

**Pedestrian & Bicycle Safety Network Screening  
Field Review and Countermeasure Evaluation Report  
SR 932/NW 103 Street  
From SR 826 to West 4 Avenue**

Section Number: 87038000

Mile Post: 1.156 – 3.150

City of Hialeah, FL

FM No. 434664-1-32-01

Contract No. C9V59

Task Work Order No. 30

Prepared for:



Florida Department of Transportation – District 6  
1000 NW 111 Avenue  
Miami, FL 33172

Prepared by:

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Doral, FL 33126

**July 2022**

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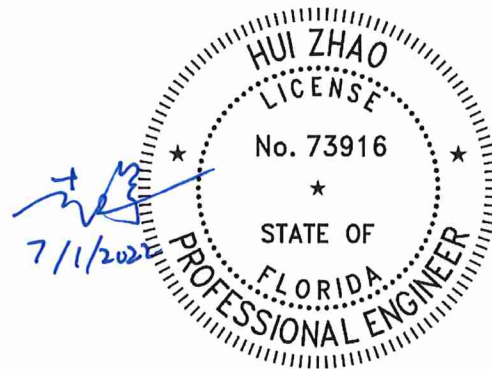
**SECTION 87038000, MP 1.156 TO MP 3.150  
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July 2022

PREPARED FOR

**Florida Department of Transportation, District 6**  
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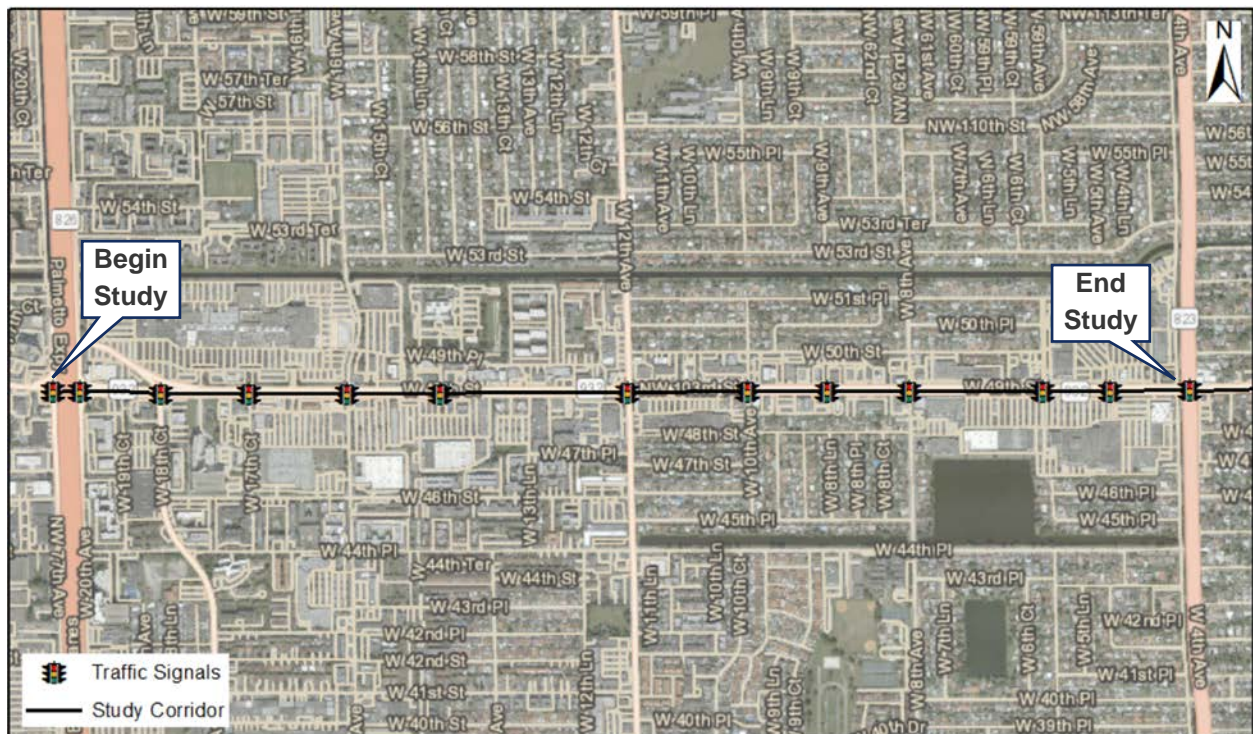
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## INTRODUCTION

The Florida Department of Transportation (FDOT) District 6, Traffic Operations Office (Department) has retained CTS Engineering, Inc. (CTS) to conduct a pedestrian/bicycle assessment along SR 932/NW 103 Street from SR 826 to West 4 Avenue. The Central Office, in collaboration with District Traffic Operations Offices, Pedestrian/Bicycle Coordinators and Planning Staff, has identified 30 corridors through network screening process which are at risk of pedestrian/bicycle fatal/severe injury crashes and require appropriate engineering countermeasures. The study corridor, SR 932/NW 103 Street from SR 826 to West 4 Avenue, was one of the pedestrian/bicycle priority corridors identified by Central Office for investigation and potential countermeasures, as needed. The purpose of this study was to collect corridor specific data; review pedestrian/bicycle crash data; conduct field reviews; identify potential countermeasures to improve pedestrian and bicycle safety; evaluate proposed countermeasures for expected effectiveness. A map identifying the study corridor is shown in **Figure 1**.

Figure 1: Corridor Map



## CORRIDOR OVERVIEW

SR 932/NW 103 Street is an east-west roadway within the study limits in Miami-Dade County. NW 103 Street is identified as Section 87038000 on the State Highway System and beginning of project limits (SR 826) is located at milepost (MP) 1.156 and end of project limits (West 4 Avenue) is located at MP 3.150. An overview of the intersections including information regarding bus stops, shelters, pushbuttons, light poles etc. is indicated in **Table 1**. The roadway characteristics within the study limits are presented as follows.

### Roadway Characteristics

- The study corridor is a six-lane divided roadway.
- Signalized intersections in the study are at the following locations:
  - SR 826 (crosswalk exists on north and south legs for both west and east intersections)
  - West 18 Court (crosswalk exists on east, north and south legs)
  - West 17 Court (crosswalk exists on all four legs)
  - West 16 Avenue (crosswalk exists on all four legs)
  - West 14 Lane (crosswalk exists on all four legs)
  - West 12 Avenue (crosswalk exists on all four legs)
  - West 10 Avenue (crosswalk exists on all four legs)
  - West 900 Block (mid-block crosswalk exists on west leg)
  - West 8 Avenue (crosswalk exists on all four legs)
  - West 6 Avenue (crosswalk exists on all four legs)
  - West 500 Block (crosswalk exists on all four legs)
  - West 4 Avenue (crosswalk exists on all four legs)
- Posted speed limit: 40 MPH.
- Functional classification: 14 – Urban Principal Arterial Other.
- Access classification: Class 5.
- Lane width: 11 feet.
- Raised curb, sidewalk, and roadway light poles exist on both sides of NW 103 Street.



Table 1: Corridor Overview by Intersection

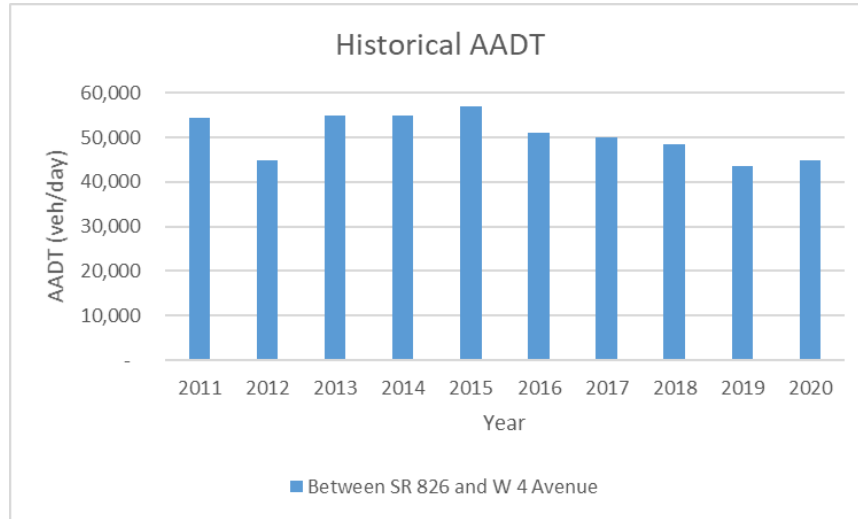
Intersection	Approach	LPI	Bus Stop	Bus Shelter	Bus Bench	Crosswalk	Push Buttons	Light Poles
SR 826 W	East	N/A	No	No	No	No	No	No
	West		Yes	No	Yes	No	No	No
	North		No	No	No	Yes	No	Yes
	South		No	No	No	Yes	No	Yes
SR 826 E	East	N/A	No	No	No	No	No	No
	West		No	No	No	No	No	No
	North		No	No	No	Yes	No	Yes
	South		No	No	No	Yes	No	Yes
W 18 Court	East	N/A	No	No	No	Yes	Yes	Yes
	West		Yes	No	Yes	No	No	No
	North		No	No	No	Yes	No	Yes
	South		No	No	No	Yes	No	No
W 17 Court	East	N/A	Yes	Yes	No	Yes	Yes	Yes
	West		Yes	No	Yes	Yes	Yes	Yes
	North		No	No	No	Yes	No	No
	South		No	No	No	Yes	No	No
W 16 Avenue	East	N/A	Yes	No	Yes	Yes	Yes	Yes
	West		Yes	Yes	No	Yes	Yes	Yes
	North		Yes	No	Yes	Yes	No	Yes
	South		Yes	Yes	No	Yes	No	Yes
W 14 Lane	East	N/A	Yes	No	Yes	Yes	Yes	No
	West		Yes	No	Yes	Yes	Yes	Yes
	North		No	No	No	Yes	No	No
	South		No	No	No	Yes	No	No
W 12 Avenue	East	N/A	Yes	Yes	No	Yes	Yes	No
	West		Yes	No	Yes	Yes	Yes	No
	North		Yes	No	Yes	Yes	No	No
	South		Yes	No	Yes	Yes	No	No
W 10 Avenue	East	N/A	No	No	No	Yes	Yes	Yes
	West		Yes	No	Yes	Yes	Yes	Yes
	North		No	No	No	Yes	No	No
	South		No	No	No	Yes	No	No
W 900 Block	East	N/A	Yes	No	Yes	No	No	No
	West		Yes	No	Yes	Yes	Yes	Yes
W 8 Avenue	East	N/A	No	No	No	Yes	Yes	No
	West		Yes	Yes	No	Yes	Yes	Yes
	North		No	No	No	Yes	No	Yes
	South		Yes	No	Yes	Yes	No	No
W 6 Avenue	East	N/A	Yes	No	Yes	Yes	Yes	Yes
	West		Yes	No	Yes	Yes	Yes	Yes
	North		No	No	No	Yes	No	No
	South		No	No	No	Yes	No	No
W 500 Block	East	N/A	Yes	No	Yes	Yes	Yes	Yes
	West		No	No	No	Yes	Yes	Yes
	North		No	No	No	Yes	No	No
	South		No	No	No	Yes	No	No
W 4 Avenue	East	N/A	No	No	No	Yes	No	Yes
	West		Yes	No	Yes	Yes	No	Yes
	North		No	No	No	Yes	No	Yes
	South		No	No	No	Yes	No	Yes





## Annual Average Daily Traffic

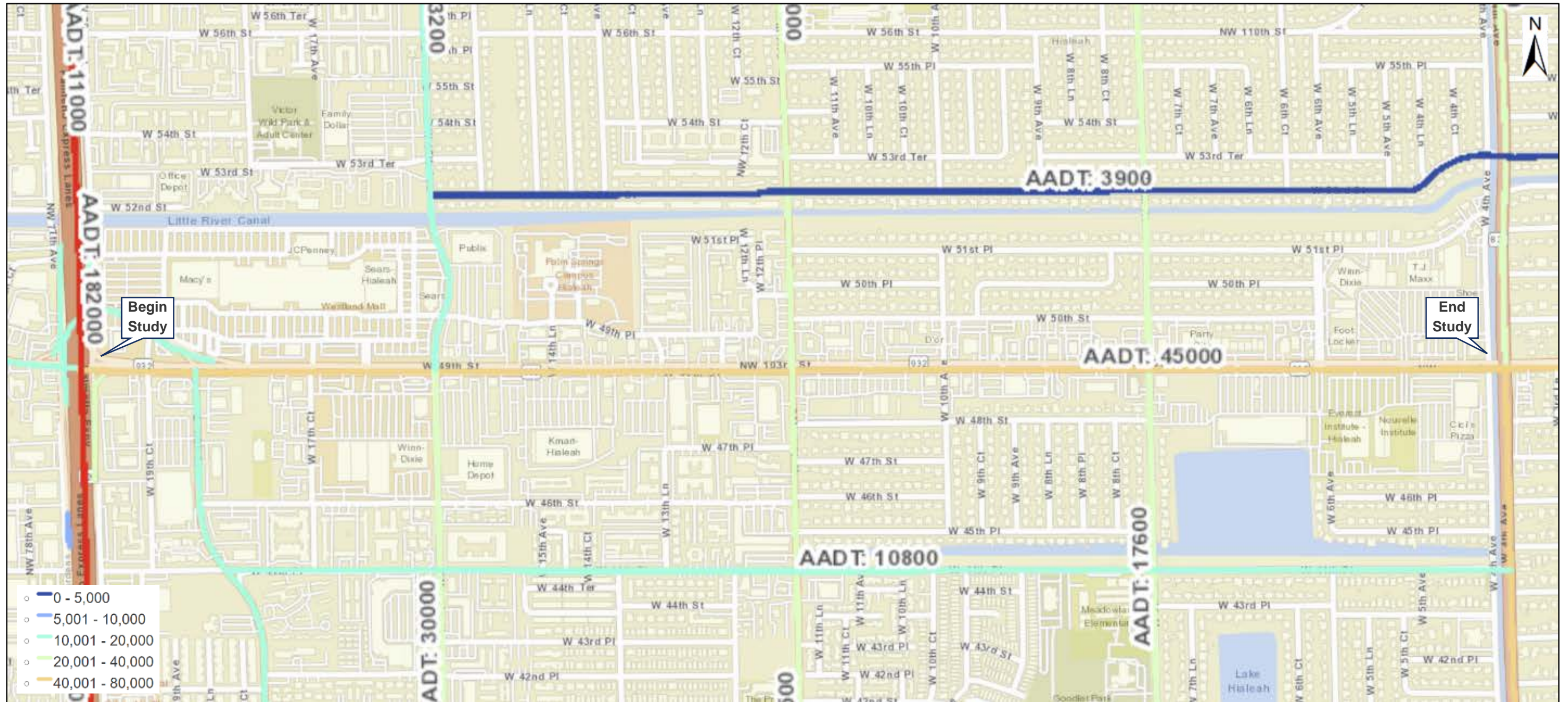
The historical AADT from 2011 to 2020 obtained from Florida Traffic Online (2020) per FDOT Portable Traffic Monitoring Site (PTMS) 871216 (SR 932/NW 103 Street, 400 feet east of West 16 Avenue) for the study corridor is shown below. Figure 2 shows 2020 AADT along SR 932 within the study limits.



*Note: Historical AADT from PTMS 871216*



Figure 2: 2020 AADT Along SR 932/NW 103 Street Within Study Limits



## Truck Traffic

- Truck percentage ranges between 7.7% and 9.2% for the last five years (2016-2020) per FDOT Portable Traffic Monitoring Site (PTMS) 871216 (SR 932/NW 103 Street, 400 feet east of West 16 Avenue).
- Based on a three-day synopsis report downloaded from Florida Traffic Online, the westbound truck percentage was higher than eastbound at the count station (871216). The split could be because of the various big box retail stores and malls on the north side of NW 103 Street for which trucks route themselves to access westbound right-in and right-out eventually accessing SR 826. Below is a table showing the truck percentage by day and direction.

Date	Eastbound	Westbound	Combined Directions
11/10/2020	3.02%	14.22%	8.46%
11/11/2020	3.93%	15.50%	9.49%
11/12/2020	2.26%	17.32%	9.68%



## Transit

Miami-Dade Transit (MDT) Bus Route 33 and Route 54 operate along NW 103 Street within the study limits. Most of the bus stops within the study limits do not have shelters. Some bus stops have only bench and some without any bus amenities. A condition sketch depicting the existing conditions along the study corridor is included in **Appendix A**.

For MDT Bus Route 33 and Route 54, boarding and alighting data at the bus stops within the study limits was obtained for September, October, and November in 2021 from Miami-Dade Transit Authority (MDTA). Figure 3 shows the bus routes and stops along SR 932 within the study limits. **Table 2** summarizes the average boardings and alightings at the bus stops for Route 33 within the study limits. As shown in Table 2, the highest number of boardings and alightings appear to occur at eastbound/westbound bus stops at West 16 Avenue (highlighted in gray) followed by eastbound/westbound bus stops at West 12 Avenue.

Table 2: Average Boardings/Alightings per Day at Bus Stops (Route 33)

Intersection	Direction	Stops	Sep-2021		Oct-2021		Nov-2021	
			On	Off	On	Off	On	Off
SR 826 West	EB	NW 103 ST & NW 77 AV	18	1	24	0	20	1
W 18 Court	EB	W 49 ST & W 18 CT	13	1	11	2	11	1
W 17 Court	EB	W 49 ST & W 17 CT	32	6	34	7	32	5
	WB	W 49 ST & W 17 CT (WESTLAND)	2	21	3	22	5	21
W 16 Avenue	EB	W 49 ST & W 16 AV	43	4	42	3	42	5
	WB	W 49 ST & W 16 AV	6	52	6	53	6	49
W 14 Lane	EB	W 49 ST & W 14 LN	14	2	21	4	19	3
	WB	W 49 ST & W 14 LN	2	26	2	23	1	23
W 13 Lane	EB	W 49 ST & W 13 LN	7	2	9	2	9	2
	WB	W 49 ST & W 13 LN	1	6	2	4	1	6
W 12 Avenue	EB	W 49 ST & W 12 AV	39	11	38	12	32	10
	WB	W 49 ST & W 12 AV	8	36	9	48	8	42
W 10 Avenue	EB	W 49 ST & W 10 AV	8	4	9	2	7	2
	WB	W 49 ST & W 10 AV	2	10	2	12	4	13
W 900 Block	EB	W 49 ST & # 950 (APPROX)	4	4	4	3	5	3
	WB	W 49 ST & # 901	4	5	2	4	3	4
W 8 Avenue	EB	W 49 ST & W 8 AV	2	0	1	0	1	0
	WB	W 49 ST & W 8 AV	6	16	5	13	7	13
East of W 8 Avenue	EB	W 49 ST & W 8 AV	15	4	18	6	18	4
	WB	W 49 ST & #775(5)	1	2	0	1	1	1
W 6 Avenue	EB	W 49 ST & W 6 AV	21	11	19	10	23	10
	WB	W 49 ST & W 6 AV	5	12	6	12	5	10
W 500 Block	EB	W 49 ST & W 6 AV	21	9	20	10	21	8
W 4 Avenue	WB	W 49 ST & W 4 AV	8	30	14	31	10	31
	EB	W 49 ST & W 3 LN	3	2	3	3	5	3

**Table 3** summarizes the average boardings and alightings at the bus stops for Route 54 within the study limits. As shown in Table 3, the highest number of boardings and alightings appear to occur at eastbound/westbound bus stops at West 16 Avenue (highlighted in grey) followed by eastbound/westbound bus stops at West 12 Avenue.

