0	0	0	0	0
t(c,g)			0.20	0.20	0.10	0.20	0.20	0.10
Percent Grade			0.00	0.00	0.00	0.00	0.00	0.00
t(3,lt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
t(c,T): 1-stage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-stage	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
t(c) 1-stage	4.1	4.1	7.1	6.5	6.2	7.1	6.5	6.2
2-stage								

Follow-Up Time Calculations

Movement	1 L	4 L	7 L	8 T	9 R	10 L	11 T	12 R
t(f,base)	2.20	2.20	3.50	4.00	3.30	3.50	4.00	3.30
t(f,HV)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
P(HV)	0	0	0	0	0	0	0	0
t(f)	2.2	2.2	3.5	4.0	3.3	3.5	4.0	3.3

Worksheet 5-Effect of Upstream Signals

Computation 1-Queue Clearance Time at Upstream Signal

	Movement 2		Movement 5	
	V(t)	V(l,prot)	V(t)	V(l,prot)
V prog				

Total Saturation Flow Rate, s (vph)
Arrival Type
Effective Green, g (sec)
Cycle Length, C (sec)
Rp (from Exhibit 16-11)
Proportion vehicles arriving on green P
g(q1)
g(q2)
g(q)

Computation 2-Proportion of TWSC Intersection Time blocked	Movement 2		Movement 5	
	V(t)	V(l,prot)	V(t)	V(l,prot)
alpha				
beta				
Travel time, t(a) (sec)				
Smoothing Factor, F				
Proportion of conflicting flow, f				
Max platooned flow, V(c,max)				
Min platooned flow, V(c,min)				
Duration of blocked period, t(p)				
Proportion time blocked, p	0.000		0.000	

Computation 3-Platoon Event Periods	Result
p(2)	0.000
p(5)	0.000
p(dom)	
p(subo)	
Constrained or unconstrained?	

Proportion unblocked for minor movements, p(x)	(1) Single-stage Process	(2) Two-Stage Process Stage I	(3) Stage II
p(1)			
p(4)			
p(7)			
p(8)			
p(9)			
p(10)			
p(11)			
p(12)			

Computation 4 and 5
Single-Stage Process

Movement	1	4	7	8	9	10	11	12
	L	L	L	T	R	L	T	R
V c,x	5	22	181	120	17	389	125	5
s								
Px								
V c,u,x								
C r,x								
C plat,x								

Two-Stage Process

7	8	10	11

	Stage1	Stage2	Stage1	Stage2	Stage1	Stage2	Stage1	Stage2
V(c,x)								
s		1500		1500		1500		1500
P(x)								
V(c,u,x)								
C(r,x)								
C(plat,x)								

Worksheet 6-Impedance and Capacity Equations

Step 1: RT from Minor St.	9	12
Conflicting Flows	17	5
Potential Capacity	1068	1084
Pedestrian Impedance Factor	1.00	1.00
Movement Capacity	1066	1084
Probability of Queue free St.	0.95	1.00
Step 2: LT from Major St.	4	1
Conflicting Flows	22	5
Potential Capacity	1607	1630
Pedestrian Impedance Factor	1.00	1.00
Movement Capacity	1604	1630
Probability of Queue free St.	0.98	0.99
Maj L-Shared Prob Q free St.	0.98	0.99
Step 3: TH from Minor St.	8	11
Conflicting Flows	120	125
Potential Capacity	774	769
Pedestrian Impedance Factor	1.00	1.00
Cap. Adj. factor due to Impeding mvmnt	0.97	0.97
Movement Capacity	749	744
Probability of Queue free St.	0.34	0.84
Step 4: LT from Minor St.	7	10
Conflicting Flows	181	389
Potential Capacity	785	574
Pedestrian Impedance Factor	1.00	1.00
Maj. L, Min T Impedance factor	0.82	0.33
Maj. L, Min T Adj. Imp Factor.	0.86	0.46
Cap. Adj. factor due to Impeding mvmnt	0.85	0.44
Movement Capacity	670	252

Worksheet 7-Computation of the Effect of Two-stage Gap Acceptance

Step 3: TH from Minor St.	8	11
Part 1 - First Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Probability of Queue free St.		

Part 2 - Second Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 3 - Single Stage		
Conflicting Flows	120	125
Potential Capacity	774	769
Pedestrian Impedance Factor	1.00	1.00
Cap. Adj. factor due to Impeding mvmnt	0.97	0.97
Movement Capacity	749	744
Result for 2 stage process:		
a		
y		
C t	749	744
Probability of Queue free St.	0.34	0.84
Step 4: LT from Minor St.	7	10
Part 1 - First Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 2 - Second Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 3 - Single Stage		
Conflicting Flows	181	389
Potential Capacity	785	574
Pedestrian Impedance Factor	1.00	1.00
Maj. L, Min T Impedance factor	0.82	0.33
Maj. L, Min T Adj. Imp Factor.	0.86	0.46
Cap. Adj. factor due to Impeding mvmnt	0.85	0.44
Movement Capacity	670	252
Results for Two-stage process:		
a		
y		
C t	670	252

Worksheet 8-Shared Lane Calculations

Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (vph)	10	493	50	100	117	5
Movement Capacity (vph)	670	749	1066	252	744	1084
Shared Lane Capacity (vph)			770	392		

Worksheet 9-Computation of Effect of Flared Minor Street Approaches

Movement	7	8	9	10	11	12
	L	T	R	L	T	R
C sep	670	749	1066	252	744	1084
Volume	10	493	50	100	117	5
Delay						
Q sep						
Q sep +1						
round (Qsep +1)						
n max						
C sh			770	392		
SUM C sep						
n						
C act						

Worksheet 10-Delay, Queue Length, and Level of Service

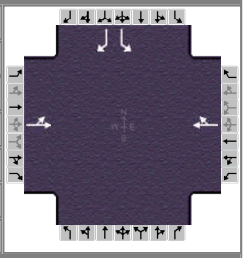
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR	L		TR	LT		R
v (vph)	10	39	10		543	217		5
C(m) (vph)	1630	1604	670		770	392		1084
v/c	0.01	0.02	0.01		0.71	0.55		0.00
95% queue length	0.02	0.07	0.05		5.93	3.24		0.01
Control Delay	7.2	7.3	10.5		20.0	25.0-		8.3
LOS	A	A	B		C	C		A
Approach Delay				19.9			24.6	
Approach LOS				C			C	

Worksheet 11-Shared Major LT Impedance and Delay

	Movement 2	Movement 5
p(oj)	0.99	0.98
v(il), Volume for stream 2 or 5	10	5
v(i2), Volume for stream 3 or 6	10	0
s(il), Saturation flow rate for stream 2 or 5	1700	1700
s(i2), Saturation flow rate for stream 3 or 6	1700	1700
P*(oj)	0.99	0.98
d(M,LT), Delay for stream 1 or 4	7.2	7.3
N, Number of major street through lanes	1	1
d(rank,1) Delay for stream 2 or 5	0.0	0.2

HCS 2010 Signalized Intersection Results Summary

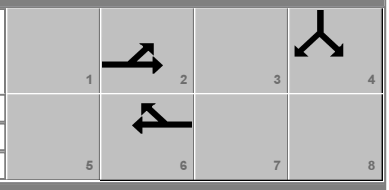
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/15/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.85
Intersection	University Drive & SW 109	Analysis Year	2012	Analysis Period	1> 7:00
File Name	Existing_University_Dr_and_SW_109_Ave_PM_peak_existing.xus				
Project Description	2012 PM Peak Hour (Existing)				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	103	113			128	160				103		62

Signal Information			
Cycle, s	29.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	15.0	4.0	0.0	0.0	0.0	0.0
Yellow	4.0	4.0	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6				4
Case Number		8.0		8.0				9.0
Phase Duration, s		20.0		20.0				9.0
Change Period, *(Y+Rc)*, s		5.0		5.0				5.0
Max Allow Headway *(MAH)*, s		3.5		3.5				3.4
Queue Clearance Time *(g_s)*, s		5.7		5.4				3.8
Green Extension Time *(g_e)*, s		1.4		1.4				0.4
Phase Call Probability		1.00		1.00				0.79
Max Out Probability		0.01		0.01				0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7		14
Adjusted Flow Rate *(v)*, veh/h		254			339					121		73
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1340			1727					1810		1610
Queue Service Time *(g_s)*, s		0.3			3.4					1.8		1.2
Cycle Queue Clearance Time *(g_c)*, s		3.7			3.4					1.8		1.2
Capacity *(c)*, veh/h		878			895					247		220
Volume-to-Capacity Ratio *(X)*		0.289			0.379					0.490		0.332
Available Capacity *(c_a)*, veh/h		1116			1193					1875		1668
Back of Queue *(Q)*, veh/ln (50th percentile)		0.4			0.6					0.6		0.4
Overflow Queue *(Q_3)*, veh/ln		0.0			0.0					0.0		0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00			0.00					0.00		0.00
Uniform Delay *(d_1)*, s/veh		3.9			4.2					11.6		11.3
Incremental Delay *(d_2)*, s/veh		0.1			0.1					0.6		0.3
Initial Queue Delay *(d_3)*, s/veh		0.0			0.0					0.0		0.0
Control Delay *(d)*, s/veh		4.0			4.3					12.1		11.6
Level of Service (LOS)		A			A					B		B
Approach Delay, s/veh / LOS	4.0	A		4.3	A		0.0			11.9	B	
Intersection Delay, s/veh / LOS	6.1						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.6	A	1.6	A	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.9	A	1.0	A				F

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*SHA*	Intersection	*SW 112 Ave & University Dr*
Agency/Co.	*Miller Legg*	Jurisdiction	
Date Performed	*11/15/2012*	Analysis Year	*2012*
Analysis Time Period	*PM Peak Hour*		

Project Description

East/West Street: *University Drive* | North/South Street: *SW 112 Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*9*	*94*	*18*	*23*	*62*	*128*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*9*	*94*	*18*	*23*	*62*	*128*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*		*TR*	*LT*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*341*	*233*	*0*	*0*	*173*	*277*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*341*	*233*	*0*	*0*	*173*	*277*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LT*		*LTR*			*LTR*	
v (veh/h)	*9*	*23*		*450*			*574*	
C (m) (veh/h)	*1396*	*1486*		*771*			*405*	
v/c	*0.01*	*0.02*		*0.58*			*1.42*	
95% queue length	*0.02*	*0.05*		*3.84*			*28.64*	
Control Delay (s/veh)	*7.6*	*7.5*		*16.0*			*228.1*	
LOS	*A*	*A*		*C*			*F*	
Approach Delay (s/veh)	--	--	*16.0*			*228.1*		
Approach LOS	--	--	*C*			*F*		

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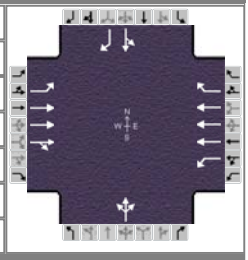
HCS 2010 Signalized Intersection Results Summary

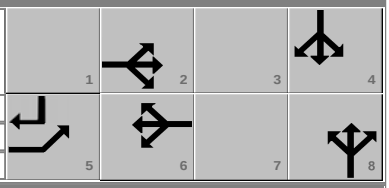
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/29/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	Flagler Street / SW 105th F	Analysis Year	2012	Analysis Period	1> 7:00
File Name	EXISTING_FLAGLER ST & SW 105 PL.xus				
Project Description	Existing 2012 PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	21	970	22	39	1142	22	26	1	30	51	17	55

Signal Information			
Cycle, s	110.1	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.0	31.5	20.0	17.0	0.0	0.0
Yellow	4.0	4.0	4.0	4.0	0.0	0.0
Red	1.0	1.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6		8		4
Case Number	1.0	4.0		5.3		12.0		11.0
Phase Duration, s	10.0	46.6		36.5		22.0		25.0
Change Period, *(Y+R$_c$)*, s	5.0	5.0		5.0		5.0		5.0
Max Allow Headway *(MAH)*, s	3.1	3.1		3.1		3.3		3.4
Queue Clearance Time *(g$_s$)*, s	2.9	18.5		27.1		19.0		22.0
Green Extension Time *(g$_e$)*, s	0.0	7.0		4.0		0.0		0.0
Phase Call Probability	0.50	1.00		1.00		0.85		0.98
Max Out Probability	0.00	0.11		0.31		1.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate *(v)*, veh/h	23	722	357	42	1241	24		62			74	60
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1810	1863	1840	531	1708	1599		1438			1831	1579
Queue Service Time *(g$_s$)*, s	0.9	16.5	16.5	7.4	25.1	1.2		4.2			3.8	3.3
Cycle Queue Clearance Time *(g$_c$)*, s	0.9	16.5	16.5	13.8	25.1	1.2		4.2			3.8	3.3
Capacity *(c)*, veh/h	174	1406	695	186	1468	458		222			333	359
Volume-to-Capacity Ratio *(X)*	0.131	0.513	0.514	0.227	0.846	0.052		0.279			0.222	0.167
Available Capacity *(c$_a$)*, veh/h	420	1406	695	227	1862	581		261			333	359
Back of Queue *(Q)*, veh/ln (50th percentile)	0.4	7.0	7.0	0.9	10.4	0.5		1.5			1.8	1.3
Overflow Queue *(Q$_3$)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	0.03	0.00	0.00	0.39	0.00	0.09		0.00			0.00	0.00
Uniform Delay *(d$_1$)*, s/veh	27.1	26.5	26.5	35.7	37.0	28.5		41.1			38.4	34.2
Incremental Delay *(d$_2$)*, s/veh	0.1	0.1	0.3	0.2	2.5	0.0		0.3			0.1	0.1
Initial Queue Delay *(d$_3$)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Control Delay *(d)*, s/veh	27.2	26.6	26.8	35.9	39.5	28.5		41.4			38.5	34.2
Level of Service (LOS)	C	C	C	D	D	C		D			D	C
Approach Delay, s/veh / LOS	26.7	C		39.2	D		41.4	D		36.6	D	
Intersection Delay, s/veh / LOS	33.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.1	B	2.3	B	3.4	C	3.3	C
Bicycle LOS Score / LOS	1.1	A	1.2	A	0.6	A	0.7	A

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*SHA*
Agency/Co.	*Miller Legg*
Date Performed	*12/4/2012*
Analysis Time Period	*PM Peak Hour*

Site Information

Intersection	*NW 107th AVE / EC ENTRANCE*
Jurisdiction	
Analysis Year	*2012*

Project Description *Existing 2012 PM Peak Hour*

East/West Street: *EC Entrance* | North/South Street: *NW 107th Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*56*	*1534*	*16*	*44*	*1195*	*42*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*56*	*1534*	*16*	*44*	*1195*	*42*
Percent Heavy Vehicles	*0*	--	--	*1*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*1*	*1*	*2*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*12*			*89*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*12*	*0*	*0*	*89*
Percent Heavy Vehicles	*0*	*0*	*4*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*1*
Configuration			*R*			*R*

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*			*R*			*R*
v (veh/h)	*56*	*44*			*89*			*12*
C (m) (veh/h)	*570*	*428*			*405*			*495*
v/c	*0.10*	*0.10*			*0.22*			*0.02*
95% queue length	*0.33*	*0.34*			*0.83*			*0.07*
Control Delay (s/veh)	*12.0*	*14.4*			*16.4*			*12.5*
LOS	*B*	*B*			*C*			*B*
Approach Delay (s/veh)	--	--	*16.4*			*12.5*		
Approach LOS	--	--	*C*			*B*		