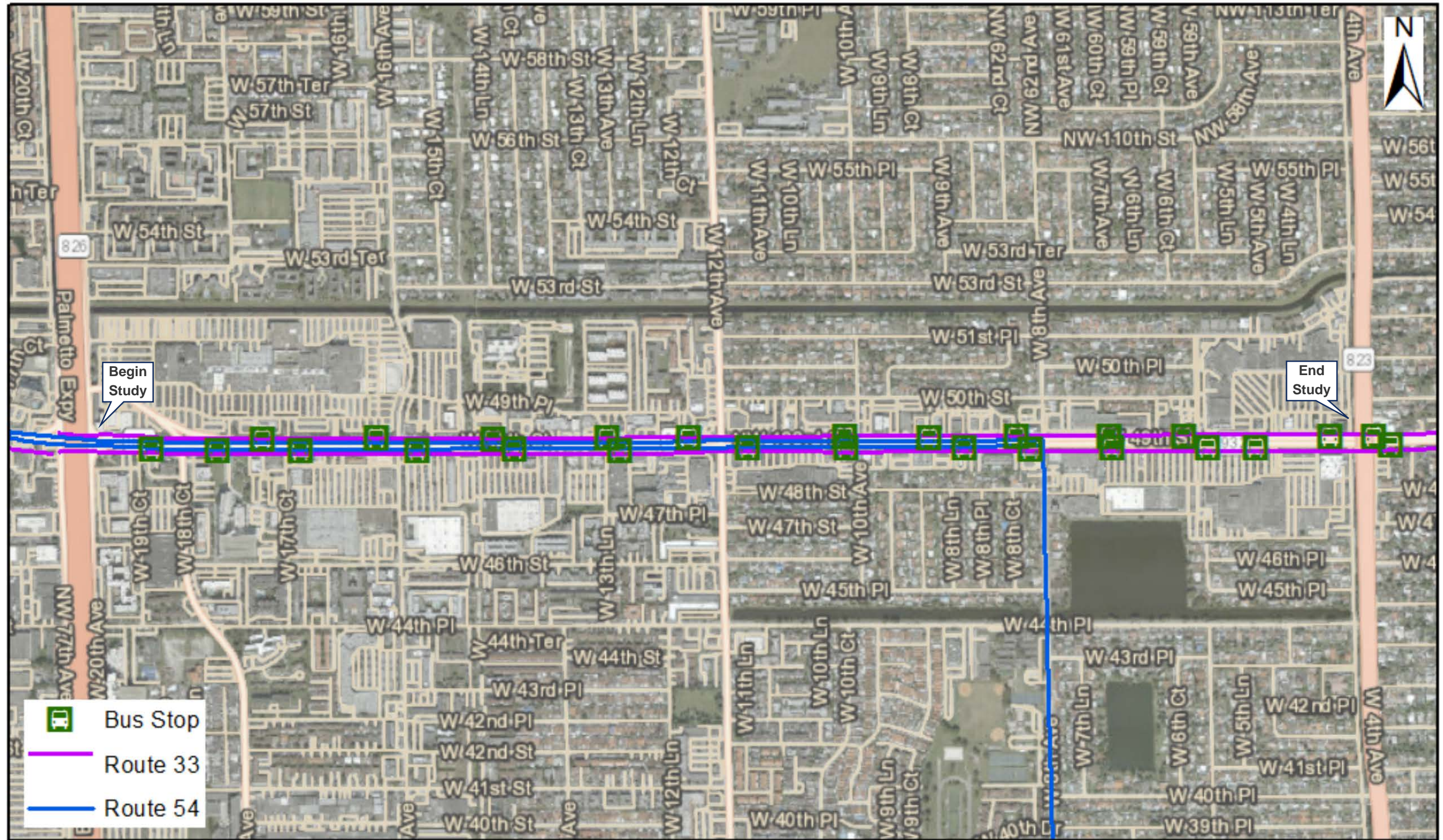


Table 3: Average Boardings/Alightings per Day at Bus Stops (Route 54)

Intersection	Direction	Stops	Sep-2021		Oct-2021		Nov-2021	
			On	Off	On	Off	On	Off
SR 826 West	EB	NW 103 ST & NW 77 AV	8	3	7	3	4	2
W 18 Court	EB	W 49 ST & W 18 CT	12	5	14	5	11	8
W 17 Court	EB	W 49 ST & W 17 CT	26	13	22	15	14	7
	WB	W 49 ST & W 17 CT (WESTLAND)	10	17	12	17	7	3
W 16 Avenue	EB	W 49 ST & W 16 AV	50	11	48	10	23	9
	WB	W 49 ST & W 16 AV	24	39	29	40	12	23
W 14 Lane	EB	W 49 ST & W 14 AV	19	7	22	8	12	1
	WB	W 49 ST & W 14 AV	8	26	9	32	4	25
W 13 Lane	EB	W 49 ST & W 13 LN	12	6	8	7	7	8
	WB	W 49 ST & W 13 LN	1	7	3	6	1	3
W 12 Avenue	EB	W 49 ST & W 12 AV	25	29	26	31	23	13
	WB	W 49 ST & W 12 AV	29	23	41	24	13	14
W 10 Avenue	EB	W 49 ST & W 10 AV	6	5	7	10	2	3
	WB	W 49 ST & W 10 AV	4	8	4	9	0	10
W 900 Block	EB	W 49 ST & #950 (APPROX)	5	5	7	4	4	2
	WB	W 49 ST & #901	5	8	5	10	4	4
W 8 Avenue	EB	W 49 ST & W 8 AV	29	13	27	14	24	4
	WB	W 49 ST & W 8 AV	9	15	12	17	11	13



Figure 3: Transit Stops and Bus Routes



## Pedestrian Clearance

The following table summarizes the existing pedestrian clearances obtained from signal timing plans. All timings shown in the table are in seconds. The signal timing information for signalized intersections within the study limits is included in **Appendix B**. The existing pedestrian clearances are verified to be adequate. There are no leading pedestrian intervals (LPIs) implemented at the signalized intersections within the study limits based on a review of signal timing plans.

Intersection	Leg	Walk	Don't Walk	Yellow	Red	Pedestrian Clearance
SR 826 W	North leg	7	9	4.4	2	15.4
	South leg	7	9	4.4	2	15.4
SR 826 E	North leg	7	8	4.4	2	14.4
	South leg	7	8	4.4	2	14.4
W 18 Court	East Leg	7	22	4	2.6	28.6
	North leg	7	20	4.4	2	26.4
	South leg	7	20	4.4	2	26.4
W 17 Court	East Leg	7	23	4	2.7	29.7
	West Leg	7	23	4	2.7	29.7
	North leg	7	25	4.4	2.1	31.5
	South leg	7	25	4.4	2.1	31.5
W 16 Avenue	East Leg	7	24	4.4	2.1	30.5
	West Leg	7	24	4.4	2.1	30.5
	North leg	7	21	4.4	2	27.4
	South leg	7	21	4.4	2	27.4
W 14 Lane	East Leg	7	22	4	2.7	28.7
	West Leg	7	22	4	2.7	28.7
	North leg	7	20	4.4	2	26.4
	South leg	7	20	4.4	2	26.4
W 12 Avenue	East Leg	7	24	4.4	2.1	30.5
	West Leg	7	24	4.4	2.1	30.5
	North leg	7	21	4.4	2	27.4
	South leg	7	21	4.4	2	27.4
W 10 Avenue	East Leg	7	22	4	2.7	28.7
	West Leg	7	22	4	2.7	28.7
	North leg	7	20	4.4	2	26.4
	South leg	7	20	4.4	2	26.4
W 900 Block	West Leg	7	23	4	2.7	29.7
W 8 Avenue	East Leg	7	24	4.4	2.1	30.5
	West Leg	7	24	4.4	2.1	30.5
	North leg	7	21	4.4	2	27.4
	South leg	7	21	4.4	2	27.4
W 6 Avenue	East Leg	7	18	4	2.7	24.7
	West Leg	7	18	4	2.7	24.7
	North leg	7	20	4.4	2	26.4
	South leg	7	20	4.4	2	26.4
W 500 Block	East Leg	7	23	4	2.7	29.7
	West Leg	7	23	4	2.7	29.7
	North leg	7	25	4.4	2.1	31.5
	South leg	7	25	4.4	2.1	31.5



Intersection	Leg	Walk	Don't Walk	Yellow	Red	Pedestrian Clearance
W 4 Avenue	East Leg	7	23	4.8	2.5	30.3
	West Leg	7	23	4.8	2.5	30.3
	North leg	7	23	4.4	2.7	30.1
	South leg	7	23	4.4	2.7	30.1

## Context Classification

The study corridor is classified as C4 – Urban General, which results in the following desirable design guidance for this corridor as provided in the FDOT Design Manual:

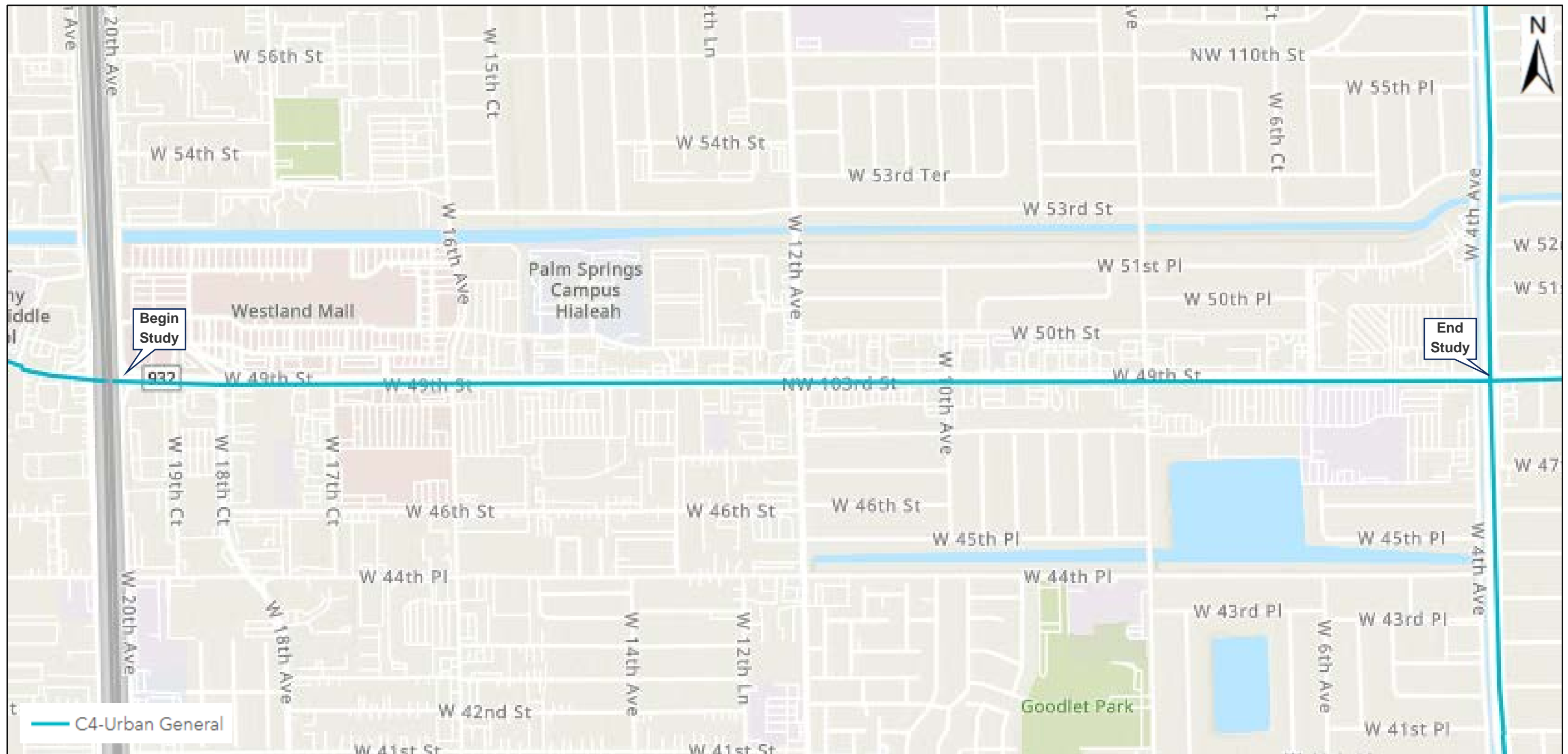
FDM - Design Control	Desirable Design Guidance for Context Class 4	Existing Roadway Features
Allowable Design Speed Range (mph)	25-45	40
Minimum Travel & Auxiliary Lane Width	25-35 mph: 10 ft 40-45 mph: 11 ft ≥ 50 mph: 12 ft	Travel Lane Width: 11 ft Auxiliary Left Turn Lane Width: 10 ft
Two-Way Left Turn Lane	25-35 mph: 11 ft 40 mph: 12 ft	Not present
On-Street Parking	Not allowed under current posted speed	Not allowed
Median Width	22 ft	16.5 ft
Sidewalk Width	6 ft	5 ft

Figure 4 shows the context classification along SR 932 within the study limits.





Figure 4: Context Classification



## Land Use

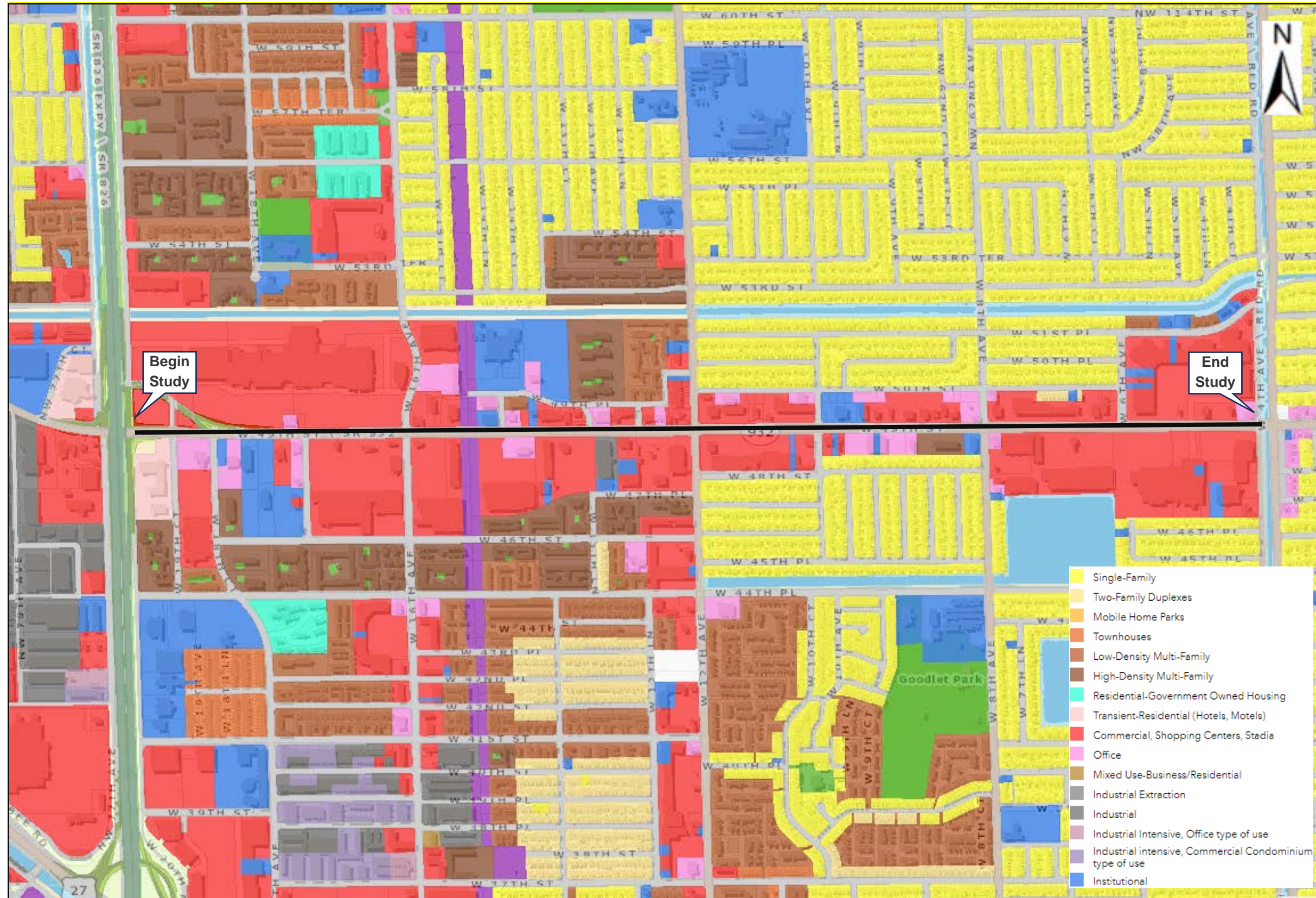
The existing land use on both sides of the study corridor from SR 826 to West 4 Avenue is primarily commercial (see **Figure 5**). The future land use on both sides of the study corridor from SR 826 to West 4 Avenue is anticipated to remain same as existing.

State Road Segment		Future Land Use	
From	To	On the North	On the South
SR 826	West 4 Avenue	General Commercial	General Commercial

Future Land Use	Maximum Density/Intensity
General Commercial	15 units per acre/0.7 floor area ratio
Heavy Commercial	0.7 floor area ratio
Low Density Residential	6 units per acre
Public/Institutional	0.5 floor area ratio
Office/Professional	10 units per acre/0.7 floor area ratio
Mixed-Use	15 units per acre/1 floor area ratio



Figure 5: Existing Land Use Map



## Bicycle and Pedestrian Generators/Attractors

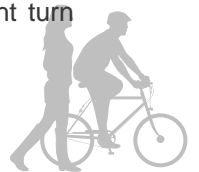
The adjacent land uses along the study corridor are primarily commercial including shopping centers, department and home improvement stores, restaurants, supermarkets, banks, and automobile businesses. The bicycle and pedestrian generators/attractors are labeled on the Condition Sketch in Appendix A. There are residential areas to the north and south of the study corridor between West 12 Avenue and West 8 Avenue that possibly draw pedestrians to the bus stops and other commercial establishments within the study limits. Some of the main pedestrian/bicycle generators/attractors where pedestrian/bicycle crossing activity was observed during the field reviews are listed below:

- Between SR 826 West and West 18 Court
  - Mater Academy Charter Middle/High School (just west of the study limits)
- Between West 18 Court and West 16 Avenue
  - Restaurant (Chick-fil-A, Wendy's)
- Between West 16 Avenue and West 12 Avenue
  - Restaurant (Krispy Kreme, Pollo Tropical, Subway)
  - Banks (Chase Bank, Truist)
  - Stores (ALDI, CVS, Ross Dress for Less)
- Between West 12 Avenue and West 8 Avenue
  - Sedano's Supermarket
  - Restaurants (Burger King, Denny's, Dunkin', KFC, McDonald's,)
  - Banks (First Horizon Bank, Ocean Bank, TD Bank)

## Completed or Planned Projects

A review of the FDOT Five-Year Work Program for the periods 2016 through 2021 and 2022 through 2026 and other studies revealed the following recently completed and planned projects relevant to ped/bike safety within the study corridor:

- FM No. 434768-1-52-01, Safety Project along SR 932/NW 103 Street from SR 826 to West 12 Avenue. The project was completed in 2018. The scope of work included:
  - Repaving and resurfacing the road as needed.
  - Extending turning lanes as needed to allow more capacity.
  - Installing high emphasis crosswalks.
  - Upgrading pedestrian and roadway signs.
  - Upgrading pedestrian crosswalk push buttons.
  - Modifying traffic signals.
  - Modifying medians as needed.
  - Modifying driveways as needed.
- FM No. 434768-2-52-01, Safety Project along SR 932/NW 103 Street from East of West 12 Avenue to East 5 Avenue. This project was completed in 2018, The scope of work included:
  - Install backplates at some intersections approaches.
  - Improve pedestrian features at some intersections (Install "TURNING TRAFFIC YIELD TO PEDESTRIAN" R 10-15 signs; Upgrade pedestrian signal heads to countdown; Upgrade pedestrian signs and detectors; Upgrade or provide high emphasis pavement markings).
  - Redesign some media openings.
  - Extend left-turn lanes at some intersections.
  - Provide left-turn protected-only at some intersections.
- FM No. 441830-1-52-1 and 441831-1-52-1, SR 826/Palmetto Expressway at SR 932/NW 103 Street. The Department conducted a Pedestrian Safety Evaluation at the two intersections of the Interchange of SR 826/Palmetto Expressway at SR 932/NW 103 Street. During normal conditions, the intersection is highly used by students of the Mater Academy Charter Middle/High School, located west along SR 932/NW 103 Street. The study recommended the westbound right turn



movement's signalization at West 20 Avenue to provide a protected pedestrian phase at the existing uncontrolled crosswalk at West 20 Avenue and SR 932/NW 103 intersection. Geometric modifications to minimize curb radius were recommended for the southeast crosswalk due to a similar operation to the northeast crosswalk. These improvements increase the visibility of pedestrians at the uncontrolled portion of the crosswalk. These two design-build projects are scheduled in FY 2022.

- FM No. 445993-1, Resurfacing Project along SR 932/NW 103 Street from West of NW 82 Avenue to East of West 6 Avenue. The preliminary engineering and construction are scheduled in FY 2022 and FY 2024, respectively. 3R Safety Review was completed in July 2021.



## HISTORIC CRASH ANALYSIS

The pedestrian and bicycle crash data from 2017-2021 along SR 932/NW 103 Street from SR 826 to West 4 Avenue (Section 87038000, MP 1.156 to MP 3.150) was downloaded from the FDOT's Crash Analysis Reporting System (CARS) and Signal Four Analytics (S4) database from 2017 to 2021. Based on the crash data, crash summary tables and collision diagrams (for pedestrian/bicycle crashes) were developed for the five years to review historical crash patterns. The crash summary table is included in **Appendix C** and the collision diagrams are included in Appendix A (for pedestrian/bicycle crashes). The following is a summary of pedestrian and bicycle crash data review findings.

### Severity

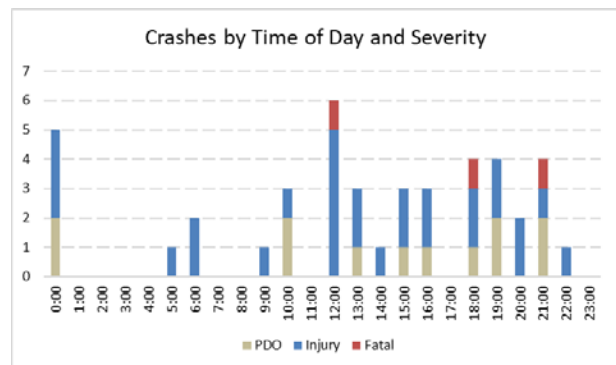
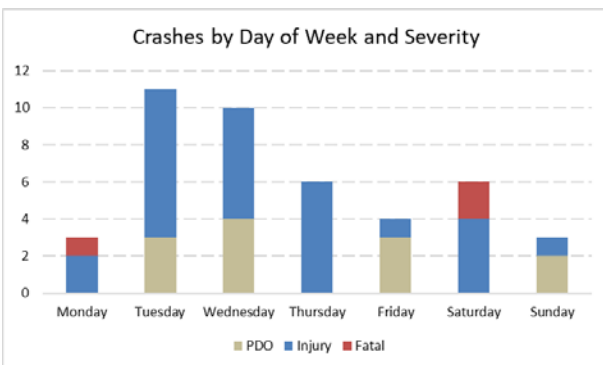
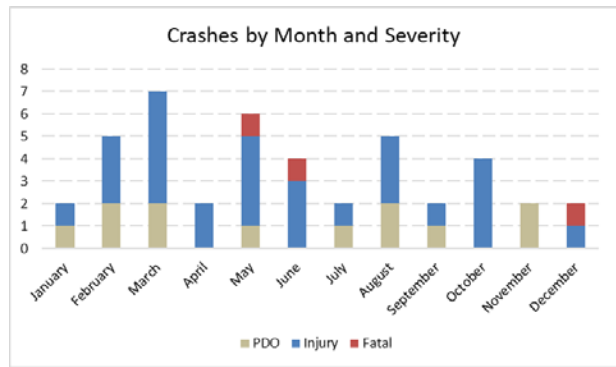
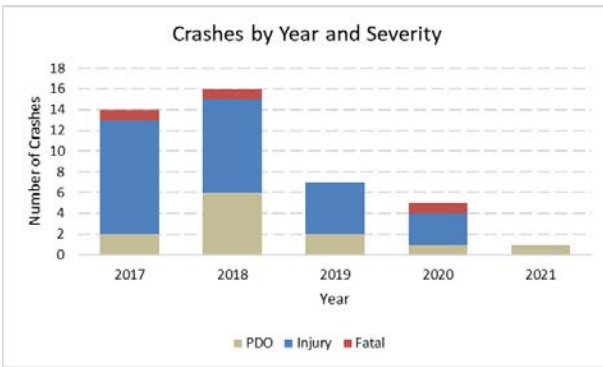
There were 43 pedestrian/bicycle crashes along the study corridor during the referenced five-year period with 14 crashes in 2017, 16 crashes in 2018, 7 crashes in 2019, 5 crashes in 2020, and 1 crash in 2021. Based on crash severity, of the 43 pedestrian/bicycle crashes reported, 3 were fatal crashes, 28 (65%) were injury type crashes and 12 (28%) were property damage only crashes. All the 3 fatal crashes were pedestrian fatal crashes. The following is a narrative for each fatal crash:

- The pedestrian fatal crash (Crash Number 867347650) occurred on Monday, June 5, 2017 at 12:59 PM (daylight) under dry pavement surface conditions in the vicinity of West 6 Avenue. The crash occurred when Vehicle 1, travelling eastbound, hit a pedestrian crossing from north side to south side of NW 103 Street. The pedestrian was pronounced deceased on scene. The driver's action at the time of crash was noted as "operated moving vehicle in careless or negligent manner".
- The pedestrian fatal crash (Crash Number 878105490) occurred on Saturday, December 29, 2018 at 6:06 PM (dark-lighted) under dry pavement surface conditions in the vicinity of West 8 Avenue. Vehicle 1 was travelling eastbound in the center lane approaching West 8 Avenue. The driver looked down to move or adjust the food on his lap, got distracted, had no time to stop and hit a pedestrian crossing from north side to south side of NW 103 Street. The pedestrian was transported to a hospital where she passed away due to the injuries sustained from the crash. The driver's action at the time of crash was noted as "operated moving vehicle in careless or negligent manner".
- The pedestrian fatal crash (Crash Number 893197440) occurred on Saturday, May 23, 2020 at 9:48 PM (dark-lighted) under wet pavement surface conditions in the vicinity of West 16 Avenue. A pedestrian (street vendor) was walking within the northbound lanes of West 16 Avenue conducting business. When the traffic signal lights turned green and traffic started to move freely, Vehicle 1 which was travelling northbound in the outside lane approaching NW 103 Street hit the pedestrian. The pedestrian was treated on scene and subsequently air-lifted to a hospital where he passed away due to the injuries sustained from the crash. The non-motorist's action at the time of crash was noted as "in roadway improperly (standing, lying, working, playing)".

### Time

The pedestrian/bicycle crashes are summarized in the following charts by year, month, day of week, and time of day with severity.





### Environmental Factors

There were 16 crashes that occurred during nighttime (37%) and 8 (19%) crashes that occurred during wet pavement surface conditions. There were no crashes reported where “alcohol/drug” involvement was noted.

### Demographics

The age of driver at fault documented in the crash data – 20-29 years (9 crashes – 21%), 50-59 years (8 crashes – 19%), 40-49 years (7 crashes – 16%), and 60-69 years (6 crashes – 14%) were among the highest.

### Location and Direction

As shown in the collision diagram, the pedestrian/bicycle crashes are more concentrated at the signalized intersections of West 17 Court, West 16 Avenue, and between West 13 Lane and West 12 Avenue. The following table summarizes the number of reported pedestrian/bicycle crashes at signalized intersections and mid-block locations. The table also shows the number of pedestrian/bicycle crashes reported at intersection/mid-block and indicates the number of crashes involving turning vehicles, or crashes at crossing side streets/driveways by location. It should be noted that 2 of 6 pedestrian/bicycle crashes at West 17 Court intersection and 4 of 9 pedestrian/bicycle crashes at West 16 Avenue intersection involving turning vehicles.



Location	Number of Crashes	Crashes Involving Turning Vehicles	Crashes at Crossing Side Street/Driveway	Control Type
West of SR 826 W	1	0	1	Stop Control
SR 826 E	1	0	1	Signal
W 18 Court	2	0	2	Signal
W 17 Court	6	2	3	Signal
W 16 Avenue	9	4	3	Signal
W 13 Lane	3	0	3	Stop Control
W 13 Lane to W 12 Avenue	3	0	0	Mid-block
W 12 Avenue	5	0	2	Signal
W 10 Avenue	2	0	0	Signal
East of W 10 Avenue	2	0	2	Stop Control
W 900 Block to W 8 Avenue	1	0	0	Mid-block
W 8 Avenue	1	0	0	Signal
W 6 Avenue	2	0	1	Signal
East of W 6 Avenue	1	0	1	Stop Control
W 500 Block	2	0	0	Signal
W 4 Avenue	2	0	0	Signal





## FIELD REVIEW

A walk-through field review was conducted by the assessment team from multiple disciplines that included engineers from FDOT Traffic Operations, Design, Planning, Miami-Dade County and TPO on Thursday, January 27, 2022 from 10:00 AM to 5:00 PM (see **Photo 1** and **Photo 2**). A field review packet including roadway characteristics, collision diagram, condition sketch (ped/bike facilities only), ped/bike crash summary, and pedestrian clearance (see Appendix A) was provided to the assessment team. On Thursday morning, the assessment team received a corridor overview of crash and traffic history as well as conditions of pedestrian facilities, followed by the walking assessment and observations along the corridor. During the mid-day and afternoon, the team continued the walking assessment along the corridor. Discussions regarding potential improvement suggestions were conducted during the walk-through field review. Additional field reviews were conducted on Tuesday, February 8, 2022 during AM peak period and nighttime and on Thursday, February 17, 2022 during nighttime. A portion of the field review also included observations from a vehicular perspective, as the corridor was driven during all field review periods within the study limits.



**Photo 1:** Field Review Team (January 27, 2022)



**Photo 2:** Field Review Team (January 27, 2022)

## Field Review Details

Dates: January 27, 2022

Weather Conditions: Cloudy

## Participants

A field review sign-in sheet is included in **Appendix D**. Below is a list of field review participants (including names and agencies):

- Carlos Perez, FDOT D6 Design
- Eric Usengimana, Miami-Dade County
- Hui Zhao, CTS Engineering, Inc.
- Jesus Perez, FDOT D6 Traffic Operations
- John McWilliams, Kimley-Horn and Associates, Inc.
- Julian Guevara, Miami-Dade County
- Ken Jeffries, FDOT D6 Planning
- Kevin Walford, Miami-Dade TPO
- Phani Allu, CTS Engineering, Inc.
- Shereen Yee Fong, FDOT D6 Planning
- Suresh Allu, CTS Engineering, Inc.



## DIAGNOSIS AND COUNTERMEASURE IDENTIFICATION

Location: Corridor-Wide

### Observation #1: Sidewalks in Poor Condition



**Photo 3:** South side sidewalk west of West 16 Avenue.



**Photo 4:** Looking at the northwest corner of West 12 Lane.



**Photo 5:** North side sidewalk east of West 17 Court



**Photo 6:** East side sidewalk approaching the southeast corner of West 16 Avenue.



**Photo 7:** North side sidewalk west of West 14 Lane.

#### Description of Observation:

- Sidewalks exist on both sides of the study segment; however, there are some locations where the roots of trees are adjacent to sidewalk and are beginning to affect the slope of the sidewalk and creating trip hazards (especially in the vicinity of West 16 Avenue, see **Photo 3**).
- Sidewalks at several locations within the study limits are cracked/damaged (see **Photo 4** through **Photo 7**).



**Suggestions for Improvements:**

ENGINEERING

- RRR – Reconstruct the broken/uneven sidewalk areas along the corridor to be compliant with ADA requirements. Also, consider mechanical root pruning or root griding, especially at West 16 Avenue intersection, to prevent future issues.



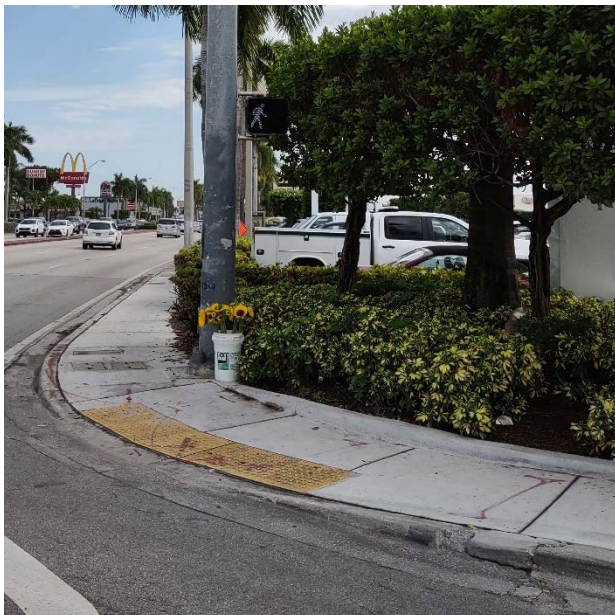
## Observation #2: Pedestrian Ramps – Steep Slopes



**Photo 8:** Looking south at the southwest corner of West 17 Court.



**Photo 9:** Looking east at the southeast corner of West 17 Court.



**Photo 10:** Looking east at the southeast corner of West 12 Avenue.



**Photo 11:** Looking east at the southeast corner of West 6 Avenue.

### Description of Observation:

Several pedestrian ramps at the intersections (mostly side street intersections) appear to be steep. It should be noted that slope measurements were not performed. Some of the locations where the pedestrian ramps appeared to be steep are listed as below:

- West 17 Court (southwest and southeast corners, see **Photo 8** and **Photo 9**)
- West 12 Lane (northwest corner)
- West 12 Avenue (southeast corner, see **Photo 10**)
- West 6 Avenue (southwest and southeast corners, see **Photo 11**)



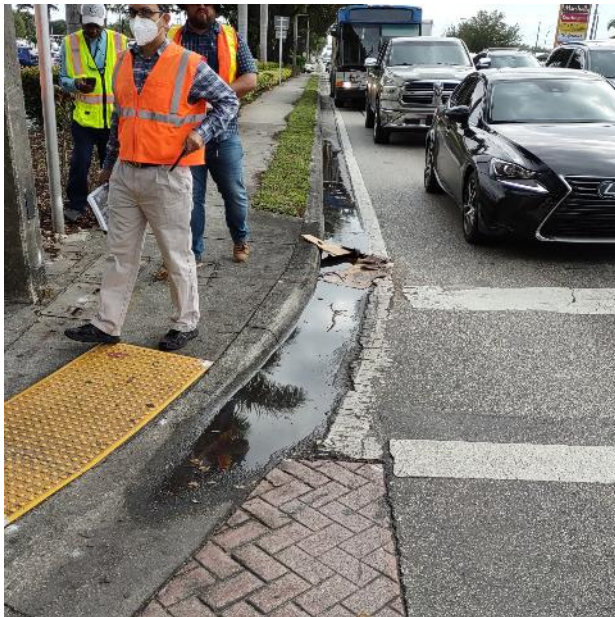
**Suggestions for Improvements:**

ENGINEERING

- RRR – Reconstruct the pedestrian ramps to be compliant with ADA requirements.



### Observation #3: Drainage



**Photo 12:** Looking east at the northeast corner of West 17 Court.



**Photo 13:** Looking east at the southwest corner of the driveway east of West 16 Avenue.



**Photo 14:** Looking west at the southeast corner of West 12 Lane.



**Photo 15:** Looking west at the northwest corner of West 12 Lane.

#### Description of Observation:

Standing water and water ponding were observed at several locations. Some of the locations are listed below:

- West 17 Court (northeast corner, see **Photo 12**)
- Driveway east of West 16 Avenue (southwest corner, see **Photo 13**)
- West 12 Lane (southeast and northwest corner, see **Photo 14** and **Photo 15**)



**Suggestions for Improvements:**

ENGINEERING

- Maintenance/RRR – Consider maintenance of drainage inlets and other improvements to alleviate any drainage related concerns. Also, coordinate with the property owner of Gus Machado Plaza (east of West 16 Avenue) to repair a broken sprinkler system on southwest corner at the west entrance of the plaza. During the field visit, it was observed that there was continuous flow of water on to the sidewalk and roadway near the driveway entrance.



### Observation #4: Driveways



**Photo 16:** Looking at driveway west of the southwest corner of West 6 Avenue.



**Photo 17:** Looking at the Wendy's exit driveway east of the southeast corner of West 17 Court.



**Photo 18:** Looking west at the Taco Bell driveway west of the northwest corner of West 10 Avenue.



**Photo 19:** Looking at the driveway east of the southeast corner of West 8 Avenue.

#### Description of Observation:

- There are several abandoned driveways throughout the corridor that should be reconstructed as sidewalk (see **Photo 16**).
- Several driveways along the corridor appear to be in poor condition (see **Photo 17** through **Photo 19**).





**Suggestions for Improvements:**

ENGINEERING

- RRR – Reconstruct abandoned driveways and driveways in poor condition along the corridor to be compliant with ADA requirements.



### Observation #5: Missing or Damaged Detectable Warning Surface Mats



**Photo 20:** Looking east at the southwest corner of West 12 Avenue.



**Photo 21:** Looking south at the northeast corner of West 14 Lane.



**Photo 22:** Looking west at the northeast corner of West 12 Avenue.



**Photo 23:** Looking west at the northeast corner of West 14 Lane.

#### Description of Observation:

Detectable warning surface mats are not present or in damaged condition at some pedestrian ramps at the intersections (see **Photo 20** through **Photo 23**).

#### Suggestions for Improvements:

##### ENGINEERING

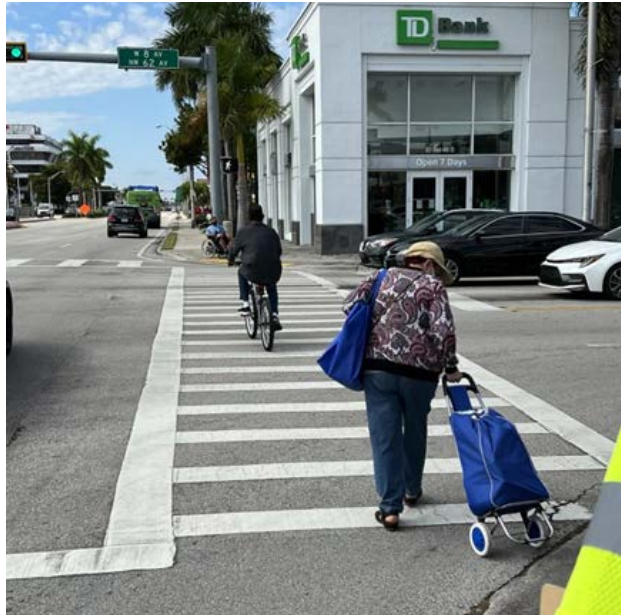
- Maintenance – Install detectable warning surface mats at the pedestrian ramps to be compliant with ADA requirements.



### Observation #6: Lack of Bike Facilities



**Photo 24:** Bicyclist crossing the crosswalk on the south leg of West 17 Court.



**Photo 25:** Bicyclist crossing the crosswalk on the north leg of West 8 Avenue.



**Photo 26:** Bicyclist crossing the eastbound travel lanes west of West 14 Lane.



**Photo 27:** Bicyclist observed at the southwest corner of West 8 Avenue.

#### Description of Observation:

Bicyclist activities were observed and there are no bike facilities along NW 103 Street within the study limits (see **Photo 24** through **Photo 27**).

#### Suggestions for Improvements:

##### ENGINEERING

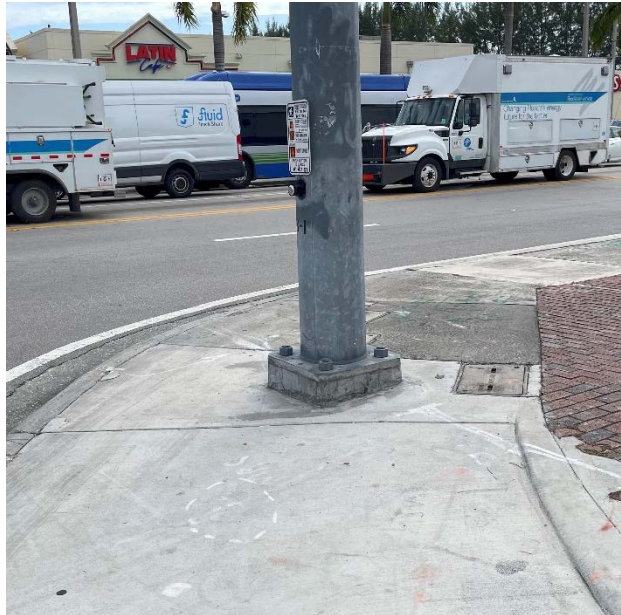
- Short-Term – Consider “BICYCLES MAY USE FULL LANE (R4-11)” signs.



**Observation #7: Unobstructed Clear Width**



**Photo 28:** Looking at the northeast corner of West 12 Avenue.



**Photo 29:** Looking at the southwest corner of West 12 Avenue.



**Photo 30:** Looking at the northeast corner of West 8 Avenue.



**Photo 31:** Looking at the southwest corner of West 8 Avenue.

**Description of Observation:**

Unobstructed clear width at pedestrian ramps is less than 4 feet at several locations. Some of the locations are listed below:

- West 14 Lane (northeast corner)
- West 12 Avenue (northeast and southwest corners, see **Photo 28** and **Photo 29**)
- West 8 Avenue (all corners, see **Photo 30** and **Photo 31**)
- West 6 Avenue (northeast and northwest corners)



**Suggestions for Improvements:**

ENGINEERING

- Long-Term – Reconstruct pedestrian ramps to ensure unobstructed clear width compliant with ADA requirements is provided.



### Observation #8: Low Lighting



**Photo 32:** Looking west from West 18 Court to SR 826.



**Photo 33:** Looking east from east of West 18 Court to West 16 Avenue.



**Photo 34:** Looking east from West 900 Block to West 6 Avenue.



**Photo 35:** Looking west from West 500 Block to West 8 Avenue.

#### Description of Observation:

The percentage of pedestrian/bike crashes (37% - 16 pedestrian/bike crashes) during nighttime is higher than districtwide average of 28%. Additionally, out of 3 fatal crashes, 2 crashes occurred during nighttime conditions. Within the study limits, several locations need to upgrade lighting (see **Photo 32** through **Photo 35**).



**Suggestions for Improvements:**

ENGINEERING

- Long-Term – A photometric analysis of the existing lighting system was conducted along SR 932 within the study limits. A copy of the photometric analysis report which shows the proposed improvements is included in **Appendix J**.



## Observation #9: Speeding

### Description of Observation:

Field review team members indicated speeding was observed at several locations.

### Suggestions for Improvements:

#### ENGINEERING

- Long-Term – Consider installation of speed feedback signs along SR 932 in both directions.