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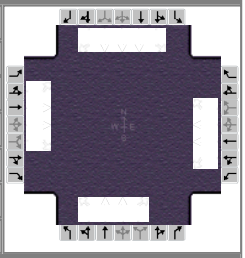
HCS 2010 Signalized Intersection Results Summary

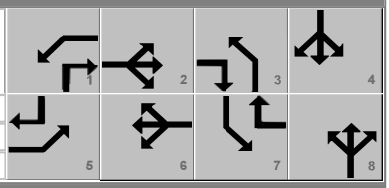
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/29/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	Biscayne Blvd/NE 151 Stre	Analysis Year	2012	Analysis Period	1> 7:00
File Name	EXISTING_NE 151 ST & BISCAYNE BLVD.xus				
Project Description	Existing 2012 PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	175	157	165	216	264	302	165	1926	216	207	1879	246

Signal Information			
Cycle, s	88.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.0	0.0	0.0	0.0	0.0	0.0	
Yellow	0.0	0.0	0.0	0.0	0.0	0.0	
Red	0.0	0.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	3.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	14.9	23.4	16.0	24.5	12.8	35.0	14.2	36.4
Change Period, *(Y+Rc)*, s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway *(MAH)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Clearance Time *(g_s)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase Call Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max Out Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate *(v)*, veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0	0	0	0	0	0	0	0	0	0	0	0
Queue Service Time *(g_s)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capacity *(c)*, veh/h	405	737	477	478	789	520	243	1212	725	267	1761	742
Volume-to-Capacity Ratio *(X)*	0.469	0.231	0.376	0.491	0.364	0.631	0.737	1.727	0.324	0.842	1.160	0.360
Available Capacity *(c_a)*, veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Back of Queue *(Q)*, veh/ln (50th percentile)	2.8	1.4	2.8	3.4	2.5	5.5	2.4	68.4	3.0	2.9	24.7	3.3
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	0.36	0.00	0.00	0.48	0.00	0.00	0.82	0.00	0.00	1.46	0.00	0.00
Uniform Delay *(d_1)*, s/veh	23.1	29.2	24.7	22.1	29.3	25.5	21.2	29.3	15.1	20.5	28.6	15.2
Incremental Delay *(d_2)*, s/veh	0.3	0.1	0.2	0.3	0.1	0.5	1.6	330.5	0.1	2.8	78.7	0.1
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	23.4	29.3	24.9	22.4	29.4	25.9	22.9	359.8	15.2	23.2	107.4	15.3
Level of Service (LOS)	C	C	C	C	C	C	C	F	B	C	F	B
Approach Delay, s/veh / LOS	25.8	C		26.1	C		303.5	F		90.2	F	
Intersection Delay, s/veh / LOS	159.5						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.3	C	3.1	C	2.9	C	2.9	C
Bicycle LOS Score / LOS	0.9	A	1.2	A	2.6	B	1.9	A

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*SHA*
Agency/Co.	*Miller Legg*
Date Performed	*12/3/2012*
Analysis Time Period	*PM Peak Hour*

Site Information

Intersection	*NE 151st ST / NE 145th ST*
Jurisdiction	
Analysis Year	*2012*

Project ID *Existing 2012 PM Peak Hour*

East/West Street: *NE 145th Street* North/South Street: *NE 151th Street*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	0	0	184
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	127	0	210	46	0
%Thrus Left Lane	50					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration			L	R	T	TR	L	T
PHF			1.00	1.00	1.00	1.00	1.00	1.00
Flow Rate (veh/h)			0	184	63	64	210	46
% Heavy Vehicles			0	0	0	0	0	0
No. Lanes	0		2		2		2	
Geometry Group			1		5		5	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns			0.0	0.0	0.0	0.0	1.0	0.0
Prop. Right-Turns			0.0	1.0	0.0	0.0	0.0	0.0
Prop. Heavy Vehicle			0.0	0.0	0.0	0.0	0.0	0.0
hLT-adj			0.2	0.2	0.5	0.5	0.5	0.5
hRT-adj			-0.6	-0.6	-0.7	-0.7	-0.7	-0.7
hHV-adj			1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed			0.0	-0.6	0.0	0.0	0.5	0.0

Departure Headway and Service Time

hd, initial value (s)			3.20	3.20	3.20	3.20	3.20	3.20
x, initial			0.00	0.16	0.06	0.06	0.19	0.04
hd, final value (s)			4.85	4.25	5.18	5.18	5.55	5.04
x, final value			0.00	0.22	0.09	0.09	0.32	0.06
Move-up time, m (s)			2.0		2.3		2.3	
Service Time, t_s (s)			2.8	2.2	2.9	2.9	3.2	2.7

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)			0	434	313	314	460	296
Delay (s/veh)			7.85	8.42	8.40	8.41	10.88	8.09
LOS			A	A	A	A	B	A
Approach: Delay (s/veh)			8.42		8.41		10.38	
LOS			A		A		B	
Intersection Delay (s/veh)	9.30							
Intersection LOS	A							

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APPENDIX D

Miami Dade MPO: Transportation Improvement Program

HIGHWAYS

MPO Project Num:	DT4124792
LRTP Ref.:	p. 4-36
County:	MIAMI-DADE
Roadway ID:	072000
Lanes Exist:	3
Lanes Improved:	3
Lanes Added:	1
Project Length:	0.379
District:	6

Project Description: **SR 985/SW 107 AVENUE** **FROM SW 5TH STREET** **TO N OF WEST FLAGLER ST.**

Type of Work: **ADD LANES & REHABILITATE PVMNT**

	Funding Source	Proposed Funding (in $000s) <2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	>2017	All Years
PHASE : **Preliminary Engineering**	DDR	283	0	0	0	0	0	0	283
PHASE : **Preliminary Engineering**	DIH	48	0	0	0	0	0	0	48
PHASE : **Preliminary Engineering**	DIH	133	0	0	0	0	0	0	133
PHASE : **Preliminary Engineering**	DS	110	0	130	0	0	0	0	240
	Totals	**574**	**0**	**130**	**0**	**0**	**0**	**0**	**704**

RESPONSIBLE AGENCY: **Managed by FDOT**

PHASE : **Right of Way**	DDR	0	0	0	3,553	2,365	0	0	5,918
PHASE : **Right of Way**	DIH	0	0	0	166	0	0	0	166
	Totals	**0**	**0**	**0**	**3,719**	**2,365**	**0**	**0**	**6,084**

RESPONSIBLE AGENCY: **Managed by FDOT**

PHASE : **Construction**	DS	0	0	0	0	0	4,999	0	4,999
PHASE : **Construction**	DIH	0	0	0	0	0	76	0	76
	Totals	**0**	**0**	**0**	**0**	**0**	**5,075**	**0**	**5,075**

RESPONSIBLE AGENCY: **Managed by FDOT**

HIGHWAYS

MPO Project Num:	DT4124793
LRTP Ref.:	p. 4-36
County:	MIAMI-DADE
Roadway ID:	072000
Lanes Exist:	6
Lanes Improved:	6
Lanes Added:	2
Project Length:	0.472
District:	6

Project Description: **SR 985/SW 107 AVENUE** **FROM SW 12 STREET** **TO SW 4 STREET**

Type of Work: **ADD LANES & REHABILITATE PVMNT**

	Funding Source	Proposed Funding (in $000s)							
		<2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	>2017	All Years
PHASE : **Preliminary Engineering**	DIH	91	0	0	0	0	0	0	91
PHASE : **Preliminary Engineering**	DS	169	60	0	0	0	0	0	229
	Totals	**260**	**60**	**0**	**0**	**0**	**0**	**0**	**320**

RESPONSIBLE AGENCY: **Managed by FDOT**

PHASE : **Right of Way**	DIH	0	0	420	0	0	0	0	420
PHASE : **Right of Way**	DDR	0	0	33	1,893	0	0	0	1,926
PHASE : **Right of Way**	SA	0	0	1,576	0	0	0	0	1,576
PHASE : **Right of Way**	DS	0	0	650	1,978	0	0	0	2,628
PHASE : **Right of Way**	SU	0	0	2,362	0	0	0	0	2,362
PHASE : **Right of Way**	EB	0	0	797	0	0	0	0	797
PHASE : **Right of Way**	BNDS	0	0	1,003	0	0	0	0	1,003
	Totals	**0**	**0**	**6,841**	**3,871**	**0**	**0**	**0**	**10,712**

RESPONSIBLE AGENCY: **Managed by FDOT**

PHASE : **Construction**	SA	0	0	0	0	1,089	0	0	1,089
PHASE : **Construction**	HSP	0	0	0	0	2,908	0	0	2,908

HIGHWAYS

MPO Project Num:	DT4291623
LRTP Ref.:	p. F-9
County:	MIAMI-DADE
Roadway ID:	120000
Lanes Exist:	8
Lanes Improved:	8
Lanes Added:	0
Project Length:	0.808
District:	6

Project Description: **SR 90/TAMIAMI TRAIL** **FROM E OF SW 127TH AVENUE** **TO TURNPIKE EXT. ON-RAMP**

Type of Work: **RESURFACING**

	Funding Source	Proposed Funding (in $000s)							
		<2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	>2017	All Years
PHASE : **Preliminary Engineering**	DIH	40	0	0	0	0	0	0	40
PHASE : **Preliminary Engineering**	DS	38	0	0	0	0	0	0	38
	Totals	**78**	**0**	**0**	**0**	**0**	**0**	**0**	**78**

RESPONSIBLE AGENCY: **Managed by FDOT**

PHASE : **Construction**	DDR	0	0	2,399	0	0	0	0	2,399
PHASE : **Construction**	DIH	0	0	27	0	0	0	0	27
	Totals	**0**	**0**	**2,426**	**0**	**0**	**0**	**0**	**2,426**

RESPONSIBLE AGENCY: **Managed by FDOT**

HIGHWAYS

MPO Project Num:	DT4291901
LRTP Ref.:	p. F-9
County:	MIAMI-DADE
Roadway ID:	030000
Lanes Exist:	6
Lanes Improved:	6
Lanes Added:	0
Project Length:	1.94
District:	6

Project Description: **SR 5/BISCAYNE BLVD** **FROM N OF NE 121 STREET** **TO NE 151 STREET**

Type of Work: **RESURFACING**

	Funding Source	Proposed Funding (in $000s)							
		<2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	>2017	All Years
PHASE : **Preliminary Engineering**	DIH	40	0	0	0	0	0	0	40
PHASE : **Preliminary Engineering**	SU	511	0	0	0	0	0	0	511
	Totals	**551**	**0**	**0**	**0**	**0**	**0**	**0**	**551**

RESPONSIBLE AGENCY: **Managed by FDOT**

PHASE : **Construction**	DIH	0	0	50	0	0	0	0	50
PHASE : **Construction**	DDR	0	0	27	0	0	0	0	27
PHASE : **Construction**	SA	0	0	3,858	0	0	0	0	3,858
	Totals	**0**	**0**	**3,935**	**0**	**0**	**0**	**0**	**3,935**

RESPONSIBLE AGENCY: **Managed by FDOT**

HIGHWAYS

MPO Project Num:	DT4291902
LRTP Ref.:	p. F-9
County:	MIAMI-DADE
Roadway ID:	030000
Lanes Exist:	6
Lanes Improved:	0
Lanes Added:	0
Project Length:	0.001
District:	6

Project Description: **SR 5/BISCAYNE BLVD** **AT SR 916/NE 135 STREET**

Type of Work: **INTERSECTION IMPROVEMENT**

	Funding Source	Proposed Funding (in $000s)							
		<2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	>2017	All Years
PHASE : **Preliminary Engineering**	DIH	8	0	0	0	0	0	0	8
PHASE : **Preliminary Engineering**	HSP	80	0	0	0	0	0	0	80
	Totals	**88**	**0**	**0**	**0**	**0**	**0**	**0**	**88**

RESPONSIBLE AGENCY: **Managed by FDOT**

PHASE : **Construction**	HSP	0	0	451	0	0	0	0	451
	Totals	**0**	**0**	**451**	**0**	**0**	**0**	**0**	**451**

RESPONSIBLE AGENCY: **Managed by FDOT**

HIGHWAYS

MPO Project Num:	DT4311771
LRTP Ref.:	p. F-9
County:	MIAMI-DADE
Roadway ID:	072000
Lanes Exist:	6
Lanes Improved:	6
Lanes Added:	0
Project Length:	0.766
District:	6

Project Description: **SR 985/SW 107 AVENUE FROM SW 24 STREET/CORAL WAY TO 1100 BLOCK**

Type of Work: **RESURFACING**

	Funding Source	Proposed Funding (in $000s) <2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	>2017	All Years
PHASE : **Preliminary Engineering**	DIH	0	15	0	0	0	0	0	15
PHASE : **Preliminary Engineering**	DS	0	130	0	0	0	0	0	130
	Totals	**0**	**145**	**0**	**0**	**0**	**0**	**0**	**145**

RESPONSIBLE AGENCY: **Managed by FDOT**

PHASE : **Construction**	DDR	0	0	0	909	0	0	0	909
PHASE : **Construction**	DIH	0	0	0	11	0	0	0	11
PHASE : **Construction**	DS	0	0	0	115	0	0	0	115
	Totals	**0**	**0**	**0**	**1,035**	**0**	**0**	**0**	**1,035**

RESPONSIBLE AGENCY: **Managed by FDOT**

APPENDIX E

Traffic Impact Analysis (Intersections)
(HCS 2010 Capacity Analysis) – Year 2020 (MMC)

Traffic Impact Analysis (Intersections)
(HCS 2010 Capacity Analysis) – Year 2020 (ECC)

Traffic Impact Analysis (Intersections)
(HCS 2010 Capacity Analysis) – Year 2020 (BBC)

Phone: Fax:
E-Mail:

ROUNDABOUT ANALYSIS

Analyst: Mo
Agency/Co.:
Date Performed: 1/7/2013
Analysis Time Period:
Intersection:
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 2020 PM peak TMC's
East/West Street:
North/South Street:

Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	139	163	10	10	685	70	10	10	5	54	2	209
U-Turn Vol	0			0			0			0		
% Thrus Left Lane												

	Eastbound			Westbound			Northbound			Southbound		
	Left	Right	BP	Left	Right	BP	Left	Right	BP	Left	Right	BP
Lane Assn.	L	TR		LTR	R		LTR			LTR		
RT Bypass			0			0			0			0
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
%HV	3	3	3	3	3	3	3	3	3	3	3	3
NumPeds	0			0			0			0		
U-Turn PHF	0.92			0.92			0.92			0.92		
U-Turn %HV	3			3			3			3		
Flow Rate	156	182	11	11	767	78	11	11	6	60	2	234
No. Lanes	1	1	0	0	1	1	0	1	0	0	1	0
Cnfl. Lanes	1			1			1			1		

Duration, T 0.25 hrs.

Critical and Follow-Up Headway Adjustment

	Eastbound			Westbound		
Crit. Hdwy	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929
	Northbound			Southbound		
Crit. Hdwy	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929
	Eastbound			Westbound		
Flup. Hdwy	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858
	Northbound			Southbound		
Flup. Hdwy	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	Eastbound	Westbound	Northbound	Southbound
Circ. Flow	73	178	398	789
Exit. Flow	249	1012	245	25

Capacity and Level of Service

	Eastbound	Westbound	Northbound	Southbound

	Left	Right	BP	Left	Right	BP	Left	Right	BP	Left	Right	BP
Entry Flow	156	194		778	78			28			297	
Entry Cap.	1050	1050		946	946			759			513	
Volume (vph)	151	188		755	76			27			288	
Cap. (vph)	1019	1019		918	918			736			498	
v/c Ratio	0.15	0.18		0.82	0.08			0.04			0.58	
Critical Lane		*		*				*			*	
Lane Delay	4.9	5.3		23.3	4.7			5.3			19.6	
Lane LOS	A	A		C	A			A			C	
95 % Queue	0.5	0.7		9.5	0.3			0.1			3.6	
Approach:												
Delay		5.09			21.61			5.26			19.59	
LOS		A			C			A			C	

Intersection Delay 17.15 Intersection LOS C

Phone: Fax:
E-Mail:

ROUNDABOUT ANALYSIS

Analyst: Mo
Agency/Co.:
Date Performed: 2/22/2013
Analysis Time Period:
Intersection:
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 2020 PM peak TMC's
East/West Street:
North/South Street:

Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	139	163	10	10	685	70	10	10	5	54	2	209
U-Turn Vol	0			0			0			0		
% Thrus Left Lane												

	Eastbound			Westbound			Northbound			Southbound		
	Left	Right	BP	Left	Right	BP	Left	Right	BP	Left	Right	BP
Lane Assn.	L	TR		LT	R		LTR			LTR		
RT Bypass			0			0			0			0
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
%HV	3	3	3	3	3	3	3	3	3	3	3	3
NumPeds	0			0			0			0		
U-Turn PHF	0.92			0.92			0.92			0.92		
U-Turn %HV	3			3			3			3		
Flow Rate	156	182	11	11	767	78	11	11	6	60	2	234
No. Lanes	1	1	0	0	1	1	0	1	0	0	1	0
Cnfl. Lanes	1			1			1			1		

Duration, T 0.25 hrs.

Critical and Follow-Up Headway Adjustment

		Eastbound			Westbound	
Crit. Hdwy	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929
		Northbound			Southbound	
Crit. Hdwy	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929
		Eastbound			Westbound	
Flup. Hdwy	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858
		Northbound			Southbound	
Flup. Hdwy	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	Eastbound	Westbound	Northbound	Southbound
Circ. Flow	73	178	398	789
Exit. Flow	249	1012	245	25

Capacity and Level of Service

	Eastbound	Westbound	Northbound	Southbound

	Left	Right	BP	Left	Right	BP	Left	Right	BP	Left	Right	BP
Entry Flow	156	194		778	78			28			297	
Entry Cap.	1050	1050		946	946			759			513	
Volume (vph)	151	188		755	76			27			288	
Cap. (vph)	1019	1019		918	918			736			498	
v/c Ratio	0.15	0.18		0.82	0.08			0.04			0.58	
Critical Lane		*		*				*			*	
Lane Delay	4.9	5.3		23.3	4.7			5.3			19.6	
Lane LOS	A	A		C	A			A			C	
95 % Queue	0.5	0.7		9.5	0.3			0.1			3.6	
Approach:												
Delay		5.09			21.61			5.26			19.59	
LOS		A			C			A			C	

Intersection Delay 17.15 Intersection LOS C

Phone: Fax:
E-Mail:

ROUNDABOUT ANALYSIS

Analyst: Mo
Agency/Co.:
Date Performed: 2/22/2013
Analysis Time Period:
Intersection: SW 16_St/University Dr
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 2020 PM peak TMC's - w/Improvements
East/West Street:
North/South Street:

Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	28	904	13	56	1211	54	28	32	7	111	135	122
U-Turn Vol	0			0			0			0		
% Thrus Left Lane		47			47							

	Eastbound			Westbound			Northbound			Southbound		
	Left	Right	BP	Left	Right	BP	Left	Right	BP	Left	Right	BP
Lane Assn.	LT	TR		LT	TR		LTR			L	TR	
RT Bypass			0			2			0			2
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
%HV	3	3	3	3	3	3	3	3	3	3	3	3
NumPeds	0			0			0			0		
U-Turn PHF	0.92			0.92			0.92			0.92		
U-Turn %HV	3			3			3			3		
Flow Rate	31	1012	15	63	1356	60	31	36	8	124	151	137
No. Lanes	0	2	0	0	2	0	0	1	0	1	1	0
Cnfl. Lanes	1			1		1	1			1		1

Duration, T 0.25 hrs.

Critical and Follow-Up Headway Adjustment

	Eastbound			Westbound		
Crit. Hdwy	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929
	Northbound			Southbound		
Crit. Hdwy	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929
	Eastbound			Westbound		
Flup. Hdwy	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858
	Northbound			Southbound		
Flup. Hdwy	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	Eastbound	Westbound	Northbound	Southbound
Circ. Flow	338	98	1167	1450
Exit. Flow	1144	1387	67	228

Capacity and Level of Service

	Eastbound	Westbound	Northbound	Southbound

	Left	Right	BP	Left	Right	BP	Left	Right	BP	Left	Right	BP
Entry Flow	497	561		667	752	60		75		124	151	137
Entry Cap.	806	806		1024	1024			352		265	265	
Volume (vph)	483	545		648	730	58		73		120	147	133
Cap. (vph)	782	782		994	994			341		257	257	
v/c Ratio	0.62	0.70		0.65	0.73			0.21		0.47	0.57	
Critical Lane		*						*				
Lane Delay	14.8	17.9		13.4	16.6	0.0		14.5		28.1	34.0	0.0
Lane LOS	B	C		B	C			B		D	D	
95 % Queue	4.3	5.8		5.0	6.9			0.8		2.3	3.2	
Approach:												
Delay		16.47			14.47			14.47			20.91	
LOS		C			B			B			C	

Intersection Delay 16.05 Intersection LOS C

Phone: Fax:
E-Mail:

ROUNDABOUT ANALYSIS

Analyst: Mo
Agency/Co.:
Date Performed: 2/22/2013
Analysis Time Period:
Intersection:
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 2020 PM peak TMC's - w/Improvements
East/West Street:
North/South Street:

Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	28	904	13	56	1211	54	28	32	7	111	135	122
U-Turn Vol	0			0			0			0		
% Thrus Left Lane		47			47							

	Eastbound			Westbound			Northbound			Southbound		
	Left	Right	BP	Left	Right	BP	Left	Right	BP	Left	Right	BP
Lane Assn.	LT	TR		LT	TR		LTR			L	TR	
RT Bypass			0			2			0			2
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
%HV	3	3	3	3	3	3	3	3	3	3	3	3
NumPeds	0			0			0			0		
U-Turn PHF	0.92			0.92			0.92			0.92		
U-Turn %HV	3			3			3			3		
Flow Rate	31	1012	15	63	1356	60	31	36	8	124	151	137
No. Lanes	0	2	0	0	2	0	0	1	0	1	1	0
Cnfl. Lanes	1			1		1	1			1		1

Duration, T 0.25 hrs.

Critical and Follow-Up Headway Adjustment

	Eastbound			Westbound		
Crit. Hdwy	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929
	Northbound			Southbound		
Crit. Hdwy	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929
	Eastbound			Westbound		
Flup. Hdwy	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858
	Northbound			Southbound		
Flup. Hdwy	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	Eastbound	Westbound	Northbound	Southbound
Circ. Flow	338	98	1167	1450
Exit. Flow	1144	1387	67	228

Capacity and Level of Service

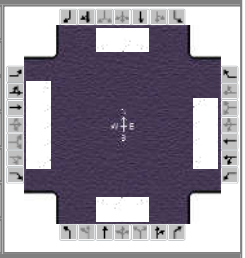
	Eastbound	Westbound	Northbound	Southbound

	Left	Right	BP	Left	Right	BP	Left	Right	BP	Left	Right	BP
Entry Flow	497	561		667	752	60		75		124	151	137
Entry Cap.	806	806		1024	1024			352		265	265	
Volume (vph)	483	545		648	730	58		73		120	147	133
Cap. (vph)	782	782		994	994			341		257	257	
v/c Ratio	0.62	0.70		0.65	0.73			0.21		0.47	0.57	
Critical Lane		*						*				
Lane Delay	14.8	17.9		13.4	16.6	0.0		14.5		28.1	34.0	0.0
Lane LOS	B	C		B	C			B		D	D	
95 % Queue	4.3	5.8		5.0	6.9			0.8		2.3	3.2	
Approach:												
Delay		16.47			14.47			14.47			20.91	
LOS		C			B			B			C	

Intersection Delay 16.05 Intersection LOS C

HCS 2010 Signalized Intersection Results Summary

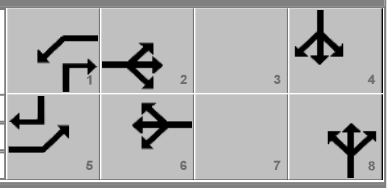
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/29/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	SW 8th Street / SW 109th A	Analysis Year	2012	Analysis Period	1> 7:00
File Name	Prop_2020_SW 8 ST & SW 109 AVE.xus				
Project Description	Prop 2020 PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	285	2366	200	428	2309	114	486	213	315	305	105	453

Signal Information			
Cycle, s	240.2	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	30.0	13.0	100.2	33.0	39.0	0.0
Yellow	4.0	4.0	4.0	4.0	4.0	0.0
Red	1.0	1.0	1.0	1.0	1.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	4.0		9.0		9.0
Phase Duration, s	35.0	105.2	53.0	123.2		44.0		38.0
Change Period, $(Y+R_c)$, s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway *(MAH)*, s	3.0	2.9	3.0	2.9		3.4		3.3
Queue Clearance Time (g_s), s	32.0	88.8	50.0	112.8		41.0		35.0
Green Extension Time (g_e), s	0.0	4.9	0.0	5.4		0.0		0.0
Phase Call Probability	1.00	1.00	1.00	1.00		1.00		1.00
Max Out Probability	1.00	0.98	1.00	0.91		1.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate *(v)*, veh/h	310	2116	673	465	1761	873	528	232	342	332	114	492
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1792	1863	1760	1792	1881	1833	1792	1881	1547	1792	1827	1594
Queue Service Time (g_s), s	30.0	85.3	86.8	48.0	107.4	110.8	39.0	28.2	39.0	33.0	13.8	33.0
Cycle Queue Clearance Time (g_c), s	30.0	85.3	86.8	48.0	107.4	110.8	39.0	28.2	39.0	33.0	13.8	33.0
Capacity *(c)*, veh/h	257	2332	734	393	1852	902	291	305	566	246	251	418
Volume-to-Capacity Ratio *(X)*	1.204	0.907	0.917	1.182	0.951	0.967	1.816	0.758	0.604	1.347	0.455	1.178
Available Capacity (c_a), veh/h	257	2332	734	393	1958	954	291	305	566	246	251	418
Back of Queue *(Q)*, veh/ln (50th percentile)	24.9	41.3	41.8	36.0	52.9	55.7	49.3	14.9	17.8	28.0	6.7	38.1
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	3.13	0.00	0.00	5.03	0.00	0.00	16.57	0.00	0.00	14.09	0.00	0.00
Uniform Delay (d_1), s/veh	88.8	65.6	66.1	87.4	58.2	59.1	100.6	96.1	62.8	103.6	95.3	88.6
Incremental Delay (d_2), s/veh	122.8	5.5	16.0	105.2	10.4	20.6	380.6	9.4	1.3	180.7	0.5	102.3
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	211.5	71.2	82.1	192.6	68.7	79.8	481.3	105.6	64.1	284.4	95.8	190.9
Level of Service (LOS)	F	E	F	F	E	E	F	F	E	F	F	F
Approach Delay, s/veh / LOS	87.6	F		90.4	F		272.8	F		212.4	F	
Intersection Delay, s/veh / LOS	127.6						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.4	B	3.6	D	3.4	C
Bicycle LOS Score / LOS	1.8	A	2.2	B	2.3	B	2.0	B

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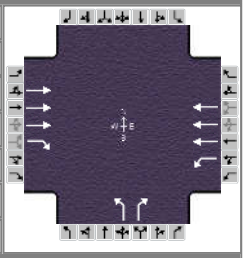
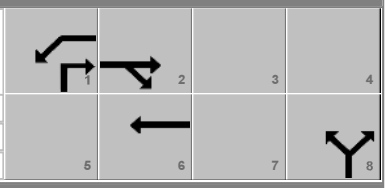
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/29/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	SW 8th Street / SW 112th A	Analysis Year	2012	Analysis Period	1> 7:00
File Name	Prop_2020_SW 8 ST & SW 112 AVE.xus				
Project Description	Prop 2020 PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h		2847	668	293	2958		522		427			

Signal Information													
Cycle, s	115.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	0.0	0.0	0.0	0.0	0.0	0.0			
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	0.0	0.0	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0	0.0	0.0	0.0	0.0			



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		
Case Number		7.3	2.0	4.0		9.0		
Phase Duration, s		55.0	25.0	80.0		35.0		
Change Period, $(Y+R_c)$, s		5.0	5.0	5.0		5.0		
Max Allow Headway *(MAH)*, s		0.0	0.0	0.0		0.0		
Queue Clearance Time (g_s), s		0.0	0.0	0.0		0.0		
Green Extension Time (g_e), s		0.0	0.0	0.0		0.0		
Phase Call Probability		0.00	0.00	0.00		0.00		
Max Out Probability		0.00	0.00	0.00		0.00		

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6		3		18			
Adjusted Flow Rate *(v)*, veh/h		0	0	0	0		0		0			
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		0	0	0	0		0		0			
Queue Service Time (g_s), s		0.0	0.0	0.0	0.0		0.0		0.0			
Cycle Queue Clearance Time (g_c), s		0.0	0.0	0.0	0.0		0.0		0.0			
Capacity *(c)*, veh/h		2228	688	312	3309		467		688			
Volume-to-Capacity Ratio *(X)*		1.389	1.055	1.022	0.972		1.214		0.675			
Available Capacity (c_a), veh/h		0	0	0	0		0		0			
Back of Queue *(Q)*, veh/ln (50th percentile)		55.7	27.1	13.5	25.2		28.3		10.7			
Overflow Queue (Q_3), veh/ln		0.0	0.0	0.0	0.0		0.0		0.0			
Queue Storage Ratio *(RQ)* (50th percentile)		0.00	2.73	1.70	0.00		0.00		0.00			
Uniform Delay (d_1), s/veh		32.5	32.5	47.5	19.0		42.5		26.1			
Incremental Delay (d_2), s/veh		177.9	49.7	56.8	9.9		114.6		2.1			
Initial Queue Delay (d_3), s/veh		0.0	0.0	0.0	0.0		0.0		0.0			
Control Delay *(d)*, s/veh		210.4	82.2	104.3	28.9		157.1		28.2			
Level of Service (LOS)		F	F	F	C		F		C			
Approach Delay, s/veh / LOS	186.0	F		35.7	D		99.1	F		0.0		
Intersection Delay, s/veh / LOS	112.0						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	0.7	A	3.3	C	3.3	C
Bicycle LOS Score / LOS	2.6	B	2.4	B		F		