The following is a quick summary of average speed along the study corridor using HERE data (every weekday for October 2021):

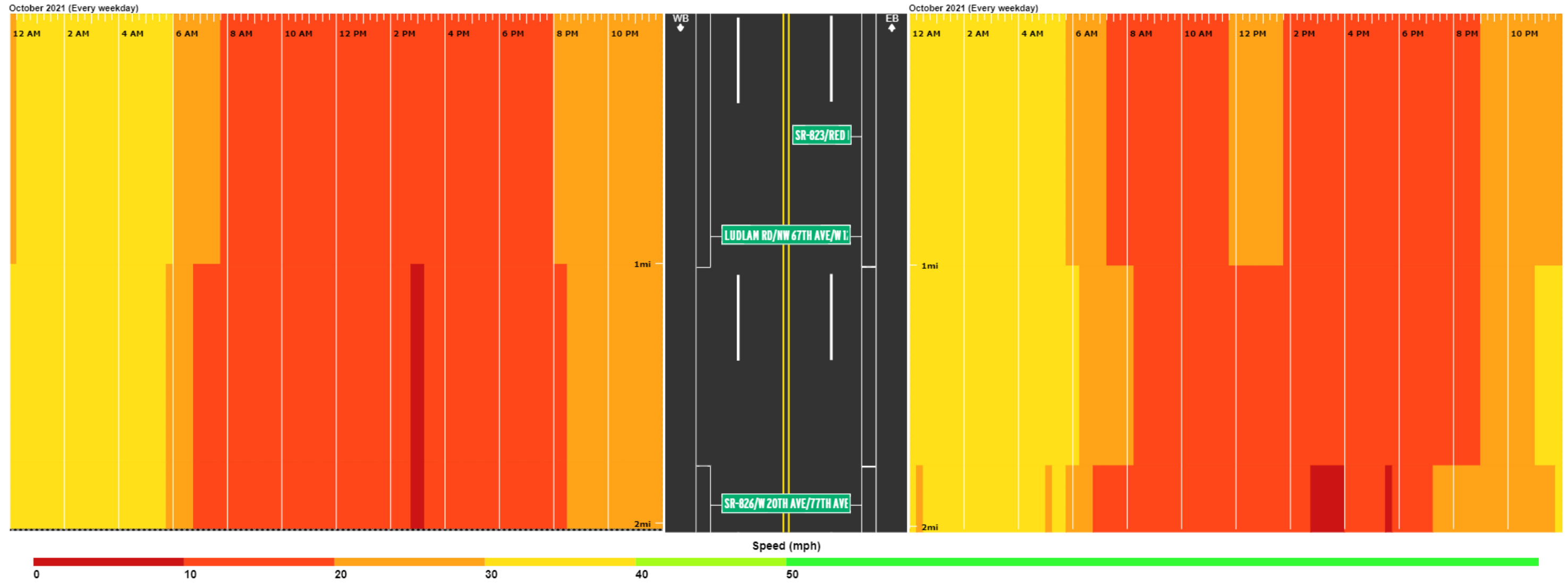
- Eastbound: 10-30 mph (6:15 AM-11:00 PM), except west of West 12 Lane <10 mph (2:45 PM - 4:00 PM).
- Westbound: 10-30 mph (6:00 AM-12:00 AM), except west of West 18 Court <10 mph (2:45 PM - 3:15 PM).

A heat map of average speed is also provided in the following page for the study corridor.





### Speed for SR-932 using HERE data Averaged by 15 minutes for October 2021 (Every weekday)



## Observation #10: Potential Conflicts with Right-turn Vehicles

### Description of Observation:

- At the intersection of West 16 Avenue, the eastbound right-turn vehicles were observed not yielding to pedestrians on south leg crosswalk (even during the pedestrian phase to cross south leg). There is potential conflict between southbound right-turn vehicles and pedestrians on west leg.
- At the intersection of West 12 Avenue, there is potential conflict between the eastbound right-turn vehicles and pedestrians crossing on south leg crosswalk.

### Suggestions for Improvements:

#### ENGINEERING

- Long-Term – Evaluate systematic improvements such as Leading Pedestrian Interval (LPI) at all signalized intersections within the study limits. Evaluate installation of Blank Out signs (in addition to LPI) at the signalized intersections within the study limits. Some of the potential locations where Blank Out signs could be considered are as follows:
  - West 17 Court; for eastbound right-turn movement
  - West 16 Avenue; for eastbound and southbound right-turn movements
  - West 12 Avenue; for eastbound and westbound right-turn movements



## Observation #11: Potential Conflicts with Left-turn Vehicles

### Description of Observation:

- At several intersections, there is potential conflict between the left-turn vehicles and the pedestrians in crosswalk during permissive phase.

### Suggestions for Improvements:

#### ENGINEERING

- Long-Term – Consider omitting permissive phase during a pedestrian actuation at the signalized intersections within the study limits. It should be noted that omitting permissive phase could affect the traffic operations at the intersection. The implementation of this recommendation may require verification of structural adequacy of the signal assembly and controller capability to accommodate such phasing. Some of the potential locations where omitting permissive phase could be considered are as follows:
  - West 18 Court
  - West 17 Court
  - West 16 Avenue
  - West 14 Lane
  - West 12 Avenue
  - West 10 Avenue
  - West 6 Avenue
  - West 4 Avenue



### Observation #12: Lack of Amenities at Transit Stops



**Photo 36:** Bus stop west of West 12 Avenue facing westbound traffic.



**Photo 37:** Bus stop east of the southeast corner of West 13 Lane.



**Photo 38:** Bus stop east of the southeast corner of West 16 Avenue.



**Photo 39:** Bus stop at the northeast corner of West 13 Lane.

#### Description of Observation:

There are several bus stops along SR 932 within the study limits (see **Photo 36** through **Photo 39**) that do not have amenities such as shelters, benches, and trash bins etc.



**Suggestions for Improvements:**

ENGINEERING

- Short Term – Coordinate with Miami-Dade Transit (MDT) to upgrade the bus stops with amenities such as shelters, benches, and trash bins.



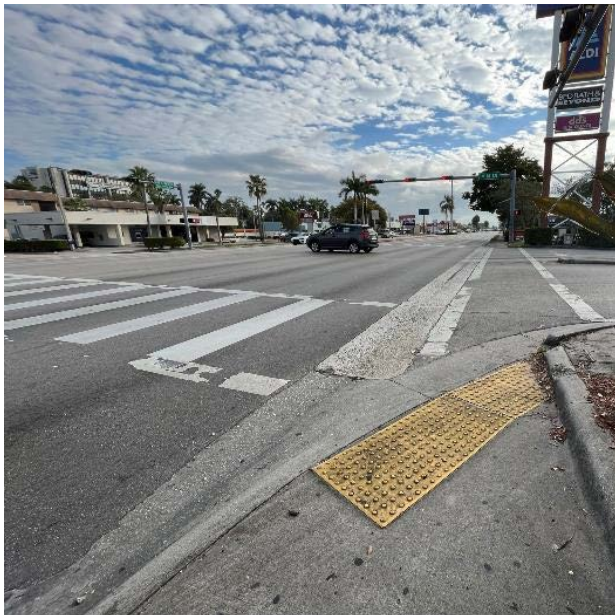
**Observation #13: Faded Crosswalk Markings**



**Photo 40:** Crosswalk on the north leg of Westland Mall Entrance west of West 17 Court.



**Photo 41:** Crosswalk on the north leg of West 17 Court.



**Photo 42:** Crosswalk on the west leg of West 14 Lane.



**Photo 43:** Crosswalk on the east leg of West 14 Lane.

**Description of Observation:**

- The crosswalk markings at some of the signalized intersections and several side street approaches were faded or in poor condition. At most locations, although the crosswalk markings are slightly faded, they are functional. The crosswalk markings are in poor condition at the following locations:
  - Westland Mall Entrance west of West 17 Court (north leg, see **Photo 40**)
  - West 17 Court (north leg, see **Photo 41**). Also, the width of the crosswalk appears to be less than 7 feet which is not compliant with FDOT Standards.
  - West 16 Avenue (east and south legs)



- West 14 Lane (west and east legs, see **Photo 42** and **Photo 43**)

**Suggestions for Improvements:**

ENGINEERING

- Short Term – Refurbish crosswalk markings at the signalized intersections and at side street approaches, as needed.



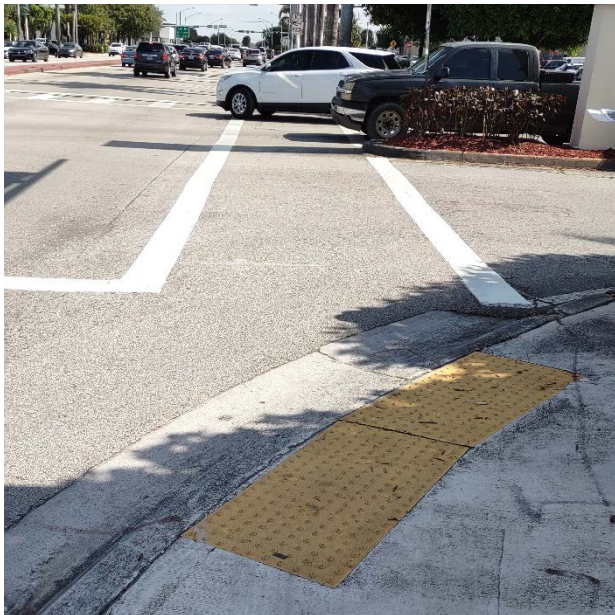
**Observation #14: Lack of High Emphasis Crosswalk Markings**



**Photo 44:** Crosswalk on the south leg of West 14 Lane.



**Photo 45:** Crosswalk on the north leg of West 10 Avenue.



**Photo 46:** Crosswalk on the south leg of West 500 Block.



**Photo 47:** Crosswalk on the north leg of West 500 Block.

**Description of Observation:**

- The crosswalk markings at some of the signalized intersections are regular crosswalk markings. The regular crosswalk markings are present at the following signalized intersections:
  - West 14 Lane (south leg, see **Photo 44**)
  - West 10 Avenue (north and south legs, see **Photo 45**)
  - West 500 Block (north and south legs, see **Photo 46** and **Photo 47**)





**Suggestions for Improvements:**

ENGINEERING

- Short Term – Install high emphasis crosswalk markings at the signalized intersections in conformance with the latest guidance from the FDOT Design Manual (FDM).



**Observation #15: Sub-standard Traffic Separators**



**Photo 48:** Traffic separator on the west leg crosswalk of West 17 Court.



**Photo 49:** Traffic separator on the east leg crosswalk of West 17 Court.



**Photo 50:** Traffic separator on the east leg crosswalk of West 14 Lane.



**Photo 51:** Traffic separator on the west leg crosswalk of West 10 Avenue.

**Description of Observation:**

- At several locations, crosswalks through the traffic separators do not appear to meet FDOT standards. Some of the locations are listed below:
  - West 17 Court (east and west legs, see **Photo 48** and **Photo 49**)
  - West 14 Lane (east leg, see **Photo 50**)
  - West 10 Avenue (west leg, see **Photo 51**)



**Suggestions for Improvements:**

ENGINEERING

- Short Term – Reconstruct the traffic separators to ensure that the crosswalks through the traffic separators are compliant with FDOT Design Manual.



### Observation #16: Pedestrian Activities



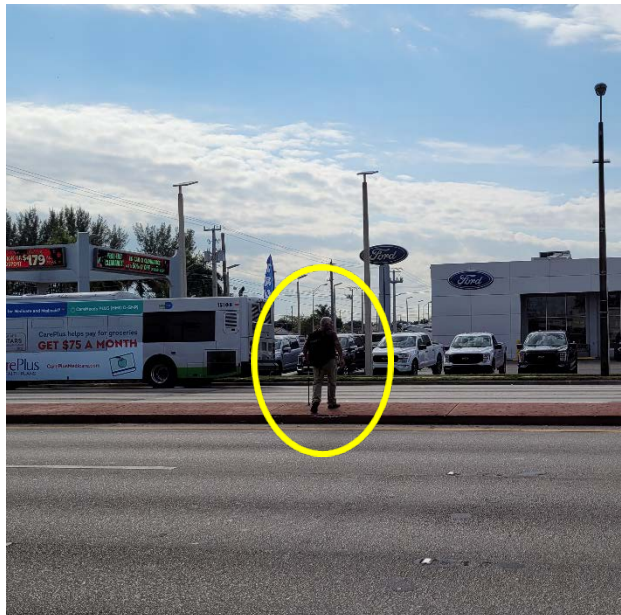
**Photo 52:** Pedestrian crossing NW 103 Street east of the east leg crosswalk of West 8 Avenue.



**Photo 53:** Pedestrian crossing West 17 Court south of the south leg crosswalk.



**Photo 54:** Pedestrian crossing NW 103 Street west of West 8 Avenue.



**Photo 55:** Pedestrian crossing NW 103 Street west of West 12 Avenue.

#### Description of Observation:

- On several occasions, pedestrians were observed not crossing at the crosswalks (see **Photo 52** and **Photo 53**) or not walking during the designated walk phase. Although, high emphasis crosswalk markings exist at the intersection of West 12 Avenue, several pedestrians were observed crossing NW 103 Street in the vicinity of the intersection, and not at intersection (see **Photo 54** and **Photo 55**).



**Suggestions for Improvements:**

ENGINEERING

- Short Term – Consider education/enforcement campaigns focused on educating the pedestrians and drivers to safety traverse the intersections along the study corridor.
- Short Term – Consider installing “USE CROSSWALK” (R9-3bP) at the bus stops near West 12 Avenue.



### Observation #17: Overgrown Vegetation



**Photo 56:** Looking west approaching West 14 Lane.



**Photo 57:** Looking west approaching west 13 Lane on the north side sidewalk.



**Photo 58:** Looking east on the south side sidewalk east of West 10 Avenue.



**Photo 59:** Looking east on the south side sidewalk west of West 8 Avenue.





**Photo 60:** Looking east on the south side sidewalk west of West 14 Lane.



**Photo 61:** Looking north from the south side sidewalk east of West 17 Court.

#### Description of Observation:

- Several roadside signs are partially blocked by overgrown trees (see **Photo 56**).
- Sidewalks at several locations are blocked by overgrown trees (blocking the clear width on sidewalk, see **Photo 57** through **Photo 59**).
- At several locations along the sidewalks, the grass strip and shrubs encroach on to the sidewalk reducing the clear width on sidewalk (see **Photo 60**).
- At some locations, the large trees are very close to the luminaires, blocking the roadway lighting (see **Photo 61**).

#### Suggestions for Improvements:

##### ENGINEERING

- Maintenance – Trim the overgrown vegetation to improve visibility of the roadside signs and clear the walk path along sidewalk.
- Short-term: Consider removing the grass strip and construct sidewalk to increase the clear width on sidewalk
- Maintenance –Trim overgrown trees to improve lighting in the vicinity of the light poles.



**Observation #18: Malfunctioning Luminaires****Photo 62:** Northeast corner of West 18 Court.**Photo 63:** Southeast corner of West 18 Court.**Photo 64:** North side west of West 8 Avenue.**Photo 65:** Southwest corner of West 4 Avenue.**Description of Observation:**

- Several luminaires within the study limits were not functional during the nighttime field visits. The locations where the luminaires were not functional are as follows:
  - On both sides between east of West 20 Avenue and West 18 Court intersection (see **Photo 62**)
  - Southeast corner of West 18 Court intersection (see **Photo 63**)
  - North side west of West 17 Court intersection
  - South side east of West 12 Avenue intersection





- North side west of West 8 Avenue intersection (see **Photo 64**)
- Southwest corner of West 4 Avenue intersection (see **Photo 65**)

**Suggestions for Improvements:**

ENGINEERING

- Maintenance – Repair/replace the luminaires that were not functional at the time of nighttime field visit.



Location: Intersection SR 826 West to Intersection SR 826 East

### Observation #19: High Pedestrian Crossing Activities (School Children)



**Photo 66:** Looking west at the northwest corner of SR 826 West.



**Photo 67:** Looking west at the northeast corner of SR 826 East.



**Photo 68:** Looking west at the northeast corner of SR 826 East.



**Photo 69:** Looking north at the northeast corner of SR 826 East.

#### Description of Observation:

- During school dismissal time, the school children (Mater Academy Charter Middle/High School, located west of the study limits along NW 103 Street) crossing activity was observed to be relatively high at the intersections (see **Photo 66**). Students were observed not crossing at the crosswalk (see **Photo 67** and **Photo 68**) on West 20 Avenue and on eastbound right-turn lane to West 20 Avenue (see **Photo 69**).
- The pedestrian signs facing westbound right-turn vehicles at northeast corner are not compliant with MUTCD (see Photo 67 and Photo 68).

#### Suggestions for Improvements:

##### ENGINEERING

- Maintenance – Replace the pedestrian signs with a fluorescent yellow-green background to enhance sign visibility and driver compliance to be compliant with MUTCD standards for school signs.



- Short Term – A Pedestrian Safety Evaluation was conducted at the two intersections of the interchange of SR 826. The study recommended the westbound right turn movement's signalization at West 20 Avenue to provide a protected pedestrian phase at the existing uncontrolled crosswalk, and geometric modifications to minimize curb radius for the southeast crosswalk to increase the visibility of pedestrians at the uncontrolled portion of the crosswalk (programmed in Resurfacing Projects FM 441830-1 & 441831-1).
- Short Term – Consider passive pedestrian detection by TOD/pedestrian recall during school arrival/dismissal periods at the intersections.



Location: Intersection West 17 Court

### Observation #20: Pedestrian Signal Heads



**Photo 70:** Southeast corner for south leg crosswalk.



**Photo 71:** Southwest corner for west leg crosswalk.

#### Description of Observation:

- The pedestrian signals on southeast and southwest corners facilitating crossing on south and west leg crosswalks were not working (see **Photo 70** and **Photo 71**).

#### Suggestions for Improvements:

##### ENGINEERING

- Long Term – Repair/replace the pedestrian signal heads (countdown type) on southeast and southwest corners to cross on south and west legs.



Location: West 14 Lane to West 12 Avenue

### Observation #21: Lack of Controlled Crossing

Figure 6: NW 103 Street Between West 14 Lane and West 12 Avenue

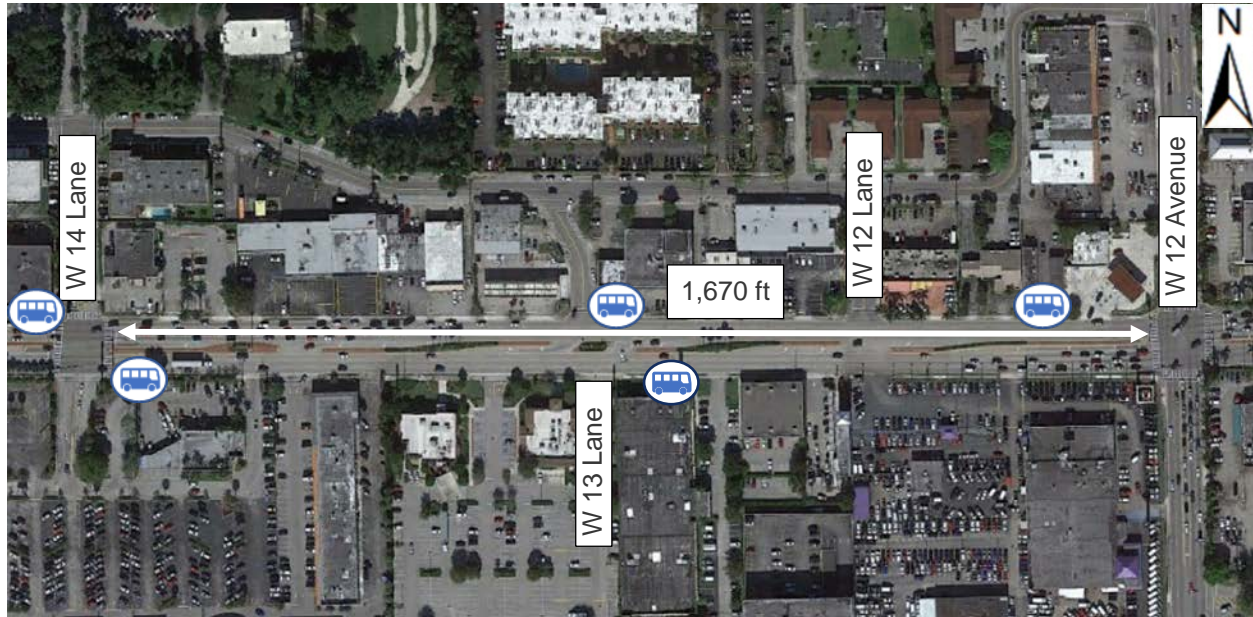


Figure 7: Collision Diagram (Pedestrian/Bike Crashes Between West 14 Lane and West 12 Avenue)



#### Description of Observation:

- There is no controlled crossing between West 14 Lane and West 12 Avenue with a distance of 1,670 feet (see **Figure 6**).
- Pedestrian attractors/generators on both sides of NW 103 Street between West 14 Lane and West 12 Avenue include stores, restaurants, supermarkets, banks, and automobile businesses.



There were 2 pedestrian/bicycle crashes and 1 fatal pedestrian crash reported between West 13 Lane and West 12 Lane from 2017-2021 (see **Figure 7**).

- Bus stops located in the vicinity of West 13 Lane are relatively far from the crosswalks (eastbound bus stop approximately 800 feet to the east crosswalk; westbound bus stop is approximately 900 feet to the west crosswalk). Boarding/alighting data for the bus stops indicates relatively moderate activity.

### **Suggestions for Improvements:**

#### ENGINEERING

- Long-Term – Considering the crash data, pedestrian attractors/generators, and bus stop locations, it is suggested to evaluate installation of mid-block crossing between West 14 Lane and West 12 Avenue. A mid-block crossing evaluation is performed in a later section.
- Short Term – Consider replacing the existing “NO PEDESTRIAN CROSSING” (R9-3) on both sides of NW 103 Street east of West 12 Lane with oversized signs (30” X 30”).
- Short Term – Consider installing “USE CROSSWALK” (R9-3bP) at the bus stops in the vicinity of West 13 Lane.