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: MG
Agency/Co.: Miller Legg
Date Performed: 11/15/2012
Analysis Time Period: PM Peak Hour
Intersection: SW 115 Ave & SW 17 St
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2020
Project ID: 2020 PM Peak Analysis - No Improvements
East/West Street: SW 17 St
North/South Street: SW 115 Avenue
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	10	5	54	2	209
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR	10	10	5	54	2	209
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	TWLTL			/ 1		
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	685	70	139	163	0
Peak Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR	10	685	70	139	163	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	1	1	0	0	1	1
Configuration	L	TR		LT	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR	L		TR	LT		R
v (vph)	10	54	10		755	302		0
C(m) (vph)	1372	1610	472		574	108		954
v/c	0.01	0.03	0.02		1.32	2.80		0.00
95% queue length	0.02	0.10	0.06		31.59	28.26		0.00
Control Delay	7.6	7.3	12.8		175.7	895.6		8.8
LOS	A	A	B		F	F		A
Approach Delay				173.6			895.6	
Approach LOS				F			F	

HCS+: Unsignalized Intersections Release 5.6

Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: MG
Agency/Co.: Miller Legg
Date Performed: 11/15/2012
Analysis Time Period: PM Peak Hour
Intersection: SW 115 Ave & SW 17 St
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2020
Project ID: 2020 PM Peak Analysis - No Improvements
East/West Street: SW 17 St
North/South Street: SW 115 Avenue
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	10	5	54	2	209
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Peak-15 Minute Volume	2	2	1	14	0	52
Hourly Flow Rate, HFR	10	10	5	54	2	209
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	TWLTL			/ 1		
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal?		No			No	

Minor Street Movements	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	685	70	139	163	0
Peak Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Peak-15 Minute Volume	2	171	18	35	41	0
Hourly Flow Rate, HFR	10	685	70	139	163	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						No
Lanes	1	1	0	0	1	1
Configuration	L		TR	LT		R

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	2	0

Lane Width (ft)	12.0	12.0	12.0	12.0
Walking Speed (ft/sec)	4.0	4.0	4.0	4.0
Percent Blockage	0	0	0	0

Upstream Signal Data

		Prog. Flow vph	Sat Flow vph	Arrival Type	Green Time sec	Cycle Length sec	Prog. Speed mph	Distance to Signal feet
S2	Left-Turn							
	Through							
S5	Left-Turn							
	Through							

Worksheet 3-Data for Computing Effect of Delay to Major Street Vehicles

	Movement 2	Movement 5
Shared ln volume, major th vehicles:	10	2
Shared ln volume, major rt vehicles:	5	209
Sat flow rate, major th vehicles:	1700	1700
Sat flow rate, major rt vehicles:	1700	1700
Number of major street through lanes:	1	1

Worksheet 4-Critical Gap and Follow-up Time Calculation

Critical Gap Calculation

Movement		1 L	4 L	7 L	8 T	9 R	10 L	11 T	12 R
t(c,base)		4.1	4.1	7.1	6.5	6.2	7.1	6.5	6.2
t(c,hv)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P(hv)		0	0	0	0	0	0	0	0
t(c,g)				0.20	0.20	0.10	0.20	0.20	0.10
Percent Grade				0.00	0.00	0.00	0.00	0.00	0.00
t(3,lt)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
t(c,T):	1-stage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2-stage	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
t(c)	1-stage	4.1	4.1	7.1	6.5	6.2	7.1	6.5	6.2
	2-stage	4.1	4.1	6.1	5.5	6.2	6.1	5.5	6.2

Follow-Up Time Calculations

Movement	1 L	4 L	7 L	8 T	9 R	10 L	11 T	12 R
t(f,base)	2.20	2.20	3.50	4.00	3.30	3.50	4.00	3.30
t(f,HV)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
P(HV)	0	0	0	0	0	0	0	0
t(f)	2.2	2.2	3.5	4.0	3.3	3.5	4.0	3.3

Worksheet 5-Effect of Upstream Signals

Computation 1-Queue Clearance Time at Upstream Signal

	Movement 2		Movement 5	
	V(t)	V(l,prot)	V(t)	V(l,prot)
V prog				

Total Saturation Flow Rate, s (vph)
Arrival Type
Effective Green, g (sec)
Cycle Length, C (sec)
Rp (from Exhibit 16-11)
Proportion vehicles arriving on green P
g(q1)
g(q2)
g(q)

Computation 2-Proportion of TWSC Intersection Time blocked	Movement 2		Movement 5	
	V(t)	V(l,prot)	V(t)	V(l,prot)
alpha				
beta				
Travel time, t(a) (sec)				
Smoothing Factor, F				
Proportion of conflicting flow, f				
Max platooned flow, V(c,max)				
Min platooned flow, V(c,min)				
Duration of blocked period, t(p)				
Proportion time blocked, p	0.000		0.000	

Computation 3-Platoon Event Periods	Result
p(2)	0.000
p(5)	0.000
p(dom)	
p(subo)	
Constrained or unconstrained?	

Proportion unblocked for minor movements, p(x)	(1) Single-stage Process	(2) Two-Stage Process Stage I	(3) Stage II
p(1)			
p(4)			
p(7)			
p(8)			
p(9)			
p(10)			
p(11)			
p(12)			

Computation 4 and 5
Single-Stage Process

Movement	1	4	7	8	9	10	11	12
	L	L	L	T	R	L	T	R
V c,x	211	17	330	353	14	624	251	106
s								
Px								
V c,u,x								
C r,x								
C plat,x								

Two-Stage Process

7	8	10	11

	Stage1	Stage2	Stage1	Stage2	Stage1	Stage2	Stage1	Stage2
V(c,x)	34	296	34	319	214	410	214	37
s		1500		1500		1500		1500
P(x)								
V(c,u,x)								
C(r,x)								
C(plat,x)								

Worksheet 6-Impedance and Capacity Equations

Step 1: RT from Minor St.	9	12
Conflicting Flows	14	106
Potential Capacity	1072	954
Pedestrian Impedance Factor	1.00	1.00
Movement Capacity	1070	954
Probability of Queue free St.	0.93	1.00
Step 2: LT from Major St.	**4**	**1**
Conflicting Flows	17	211
Potential Capacity	1613	1372
Pedestrian Impedance Factor	1.00	1.00
Movement Capacity	1610	1372
Probability of Queue free St.	0.97	0.99
Maj L-Shared Prob Q free St.	0.96	0.99
Step 3: TH from Minor St.	**8**	**11**
Conflicting Flows	353	251
Potential Capacity	575	656
Pedestrian Impedance Factor	1.00	1.00
Cap. Adj. factor due to Impeding mvmnt	0.95	0.95
Movement Capacity	548	625
Probability of Queue free St.	0.00	0.74
Step 4: LT from Minor St.	**7**	**10**
Conflicting Flows	330	624
Potential Capacity	627	401
Pedestrian Impedance Factor	1.00	1.00
Maj. L, Min T Impedance factor	0.70	0.00
Maj. L, Min T Adj. Imp Factor.	0.77	0.00
Cap. Adj. factor due to Impeding mvmnt	0.77	0.00
Movement Capacity	483	0

Worksheet 7-Computation of the Effect of Two-stage Gap Acceptance

Step 3: TH from Minor St.	8	11
Part 1 - First Stage		
Conflicting Flows	34	214
Potential Capacity	871	729
Pedestrian Impedance Factor	1.00	1.00
Cap. Adj. factor due to Impeding mvmnt	0.99	0.96
Movement Capacity	863	701
Probability of Queue free St.	0.21	0.77

Part 2 - Second Stage		
Conflicting Flows	319	37
Potential Capacity	657	868
Pedestrian Impedance Factor	1.00	1.00
Cap. Adj. factor due to Impeding mvmnt	0.96	0.99
Movement Capacity	632	860
Part 3 - Single Stage		
Conflicting Flows	353	251
Potential Capacity	575	656
Pedestrian Impedance Factor	1.00	1.00
Cap. Adj. factor due to Impeding mvmnt	0.95	0.95
Movement Capacity	548	625
Result for 2 stage process:		
a	0.91	0.91
y		
C t	548	625
Probability of Queue free St.	0.00	0.74
Step 4: LT from Minor St.	7	10
Part 1 - First Stage		
Conflicting Flows	34	214
Potential Capacity	987	793
Pedestrian Impedance Factor	1.00	1.00
Cap. Adj. factor due to Impeding mvmnt	0.99	0.96
Movement Capacity	978	763
Part 2 - Second Stage		
Conflicting Flows	296	410
Potential Capacity	717	623
Pedestrian Impedance Factor	1.00	1.00
Cap. Adj. factor due to Impeding mvmnt	0.74	0.19
Movement Capacity	529	119
Part 3 - Single Stage		
Conflicting Flows	330	624
Potential Capacity	627	401
Pedestrian Impedance Factor	1.00	1.00
Maj. L, Min T Impedance factor	0.70	0.00
Maj. L, Min T Adj. Imp Factor.	0.77	0.00
Cap. Adj. factor due to Impeding mvmnt	0.77	0.00
Movement Capacity	483	0
Results for Two-stage process:		
a	0.91	0.91
y	13.75	11.74
C t	472	55

Worksheet 8-Shared Lane Calculations

Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (vph)	10	685	70	139	163	0
Movement Capacity (vph)	472	548	1070	55	625	954
Shared Lane Capacity (vph)			574	108		

Worksheet 9-Computation of Effect of Flared Minor Street Approaches

Movement	7	8	9	10	11	12
	L	T	R	L	T	R
C sep	472	548	1070	55	625	954
Volume	10	685	70	139	163	0
Delay						
Q sep						
Q sep +1						
round (Qsep +1)						
n max						
C sh			574	108		
SUM C sep						
n						
C act						

Worksheet 10-Delay, Queue Length, and Level of Service

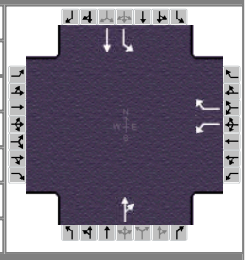
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR	L		TR	LT		R
v (vph)	10	54	10		755	302		0
C(m) (vph)	1372	1610	472		574	108		954
v/c	0.01	0.03	0.02		1.32	2.80		0.00
95% queue length	0.02	0.10	0.06		31.59	28.26		0.00
Control Delay	7.6	7.3	12.8		175.7	895.6		8.8
LOS	A	A	B		F	F		A
Approach Delay				173.6			895.6	
Approach LOS				F			F	

Worksheet 11-Shared Major LT Impedance and Delay

	Movement 2	Movement 5
p(oj)	0.99	0.97
v(il), Volume for stream 2 or 5	10	2
v(i2), Volume for stream 3 or 6	5	209
s(il), Saturation flow rate for stream 2 or 5	1700	1700
s(i2), Saturation flow rate for stream 3 or 6	1700	1700
P*(oj)	0.99	0.96
d(M,LT), Delay for stream 1 or 4	7.6	7.3
N, Number of major street through lanes	1	1
d(rank,1) Delay for stream 2 or 5	0.1	0.3

HCS 2010 Signalized Intersection Results Summary

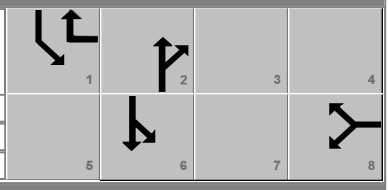
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/30/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.85
Intersection	SW 117th Avenue / SW 17t	Analysis Year	2012	Analysis Period	1> 7:00
File Name	prop_SW 117 AVE & SW 17 ST.xus				
Project Description	2020 PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				602		292		535	215	86	617	

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.0	40.0	40.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				9.0		8.3	1.0	4.0
Phase Duration, s				45.0		45.0	10.0	55.0
Change Period, *(Y+Rc)*, s				5.0		5.0	5.0	5.0
Max Allow Headway *(MAH)*, s				3.3		3.1	3.2	3.1
Queue Clearance Time *(gs)*, s				41.3		42.0	5.3	33.4
Green Extension Time *(ge)*, s				0.0		0.0	0.1	2.7
Phase Call Probability				1.00		1.00	0.94	1.00
Max Out Probability				1.00		1.00	0.14	0.56

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate *(v)*, veh/h				708		344		882		101	726	
Adjusted Saturation Flow Rate *(s)*, veh/h/ln				1792		1579		1788		1723	1881	
Queue Service Time *(gs)*, s				39.3		15.3		40.0		3.3	31.4	
Cycle Queue Clearance Time *(gc)*, s				39.3		15.3		40.0		3.3	31.4	
Capacity *(c)*, veh/h				716		711		715		159	941	
Volume-to-Capacity Ratio *(X)*				0.989		0.483		1.234		0.637	0.771	
Available Capacity *(ca)*, veh/h				716		711		715		244	941	
Back of Queue *(Q)*, veh/ln (50th percentile)				22.2		5.5		39.7		1.3	14.0	
Overflow Queue *(Q3)*, veh/ln				0.0		0.0		0.0		0.0	0.0	
Queue Storage Ratio *(RQ)* (50th percentile)				0.00		0.00		0.00		0.12	0.00	
Uniform Delay *(d1)*, s/veh				29.8		19.3		30.0		23.7	20.3	
Incremental Delay *(d2)*, s/veh				30.6		0.2		117.3		1.6	3.6	
Initial Queue Delay *(d3)*, s/veh				0.0		0.0		0.0		0.0	0.0	
Control Delay *(d)*, s/veh				60.4		19.5		147.3		25.3	24.0	
Level of Service (LOS)				E		B		F		C	C	
Approach Delay, s/veh / LOS	0.0			47.1		D	147.3		F	24.1		C
Intersection Delay, s/veh / LOS	72.2						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.1	B	2.3	B	2.3	B	0.7	A
Bicycle LOS Score / LOS				F	1.9	A	1.9	A

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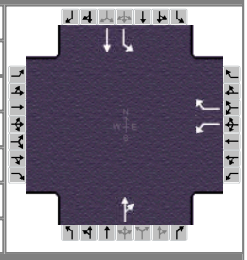
HCS 2010 Signalized Intersection Results Summary

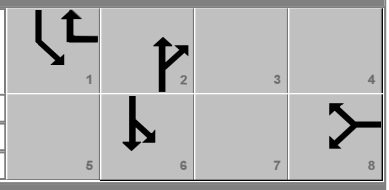
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/30/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.85
Intersection	SW 117th Avenue / SW 11t	Analysis Year	2012	Analysis Period	1> 7:00
File Name	2020_PM_SW 117 AVE & SW 11 ST_new.xus				
Project Description	2020 PM Peak Hour w/Improvements-red traffic				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				301		142		535	115	43	617	

Signal Information			
Cycle, s	89.5	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.6	38.9	32.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				9.0		8.3	1.0	4.0
Phase Duration, s				37.0		43.9	8.6	52.5
Change Period, *(Y+Rc)*, s				5.0		5.0	5.0	5.0
Max Allow Headway *(MAH)*, s				3.3		3.1	3.2	3.1
Queue Clearance Time *(gs)*, s				16.2		38.6	3.4	28.4
Green Extension Time *(ge)*, s				1.1		0.4	0.0	3.1
Phase Call Probability				1.00		1.00	0.72	1.00
Max Out Probability				0.00		1.00	0.00	0.19