Location: Intersection West 8 Avenue

**Observation #22: Miscellaneous Observations**



**Photo 72:** Looking west at the south leg crosswalk.



**Photo 73:** Southwest corner.



**Photo 74:** North of the south leg crosswalk.



**Photo 75:** Looking north along the west leg crosswalk.





**Photo 76:** Push button sign on the southwest corner.



**Photo 77:** The base of the mast arm on the southeast corner.

#### Description of Observation:

- The pedestrian ramp on southwest corner of the intersection does not appear to be compliant with ADA requirements (appears steep landing and the clear width on sidewalk area at the base of mast arm pole is less than 4 feet [see **Photo 72** and **Photo 73**]).
- The sewer covers north of the south leg and within west leg (see **Photo 74** and **Photo 75**) crosswalks are not flush with pavement surface (uneven surface within crosswalk area).
- There is graffiti on the pushbutton sign on southwest corner (see **Photo 76**)
- The wiring at the base of the mast arm on southeast corner is exposed (see **Photo 77**).

#### Suggestions for Improvements:

##### ENGINEERING

- Long Term – Reconstruct the pedestrian ramp on southwest corner to be compliant with ADA requirements.
- Long Term – Adjust the sewer covers north of south leg and within the crosswalk area on west leg to be flush with the pavement surface.
- Short Term – Replace the pushbutton sign on southwest corner.
- Short Term – Repair/cover the base of the mast arm to conceal the wiring.





Location: Intersection West 6 Avenue

**Observation #23: Miscellaneous Observations**



**Photo 78:** Street name sign facing eastbound traffic.



**Photo 79:** Eastbound outside lane approaching the intersection.



**Photo 80:** Driveway on the south side west of the intersection.



**Photo 81:** Pedestrian ramp at the southeast corner.

**Description of Observation:**

- Internally illuminated street name sign facing eastbound traffic is damaged (see **Photo 78**).
- The pavement along eastbound outside lane approaching the intersection is in poor condition (see **Photo 79**).



- There is an abandoned driveway on the south side west of the intersection (see **Photo 80**).
- The curb was broken, and the pedestrian ramp appears to be steep at southeast corner (see **Photo 81**).

**Suggestions for Improvements:**

ENGINEERING

- Short Term – Replace the damaged internally illuminated street name sign facing eastbound traffic.
- Short Term – Repair the pavement along eastbound outside lane approaching the intersection.
- Long Term – Reconstruct the abandoned driveway on the south side west of the intersection as sidewalk to be compliant with ADA requirements.
- Short Term – Repair the curb and reconstruct the pedestrian ramp on southeast corner to be compliant with ADA requirements.



Location: Intersection West 4 Avenue

### Observation #24: Striped Area on Southwest Corner



**Photo 82:** Striped area at the southwest corner.



**Photo 83:** A bird view of the intersection (Google Map).

#### Description of Observation:

- The striped area at southwest corner appears to be overlapped with crosswalk on west leg (see **Photo 82**). A bird view of the intersection from Google Map is shown in **Photo 83**.

#### Suggestions for Improvements:

##### ENGINEERING

- Short Term – Construct curbed bulb out on southwest quadrant in lieu of the striped area to reduce north-south crossing length on west leg. The curb extension will shorten the crossing distance on west leg crosswalk and allow pedestrians to see and be seen before entering the crosswalk. A concept sketch is included in **Appendix E**.



## Countermeasure Summary

The following is a summary of RRR, Short-term, Long-term, and Maintenance countermeasures that were previously discussed.

### RRR Recommendations

Observation Number	Location	Observation	Suggestion	CMF (if available)	Category
1	Corridor-Wide	Sidewalk in poor condition	Reconstruct the broken/uneven sidewalk areas; mechanical root pruning/grinding as needed	NA	RRR
2	Corridor-Wide	Steep slopes on pedestrian ramps	Reconstruct the pedestrian ramps to be ADA compliant	NA	RRR
3	Corridor-Wide	Drainage	Consider maintenance of drainage inlets and other improvements to alleviate any drainage related concerns	NA	Maintenance /RRR
4	Corridor-Wide	Abandoned driveways and driveways in poor condition	Reconstruct abandoned driveways and driveways in poor condition along the corridor to be compliant with ADA requirements.	NA	RRR
7	Corridor-Wide	Unobstructed clear width	Reconstruct sidewalk area and pedestrian ramps	NA	Long-term
13	Corridor-Wide	Faded crosswalk markings	Refurbish crosswalk markings	NA	Short-term
14	Corridor-Wide	High emphasis crosswalk at several signalized intersections	Install high emphasis crosswalk markings at the signalized intersections	0.81	Short-term
15	Corridor-Wide	Sub-standard traffic separators	Reconstruct the traffic separators to ensure that the crosswalks through the traffic separators are compliant with FDOT standards	NA	RRR

### Short-term Recommendations

Observation Number	Location	Observation	Suggestion	CMF (if available)	Category
6	Corridor-Wide	Lack of bicycle facilities	Consider "BICYCLES MAY USE FULL LANE (R4-11)" signs	NA	Short-term
16	Corridor-Wide	High pedestrian crossing activities	Education/enforcement campaigns; signs	NA	Short-term
18	Corridor-Wide	Malfunctioning luminaires	Repair/replace the luminaires	NA	Short-term
19	Intersection SR 826 West/East	High student crossing activities	Consider passive pedestrian detection by TOD/pedestrian recall during school arrival/dismissal periods at the intersections	NA	Short-term
24	Intersection West 4 Avenue	Striped area on southwest corner	Construct curbed bulb out on southwest quadrant in lieu of the striped area to reduce north-south crossing length on west leg	NA	Short-term

### Long-term Recommendations

Observation Number	Location	Observation	Suggestion	CMF (if available)	Category
8	Corridor-Wide	Low lighting at several locations	Upgrade lighting along the corridor	0.68	Long-term
9	Corridor-Wide	Speeding	Consider speed study and speed management	NA	Long-term
10	Corridor-Wide	Potential conflicts with right-turn vehicles	Systemic evaluation of Leading Pedestrian Interval (LPI); installation of Blank Out signs	0.87	Long-term
11	Corridor-Wide	Potential conflicts with left-turn vehicles	Consider omitting permissive phase during a pedestrian actuation	NA	Long-term
21	West 14 Lane to West 12 Avenue	Lack of controlled crossing	Consider installation of a mid-block crosswalk with signal	0.48	Long-term

### Recommendations for Partner Agencies

Observation Number	Location	Observation	Suggestion	CMF (if available)	Category
12	Corridor-Wide	Lack of amenities at transit stops	Upgrade the bus stops with amenities	NA	Coordination with Miami-Dade Transit Agency

### Maintenance Recommendations

Observation Number	Location	Observation	Suggestion	CMF (if available)	Category
5	Corridor-Wide	Missing or damaged detectable warning surface mats	Install detectable warning surface mats at the pedestrian ramps	NA	Maintenance
17	Corridor-Wide	Overgrown vegetation	Trim the overgrown vegetation to improve visibility of the roadside signs and clear the walk path along sidewalk	NA	Maintenance
19	Intersection SR 826 East	Pedestrian signs	Replace the pedestrian signs with a fluorescent yellow-green background	NA	Maintenance

## Countermeasures – Systemic/Non-Systemic

The countermeasures suggested to be implemented system-wide and at specific locations are summarized in **Table 4** through **Table 6**.

*Table 4: Countermeasures - Systemic*

Location	Recommendation	Category
Corridor-wide	Reconstruct the broken/uneven sidewalk areas along the corridor to be compliant with ADA requirements.	RRR
Corridor-wide	Consider maintenance of drainage inlets and other improvements to alleviate any drainage related concerns.	RRR
Corridor-wide	Reconstruct abandoned driveways and driveways in poor condition along the corridor to be compliant with ADA requirements.	RRR
Corridor-wide	Reconstruct pedestrian ramps to ensure unobstructed clear width compliant with ADA requirements is provided.	RRR
Corridor-wide	Upgrade lighting along the corridor (at a minimum retrofit lighting at the signalized intersections to improve lighting at crosswalks).	Long-term
Corridor-wide	Install speed feed back signs	Long-term
Corridor-wide	Evaluate systematic improvements such as Leading Pedestrian Interval (LPI) at all signalized intersections within the study limits. Evaluate installation of Blank Out signs (in addition to LPI) at the signalized intersections within the study limits.	Long-term
Corridor-wide	Consider omitting permissive phase during a pedestrian actuation at the signalized intersections within the study limits.	Long-term
Corridor-wide	Consider "BICYCLES MAY USE FULL LANE (R4-11)" signs.	Short-term
Corridor-wide	Coordinate with Miami-Dade Transit (MDT) to upgrade the bus stops with amenities such as shelters, benches, and trash bins.	Short-term
Corridor-wide	Refurbish crosswalk markings at the signalized intersections and at side street approaches, as needed.	Short-term
Corridor-wide	Install high emphasis crosswalk markings at the signalized intersections in conformance with the latest guidance from the FDOT Design Manual (FDM).	Short-term
Corridor-wide	Reconstruct the traffic separators to ensure that the crosswalks through the traffic separators are compliant with FDOT Design Manual.	Short-term
Corridor-wide	Consider education/enforcement campaigns focused on educating the pedestrians and drivers to safety traverse the intersections along the study corridor.	Short-term
Corridor-wide	Consider removing the grass strip and construct sidewalk to increase the clear width on sidewalk.	Short-term
Corridor-wide	Install detectable warning surface mats at the pedestrian ramps to be compliant with ADA requirements.	Maintenance
Corridor-wide	Trim the overgrown vegetation to improve visibility of the roadside signs and clear the walk path along sidewalk.	Maintenance
Corridor-wide	Trim overgrown trees to improve lighting in the vicinity of the light poles.	Maintenance
Corridor-wide	Repair/replace the luminaires that were not functional at the time of nighttime field visit.	Maintenance





Table 5: Countermeasures – Non-Systemic

Location	Recommendation	Category
SR 826 East	Replace the pedestrian signs with a fluorescent yellow-green background to enhance sign visibility and driver compliance to be compliant with MUTCD standards for school signs.	Maintenance
	Consider passive pedestrian detection by TOD/pedestrian recall during school arrival/dismissal periods at the intersections.	Short-term
West 17 Court	Repair/replace the pedestrian signal heads (countdown type) on southeast and southwest corners to cross on south and west legs.	RRR
West 14 Lane to West 12 Avenue	Install mid-block crossing with signal at West 13 Lane.	Long-term
	Consider replacing the existing "NO PEDESTRIAN CROSSING" (R9-3) on both sides of NW 103 Street east of West 12 Lane with oversized signs (30" X 30").	Short-term
	Consider installing "USE CROSSWALK" (R9-3bP) at the bus stops in the vicinity of West 13 Lane.	Short-term
West 8 Avenue	Reconstruct the pedestrian ramp on southwest corner to be compliant with ADA requirements.	RRR
	Adjust the sewer covers north of south leg and within the crosswalk area on west leg to be flush with the pavement surface.	RRR
	Replace the pushbutton sign on southwest corner.	Short-term
	Repair/cover the base of the mast arm to conceal the wiring.	Short-term
West 6 Avenue	Replace the damaged internally illuminated street name sign facing eastbound traffic.	Short-term
	Repair the pavement along eastbound outside lane approaching the intersection.	Short-term
	Reconstruct the abandoned driveway on the south side west of the intersection as sidewalk to be compliant with ADA requirements.	RRR
	Repair the curb and reconstruct the pedestrian ramp on southeast corner to be compliant with ADA requirements.	RRR
West 4 Avenue	Construct curbed bulb out on southwest quadrant in lieu of the striped area to reduce north-south crossing width on west leg.	Short-term




## MID-BLOCK CROSSWALK EVALUATION

Based on crash data review and collision diagram, there were 2 pedestrian/bicycle crashes and 1 fatal pedestrian crash reported between West 14 Lane and West 12 Lane from 2017-2021. Bus stops located in the vicinity of West 13 Lane are relatively far from the crosswalks (eastbound bus stop approximately 800 feet to the east crosswalk; westbound bus stop is approximately 900 feet to the west crosswalk). Boarding/alighting data for the bus stops indicates relatively moderate activity. Pedestrian attractors/generators on both sides of NW 103 Street between West 14 Lane and West 12 Avenue include stores, restaurants, supermarkets, banks, and automobile businesses. The separation between existing controlled pedestrian crossing locations (east leg crosswalk at West 14 Lane signal and west leg crosswalk at W 12 Avenue) is approximately 1,670 feet. The TEM Sections 5.2.4 and 5.2.5 identify installation criteria and considerations for placement of marked crosswalks.

As part of the crosswalk evaluation, pedestrian/bicycle counts were conducted on NW 103 Street between West 14 Lane and West 12 Avenue. The pedestrian/bicycle counts were collected on a typical weekday (Thursday, June 02, 2022) from 6:00 AM to 12:00 AM. The segment (between West 14 Lane and West 12 Avenue) for data collection was divided in to four zones: Zone 1 from east of West 14 Lane to west of West 13 Lane; Zone 2 from west of West 13 Lane to east of West 13 Lane; Zone 3 from east of West 13 Lane to west of West 12 Lane; Zone 4 from west of West 12 Lane to west of West 12 Avenue. A summary of the pedestrian/bicycle counts on NW 103 Street between West 14 Lane and West 12 Avenue is shown in **Table 6**. As can be seen from the summary of pedestrian/bicycle counts in Table 6, majority of crossing activity occurred in Zone 2. **Table 7** summarizes the applicable criteria for placement of marked crosswalks listed in TEM 5.2.5.1.



Table 6: Pedestrian Counts on NW 103 St Between W 14 Ln and W 12 Ave (Hourly)



TIME PERIOD	ZONE 1	ZONE 2	ZONE 3	ZONE 4	Total
6:00 AM - 7:00 AM	1	5	1	2	9
7:00 AM - 8:00 AM	1	1	1	2	5
8:00 AM - 9:00 AM	0	4	1	1	6
9:00 AM - 10:00 AM	1	6	0	4	11
10:00 AM - 11:00 AM	0	4	0	1	5
11:00 AM - 12:00 PM	0	3	0	1	4
12:00 PM - 1:00 PM	2	5	0	1	8
1:00 PM - 2:00 PM	1	8	0	0	9
2:00 PM - 3:00 PM	3	1	1	0	5
3:00 PM - 4:00 PM	5	2	3	0	10
4:00 PM - 5:00 PM	2	3	0	1	6
5:00 PM - 6:00 PM	3	2	0	0	5
6:00 PM - 7:00 PM	4	5	0	0	9
7:00 PM - 8:00 PM	0	4	0	1	5
8:00 PM - 9:00 PM	1	1	0	0	2
9:00 PM - 10:00 PM	1	0	0	0	1
10:00 PM - 11:00 PM	0	0	0	0	0
11:00 PM - 12:00 AM	0	0	0	0	0
<b>Total</b>	25	54	7	14	100

Note: Ped/bike counts were collected in Zone 1 through Zone 4 on Thursday, June 02, 2022

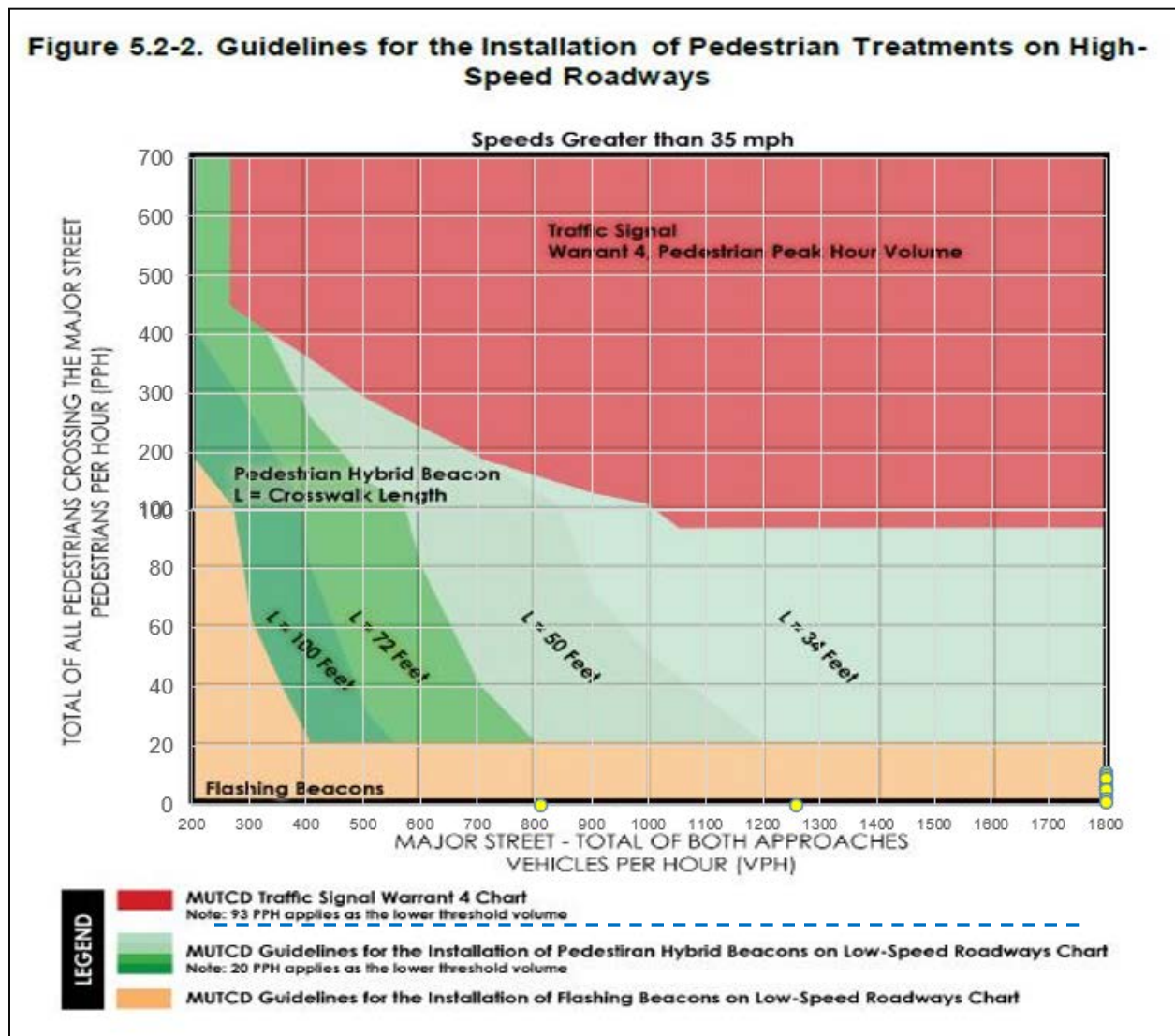


Table 7: Criteria for Marked Crosswalk (between West 14 Lane and West 12 Avenue)

Criteria for marked crosswalk	Comments
(1) Proximity to significant generators and attractors	
(a) Is there well-defined spatial pattern of pedestrian generators, attractors, and flow between them?	Yes.
(b) Identification of pedestrian generators and attractors.	Stores, restaurants, supermarkets, banks, and automobile businesses are major pedestrian attractors/generators
(2) Recommended Levels of Pedestrian Demand	
(a) Is the pedestrian volume data for an average day collected?	Yes.
(b) Are there 20 or more pedestrians during a single hour of an average day?	No. But the pedestrian volume is not needed per Criteria (2) (c).
(c) Pedestrian volume demand data is not needed for pedestrian crosswalks under the following context classifications: C2T, C3C, C4, C5, and C4.	The context classification for the study location is C4 Urban General.
(3) Minimum Location Characteristics	
(a) Does the location have a minimum vehicle volume of 2,000 Average Daily Traffic?	Yes.
(b) Is the nearest crossing location 300 feet away?	Yes. Pedestrian crossing facilities exist at West 14 Lane and at West 12 Avenue signals which are approximately 1,670 feet apart.
(c) Is the location outside the influence area of adjacent signalized intersections?	Yes.



Figure 8: Pedestrian Treatments Guidelines (West 14 Lane to West 12 Avenue)



The pedestrian/bicycle counts collected along SR 932/NW 103 Street between West 14 Lane and West 12 Avenue do not meet the pedestrian volume warrant (warrant #4) for a traffic signal. The guidelines for pedestrian treatments at a proposed crosswalk are shown in **Figure 8**. Given that the study corridor is a six-lane divided roadway between West 14 Lane and West 12 Avenue, flashing beacons or rectangular rapid flashing beacons (RRFBs) treatments were not considered. Also, due to closely spaced driveways, a pedestrian hybrid beacon (PHB) treatment was not considered. The pedestrian/bicycle counts indicated that the crossing activity was the highest in Zone 2 (vicinity of West 13 Lane). Although, the pedestrian/bicycle counts did not meet the pedestrian volume threshold in warrant #4 for a traffic signal, it is suggested to install a staggered crosswalk with a traffic signal at West 13 Lane (directional median opening). The proposed concept is included in **Appendix E**.



## SPEED DATA

Speed data was collected along SR 932/NW 103 Street at east of West 16 Avenue, east of West 12 Avenue, west of West 8 Avenue, and east of West 6 Avenue in accordance with the guidelines specified in the FDOT's Speed Zoning for Highways, Roads & Streets in Florida (August 2018). The FDOT's Speed Zoning for Highways, Roads & Streets in Florida (August 2018) and the guidelines specified in the Manual of Uniform Traffic Control Devices (MUTCD) form the basis for determining an appropriate speed limit. Based on the stipulated guidelines from these references, posted speed limits are determined using the "85th percentile speed" which is defined as the speed at or below which 85 percent of the observed free-flowing vehicles are traveling or upper limit of 10 mph pace. The 10-mph pace is the 10-mph band of travel speeds containing the largest number of observed vehicles.

The data was collected using automatic machines and pneumatic tube sensors to continuously record travel speeds over a 24-hour period from Tuesday, June 7, 2022. In addition to the speed statistics for the entire 72-hours period, the data collected was analyzed to establish speed characteristics during the late night and early morning periods (10:00 PM to 7:00 AM) corresponding with times that are most likely to exhibit free flow conditions. The speeds observed along NW 103 Street during this period are summarized in **Table 8** through **Table 11**. Detailed results are included in **Appendix F**.

Table 8: Summary of Speed Statistics – NW 103 Street East of West 16 Avenue

Characteristics	NW 103 St East of W 16 Ave			
	24-hour Period		10:00 PM to 7:00 AM	
	EB	WB	EB	WB
85th Percentile (mph)	38.6	36.8	45	44
10-mph Pace	25-34	20-29	30-39	30-39
Avg Speed (mph)	32.1	29.4	37.9	35.3
Current Posted Speed Limit (mph)	40	40	40	40
% Vehicles > Posted Speed Limit	9.8%	6.0%	34.6%	28.2%
Lower Limit for Speed Limit per Department's Guidelines (85th Percentile Speed - 8 mph)	30.6	28.8	37	36
Upper Limit for Speed Limit per Department's Guidelines (85th Percentile Speed or Upper Limit of 10-mph Pace [whichever is less] + 3 mph)	37	32	42	42



Table 9: Summary of Speed Statistics – NW 103 Street East of West 12 Avenue

Characteristics	NW 103 St East of W 12 Ave			
	24-hour Period		10:00 PM to 7:00 AM	
	EB	WB	EB	WB
85th Percentile (mph)	40	36.6	47	45
10-mph Pace	26-35	20-29	35-44	30-39
Avg Speed (mph)	33.5	29.7	39.5	34.9
Current Posted Speed Limit (mph)	40	40	40	40
% Vehicles > Posted Speed Limit	15.1%	6.0%	46.0%	29.2%
Lower Limit for Speed Limit per Department's Guidelines (85th Percentile Speed - 8 mph)	32	28.6	39	37
Upper Limit for Speed Limit per Department's Guidelines (85th Percentile Speed or Upper Limit of 10-mph Pace [whichever is less] + 3 mph)	38	32	47	42

Table 10: Summary of Speed Statistics – NW 103 Street West of West 8 Avenue

Characteristics	NW 103 St West of W 8 Ave			
	24-hour Period		10:00 PM to 7:00 AM	
	EB	WB	EB	WB
85th Percentile (mph)	38.4	36.5	46	44
10-mph Pace	21-30	25-34	35-44	26-35
Avg Speed (mph)	30.7	30.5	38.2	34.9
Current Posted Speed Limit (mph)	40	40	40	40
% Vehicles > Posted Speed Limit	9.5%	6.6%	39.6%	23.7%
Lower Limit for Speed Limit per Department's Guidelines (85th Percentile Speed - 8 mph)	30.4	28.5	38	36
Upper Limit for Speed Limit per Department's Guidelines (85th Percentile Speed or Upper Limit of 10-mph Pace [whichever is less] + 3 mph)	33	37	47	38



Table 11: Summary of Speed Statistics – NW 103 Street East of West 6 Avenue

Characteristics	NW 103 St East of W 6 Ave			
	24-hour Period		10:00 PM to 7:00 AM	
	EB	WB	EB	WB
85th Percentile (mph)	37.7	37.3	44	44
10-mph Pace	20-29	21-30	25-34	30-39
Avg Speed (mph)	30.2	30.2	33.9	35.5
Current Posted Speed Limit (mph)	40	40	40	40
% Vehicles > Posted Speed Limit	6.7%	6.9%	25.9%	26.0%
Lower Limit for Speed Limit per Department's Guidelines (85th Percentile Speed - 8 mph)	29.7	29.3	36	36
Upper Limit for Speed Limit per Department's Guidelines (85th Percentile Speed or Upper Limit of 10-mph Pace [whichever is less] + 3 mph)	32	33	37	42

Based on the speed data analysis for the aforementioned four locations, the following are key observations:

- The 85<sup>th</sup> percentile speeds along both directions of the study segment are not above the posted speed limit.
- The current speed limit along NW 103 Street is not between the lower limit and upper limit per FDOT's guidelines.

Results from the speed data collected indicate that the operating speeds along the study corridor are generally lower than the posted speed limit. It is suggested for the Department to consider reducing the posted speed for the segment along NW 103 Street from West 16 Avenue to West 6 Avenue to 35 mph. Reducing the posted speed to 35 mph will provide an opportunity to install sharrow markings in both directions within the study limits.





## LEADING PEDESTRIAN INTERVAL ANALYSIS

Leading pedestrian interval (LPI) signal application has been recommended as a low-cost countermeasure to reduce pedestrian-vehicle crashes at signalized intersections. LPI gives pedestrians an advance “Walk” signal indication before a concurrent green signal is provided to vehicles. This will allow pedestrians to establish a presence in the crosswalk, thereby increasing the visibility of pedestrians to drivers and potentially reducing conflicts with turning vehicles. According to the FDOT Traffic Engineering Manual (TEM) 3.11.4(2), January 2022, LPI may be implemented at the discretion of the DTOE in Context Classification C2T, C4, C5, and C6. The study corridor is C4 – Urban General with pedestrian crossing activities, and conflicts between right-turn vehicles and pedestrians were observed during the field reviews.

LPI timing should allow pedestrians to clear the width of one lane in the direction of moving traffic, including the width of a bicycle lane, to increase the visibility of pedestrians to turning traffic. A minimum of 3-second LPI duration is required by the MUTCD. For the intersections with permissive left-turns, opposing permissive left-turns may be timed concurrently with an LPI called on one of the pedestrian phase pair first and then the other, the LPI timing addition should not extend beyond 4 seconds (see TEM 3.11.5). A 4-second LPI duration is proposed for the study intersections.

Synchro 11 was utilized to conduct level of service (LOS) analysis to evaluate LPI signal implementation for the intersections within the study limits. The LPI configuration is not supported by the Highway Capacity Manual (HCM) 6th Edition methodology. The HCM 2000 methodology output was used to analyze all signalized intersection operations for both existing conditions and proposed LPI conditions. The Miami-Dade County signal time-of-day plan sheets utilized for the analysis are included in Appendix B. Four-hour turning movement counts (TMCs) were collected from 7:00 AM to 9:00 AM during the morning period and from 4:00 PM to 6:00 PM during the afternoon period on Thursday, June 2, 2022 at 11 signalized intersections within the study limits. The TMCs collected at the study intersections in 15-minute intervals are included in **Appendix G**. Based on the turning movement counts, the AM peak hour is from 8:00 AM to 9:00 AM, and the PM peak hour is from 4:00 PM to 5:00 PM for the study corridor. The existing lane geometry and turning movement volumes were used in the Synchro analysis. The existing and proposed operational analysis results for LOS and delay by intersection and approach for the AM peak hour are summarized in **Table 12**, and for the PM peak hour are summarized in **Table 13**.



Table 12: Existing and Proposed Conditions LOS and Delay – AM Peak Hour

Intersection	Delay (sec/veh)		LOS		Approach	Approach Delay		Approach LOS	
	Existing	LPI	Existing	LPI		Existing	LPI	Existing	LPI
W 18 Court	21.3	28.2	C	C	Eastbound	18.1	29.8	B	C
					Westbound	7.9	14.4	A	B
					Northbound	84.4	77.0	F	E
					Southbound	N/A	N/A	N/A	N/A
W 17 Court	17.5	44.1	B	D	Eastbound	4.6	46.2	A	D
					Westbound	16.3	36.4	B	D
					Northbound	62.7	65.6	E	E
					Southbound	70.1	73.5	E	E
W 16 Avenue	45.0	62.2	D	E	Eastbound	36.4	87.1	D	F
					Westbound	33.4	34.6	C	C
					Northbound	59.1	57.5	E	E
					Southbound	68.0	71.1	E	E
W 14 Lane	9.6	25.0	A	C	Eastbound	1.8	6.0	A	A
					Westbound	8.4	34.2	A	C
					Northbound	68.7	70.7	E	E
					Southbound	87.3	101.6	F	F
W 12 Avenue	46.8	57.5	D	E	Eastbound	33.7	39.4	C	D
					Westbound	50.6	70.4	D	E
					Northbound	51.0	50.3	D	D
					Southbound	55.3	67.6	E	E
W 10 Avenue	15.7	18.8	B	B	Eastbound	13.7	4.5	B	A
					Westbound	4.3	18.2	A	B
					Northbound	75.6	75.7	E	E
					Southbound	79.9	80.5	E	F
W 900 Block*	2.2	N/A	A	N/A	Eastbound	0.9	N/A	A	N/A
					Westbound	2.4	N/A	A	N/A
					Northbound	81.3	N/A	F	N/A
					Southbound	N/A	N/A	N/A	N/A
W 8 Avenue	42.6	46.4	D	D	Eastbound	33.7	42.8	C	D
					Westbound	27.1	32.5	C	C
					Northbound	58.0	56.7	E	E
					Southbound	72.2	68.8	E	E
W 6 Avenue	13.1	14.9	B	B	Eastbound	8.8	10.1	A	B
					Westbound	6.7	8.8	A	A
					Northbound	68.3	70.0	E	E
					Southbound	77.2	81.2	E	F
W 500 Block	21.6	34.5	C	C	Eastbound	14.2	45.0	B	D
					Westbound	17.0	19.0	B	B
					Northbound	72.8	72.3	E	E
					Southbound	77.6	76.4	E	E
W 4 Avenue	54.6	56.2	D	E	Eastbound	54.1	38.7	D	D
					Westbound	53.1	60.6	D	E
					Northbound	50.2	55.3	D	E
					Southbound	58.9	65.3	E	E

\*Note: LPI is not proposed at the intersection with limited right-turn traffic.



Table 13: Existing and Proposed Conditions LOS and Delay – PM Peak Hour

Intersection	Delay (sec/veh)		LOS		Approach	Approach Delay		Approach LOS	
	Existing	LPI	Existing	LPI		Existing	LPI	Existing	LPI
W 18 Court	23.8	30.6	C	C	Eastbound	17.1	29.1	B	C
					Westbound	6.1	18.6	A	B
					Northbound	90.5	68.1	F	E
					Southbound	N/A	N/A	N/A	N/A
W 17 Court	46.8	46.2	D	D	Eastbound	34.7	29.1	C	C
					Westbound	32.1	41.0	C	D
					Northbound	117.9	99.3	F	F
					Southbound	64.4	73.5	E	E
W 16 Avenue	59.2	66.2	E	E	Eastbound	55.8	64.8	E	E
					Westbound	42.1	49.0	D	D
					Northbound	80.4	81.3	F	F
					Southbound	76.6	87.1	E	F
W 14 Lane	17.0	18.4	B	B	Eastbound	4.9	7.9	A	A
					Westbound	8.5	8.6	A	A
					Northbound	64.2	64.1	E	E
					Southbound	111.8	114.3	F	F
W 12 Avenue	60.0	66.4	E	E	Eastbound	73.3	80.7	E	F
					Westbound	32.3	38.0	C	D
					Northbound	75.9	78.0	E	E
					Southbound	74.2	84.7	E	F
W 10 Avenue	10.8	11.4	B	B	Eastbound	2.3	4.7	A	A
					Westbound	2.9	2.1	A	A
					Northbound	85.0	84.9	F	F
					Southbound	93.1	91.9	F	F
W 900 Block*	2.3	N/A	A	N/A	Eastbound	1.7	N/A	A	N/A
					Westbound	1.7	N/A	A	N/A
					Northbound	86.3	N/A	F	N/A
					Southbound	0.0	N/A	A	N/A
W 8 Avenue	53.5	57.5	D	E	Eastbound	51.3	58.9	D	E
					Westbound	33.4	37.4	C	D
					Northbound	83.6	81.9	F	F
					Southbound	75.7	78.4	E	E
W 6 Avenue	16.8	17.6	B	B	Eastbound	9.9	10.3	A	B
					Westbound	9.2	10.4	A	B
					Northbound	79.7	79.7	E	E
					Southbound	79.2	79.2	E	E
W 500 Block	32.1	36.2	C	D	Eastbound	21.6	33.4	C	C
					Westbound	18.2	20.7	B	C
					Northbound	78.3	74.8	E	E
					Southbound	114.7	99.0	F	F
W 4 Avenue	62.6	67.1	E	E	Eastbound	52.8	61.1	D	E
					Westbound	45.9	61.5	D	E
					Northbound	76.1	69.4	E	E
					Southbound	75.0	77.3	E	E

\*Note: LPI is not proposed at the intersection with limited right-turn traffic.

The Synchro results indicate that 6 (West 18 Court, West 17 Court, West 14 Lane, West 10 Avenue, West 6 Avenue, and West 500 Block) out of 10 intersections operate at LOS D or better during AM and PM peak hours for both existing and proposed LPI conditions. The Synchro output reports are included in



**Appendix H.** LPI is anticipated to increase vehicle or pedestrian delay for coordinated signal system. The proposed LPI conditions experience relatively longer delays than the existing conditions. However, those 6 intersections with the proposed LPI for all approaches will operate at an acceptable LOS and meet LOS targets in urbanized areas. For other 4 intersections (West 16 Avenue, West 12 Avenue, West 8 Avenue, and West 4 Avenue) that operate at LOS E during AM or PM for proposed LPI condition, LPI will not be recommended. **Table 14** summarizes the LPI implementation by intersection and approach within the study limits.

Table 14: Summary of LPI Implementation

Intersection	AM LOS		PM LOS		Approach	AM Approach		PM Approach		Propose LPI?
	Existing	LPI	Existing	LPI		Existing	LPI	Existing	LPI	
W 18 Court	C	C	C	C	Eastbound	B	C	B	C	Yes
					Westbound	A	B	A	B	Yes
					Northbound	F	E	F	E	Yes
W 17 Court	B	D	D	D	Eastbound	A	D	C	C	Yes
					Westbound	B	D	C	D	Yes
					Northbound	E	E	F	F	Yes
					Southbound	E	E	E	E	Yes
W 16 Avenue	D	E	E	E	Eastbound	D	F	E	E	No
					Westbound	C	C	D	D	No
					Northbound	E	E	F	F	No
					Southbound	E	E	E	F	No
W 14 Lane	A	C	B	B	Eastbound	A	A	A	A	Yes
					Westbound	A	C	A	A	Yes
					Northbound	E	E	E	E	Yes
					Southbound	F	F	F	F	Yes
W 12 Avenue	D	E	E	E	Eastbound	C	D	E	F	No
					Westbound	D	E	C	D	No
					Northbound	D	D	E	E	No
					Southbound	E	E	E	F	No
W 10 Avenue	B	B	B	B	Eastbound	B	A	A	A	Yes
					Westbound	A	B	A	A	Yes
					Northbound	E	E	F	F	Yes
					Southbound	E	F	F	F	Yes
W 8 Avenue	D	D	D	E	Eastbound	C	D	D	E	No
					Westbound	C	C	C	D	No
					Northbound	E	E	F	F	No
					Southbound	E	E	E	E	No
W 6 Avenue	B	B	B	B	Eastbound	A	B	A	B	Yes
					Westbound	A	A	A	B	Yes
					Northbound	E	E	E	E	Yes
					Southbound	E	F	E	E	Yes
W 500 Block	C	C	C	D	Eastbound	B	D	C	C	Yes
					Westbound	B	B	B	C	Yes
					Northbound	E	E	E	E	Yes
					Southbound	E	E	F	F	Yes
W 4 Avenue	D	E	E	E	Eastbound	D	D	D	E	No
					Westbound	D	E	D	E	No
					Northbound	D	E	E	E	No
					Southbound	E	E	E	E	No



LPI should only be considered to implement for times and days when the pedestrian activity is present. Based on the field observations and pedestrian counts, the times for LPI are 6:00 AM - 10:00 AM and 12:00 PM - 4:00 PM. An electronic blank-out "NO TURN ON RED" sign (R10-11) or "TURNING VEHICLES STOP FOR PEDESTRIANS" sign (R10-15a) should be considered to enhance LPI implementation compliance. It is recommended that field observations and safety improvement evaluations be conducted after LPI implementation for the study intersections. Potential further adjustments in signal timing and coordination may be applied based on safety needs.



## COUNTERMEASURE EVALUATION

### Countermeasure Costs

A preliminary cost estimate for the short-term and long-term countermeasures is summarized in **Appendix I**.

### Benefit/Cost Analysis

A benefit-cost (B/C) and net present value (NPV) analysis, based on safety benefits, was performed for the identified improvements along the study segment of SR 932/NW 103 Street from SR 826 to West 4 Avenue to determine the cost effectiveness. The estimation of benefits was based on the expected reduction in crashes (using the crash reduction factors [CRF] from the FDOT approved “Pedestrian/Bicycle Countermeasures List”). The preliminary estimate of construction cost, B/C analysis, and NPV calculations are included in **Appendix I** and summarized in **Table 15**. The average annual benefit resulting from estimated reduction in crashes due to proposed improvements is estimated to be \$3,171,030, based on an average cost per crash of \$123,598. The estimated cost of the improvements is approximately \$2,359,323, which is equivalent to an annualized cost of \$197,834. The resulting Benefit/Cost (B/C) ratio is 16.0 and the Net Present Value (NPV) of the project is estimated to be \$30,415,163.

Table 15: Preliminary Cost Estimate, B/C and NPV

Description	Total
Roadway/Signaling/Pavement Markings	\$144,333.65
Lighting	\$464,987.05
Signals	\$514,438.22
Right-of-Way	\$131,200.00
<b>Subtotal</b>	<b>\$1,254,958.92</b>
Maintenance of Traffic	\$125,495.89
Mobilization	\$100,396.71
Contingency	\$250,991.78
Preliminary Engineering (PE)	\$401,586.86
Construction Engineering and Inspection (CEI)	\$225,892.61
<b>Preliminary Cost Estimate</b>	<b>\$2,359,322.77</b>
B/C	16.0
NPV	\$30,415,163



# Appendix A

## Field Review Packet



## Roadway Characteristics



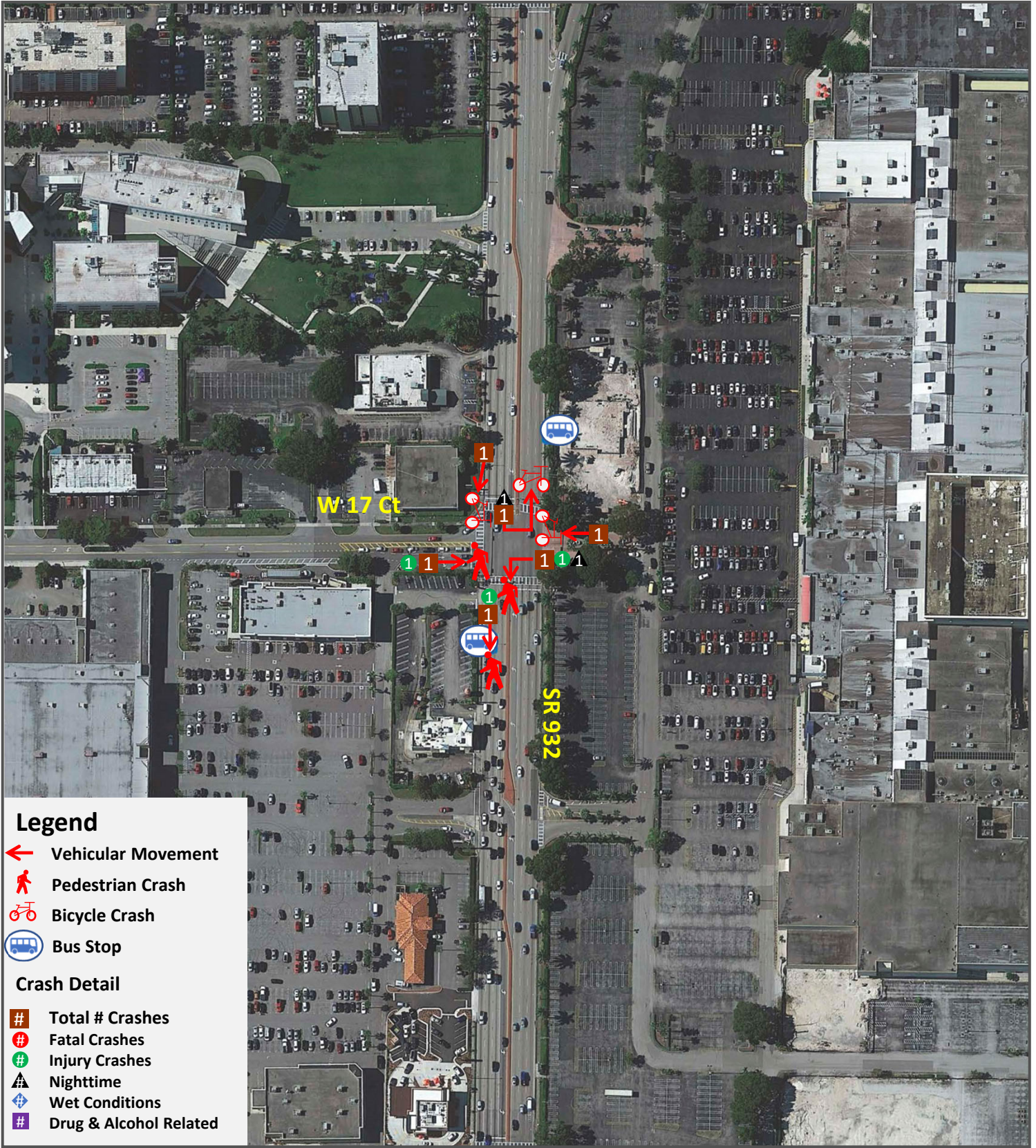


<b>SR 932/NW 103 Street from SR 826 to W 4 Avenue</b>	
<b>Roadway Characteristics</b>	
Section ID/State Road	87038000/SR 932
Project Limits	SR 826 to W 4 Avenue
Mileposts (MP)	MP 1.156 to MP 3.150
Roadway Type	6-lane Urban Divided Roadway
Functional Classification	14 - Urban Principal Arterial Other
Context Classification	C4 - Urban General
FDOT Access Classification	Class 5
Speed Limit	40 MPH
2020 Traffic Volumes (vpd)	45,000
Ped/Bike Facilities	Sidewalks on both sides of NW 103 Street