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate *(v)*, veh/h				354		167		765		51	726	
Adjusted Saturation Flow Rate *(s)*, veh/h/ln				1792		1579		1823		1723	1881	
Queue Service Time *(gs)*, s				14.2		6.4		36.6		1.4	26.4	
Cycle Queue Clearance Time *(gc)*, s				14.2		6.4		36.6		1.4	26.4	
Capacity *(c)*, veh/h				640		627		793		167	999	
Volume-to-Capacity Ratio *(X)*				0.553		0.266		0.964		0.302	0.727	
Available Capacity *(ca)*, veh/h				800		768		814		291	999	
Back of Queue *(Q)*, veh/ln (50th percentile)				5.8		2.3		19.7		0.5	11.1	
Overflow Queue *(Q3)*, veh/ln				0.0		0.0		0.0		0.0	0.0	
Queue Storage Ratio *(RQ)* (50th percentile)				0.00		0.00		0.00		0.04	0.00	
Uniform Delay *(d1)*, s/veh				23.0		18.2		24.6		20.6	16.0	
Incremental Delay *(d2)*, s/veh				0.3		0.1		22.6		0.4	2.3	
Initial Queue Delay *(d3)*, s/veh				0.0		0.0		0.0		0.0	0.0	
Control Delay *(d)*, s/veh				23.3		18.3		47.2		21.0	18.4	
Level of Service (LOS)				C		B		D		C	B	
Approach Delay, s/veh / LOS	0.0			21.7		C	47.2		D	18.6		B
Intersection Delay, s/veh / LOS	30.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.1	B	2.3	B	2.3	B	0.7	A
Bicycle LOS Score / LOS				F	1.7	A	1.8	A

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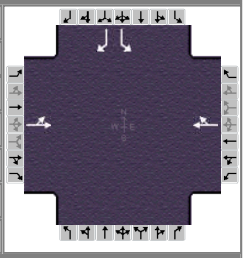
HCS 2010 Signalized Intersection Results Summary

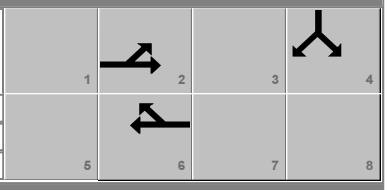
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/15/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.85
Intersection	University Drive & SW 109	Analysis Year	2012	Analysis Period	1> 7:00
File Name	Prop_University_Dr_and_SW_109_Ave_PM_peak.xus				
Project Description	2020 PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	143	157			178	222				143		86

Signal Information			
Cycle, s	29.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	15.0	4.6	0.0	0.0	0.0	0.0
Yellow	4.0	4.0	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6				4
Case Number		8.0		8.0				9.0
Phase Duration, s		20.0		20.0				9.6
Change Period, *(Y+R$_c$)*, s		5.0		5.0				5.0
Max Allow Headway *(MAH)*, s		3.6		3.6				3.4
Queue Clearance Time *(g$_s$)*, s		10.7		7.5				4.6
Green Extension Time *(g$_e$)*, s		1.9		2.1				0.6
Phase Call Probability		1.00		1.00				0.89
Max Out Probability		0.17		0.06				0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7		14
Adjusted Flow Rate *(v)*, veh/h		353			471					168		101
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1087			1727					1810		1610
Queue Service Time *(g$_s$)*, s		3.2			5.5					2.6		1.7
Cycle Queue Clearance Time *(g$_c$)*, s		8.7			5.5					2.6		1.7
Capacity *(c)*, veh/h		730			875					281		250
Volume-to-Capacity Ratio *(X)*		0.483			0.538					0.598		0.404
Available Capacity *(c$_a$)*, veh/h		946			1167					1833		1631
Back of Queue *(Q)*, veh/ln (50th percentile)		0.7			1.1					0.9		0.5
Overflow Queue *(Q$_3$)*, veh/ln		0.0			0.0					0.0		0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00			0.00					0.00		0.00
Uniform Delay *(d$_1$)*, s/veh		5.5			4.9					11.6		11.3
Incremental Delay *(d$_2$)*, s/veh		0.2			0.2					0.8		0.4
Initial Queue Delay *(d$_3$)*, s/veh		0.0			0.0					0.0		0.0
Control Delay *(d)*, s/veh		5.7			5.1					12.4		11.7
Level of Service (LOS)		A			A					B		B
Approach Delay, s/veh / LOS	5.7	A		5.1	A		0.0			12.1	B	
Intersection Delay, s/veh / LOS	7.0						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.7	A	1.6	A	2.1	B	2.1	B
Bicycle LOS Score / LOS	1.1	A	1.3	A				F

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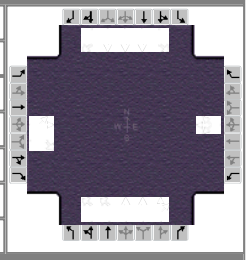
HCS 2010 Signalized Intersection Results Summary

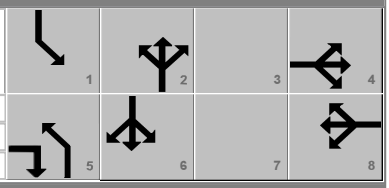
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/30/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	SW 107th Avenue / SW 12	Analysis Year	2012	Analysis Period	1> 7:00
File Name	2020_PM_SW 107 AVE & SW 12 ST.xus				
Project Description	2020 PM Peak Hour - No Improvements				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	484	194	300	1	1	0	374	2332	173	134	2230	322

Signal Information			
Cycle, s	107.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.0	0.0	0.0	0.0	0.0	0.0	
Yellow	0.0	0.0	0.0	0.0	0.0	0.0	
Red	0.0	0.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		7.0		8.0	1.1	4.0	1.1	3.0
Phase Duration, s		45.0		45.0	17.0	45.2	16.8	45.0
Change Period, $(Y+R_c)$, s		5.0		5.0	5.0	5.0	5.0	5.0
Max Allow Headway *(MAH)*, s		0.0		0.0	0.0	0.0	0.0	0.0
Queue Clearance Time (g_s), s		0.0		0.0	0.0	0.0	0.0	0.0
Green Extension Time (g_e), s		0.0		0.0	0.0	0.0	0.0	0.0
Phase Call Probability		0.00		0.00	0.00	0.00	0.00	0.00
Max Out Probability		0.00		0.00	0.00	0.00	0.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h		0	0		0		0	0	0	0	0	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		0	0		0		0	0	0	0	0	0
Queue Service Time (g_s), s		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clearance Time (g_c), s		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Capacity *(c)*, veh/h		464	762		86		525	1412	680	268	1916	579
Volume-to-Capacity Ratio *(X)*		1.588	0.428		0.025		0.775	1.290	1.325	0.544	1.265	0.605
Available Capacity (c_a), veh/h		0	0		0		0	0	0	0	0	0
Back of Queue *(Q)*, veh/ln (50th percentile)		48.1	5.3		0.0		3.1	43.8	46.2	1.9	37.5	7.1
Overflow Queue (Q_3), veh/ln		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00	0.00		0.00		0.18	0.00	0.00	0.24	0.00	0.75
Uniform Delay (d_1), s/veh		36.0	17.9		27.8		26.2	33.4	33.4	22.9	33.5	27.1
Incremental Delay (d_2), s/veh		274.9	0.1		0.0		1.3	135.8	156.5	0.6	123.7	1.3
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh		310.8	18.0		27.8		27.5	169.2	190.0	23.6	157.2	28.4
Level of Service (LOS)		F	B		C		C	F	F	C	F	C
Approach Delay, s/veh / LOS	221.0	F		27.8	C		156.8	F		135.1	F	
Intersection Delay, s/veh / LOS	157.4						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.4	C	3.4	C	2.1	B	2.7	B
Bicycle LOS Score / LOS	2.2	B	0.5	A	2.2	B	2.1	B

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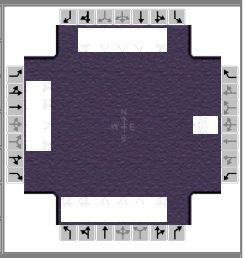
HCS 2010 Signalized Intersection Results Summary

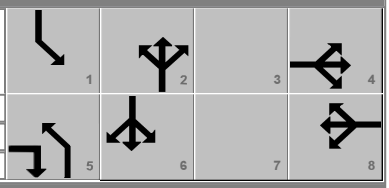
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/30/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	SW 107th Avenue / SW 12	Analysis Year	2012	Analysis Period	1> 7:00
File Name	2020_PM_SW 107 AVE & SW 12 ST_Rev.xus				
Project Description	2020 PM Peak Hour - With Improvements				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	484	194	150	1	1	0	374	2332	173	134	2230	161

Signal Information			
Cycle, s	97.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.4	0.6	40.0	30.0	0.0	0.0
Yellow	4.0	4.0	4.0	4.0	0.0	0.0
Red	1.0	1.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		5.0		8.0	1.1	3.0	1.1	3.0
Phase Duration, s		35.0		35.0	17.0	50.6	11.4	45.0
Change Period, *(Y+R$_c$)*, s		5.0		5.0	5.0	5.0	5.0	5.0
Max Allow Headway *(MAH)*, s		3.3		3.3	3.1	3.0	3.1	3.0
Queue Clearance Time *(g$_s$)*, s		27.4		10.6	8.6	47.6	6.5	42.0
Green Extension Time *(g$_e$)*, s		2.1		2.3	0.8	0.0	0.1	0.0
Phase Call Probability		1.00		1.00	1.00	1.00	0.98	1.00
Max Out Probability		0.03		0.00	0.00	1.00	0.58	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	526	211	163		2		407	2535	188	146	2424	175
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1439	1863	1552		1070		1740	1708	1610	1792	1708	1548
Queue Service Time *(g$_s$)*, s	16.9	8.6	6.5		0.0		6.6	45.6	6.8	4.5	40.0	7.3
Cycle Queue Clearance Time *(g$_c$)*, s	25.4	8.6	6.5		8.6		6.6	45.6	6.8	4.5	40.0	7.3
Capacity *(c)*, veh/h	785	576	677		387		579	2408	757	195	2113	638
Volume-to-Capacity Ratio *(X)*	0.670	0.366	0.241		0.006		0.702	1.053	0.249	0.747	1.147	0.274
Available Capacity *(c$_a$)*, veh/h	1082	768	837		387		866	2408	757	261	2113	638
Back of Queue *(Q)*, veh/ln (50th percentile)	6.0	3.9	2.3		0.0		4.4	24.2	2.3	2.0	29.1	2.5
Overflow Queue *(Q$_3$)*, veh/ln	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	0.00	0.00	0.00		0.00		0.26	0.00	0.00	0.25	0.00	0.26
Uniform Delay *(d$_1$)*, s/veh	36.0	26.1	17.4		23.4		25.3	25.7	15.4	22.6	28.5	18.9
Incremental Delay *(d$_2$)*, s/veh	0.4	0.1	0.1		0.0		0.6	34.1	0.1	4.9	72.3	0.1
Initial Queue Delay *(d$_3$)*, s/veh	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	36.4	26.2	17.5		23.4		25.8	59.8	15.5	27.5	100.8	19.0
Level of Service (LOS)	D	C	B		C		C	F	B	C	F	B
Approach Delay, s/veh / LOS	30.6	C		23.4	C		52.7	D		91.7	F	
Intersection Delay, s/veh / LOS	65.5						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.4	C	2.1	B	2.9	C
Bicycle LOS Score / LOS	2.0	A	0.5	A	2.2	B	2.0	A

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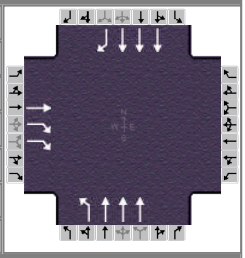
HCS 2010 Signalized Intersection Results Summary

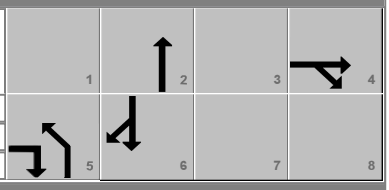
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/30/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	SW 107th Avenue / SW 10	Analysis Year	2012	Analysis Period	1> 7:00
File Name	Prop_SW 107 AVE & SW 108 AVE.xus				
Project Description	2020 PM Peak Hour- w/no improvements				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h		5	126				105	1992			2291	47

Signal Information			
Cycle, s	62.4	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.6	34.1	4.6	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		11.0			2.0	4.0		7.3
Phase Duration, s		9.6			13.6	52.8		39.1
Change Period, *(Y+Rc)*, s		5.0			5.0	5.0		5.0
Max Allow Headway *(MAH)*, s		3.6			3.1	3.0		3.0
Queue Clearance Time *(gs)*, s		4.7			6.0	12.7		28.7
Green Extension Time *(ge)*, s		0.3			0.2	20.7		5.4
Phase Call Probability		0.92			0.86	1.00		1.00
Max Out Probability		0.00			0.00	0.66		0.87

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		4	14				5	2			6	16
Adjusted Flow Rate *(v)*, veh/h		5	137				114	2165			2490	51
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1900	1307				1645	1708			1708	1342
Queue Service Time *(gs)*, s		0.2	2.7				4.0	10.7			26.7	1.1
Cycle Queue Clearance Time *(gc)*, s		0.2	2.7				4.0	10.7			26.7	1.1
Capacity *(c)*, veh/h		141	555				227	3924			2805	735
Volume-to-Capacity Ratio *(X)*		0.039	0.247				0.502	0.552			0.888	0.070
Available Capacity *(ca)*, veh/h		609	1199				791	3924			3284	860
Back of Queue *(Q)*, veh/ln (50th percentile)		0.1	0.8				1.5	0.9			8.0	0.2
Overflow Queue *(Q3)*, veh/ln		0.0	0.0				0.0	0.0			0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00	0.00				0.07	0.00			0.00	0.05
Uniform Delay *(d1)*, s/veh		26.8	20.4				24.9	3.0			12.4	6.6
Incremental Delay *(d2)*, s/veh		0.0	0.1				0.6	0.1			2.7	0.0
Initial Queue Delay *(d3)*, s/veh		0.0	0.0				0.0	0.0			0.0	0.0
Control Delay *(d)*, s/veh		26.9	20.5				25.5	3.1			15.1	6.7
Level of Service (LOS)		C	C				C	A			B	A
Approach Delay, s/veh / LOS	20.8	C		0.0			4.2	A		14.9	B	
Intersection Delay, s/veh / LOS	10.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.3	C	3.3	C	1.8	A	2.4	B
Bicycle LOS Score / LOS	0.7	A			1.7	A	1.9	A

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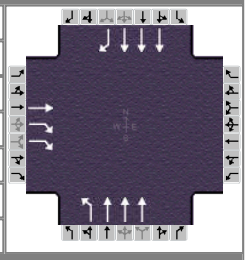
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/30/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	SW 107th Avenue / SW 10	Analysis Year	2012	Analysis Period	1> 7:00
File Name	Prop_SW 107 AVE & SW 108 AVE.xus				
Project Description	2020 PM Peak Hour- w improvements				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h		5	175				200	1992			2291	200

Signal Information			
Cycle, s	68.8	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.0	0.0	0.0	0.0	0.0	0.0	1	2	3	4
Yellow	0.0	0.0	0.0	0.0	0.0	0.0	5	6	7	8
Red	0.0	0.0	0.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		11.0			2.0	4.0		7.3
Phase Duration, s		11.3			16.0	57.4		41.4
Change Period, $(Y+R_c)$, s		5.0			5.0	5.0		5.0
Max Allow Headway *(MAH)*, s		0.0			0.0	0.0		0.0
Queue Clearance Time (g_s), s		0.0			0.0	0.0		0.0
Green Extension Time (g_e), s		0.0			0.0	0.0		0.0
Phase Call Probability		0.00			0.00	0.00		0.00
Max Out Probability		0.00			0.00	0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		4	14				5	2			6	16
Adjusted Flow Rate *(v)*, veh/h		0	0				0	0			0	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		0	0				0	0			0	0
Queue Service Time (g_s), s		0.0	0.0				0.0	0.0			0.0	0.0
Cycle Queue Clearance Time (g_c), s		0.0	0.0				0.0	0.0			0.0	0.0
Capacity *(c)*, veh/h		175	659				263	3907			2715	711
Volume-to-Capacity Ratio *(X)*		0.031	0.288				0.826	0.554			0.917	0.306
Available Capacity (c_a), veh/h		0	0				0	0			0	0
Back of Queue *(Q)*, veh/ln (50th percentile)		0.1	1.2				3.4	1.5			10.3	1.5
Overflow Queue (Q_3), veh/ln		0.0	0.0				0.0	0.0			0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00	0.00				0.15	0.00			0.00	0.33
Uniform Delay (d_1), s/veh		28.4	20.8				28.0	3.4			14.8	9.1
Incremental Delay (d_2), s/veh		0.0	0.1				2.5	0.1			4.6	0.1
Initial Queue Delay (d_3), s/veh		0.0	0.0				0.0	0.0			0.0	0.0
Control Delay *(d)*, s/veh		28.5	20.8				30.5	3.5			19.4	9.2
Level of Service (LOS)		C	C				C	A			B	A
Approach Delay, s/veh / LOS	21.1	C		0.0			5.9	A		18.5	B	
Intersection Delay, s/veh / LOS	13.0						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.3	C	3.3	C	1.8	A	2.4	B
Bicycle LOS Score / LOS	0.8	A			1.8	A	2.0	A

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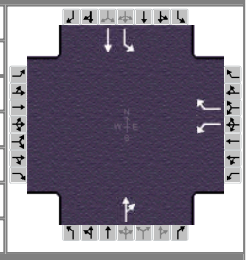
HCS 2010 Signalized Intersection Results Summary

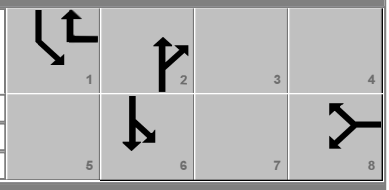
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/30/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.85
Intersection	SW 117th Avenue / SW 17t	Analysis Year	2012	Analysis Period	1> 7:00
File Name	2020_PM_SW 117 AVE & SW 17 ST_rev.xus				
Project Description	2020 PM Peak Hour w/Improvements-red traffic				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				301		150		535	100	43	617	

Signal Information			
Cycle, s	88.2	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.6	37.6	32.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				9.0		8.3	1.0	4.0
Phase Duration, s				37.0		42.6	8.6	51.2
Change Period, *(Y+Rc)*, s				5.0		5.0	5.0	5.0
Max Allow Headway *(MAH)*, s				3.3		3.1	3.2	3.1
Queue Clearance Time *(gs)*, s				15.8		36.9	3.4	28.4
Green Extension Time *(ge)*, s				1.1		0.7	0.0	3.1
Phase Call Probability				1.00		1.00	0.71	1.00
Max Out Probability				0.00		1.00	0.00	0.18

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1	6	
Adjusted Flow Rate *(v)*, veh/h				354		176		747		51	726	
Adjusted Saturation Flow Rate *(s)*, veh/h/ln				1792		1579		1829		1723	1881	
Queue Service Time *(gs)*, s				13.8		6.6		34.9		1.4	26.4	
Cycle Queue Clearance Time *(gc)*, s				13.8		6.6		34.9		1.4	26.4	
Capacity *(c)*, veh/h				650		636		780		172	985	
Volume-to-Capacity Ratio *(X)*				0.545		0.277		0.957		0.293	0.737	
Available Capacity *(ca)*, veh/h				813		780		830		298	985	
Back of Queue *(Q)*, veh/ln (50th percentile)				5.7		2.3		18.5		0.5	11.1	
Overflow Queue *(Q3)*, veh/ln				0.0		0.0		0.0		0.0	0.0	
Queue Storage Ratio *(RQ)* (50th percentile)				0.00		0.00		0.00		0.04	0.00	
Uniform Delay *(d1)*, s/veh				22.3		17.7		24.5		20.2	16.3	
Incremental Delay *(d2)*, s/veh				0.3		0.1		20.5		0.3	2.6	
Initial Queue Delay *(d3)*, s/veh				0.0		0.0		0.0		0.0	0.0	
Control Delay *(d)*, s/veh				22.6		17.8		44.9		20.5	18.9	
Level of Service (LOS)				C		B		D		C	B	
Approach Delay, s/veh / LOS	0.0			21.0		C	44.9		D	19.0		B
Intersection Delay, s/veh / LOS	28.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.1	B	2.3	B	2.3	B	0.7	A
Bicycle LOS Score / LOS				F	1.7	A	1.8	A

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Phone: Fax:
E-Mail:

ROUNDABOUT ANALYSIS

Analyst: Mo
Agency/Co.: FIU Modesto Campus
Date Performed: 2/22/2013
Analysis Time Period:
Intersection: SW 112 Ave/University Dr
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: 2020 PM peak TMC's - with Improvements
East/West Street:
North/South Street:

Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	350	328			275	619	8	140	33	113	93	121
U-Turn Vol	0			0			0			0		
% Thrus Left Lane									47			47

	Eastbound			Westbound			Northbound			Southbound		
	Left	Right	BP	Left	Right	BP	Left	Right	BP	Left	Right	BP
Lane Assn.	L	T		T	R		LT	TR		LT	TR	
RT Bypass			0			2			0			0
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
%HV	3	3	3	3	3	3	3	3	3	3	3	3
NumPeds	0			0			0			0		
U-Turn PHF	0.92			0.92			0.92			0.92		
U-Turn %HV	3			3			3			3		
Flow Rate	392	367	0	0	308	693	9	157	37	127	104	135
No. Lanes	1	1	0	0	1	1	0	2	0	0	2	0
Cnfl. Lanes	1			1		1	1			1		

Duration, T 0.25 hrs.

Critical and Follow-Up Headway Adjustment

		Eastbound			Westbound	
Crit. Hdwy	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929
		Northbound			Southbound	
Crit. Hdwy	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929
		Eastbound			Westbound	
Flup. Hdwy	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858
		Northbound			Southbound	
Flup. Hdwy	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	Eastbound	Westbound	Northbound	Southbound
Circ. Flow	231	558	886	317
Exit. Flow	531	452	549	104

Capacity and Level of Service

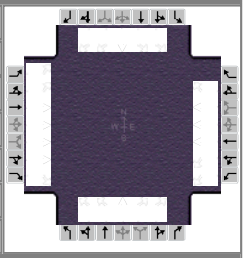
	Eastbound	Westbound	Northbound	Southbound

	Left	Right	BP	Left	Right	BP	Left	Right	BP	Left	Right	BP
Entry Flow	392	367		308	0	693	95	107		172	194	
Entry Cap.	897	897		647	647		466	466		823	823	
Volume (vph)	381	356		299	0	673	92	104		167	188	
Cap. (vph)	871	871		628	628		453	453		799	799	
v/c Ratio	0.44	0.41		0.48	0.00		0.20	0.23		0.21	0.24	
Critical Lane								*			*	
Lane Delay	9.5	9.0		13.2	5.7	0.0	11.0	11.4		6.7	7.1	
Lane LOS	A	A		B	A		B	B		A	A	
95 % Queue	2.2	2.0		2.6	0.0		0.8	0.9		0.8	0.9	
Approach:												
Delay		9.26			4.06			11.23			6.91	
LOS		A			A			B			A	

Intersection Delay 6.83 Intersection LOS A

HCS 2010 Signalized Intersection Results Summary

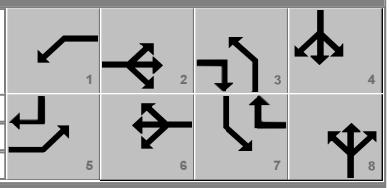
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/29/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	SW 8th Street / SW 109th A	Analysis Year	2012	Analysis Period	1> 7:00
File Name	Prop_2020_SW 8 ST & SW 109 AVE_REV.xus				
Project Description	Prop 2020 PM Peak Hour-with Capacity Improvements				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	285	2366	200	428	2309	114	486	213	315	305	105	453

Signal Information			
Cycle, s	191.2	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	13.4	3.2	100.1	15.0	34.5	0.0
Yellow	4.0	4.0	4.0	4.0	4.0	0.0
Red	1.0	1.0	1.0	1.0	1.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	3.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	18.4	105.1	26.6	113.3	20.0	39.5	20.0	39.5
Change Period, $(Y+R_c)$, s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway *(MAH)*, s	3.0	2.9	3.0	2.9	3.3	3.4	3.2	3.4
Queue Clearance Time (g_s), s	12.7	57.9	20.5	81.6	17.0	24.4	16.9	32.3
Green Extension Time (g_e), s	0.6	28.8	1.1	26.7	0.0	3.1	0.0	2.2
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	0.00	0.72	0.00	0.67	1.00	0.05	1.00	0.42

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate *(v)*, veh/h	310	2572	217	465	2510	124	528	232	342	332	114	492
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1740	1691	1609	1740	1708	1607	1740	1881	1372	1740	1827	1411
Queue Service Time (g_s), s	10.7	55.9	11.9	18.5	79.6	5.7	15.0	22.0	22.4	14.9	10.4	30.3
Cycle Queue Clearance Time (g_c), s	10.7	55.9	11.9	18.5	79.6	5.7	15.0	22.0	22.4	14.9	10.4	30.3
Capacity *(c)*, veh/h	354	3542	969	514	2903	1037	554	339	495	459	330	707
Volume-to-Capacity Ratio *(X)*	0.876	0.726	0.224	0.905	0.865	0.120	0.953	0.682	0.692	0.723	0.346	0.697
Available Capacity (c_a), veh/h	656	3542	969	994	3350	1177	554	384	559	459	373	773
Back of Queue *(Q)*, veh/ln (50th percentile)	7.6	22.7	4.4	11.4	32.5	2.1	8.2	11.1	8.2	7.0	5.0	11.2
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	0.96	0.00	0.00	1.59	0.00	0.00	2.75	0.00	0.00	3.52	0.00	0.00
Uniform Delay (d_1), s/veh	56.6	35.0	17.5	63.5	35.2	13.1	69.2	73.2	73.4	59.6	68.5	65.1
Incremental Delay (d_2), s/veh	2.8	0.7	0.0	2.5	2.1	0.0	26.6	3.0	2.3	4.8	0.2	1.9
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	59.4	35.7	17.6	66.0	37.3	13.1	95.8	76.2	75.7	64.4	68.7	67.0
Level of Service (LOS)	E	D	B	E	D	B	F	E	E	E	E	E
Approach Delay, s/veh / LOS	36.8	D		40.6	D		85.5	F		66.3	E	
Intersection Delay, s/veh / LOS	48.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.1	C	3.1	C	3.8	D	3.6	D
Bicycle LOS Score / LOS	1.8	A	2.2	B	2.3	B	2.0	B

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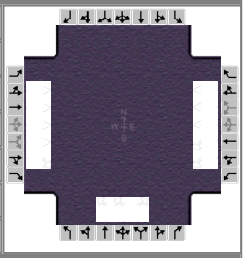
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/29/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	SW 8th Street / SW 112th A	Analysis Year	2012	Analysis Period	1> 7:00
File Name	Prop_2020_SW 8 ST & SW 112 AVE_REV.xus				
Project Description	Prop 2020 PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h		2847	668	293	2958		522		427			

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.0	0.0	0.0	0.0	0.0	0.0	1	2	3	4
Yellow	0.0	0.0	0.0	0.0	0.0	0.0	5	6	7	8
Red	0.0	0.0	0.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		
Case Number		7.3	2.0	4.0		9.0		
Phase Duration, s		57.7	17.3	75.0		35.0		
Change Period, $(Y+R_c)$, s		5.0	5.0	5.0		5.0		
Max Allow Headway *(MAH)*, s		0.0	0.0	0.0		0.0		
Queue Clearance Time (g_s), s		0.0	0.0	0.0		0.0		
Green Extension Time (g_e), s		0.0	0.0	0.0		0.0		
Phase Call Probability		0.00	0.00	0.00		0.00		
Max Out Probability		0.00	0.00	0.00		0.00		

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6		3		18			
Adjusted Flow Rate *(v)*, veh/h		0	0	0	0		0		0			
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		0	0	0	0		0		0			
Queue Service Time (g_s), s		0.0	0.0	0.0	0.0		0.0		0.0			
Cycle Queue Clearance Time (g_c), s		0.0	0.0	0.0	0.0		0.0		0.0			
Capacity *(c)*, veh/h		3273	761	389	3229		949		608			
Volume-to-Capacity Ratio *(X)*		0.946	0.954	0.818	0.996		0.598		0.763			
Available Capacity (c_a), veh/h		0	0	0	0		0		0			
Back of Queue *(Q)*, veh/ln (50th percentile)		19.0	21.2	4.2	26.6		6.8		11.6			
Overflow Queue (Q_3), veh/ln		0.0	0.0	0.0	0.0		0.0		0.0			
Queue Storage Ratio *(RQ)* (50th percentile)		0.00	2.13	0.53	0.00		0.00		0.00			
Uniform Delay (d_1), s/veh		27.3	27.5	47.7	19.9		34.8		29.5			
Incremental Delay (d_2), s/veh		6.7	21.9	1.8	14.8		0.7		5.1			
Initial Queue Delay (d_3), s/veh		0.0	0.0	0.0	0.0		0.0		0.0			
Control Delay *(d)*, s/veh		34.0	49.5	49.5	34.7		35.5		34.7			
Level of Service (LOS)		C	D	D	C		D		C			
Approach Delay, s/veh / LOS	37.0	D		36.0	D		35.1	D		0.0		
Intersection Delay, s/veh / LOS	36.3						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.8	C	0.7	A	3.7	D	3.4	C
Bicycle LOS Score / LOS	2.1	B	2.4	B		F		

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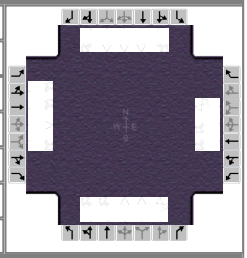
HCS 2010 Signalized Intersection Results Summary