## Collision Diagrams

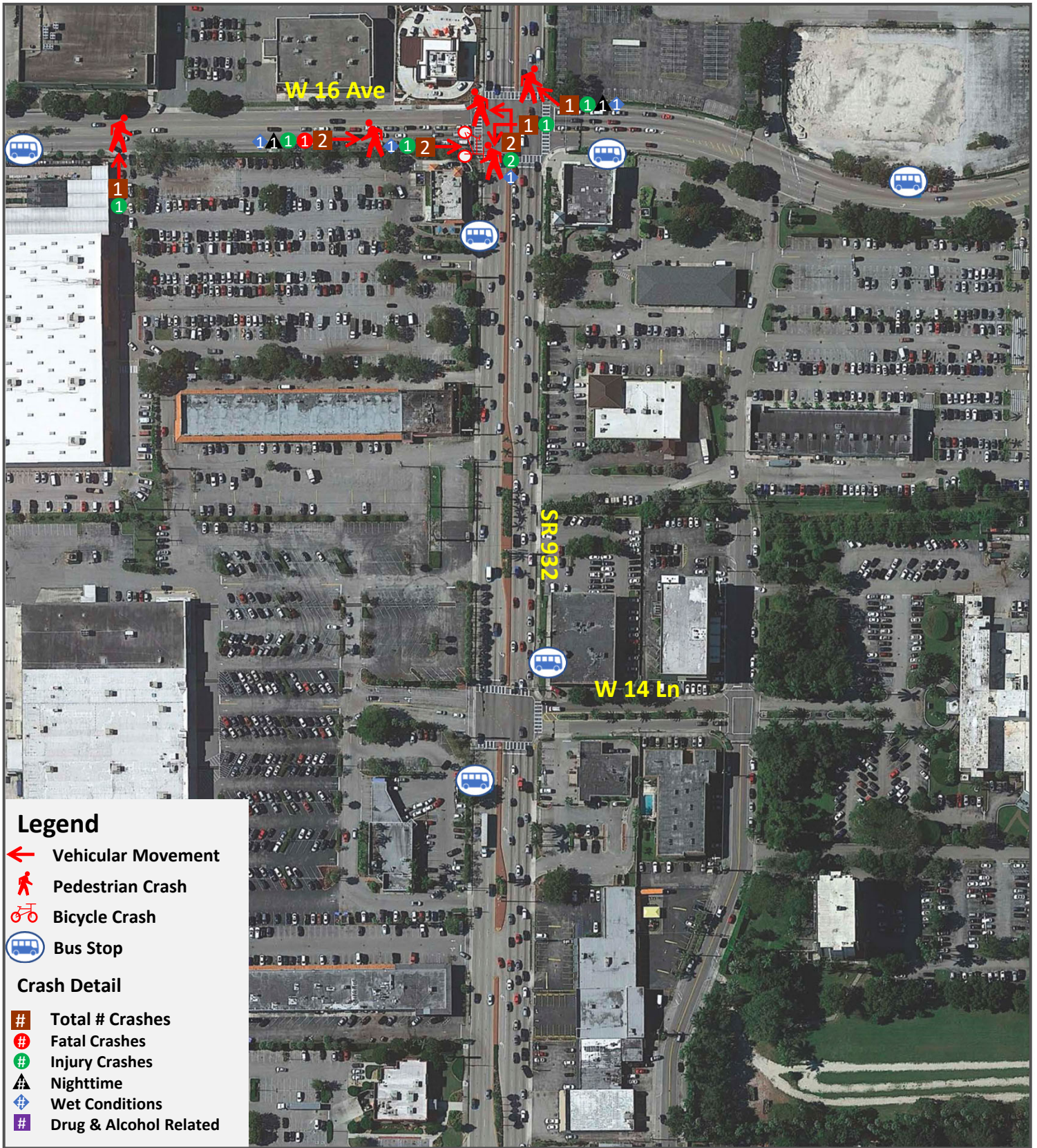


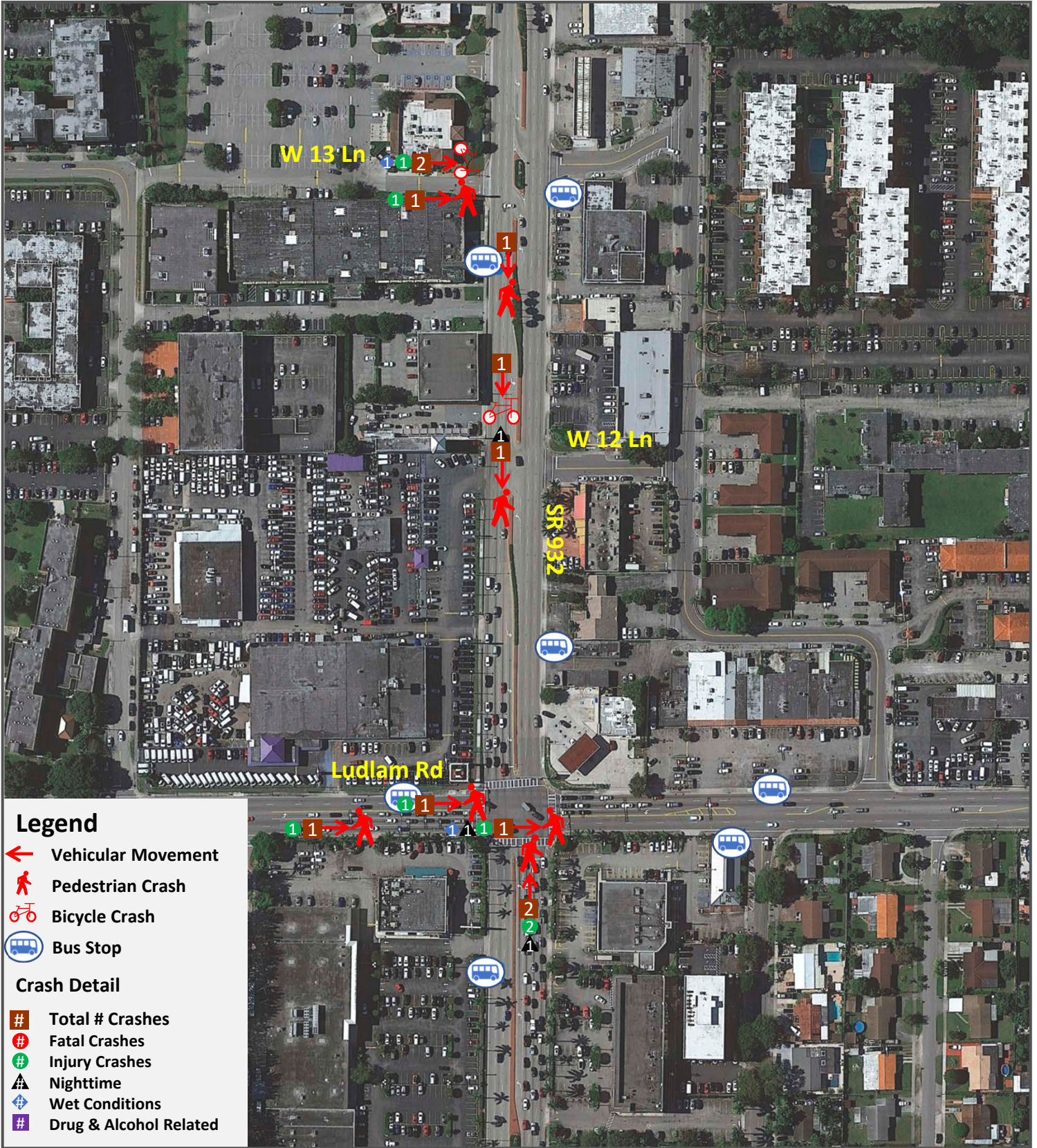




Segment 6.3 | SR 932/NW 103 Street - SR 826 to W 4 Avenue

FIGURE 2





Segment 6.3 | SR 932/NW 103 Street - SR 826 to W 4 Avenue

FIGURE 4



Segment 6.3 | SR 932/NW 103 Street - SR 826 to W 4 Avenue

FIGURE 5



Segment 6.3 | SR 932/NW 103 Street - SR 826 to W 4 Avenue

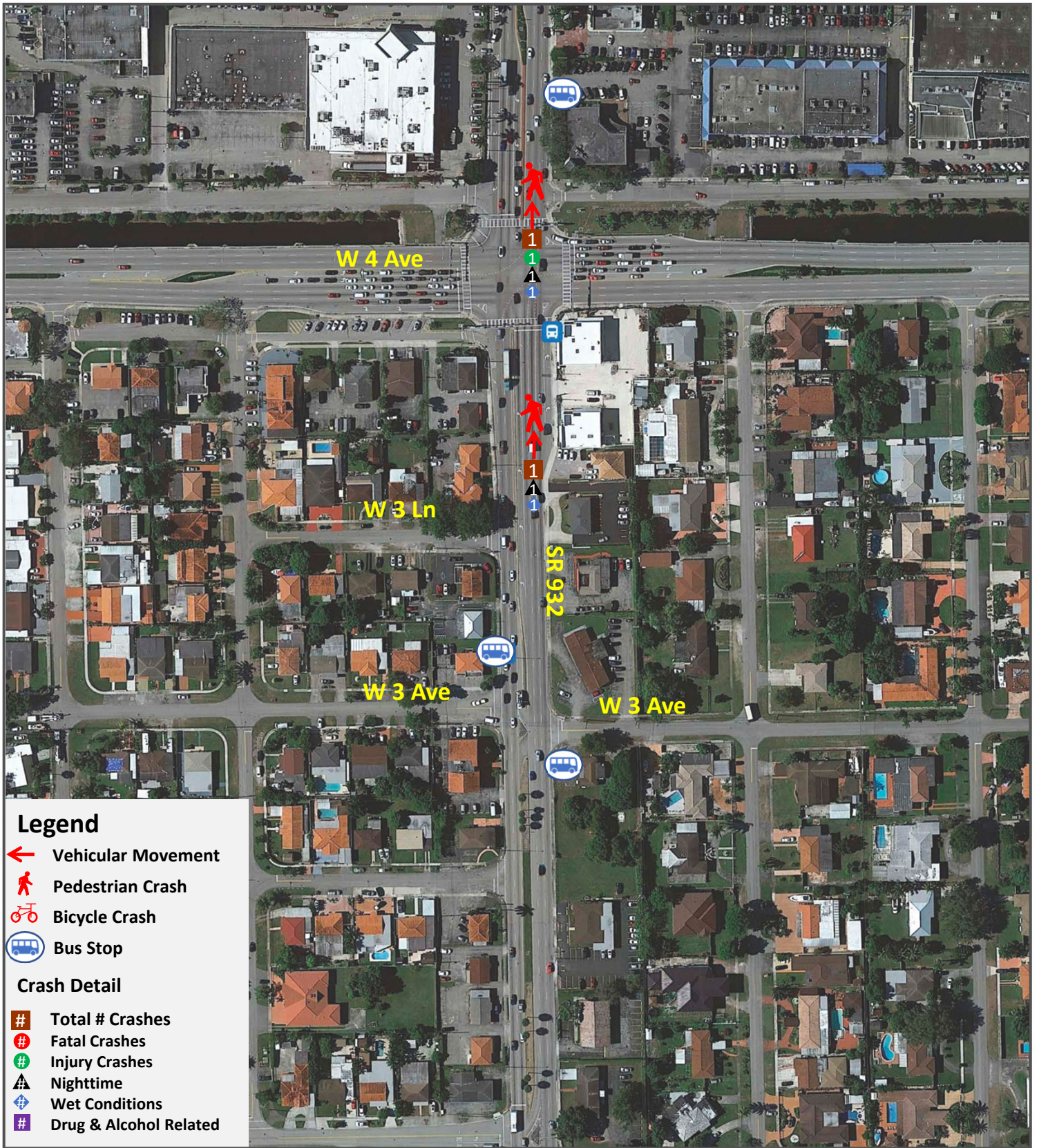
FIGURE 6





Segment 6.3 | SR 932/NW 103 Street - SR 826 to W 4 Avenue

FIGURE 7



Segment 6.3 | SR 932/NW 103 Street - SR 826 to W 4 Avenue

FIGURE 8

## Condition Diagrams





Segment 6.3 | SR 932/NW 103 Street - SR 826 to W 4 Avenue

FIGURE 1



Segment 6.3 | SR 932/NW 103 Street - SR 826 to W 4 Avenue

FIGURE 2





Segment 6.3 | SR 932/NW 103 Street - SR 826 to W 4 Avenue

FIGURE 3





Segment 6.3 | SR 932/NW 103 Street - SR 826 to W 4 Avenue

FIGURE 4



Segment 6.3 | SR 932/NW 103 Street - SR 826 to W 4 Avenue

FIGURE 5





Segment 6.3 | SR 932/NW 103 Street - SR 826 to W 4 Avenue

FIGURE 6





Segment 6.3 | SR 932/NW 103 Street - SR 826 to W 4 Avenue

FIGURE 8

## Pedestrian/Bicycle Crash Summary



CRASH ANALYSIS - NW 103 Street from SR 826 to W 4 Avenue

		Analysis Year					Severity					Total	Average	Percent
		2017	2018	2019	2020	2021	Property Damage Only	Possible Injury	Non-Incapacitating Injury	Incapacitating Injury	Fatal			
Type of Crash	Pedestrian	11	12	3	4	0	5	9	6	7	3	30	6.00	69.8%
	Bicycle	3	4	4	1	1	7	1	4	1	0	13	2.60	30.2%
	<b>Total Crashes</b>	<b>14</b>	<b>16</b>	<b>7</b>	<b>5</b>	<b>1</b>	<b>12</b>	<b>10</b>	<b>10</b>	<b>8</b>	<b>3</b>	<b>43</b>	<b>8.60</b>	<b>100.0%</b>
Light Conditions	Daylight	8	10	5	3	1	9	8	5	4	1	27	5.40	62.8%
	Dusk	1	0	1	0	0	0	1	1	0	0	2	0.40	4.7%
	Dawn	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0%
	Dark - Lighted	5	6	1	2	0	3	1	4	4	2	14	2.80	32.6%
	Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0%
	Dark - Lighting	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0%
	Other/Unknown	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0%
Road Surface Condition	Dry	11	13	6	4	1	11	7	7	8	2	35	7.00	81.4%
	Wet	3	3	1	1	0	1	3	3	0	1	8	1.60	18.6%
	Other	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0%
Month	January	1	1	0	0	0	1	0	1	0	0	2	0.40	4.7%
	February	2	1	1	1	0	2	1	1	1	0	5	1.00	11.6%
	March	3	3	1	0	0	2	4	0	1	0	7	1.40	16.3%
	April	0	0	2	0	0	0	2	0	0	0	2	0.40	4.7%
	May	2	1	2	1	0	1	1	3	0	1	6	1.20	14.0%
	June	1	2	0	1	0	0	1	0	2	1	4	0.80	9.3%
	July	2	0	0	0	0	1	0	1	0	0	2	0.40	4.7%
	August	2	2	0	0	1	2	1	1	1	0	5	1.00	11.6%
	September	0	1	1	0	0	1	0	1	0	0	2	0.40	4.7%
	October	1	3	0	0	0	0	0	2	2	0	4	0.80	9.3%
	November	0	1	0	1	0	2	0	0	0	0	2	0.40	4.7%
	December	0	1	0	1	0	0	0	0	1	1	2	0.40	4.7%
Day of Week	Monday	1	2	0	0	0	0	0	0	2	1	3	0.60	7.0%
	Tuesday	4	4	2	1	0	3	2	3	3	0	11	2.20	25.6%
	Wednesday	4	3	2	1	0	4	2	3	1	0	10	2.00	23.3%
	Thursday	2	1	2	1	0	0	2	3	1	0	6	1.20	14.0%
	Friday	0	3	0	0	1	3	1	0	0	0	4	0.80	9.3%
	Saturday	2	2	0	2	0	0	2	1	1	2	6	1.20	14.0%
	Sunday	1	1	1	0	0	2	1	0	0	0	3	0.60	7.0%
Hour of Day	0:00	0	0	0	4	1	2	1	0	2	0	5	1.00	11.6%
	1:00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0%
	2:00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0%
	3:00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0%
	4:00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0%
	5:00	0	1	0	0	0	0	0	0	1	0	1	0.20	2.3%
	6:00	1	0	1	0	0	0	0	1	1	0	2	0.40	4.7%
	7:00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0%
	8:00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0%
	9:00	1	0	0	0	0	0	1	0	0	0	1	0.20	2.3%
	10:00	1	1	1	0	0	2	0	0	1	0	3	0.60	7.0%
	11:00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0%
	12:00	4	1	1	0	0	0	1	3	1	1	6	1.20	14.0%
	13:00	1	2	0	0	0	1	1	1	0	0	3	0.60	7.0%
	14:00	0	1	0	0	0	0	1	0	0	0	1	0.20	2.3%
	15:00	0	3	0	0	0	1	1	0	1	0	3	0.60	7.0%
	16:00	0	1	2	0	0	1	2	0	0	0	3	0.60	7.0%
	17:00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0%
	18:00	2	2	0	0	0	1	0	2	0	1	4	0.80	9.3%
	19:00	0	2	2	0	0	2	1	0	1	0	4	0.80	9.3%
	20:00	1	1	0	0	0	0	0	2	0	0	2	0.40	4.7%
	21:00	3	0	0	1	0	2	1	0	0	1	4	0.80	9.3%
	22:00	0	1	0	0	0	0	0	1	0	0	1	0.20	2.3%
23:00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0%	
Alcohol & Drugs	None	14	16	7	5	1	12	10	10	8	3	43	8.60	100.0%
	Alcohol Involved	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0%
	Drugs Involved	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0%
	Alcohol and Drugs Undetermined	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0%
Age of Driver 1 (Typically Driver at Fault)	19 and Under	1	1	0	0	0	0	0	1	0	1	2	0.40	4.7%
	20-24	2	2	1	0	0	1	2	1	0	1	5	1.00	11.6%
	25-29	1	1	1	1	0	1	0	2	1	0	4	0.80	9.3%
	30-34	1	0	2	0	0	0	1	1	1	0	3	0.60	7.0%
	35-39	0	1	0	0	0	0	1	0	0	0	1	0.20	2.3%
	40-44	1	1	1	1	0	2	0	1	1	0	4	0.80	9.3%
	45-49	2	1	0	0	0	2	0	0	1	0	3	0.60	7.0%
	50-54	1	2	1	1	0	2	2	0	1	0	5	1.00	11.6%
	55-59	2	1	0	0	0	1	1	0	1	0	3	0.60	7.0%
	60-64	0	1	0	0	0	1	0	0	0	0	1	0.20	2.3%
	65-69	2	2	0	1	0	0	1	2	1	1	5	1.00	11.6%
	70-74	0	1	0	0	0	0	0	0	1	0	1	0.20	2.3%
	75-79	0	0	0	1	0	0	1	0	0	0	1	0.20	2.3%
	80-84	0	0	1	0	0	1	0	0	0	0	1	0.20	2.3%
	85 and Over	0	0	0	0	0	0	0	0	0	0	0	0.00	0.0%
	Unknown	1	2	0	0	1	1	1	2	0	0	4	0.80	9.3%

## Pedestrian Clearance



**Pedestrian Clearance at Signalized Intersections - SR 932/NW 103 Street from SR 826 to W 4 Avenue**

<b>Intersection</b>	<b>Leg</b>	<b>Walk</b>	<b>Don't Walk</b>	<b>Yellow</b>	<b>Red</b>	<b>Pedestrian Clearance</b>
SR 826 W	North leg	7	9	4.4	2	15.4
	South leg	7	9	4.4	2	15.4
SR 826 E	North leg	7	8	4.4	2	14.4
	South leg	7	8	4.4	2	14.4
W 18 Court	East Leg	7	22	4	2.6	28.6
	North leg	7	20	4.4	2	26.4
	South leg	7	20	4.4	2	26.4
W 17 Court	East Leg	7	23	4	2.7	29.7
	West Leg	7	23	4	2.7	29.7
	North leg	7	25	4.4	2.1	31.5
	South leg	7	25	4.4	2.1	31.5
W 16 Avenue	East Leg	7	24	4.4	2.1	30.5
	West Leg	7	24	4.4	2.1	30.5
	North leg	7	21	4.4	2	27.4
	South leg	7	21	4.4	2	27.4
W 14 Lane	East Leg	7	22	4	2.7	28.7
	West Leg	7	22	4	2.7	28.7
	North leg	7	20	4.4	2	26.4
	South leg	7	20	4.4	2	26.4
W 12 Avenue	East Leg	7	24	4.4	2.1	30.5
	West Leg	7	24	4.4	2.1	30.5
	North leg	7	21	4.4	2	27.4
	South leg	7	21	4.4	2	27.4
W 10 Avenue	East Leg	7	22	4	2.7	28.7
	West Leg	7	22	4	2.7	28.7
	North leg	7	20	4.4	2	26.4
	South leg	7	20	4.4	2	26.4
W 900 Block	West Leg	7	23	4	2.7	29.7
W 8 Avenue	East Leg	7	24	4.4	2.1	30.5
	West Leg	7	24	4.4	2.1	30.5
	North leg	7	21	4.4	2	27.4
	South leg	7	21	4.4	2	27.4
W 6 Avenue	East Leg	7	18	4	2.7	24.7
	West Leg	7	18	4	2.7	24.7
	North leg	7	20	4.4	2	26.4
	South leg	7	20	4.4	2	26.4
W 500 Block	East Leg	7	23	4	2.7	29.7
	West Leg	7	23	4	2.7	29.7
	North leg	7	25	4.4	2.1	31.5
	South leg	7	25	4.4	2.1	31.5
Red Road	East Leg	7	23	4.8	2.5	30.3
	West Leg	7	23	4.8	2.5	30.3
	North leg	7	23	4.4	2.7	30.1
	South leg	7	23	4.4	2.7	30.1