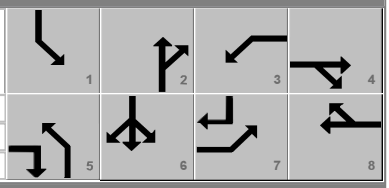
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/30/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	SW 107th Avenue / SW 16t	Analysis Year	2012	Analysis Period	1> 7:00
File Name	Prop_2020_SW 107 AVE & SW 16 ST.xus				
Project Description	Prop 2020 PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	480	362	224	581	259	207	262	1210	147	184	1511	368

Signal Information			
Cycle, s	122.2	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	0.0	0.0	0.0	0.0	0.0	0.0
Red	0.0	0.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	3.0	2.0	4.0	2.0	4.0	1.1	3.0
Phase Duration, s	15.0	45.0	15.0	45.0	17.2	46.2	16.1	45.0
Change Period, $(Y+R_c)$, s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway *(MAH)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Clearance Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase Call Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max Out Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0	0	0	0	0		0	0	0	0	0	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0	0	0	0	0		0	0	0	0	0	0
Queue Service Time (g_s), s	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clearance Time (g_c), s	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Capacity *(c)*, veh/h	288	616	684	285	570		348	1267	597	258	1677	658
Volume-to-Capacity Ratio *(X)*	1.815	0.639	0.356	2.219	0.889		0.818	0.791	0.791	0.777	0.979	0.608
Available Capacity (c_a), veh/h	0	0	0	0	0		0	0	0	0	0	0
Back of Queue *(Q)*, veh/ln (50th percentile)	19.7	10.4	4.9	26.5	16.7		4.3	13.7	13.4	3.9	18.4	9.1
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	2.14	0.00	0.94	2.90	0.00		0.45	0.00	0.00	0.33	0.00	0.61
Uniform Delay (d_1), s/veh	56.1	35.0	23.7	56.1	39.0		53.9	36.6	36.6	28.8	40.7	28.4
Incremental Delay (d_2), s/veh	380.1	1.7	0.1	559.6	15.3		1.8	3.2	6.6	2.5	17.2	1.2
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	436.2	36.7	23.8	615.7	54.3		55.7	39.8	43.2	31.3	57.9	29.6
Level of Service (LOS)	F	D	C	F	D		E	D	D	C	E	C
Approach Delay, s/veh / LOS	213.9	F		365.9	F		43.3	D		50.5	D	
Intersection Delay, s/veh / LOS	135.5						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.4	C	3.4	C	2.4	B	3.0	C
Bicycle LOS Score / LOS	2.4	B	2.4	B	1.5	A	1.7	A

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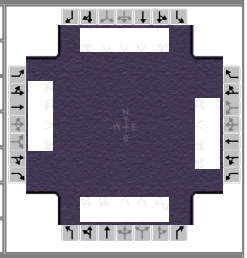
HCS 2010 Signalized Intersection Results Summary

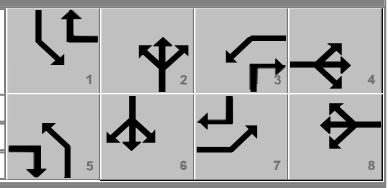
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/30/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	SW 107th Avenue / SW 16t	Analysis Year	2012	Analysis Period	1> 7:00
File Name	Prop_2020_SW 107 AVE & SW 16 ST_REV.xus				
Project Description	Prop 2020 PM Peak Hour- w/Capacity Improvements				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	480	362	175	581	259	207	167	1210	147	184	1511	215

Signal Information			
Cycle, s	111.2	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	10.0	39.2	10.0	32.0	0.0	0.0
Yellow	4.0	4.0	4.0	4.0	0.0	0.0
Red	1.0	1.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	1.1	3.0	1.1	4.0	1.1	3.0
Phase Duration, s	15.0	37.0	15.0	37.0	15.0	44.2	15.0	44.2
Change Period, $(Y+R_c)$, s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway *(MAH)*, s	3.3	3.3	3.2	3.3	3.1	3.0	3.1	3.0
Queue Clearance Time (g_s), s	12.0	22.9	12.0	15.9	5.4	28.1	9.7	35.9
Green Extension Time (g_e), s	0.0	2.4	0.0	2.5	0.3	7.6	0.2	3.2
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	0.02	1.00	0.00	0.00	0.61	0.00	0.94

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	522	393	190	632	282	225	182	1003	472	200	1642	234
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1757	1881	1595	1740	1881	1610	1740	1881	1773	1810	1708	1609
Queue Service Time (g_s), s	10.0	20.9	9.4	10.0	13.9	11.2	3.4	26.1	26.1	7.7	33.9	10.5
Cycle Queue Clearance Time (g_c), s	10.0	20.9	9.4	10.0	13.9	11.2	3.4	26.1	26.1	7.7	33.9	10.5
Capacity *(c)*, veh/h	741	542	604	609	542	608	464	1326	625	270	1807	712
Volume-to-Capacity Ratio *(X)*	0.705	0.727	0.315	1.037	0.520	0.370	0.391	0.756	0.756	0.741	0.909	0.328
Available Capacity (c_a), veh/h	741	677	718	609	677	724	779	1354	638	433	1844	724
Back of Queue *(Q)*, veh/ln (50th percentile)	2.0	10.0	3.6	7.6	6.4	4.3	1.3	11.8	11.5	3.2	14.6	3.8
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	0.22	0.00	0.70	0.84	0.00	0.00	0.14	0.00	0.00	0.27	0.00	0.25
Uniform Delay (d_1), s/veh	28.7	35.6	24.5	35.0	33.1	25.0	24.8	31.8	31.8	24.9	34.3	20.2
Incremental Delay (d_2), s/veh	2.6	2.0	0.1	46.4	0.3	0.1	0.2	2.2	4.5	1.5	6.8	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	31.3	37.6	24.6	81.5	33.4	25.2	25.0	33.9	36.3	26.5	41.1	20.3
Level of Service (LOS)	C	D	C	F	C	C	C	C	D	C	D	C
Approach Delay, s/veh / LOS	32.4	C		58.4	E		33.6	C		37.3	D	
Intersection Delay, s/veh / LOS	39.4						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.4	C	3.4	C	2.6	B	3.0	C
Bicycle LOS Score / LOS	2.3	B	2.4	B	1.4	A	1.6	A

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: MG
Agency/Co.: Miller Legg
Date Performed: 11/15/2012
Analysis Time Period: PM Peak Hour
Intersection: SW 112 Ave & University Dr
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2020
Project ID: 2020 PM Peak Analysis - No Improvements
East/West Street: University Drive
North/South Street: SW 112 Avenue
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	8	140	33	113	93	121
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR	8	140	33	113	93	121
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	2	0	0	2	0
Configuration	LT		TR	LT		TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	275	619	350	328	0
Peak Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR	0	275	619	350	328	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			No /
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT	LT		LTR			LTR	
v (vph)	8	113		894			678	
C(m) (vph)	1368	1412		652			91	
v/c	0.01	0.08		1.37			7.45	
95% queue length	0.02	0.26		38.87			76.69	
Control Delay	7.6	7.8		195.9			2992	
LOS	A	A		F			F	
Approach Delay				195.9			2992	
Approach LOS				F			F	

HCS+: Unsignalized Intersections Release 5.6

Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: MG
Agency/Co.: Miller Legg
Date Performed: 11/15/2012
Analysis Time Period: PM Peak Hour
Intersection: SW 112 Ave & University Dr
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2020
Project ID: 2020 PM Peak Analysis - No Improvements
East/West Street: University Drive
North/South Street: SW 112 Avenue
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	8	140	33	113	93	121
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Peak-15 Minute Volume	2	35	8	28	23	30
Hourly Flow Rate, HFR	8	140	33	113	93	121
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	2	0	0	2	0
Configuration	LT	TR		LT	TR	
Upstream Signal?		No			No	

Minor Street Movements	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	275	619	350	328	0
Peak Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Peak-15 Minute Volume	0	69	155	88	82	0
Hourly Flow Rate, HFR	0	275	619	350	328	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		No /
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	2	0

Lane Width (ft)	12.0	12.0	12.0	12.0
Walking Speed (ft/sec)	4.0	4.0	4.0	4.0
Percent Blockage	0	0	0	0

Upstream Signal Data

	Prog. Flow vph	Sat Flow vph	Arrival Type	Green Time sec	Cycle Length sec	Prog. Speed mph	Distance to Signal feet
S2 Left-Turn							
Through							
S5 Left-Turn							
Through							

Worksheet 3-Data for Computing Effect of Delay to Major Street Vehicles

	Movement 2	Movement 5
Shared ln volume, major th vehicles:	0	0
Shared ln volume, major rt vehicles:	0	0
Sat flow rate, major th vehicles:	1700	1700
Sat flow rate, major rt vehicles:	1700	1700
Number of major street through lanes:	2	2

Worksheet 4-Critical Gap and Follow-up Time Calculation

Critical Gap Calculation

Movement	1 L	4 L	7 L	8 T	9 R	10 L	11 T	12 R
t(c,base)	4.1	4.1	7.5	6.5	6.2	7.5	6.5	6.2
t(c,hv)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
P(hv)	0	0	0	0	0	0	0	0
t(c,g)			0.20	0.20	0.10	0.20	0.20	0.10
Percent Grade			0.00	0.00	0.00	0.00	0.00	0.00
t(3,lt)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
t(c,T): 1-stage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-stage	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
t(c) 1-stage	4.1	4.1	7.5	6.5	6.2	7.5	6.5	6.2
2-stage								

Follow-Up Time Calculations

Movement	1 L	4 L	7 L	8 T	9 R	10 L	11 T	12 R
t(f,base)	2.20	2.20	3.50	4.00	3.30	3.50	4.00	3.30
t(f,HV)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P(HV)	0	0	0	0	0	0	0	0
t(f)	2.2	2.2	3.5	4.0	3.3	3.5	4.0	3.3

Worksheet 5-Effect of Upstream Signals

Computation 1-Queue Clearance Time at Upstream Signal

	Movement 2		Movement 5	
	V(t)	V(l,prot)	V(t)	V(l,prot)
V prog				

Total Saturation Flow Rate, s (vph)
Arrival Type
Effective Green, g (sec)
Cycle Length, C (sec)
Rp (from Exhibit 16-11)
Proportion vehicles arriving on green P
g(q1)
g(q2)
g(q)

Computation 2-Proportion of TWSC Intersection Time blocked	Movement 2		Movement 5	
	V(t)	V(l,prot)	V(t)	V(l,prot)
alpha				
beta				
Travel time, t(a) (sec)				
Smoothing Factor, F				
Proportion of conflicting flow, f				
Max platooned flow, V(c,max)				
Min platooned flow, V(c,min)				
Duration of blocked period, t(p)				
Proportion time blocked, p	0.000		0.000	

Computation 3-Platoon Event Periods	Result
p(2)	0.000
p(5)	0.000
p(dom)	
p(subo)	
Constrained or unconstrained?	

Proportion unblocked for minor movements, p(x)	(1) Single-stage Process	(2) Two-Stage Process Stage I	(3) Two-Stage Process Stage II
p(1)			
p(4)			
p(7)			
p(8)			
p(9)			
p(10)			
p(11)			
p(12)			

Computation 4 and 5
Single-Stage Process

Movement	1	4	7	8	9	10	11	12
	L	L	L	T	R	L	T	R
V c,x	214	175	610	614	88	604	571	107
s								
Px								
V c,u,x								
C r,x								
C plat,x								

Two-Stage Process

7	8	10	11

	Stage1	Stage2	Stage1	Stage2	Stage1	Stage2	Stage1	Stage2
V(c,x)								
s		3000		3000		3000		3000
P(x)								
V(c,u,x)								
C(r,x)								
C(plat,x)								

Worksheet 6-Impedance and Capacity Equations

Step 1: RT from Minor St.	9	12
Conflicting Flows	88	107
Potential Capacity	976	953
Pedestrian Impedance Factor	1.00	1.00
Movement Capacity	974	953
Probability of Queue free St.	0.36	1.00
Step 2: LT from Major St.	**4**	**1**
Conflicting Flows	175	214
Potential Capacity	1414	1368
Pedestrian Impedance Factor	1.00	1.00
Movement Capacity	1412	1368
Probability of Queue free St.	0.92	0.99
Maj L-Shared Prob Q free St.	0.92	0.99
Step 3: TH from Minor St.	**8**	**11**
Conflicting Flows	614	571
Potential Capacity	410	434
Pedestrian Impedance Factor	1.00	1.00
Cap. Adj. factor due to Impeding mvmnt	0.91	0.91
Movement Capacity	374	396
Probability of Queue free St.	0.26	0.17
Step 4: LT from Minor St.	**7**	**10**
Conflicting Flows	610	604
Potential Capacity	383	386
Pedestrian Impedance Factor	1.00	1.00
Maj. L, Min T Impedance factor	0.16	0.24
Maj. L, Min T Adj. Imp Factor.	0.29	0.38
Cap. Adj. factor due to Impeding mvmnt	0.29	0.14
Movement Capacity	111	53

Worksheet 7-Computation of the Effect of Two-stage Gap Acceptance

Step 3: TH from Minor St.	8	11
Part 1 - First Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Probability of Queue free St.		

Part 2 - Second Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 3 - Single Stage		
Conflicting Flows	614	571
Potential Capacity	410	434
Pedestrian Impedance Factor	1.00	1.00
Cap. Adj. factor due to Impeding mvmnt	0.91	0.91
Movement Capacity	374	396
Result for 2 stage process:		
a		
y		
C t	374	396
Probability of Queue free St.	0.26	0.17
Step 4: LT from Minor St.	7	10
Part 1 - First Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 2 - Second Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 3 - Single Stage		
Conflicting Flows	610	604
Potential Capacity	383	386
Pedestrian Impedance Factor	1.00	1.00
Maj. L, Min T Impedance factor	0.16	0.24
Maj. L, Min T Adj. Imp Factor.	0.29	0.38
Cap. Adj. factor due to Impeding mvmnt	0.29	0.14
Movement Capacity	111	53
Results for Two-stage process:		
a		
y		
C t	111	53

Worksheet 8-Shared Lane Calculations

Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (vph)	0	275	619	350	328	0
Movement Capacity (vph)	111	374	974	53	396	953
Shared Lane Capacity (vph)		652			91	

Worksheet 9-Computation of Effect of Flared Minor Street Approaches

Movement	7	8	9	10	11	12
	L	T	R	L	T	R
C sep	111	374	974	53	396	953
Volume	0	275	619	350	328	0
Delay						
Q sep						
Q sep +1						
round (Qsep +1)						
n max						
C sh		652			91	
SUM C sep						
n						
C act						

Worksheet 10-Delay, Queue Length, and Level of Service

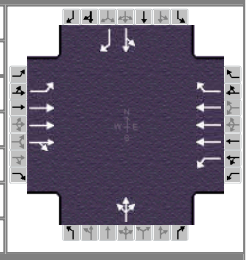
Movement	1	4	7	8	9	10	11	12
Lane Config	LT	LT		LTR			LTR	
v (vph)	8	113		894			678	
C(m) (vph)	1368	1412		652			91	
v/c	0.01	0.08		1.37			7.45	
95% queue length	0.02	0.26		38.87			76.69	
Control Delay	7.6	7.8		195.9			2992	
LOS	A	A		F			F	
Approach Delay				195.9			2992	
Approach LOS				F			F	

Worksheet 11-Shared Major LT Impedance and Delay

	Movement 2	Movement 5
p(oj)	0.99	0.92
v(il), Volume for stream 2 or 5	0	0
v(i2), Volume for stream 3 or 6	0	0
s(il), Saturation flow rate for stream 2 or 5	1700	1700
s(i2), Saturation flow rate for stream 3 or 6	1700	1700
P*(oj)	0.99	0.92
d(M,LT), Delay for stream 1 or 4	7.6	7.8
N, Number of major street through lanes	2	2
d(rank,1) Delay for stream 2 or 5		

HCS 2010 Signalized Intersection Results Summary

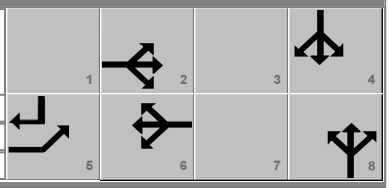
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	11/29/2012	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	Flagler Street / SW 105th F	Analysis Year	2012	Analysis Period	1> 7:00
File Name	Prop_2020_FLAGLER ST & SW 105 PL.xus				
Project Description	Prop 2020 PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	36	1713	36	54	1695	36	46	2	53	89	30	97

Signal Information			
Cycle, s	106.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.8	40.0	20.0	19.2	0.0	0.0
Yellow	4.0	4.0	4.0	4.0	0.0	0.0
Red	1.0	1.0	1.0	1.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6		8		4
Case Number	1.0	4.0		5.3		12.0		11.0
Phase Duration, s	11.8	56.8		45.0		24.2		25.0
Change Period, $(Y+R_c)$, s	5.0	5.0		5.0		5.0		5.0
Max Allow Headway *(MAH)*, s	3.1	3.2		3.2		3.3		3.4
Queue Clearance Time (g_s), s	3.3	30.1		42.0		9.2		8.5
Green Extension Time (g_e), s	0.0	7.9		0.0		0.1		0.4
Phase Call Probability	0.68	1.00		1.00		0.96		1.00
Max Out Probability	0.00	0.81		1.00		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate *(v)*, veh/h	39	1272	629	59	1842	39		110			129	105
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1810	1863	1842	241	1708	1602		1439			1832	1579
Queue Service Time (g_s), s	1.3	28.1	28.1	23.7	37.1	1.7		7.2			6.5	5.7
Cycle Queue Clearance Time (g_c), s	1.3	28.1	28.1	40.0	37.1	1.7		7.2			6.5	5.7
Capacity *(c)*, veh/h	191	1821	901	122	1933	604		261			345	399
Volume-to-Capacity Ratio *(X)*	0.204	0.698	0.699	0.482	0.953	0.065		0.421			0.375	0.264
Available Capacity (c_a), veh/h	416	1821	901	122	1933	604		271			345	400
Back of Queue *(Q)*, veh/ln (50th percentile)	0.5	11.5	11.7	1.6	16.4	0.6		2.6			3.0	2.2
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	0.04	0.00	0.00	0.65	0.00	0.12		0.00			0.00	0.00
Uniform Delay (d_1), s/veh	23.8	21.0	21.0	42.1	32.1	21.1		38.5			37.6	31.7
Incremental Delay (d_2), s/veh	0.2	1.0	2.0	1.1	11.3	0.0		0.4			0.3	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0
Control Delay *(d)*, s/veh	24.0	22.0	23.1	43.2	43.4	21.1		38.9			37.8	31.8
Level of Service (LOS)	C	C	C	D	D	C		D			D	C
Approach Delay, s/veh / LOS	22.4	C		42.9	D		38.9	D		35.1	D	
Intersection Delay, s/veh / LOS	33.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.1	B	2.3	B	3.4	C	3.3	C
Bicycle LOS Score / LOS	1.6	A	1.6	A	0.7	A	0.9	A

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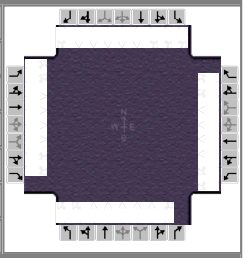
HCS 2010 Signalized Intersection Results Summary

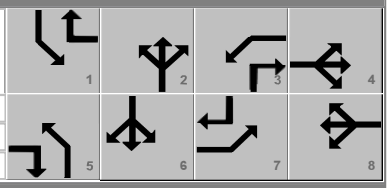
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	2/13/2013	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	Biscayne Blvd / NE 151 St	Analysis Year	2013	Analysis Period	1> 7:00
File Name	Prop_2020_NE 151 ST & BISCAYNE BLVD_REV.xus				
Project Description	Prop 2020 PM Peak Hour-w/improvements				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	175	1468	397	389	1652	538	444	3040	417	902	2719	246

Signal Information			
Cycle, s	119.3	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.0	0.0	0.0	0.0	0.0	0.0	
Yellow	0.0	0.0	0.0	0.0	0.0	0.0	
Red	0.0	0.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	11.9	34.4	15.0	37.6	19.5	45.0	24.8	50.4
Change Period, $(Y+R_c)$, s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway *(MAH)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Clearance Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase Call Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max Out Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0	0	0	0	0	0	0	0	0	0	0	0
Queue Service Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clearance Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capacity *(c)*, veh/h	328	1704	1049	424	1886	1252	554	2893	675	1057	3281	705
Volume-to-Capacity Ratio *(X)*	0.580	0.937	0.411	0.997	0.952	0.441	0.871	1.142	0.623	0.927	0.901	0.333
Available Capacity (c_a), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Back of Queue *(Q)*, veh/ln (50th percentile)	2.0	12.3	4.4	6.8	13.9	5.2	4.9	28.1	9.8	10.8	16.6	4.3
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	0.25	0.00	0.00	0.68	0.00	0.00	0.31	0.00	0.00	0.90	0.00	0.00
Uniform Delay (d_1), s/veh	34.1	44.0	28.1	33.3	42.6	23.2	32.3	39.6	27.2	37.6	34.8	22.1
Incremental Delay (d_2), s/veh	0.6	9.9	0.1	42.9	11.4	0.1	7.7	68.6	1.3	13.2	3.8	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	34.7	53.9	28.2	76.2	53.9	23.3	40.0	108.3	28.6	50.8	38.6	22.2
Level of Service (LOS)	C	D	C	E	D	C	D	F	C	D	D	C
Approach Delay, s/veh / LOS	47.2	D		51.2	D		92.5	F		40.5	D	
Intersection Delay, s/veh / LOS	60.2						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	4.2	D	4.3	E	3.9	D	3.9	D
Bicycle LOS Score / LOS	1.4	A	1.6	A	1.9	A	1.9	A

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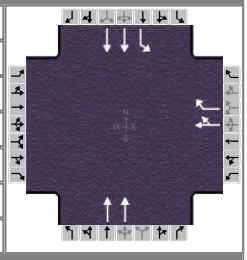
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	2/13/2013	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	NE 151st ST /Golden Pantl	Analysis Year	2013	Analysis Period	1> 7:00
File Name	Prop_2020_NE 151 ST & Golden_Panther_Dr.xus				
Project Description	Prop 2020 PM Peak Hour - with improvements				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h					5	736		847		416	417	

Signal Information			
Cycle, s	56.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.0	0.0	0.0	0.0	0.0	0.0	1	2	3	4
Yellow	0.0	0.0	0.0	0.0	0.0	0.0	5	6	7	8
Red	0.0	0.0	0.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6	5	2
Case Number				11.0		8.3	1.0	4.0
Phase Duration, s				17.0		23.6	16.0	39.6
Change Period, $(Y+R_c)$, s				5.0		5.0	5.0	5.0
Max Allow Headway *(MAH)*, s				0.0		0.0	0.0	0.0
Queue Clearance Time (g_s), s				0.0		0.0	0.0	0.0
Green Extension Time (g_e), s				0.0		0.0	0.0	0.0
Phase Call Probability				0.00		0.00	0.00	0.00
Max Out Probability				0.00		0.00	0.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement					4	14		6		5	2	
Adjusted Flow Rate *(v)*, veh/h					0	0		0		0	0	
Adjusted Saturation Flow Rate *(s)*, veh/h/ln					0	0		0		0	0	
Queue Service Time (g_s), s					0.0	0.0		0.0		0.0	0.0	
Cycle Queue Clearance Time (g_c), s					0.0	0.0		0.0		0.0	0.0	
Capacity *(c)*, veh/h					403	655		1186		541	2211	
Volume-to-Capacity Ratio *(X)*					0.013	1.221		0.776		0.836	0.205	
Available Capacity (c_a), veh/h					0	0		0		0	0	
Back of Queue *(Q)*, veh/ln (50th percentile)					0.1	27.4		4.7		2.7	0.8	
Overflow Queue (Q_3), veh/ln					0.0	0.0		0.0		0.0	0.0	
Queue Storage Ratio *(RQ)* (50th percentile)					0.00	0.00		0.00		0.00	0.00	
Uniform Delay (d_1), s/veh					17.6	16.8		17.1		10.7	4.9	
Incremental Delay (d_2), s/veh					0.0	112.6		0.4		2.7	0.0	
Initial Queue Delay (d_3), s/veh					0.0	0.0		0.0		0.0	0.0	
Control Delay *(d)*, s/veh					17.6	129.4		17.6		13.4	4.9	
Level of Service (LOS)					B	F		B		B	A	
Approach Delay, s/veh / LOS	0.0			128.7		F	17.6		B	9.2		A
Intersection Delay, s/veh / LOS	48.7						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.8	C	2.3	B	1.9	A
Bicycle LOS Score / LOS			1.8	A	1.2	A	1.2	A

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Phone: Fax:
E-Mail:

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: MG
Agency/Co.: Miller Legg
Date Performed: 3/13/2013
Analysis Time Period: PM Peak Hour
Intersection: NE 151st ST / NE 145th ST
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2020
Project ID: Prop 2020 PM Peak Hour - reduced traffic -secondary entrance
East/West Street: NE 145th Street
North/South Street: NE 151th Street

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	0	0	0	0	0	245	0	418	0	139	274	0
% Thrus Left Lane									50			50

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration			L	R	T	TR	T	T
PHF			1.00	1.00	1.00	1.00	1.00	1.00
Flow Rate			0	245	209	209	137	137
% Heavy Veh			0	0	0	0	0	0
No. Lanes			2		2		2	
Opposing-Lanes			0		2		2	
Conflicting-lanes			2		2		2	
Geometry group			1		5		5	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane			0	245	209	209	137	137
Left-Turn			0	0	0	0	0	0
Right-Turn			0	245	0	0	0	0
Prop. Left-Turns			0.0	0.0	0.0	0.0	0.0	0.0
Prop. Right-Turns			0.0	1.0	0.0	0.0	0.0	0.0
Prop. Heavy Vehicle			0.0	0.0	0.0	0.0	0.0	0.0
Geometry Group			1		5		5	
Adjustments Exhibit 17-33:								
hLT-adj			0.2		0.5		0.5	

hRT-adj			-0.6		-0.7		-0.7	
hHV-adj			1.7		1.7		1.7	
hadj, computed			0.0	-0.6	0.0	0.0	0.0	0.0

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate			0	245	209	209	137	137
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial			0.00	0.22	0.19	0.19	0.12	0.12
hd, final value			5.46	4.86	5.47	5.47	5.63	5.63
x, final value			0.00	0.33	0.32	0.32	0.21	0.21
Move-up time, m				2.0		2.3		2.3
Service Time			3.5	2.9	3.2	3.2	3.3	3.3

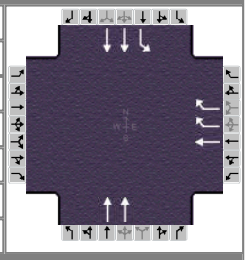
Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate			0	245	209	209	137	137
Service Time			3.5	2.9	3.2	3.2	3.3	3.3
Utilization, x			0.00	0.33	0.32	0.32	0.21	0.21
Dep. headway, hd			5.46	4.86	5.47	5.47	5.63	5.63
Capacity			0	495	459	459	387	387
Delay			8.46	10.24	10.69	10.69	9.86	9.86
LOS			A	B	B	B	A	A
Approach:								
Delay				10.24		10.69		9.86
LOS				B		B		A

Intersection Delay 10.33 Intersection LOS B

HCS 2010 Signalized Intersection Results Summary

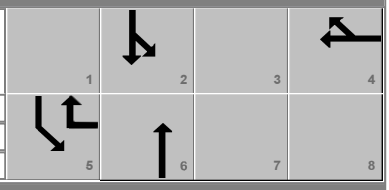
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	2/13/2013	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Intersection	NE 151st ST / NE 145th ST	Analysis Year	2013	Analysis Period	1> 7:00
File Name	Prop_2020_NE 151 ST & NE_145_St_REV.xus				
Project Description	Prop 2020 PM Peak Hour - with improvements				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h					5	981		1063		555	488	

Signal Information			
Cycle, s	74.1	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	20.0	27.1	12.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6	5	2
Case Number				11.0		8.3	1.0	4.0
Phase Duration, s				17.0		32.1	25.0	57.1
Change Period, *(Y+R$_c$)*, s				5.0		5.0	5.0	5.0
Max Allow Headway *(MAH)*, s				3.4		3.0	3.1	3.0
Queue Clearance Time *(g$_s$)*, s				14.0		24.1	21.0	5.8
Green Extension Time *(g$_e$)*, s				0.0		3.0	0.0	4.8
Phase Call Probability				1.00		1.00	1.00	1.00
Max Out Probability				1.00		0.07	1.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement					4	14		6		5	2	
Adjusted Flow Rate *(v)*, veh/h					5	1066		1155		603	530	
Adjusted Saturation Flow Rate *(s)*, veh/h/ln					1900	1425		1809		1810	1809	
Queue Service Time *(g$_s$)*, s					0.2	12.0		22.1		19.0	3.8	
Cycle Queue Clearance Time *(g$_c$)*, s					0.2	12.0		22.1		19.0	3.8	
Capacity *(c)*, veh/h					308	1232		1322		619	2543	
Volume-to-Capacity Ratio *(X)*					0.018	0.866		0.874		0.974	0.209	
Available Capacity *(c$_a$)*, veh/h					308	1232		1954		619	2543	
Back of Queue *(Q)*, veh/ln (50th percentile)					0.1	8.4		8.9		14.5	0.9	
Overflow Queue *(Q$_3$)*, veh/ln					0.0	0.0		0.0		0.0	0.0	
Queue Storage Ratio *(RQ)* (50th percentile)					0.00	0.00		0.00		0.00	0.00	
Uniform Delay *(d$_1$)*, s/veh					26.1	19.1		21.9		19.1	3.8	
Incremental Delay *(d$_2$)*, s/veh					0.0	6.4		2.3		29.5	0.0	
Initial Queue Delay *(d$_3$)*, s/veh					0.0	0.0		0.0		0.0	0.0	
Control Delay *(d)*, s/veh					26.1	25.5		24.2		48.6	3.8	
Level of Service (LOS)					C	C		C		D	A	
Approach Delay, s/veh / LOS	0.0			25.5		C	24.2		C	27.6		C
Intersection Delay, s/veh / LOS	25.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.9	C	2.4	B	1.8	A
Bicycle LOS Score / LOS			2.3	B	1.4	A	1.4	A

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