## **Appendix B**

# **Signal Timing Information**





**TOD Schedule Report**  
for 3917: SR- 826 W&NW 103 St

Print Date:  
10/4/2021

Print Time:  
5:39 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
3917	SR- 826 W&NW 103 St	DOW-2	TOD	N/A	0	0	N/A	0	Max 0

**Splits**

<u>PH 1</u>	<u>PH 2</u>	<u>PH 3</u>	<u>PH 4</u>	<u>PH 5</u>	<u>PH 6</u>	<u>PH 7</u>	<u>PH 8</u>
-	WBT	-	-	WBL	EBT	-	SBT
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

<u>Phase</u>	<u>Walk</u>			<u>Don't Walk</u>			<u>Min Initial</u>			<u>Veh Ext</u>			<u>Max Limit</u>			<u>Max 2</u>			<u>Yellow</u>	<u>Red</u>
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 WBT	7	0	0	9	0	0	7	16	16	1	1	1	50	21	21	0	21	21	4.4	2
3 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 WBL	0	0	0	0	0	0	7	7	7	3.5	3	3	20	9	9	40	9	9	4.4	2
6 EBT	7	0	0	9	0	0	7	16	16	1	1	1	60	21	21	0	21	21	4.4	2
7 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 SBT	0	0	0	0	0	0	7	7	7	3	3	3	20	12	12	40	12	12	4	2.9

Last In Service Date: unknown

<b>Permitted Phases</b>	
	<b>12345678</b>
Default	-2--56-8
External Permit 0	-----
External Permit 1	-----
External Permit 2	-----

**TOD Schedule Report**  
for 3917: SR- 826 W&NW 103 St

Print Date:  
10/4/2021

Print Time:  
5:39 PM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 -	2 WBT	3 -	4 -	5 WBL	6 EBT	7 -	8 SBT		
1		130	0	101	0	0	16	79	0	16	0	35
2		160	0	112	0	0	37	69	0	35	0	90
3		160	0	112	0	0	37	69	0	35	0	90
4		110	0	76	0	0	20	50	0	21	0	52
5		170	0	122	0	0	32	84	0	35	0	92
6		140	0	91	0	0	31	54	0	36	0	6
7		160	0	108	0	0	39	63	0	39	0	80
8		100	0	64	0	0	18	40	0	23	0	43
9		150	0	102	0	0	43	53	0	35	0	8
10		160	0	108	0	0	29	73	0	39	0	79
11		160	0	108	0	0	39	63	0	39	0	51
12		140	0	92	0	0	38	48	0	35	0	70
13		120	0	79	0	0	29	44	0	28	0	52
14		90	0	58	0	0	16	36	0	19	0	43
15		160	0	111	0	0	44	61	0	36	0	19
16		160	0	98	0	0	31	61	0	49	0	76
17		160	0	96	0	0	35	55	0	51	0	65
18		160	0	91	0	0	33	52	0	56	0	58
19		150	0	102	0	0	43	53	0	35	0	8
20		150	0	124	0	0	12	106	0	13	0	75
21		130	0	101	0	0	16	79	0	16	0	35
22		80	0	51	0	0	16	29	0	16	0	35
23		70	0	42	0	0	11	25	0	15	0	28
24		85	0	54	0	0	15	33	0	18	0	60

Local TOD Schedule		
Time	Plan	DOW
0000	Free	Su M T W Th F S
0600	5	M T W Th F
0700	22	Su S
0830	8	Su S
1000	6	M T W Th F
1100	24	Su S
1530	11	M T W Th F
1730	10	Su S
1830	14	Su S
1900	13	M T W Th F
2000	1	M T W Th F
2030	1	Su S
2200	14	M T W Th F
2300	23	Su M T W Th F S

Current Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S
1600	VEH MAX RECALL	---5---	M T W ThF
1900	VEH MAX RECALL	-----	M T W ThF

Local Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S
1600	VEH MAX RECALL	---5---	M T W ThF
1900	VEH MAX RECALL	-----	M T W ThF

* Settings
Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

**TOD Schedule Report**  
**for 3917: SR- 826 W&NW 103 St**

Print Date:  
**10/4/2021**

Print Time:  
**5:39 PM**

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***No Calendar Defined/Enabled***



Timing Phases	Direction	EB	WB	SB	Ped Heads			Movements/Display/Actuation	
	Head No.	6	5	2	8L	8	P2 P6		
HEAD 5 IS PROTECTED ONLY	Dwell								
	Clear to								
(2+6) E/W NW 103 ST (RECALL)	Dwell	G	KR	G	R	R	W/F W/F		
	Clear to	(2+5)	Y	KR	G	R	R		DW DW
		(8)	Y	KR	Y	R	R		DW DW
(2+5) WB NW 103 ST (ACTUATED)	Dwell	R	KG	G	R	R	W/F DW		
	Clear to	(8)	R	KY	Y	R	R		DW DW
		(2+6)	R	KY	G	R	R		DW DW
(8) SB SR 826 SB "OFF" (ACTUATED)	Dwell	R	KR	R	KG	KG/6	DW DW		
	Clear to	(2+6)	R	KR	R	Y	Y		DW DW

Flashing Operation

FY FCR FY FR FR

Page 1 of 2

Miami-Dade County Public Works Department

Drawn  
R. Fernandez

Date  
6/13/08

SR 826 (W) & NW 103 ST

Checked  
H. Hernandez

Date  
6/17/08

Placed in Service  
Date 2/08 /00 By 500

Phasing No.  
3

Asset Number  
3917

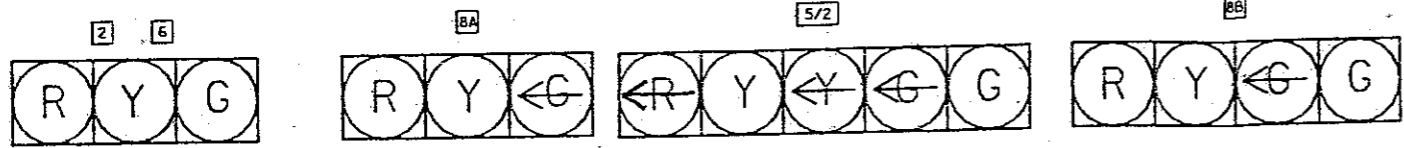


Timing Phases	Direction	EB	WB	SB		Ped Heads	Movements/Display/Actuation		
	Head No.	6	5/2	2	8L 8	P2 P6			
HEAD 5/2 IS PROTECTED PERMISSIVE	Dwell								
	Clear to								
(2+6) E/W NW 103 ST (RECALL)	Dwell	G	G	G	R R	W/F W/F			
	Clear to	(2+5)	Y	G	G	R R		DW DW	
		(8)	Y	Y	Y	R R		DW DW	
(2+5) WB NW 103 ST (ACTUATED)	Dwell	R	KG/G	G	R R	W/F DW			
	Clear to	(8)	R	KY/Y	Y	R R		DW DW	
		(2+6)	R	KY/G	G	R R		DW DW	
(8) SB SR 826 SB "OFF" (ACTUATED)	Dwell	R	KR	R	KG KG/G	DW DW			
	Clear to	(2+6)	R	KR	R	Y Y		DW DW	
Flashing Operation		FY	FR	FY	FR	FR	Page 2 of 2		

Miami-Dade County Public Works Department

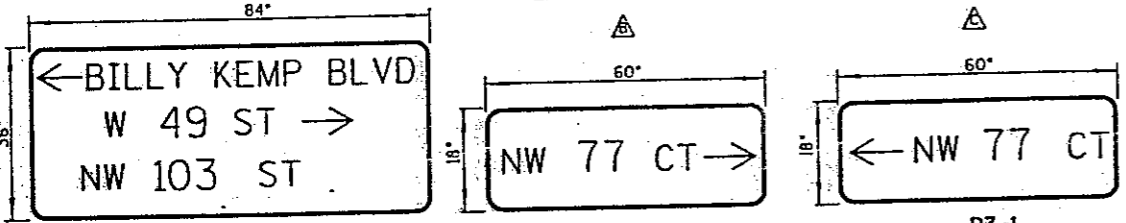
Drawn R. Fernandez	Date 6/13/08	SR 826 (W) & NW 103 ST	
Checked H. Hernandez	Date 6/17/08	Placed in Service Date	Phasing No. 3
			Asset Number 3917

**SIGNAL HEAD DETAILS**



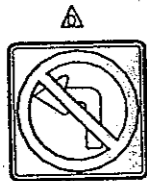
ITEM NO. 650-1-131 5 AS.  
 ITEM NO. 650-1-131 1 AS.  
 ITEM NO. 650-1-151 1 AS.  
 ITEM NO. 650-1-141 1 AS.

**SIGN DETAILS**



D3-1 ITEM NO. 700-48-18 1 EA.  
 D3-1 ITEM NO. 700-48-18 1 EA.  
 D3-1 ITEM NO. 700-48-18 1 EA.

DIRECTIONAL LEGEND AND SUFFIX (i.e. ST, AV) SHALL BE UPPER CASE 8" SERIES "C"  
 STREET NUMBER SHALL BE 10" SERIES "C".  
 DIRECTIONAL ARROWS SHALL BE 8" TALL AND 9" LONG.  
 STREET NAME LEGEND SHALL BE UPPER CASE 6" SERIES "C".



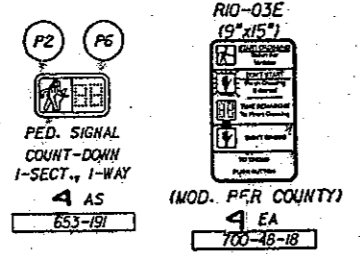
R3-2 ITEM NO. 700-48-18 1 EA.  
 24" X 24"



R3-1 ITEM NO. 700-48-18 1 EA.  
 24" X 24"

**PEDESTRIAN SIGNAL & SIGN DETAIL**

BID ITEM NO.	QUANTITIES
690-10	8 EA
690-20	2 EA
690-30	3 EA
690-31	2 EA
690-50	1 EA
690-70	2 EA
690-80	2 EA
690-90	1 P1
690-100	1 P1



NOTE: ATTACH TO EXISTING MAST ARM ASSEMBLY OR PEDESTAL. THE PED. SIGNAL SHALL BE ORIENTED PARALLEL TO CROSSWALK FOR ITS MOVEMENT.

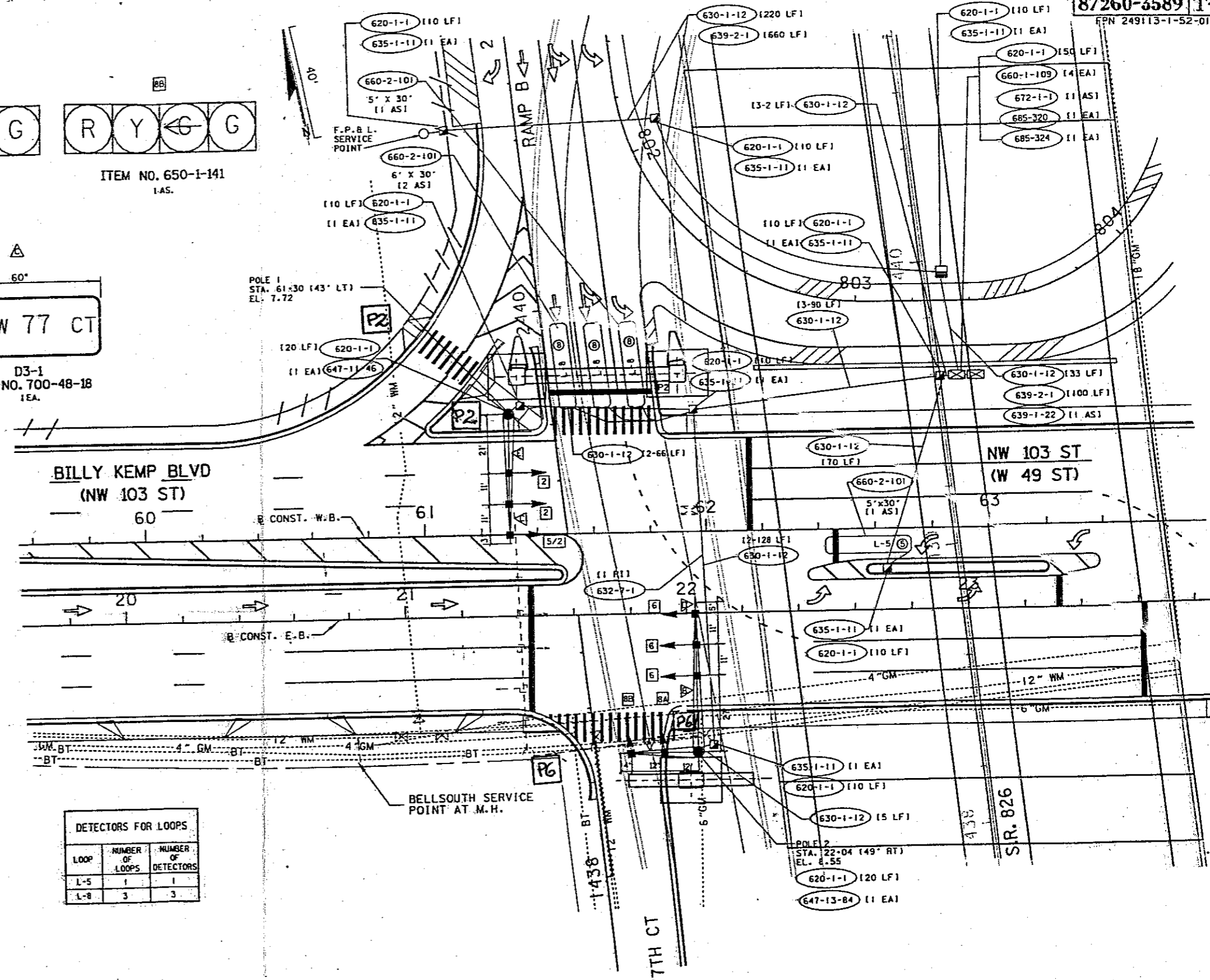
LOOP	NUMBER OF LOOPS	NUMBER OF DETECTORS
L-5	1	1
L-8	3	3

**GENERAL NOTES:**

- CONTROLLER ASSEMBLY 672-1-1 4-PHASE CONTROLLER T-170 SOLID STATE DIGITAL WITH ALL RED SELECTABLE LOCK/NONLOCK DETECTOR FUNCTION IN A-BASE MOUNTED CABINET.
- THE MAJOR STREET IS NW 103 ST. (W 49 ST.) PHASE 4 (MOVEMENTS 2, 8, 6). THE MINOR STREET IS RAMP "B" PHASE 3 (MOVEMENT 8).
- THE CONTROLLER ASSEMBLY SHALL BE FULLY COMPATIBLE WITH THE METRO DADE CO. SIGNAL SYSTEM.

**CONTROLLER OPERATION:**

- STANDARD SIGNAL OPERATING PLAN NO. 18 WITH THE FOLLOWING ACB OPERATION: (B) COORDINATION ON PHASE 4 (MOVEMENTS 2, 8, 6). (A, B, C) PHASE 1, 8, 3 (MOVEMENTS 5, 8, 8) ARE ACTUATED AND PHASE 4 ON RECALL.
- FLASHING OPERATION IS YELLOW ON NW 103 ST. (W 49 ST.) AND RED ON RAMP "B".
- FINAL SIGNAL TIMING TO BE FURNISHED BY MIAMI-DADE COUNTY PUBLIC WORKS DEPARTMENT TRAFFIC SIGNALS AND SIGNS DIVISION (305)592-8925.



*Joe A. Burgess*  
 10/16/98

SR 826(W) &  
 NW 103 ST (W 49 ST) AT RAMP "B"  
 NW 77 CT.

ID # 3917

**TOD Schedule Report**  
for 3683: SR- 826 E&NW 103 St

Print Date:  
10/4/2021

Print Time:  
5:08 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
3683	SR- 826 E&NW 103 St	DOW-2	TOD	N/A	0	0	N/A	0	Max 0

**Splits**

<u>PH 1</u>	<u>PH 2</u>	<u>PH 3</u>	<u>PH 4</u>	<u>PH 5</u>	<u>PH 6</u>	<u>PH 7</u>	<u>PH 8</u>
EBL	WBT	-	NBT	-	EBT	-	-
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

<u>Phase</u>	<u>Walk</u>			<u>Don't Walk</u>			<u>Min Initial</u>			<u>Veh Ext</u>			<u>Max Limit</u>			<u>Max 2</u>			<u>Yellow</u>	<u>Red</u>
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1 EBL	0	0	0	0	0	0	7	7	7	3.5	3.5	3.5	20	12	20	45	15	33	4.4	2
2 WBT	7	7	7	8	8	8	7	7	7	1	1	1	50	21	50	0	21	50	4.4	2
3 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 NBT	0	0	0	0	0	0	7	7	7	3	3	3	20	12	20	55	12	33	4	2.5
5 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 EBT	7	7	7	8	8	8	7	7	7	1	1	1	50	21	50	0	21	50	4.4	2
7 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Last In Service Date: unknown

<b>Permitted Phases</b>	
	<b>12345678</b>
Default	12-4-6--
External Permit 0	-----
External Permit 1	-----
External Permit 2	-----

**TOD Schedule Report**  
for 3683: SR- 826 E&NW 103 St

Print Date:  
10/4/2021

Print Time:  
5:08 PM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 EBL	2 WBT	3 -	4 NBT	5 -	6 EBT	7 -	8 -		
1		130	16	79	0	16	0	102	0	0	0	35
2		160	25	77	0	39	0	109	0	0	0	90
3		160	25	77	0	39	0	109	0	0	0	90
4		110	19	48	0	24	0	74	0	0	0	52
5		170	25	90	0	36	0	122	0	0	0	61
6		140	27	60	0	35	0	93	0	0	0	14
7		160	35	66	0	41	0	107	0	0	0	80
8		100	17	41	0	23	0	65	0	0	0	43
9		150	30	69	0	33	0	105	0	0	0	25
10		160	32	76	0	34	0	114	0	0	0	79
11		160	45	48	0	49	0	99	0	0	0	47
12		140	31	46	0	45	0	83	0	0	0	63
13		120	27	41	0	34	0	74	0	0	0	52
14		90	15	36	0	20	0	58	0	0	0	43
15		160	40	59	0	43	0	105	0	0	0	26
16		160	28	67	0	47	0	101	0	0	0	76
17		160	32	57	0	53	0	95	0	0	0	65
18		160	32	67	0	43	0	105	0	0	0	58
19		150	30	69	0	33	0	105	0	0	0	25
20		150	36	63	0	33	0	105	0	0	0	79
21		130	16	79	0	16	0	102	0	0	0	35
22		80	13	30	0	18	0	50	0	0	0	35
23		70	11	24	0	16	0	42	0	0	0	28
24		85	14	34	0	18	0	55	0	0	0	58
26		130	8	94	0	9	0	109	0	0	0	28

Local TOD Schedule		
Time	Plan	DOW
0000	Free	Su M T W Th F S
0600	5	M T W Th F
0700	22	Su S
0830	8	Su S
1000	6	M T W Th F
1100	24	Su S
1530	11	M T W Th F
1730	10	Su S
1830	14	Su S
1900	13	M T W Th F
2000	1	M T W Th F
2030	1	Su S
2200	14	M T W Th F
2300	23	Su M T W Th F S



**TOD Schedule Report**  
**for 3683: SR- 826 E&NW 103 St**

Print Date:  
**10/4/2021**

Print Time:  
**5:08 PM**

<b>Current Time of Day Function</b>			
<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>
0000	TOD OUTPUTS	-----	SuM T W ThF S
1600	VEH MAX RECALL	-----1	M T W ThF
1900	VEH MAX RECALL	-----	M T W ThF

<b>Local Time of Day Function</b>			
<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>
0000	TOD OUTPUTS	-----	SuM T W ThF S
1600	VEH MAX RECALL	-----1	M T W ThF
1900	VEH MAX RECALL	-----	M T W ThF

<b>* Settings</b>
Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

<b><i>No Calendar Defined/Enabled</i></b>
---

## SIGNAL OPERATING PLAN



Timing Phases	Direction	EB		WB	NB			Ped Heads		Movements/Display/Actuation	
	Head No.	1	6	2	7	7/4	4	P2	P6		
(1 + 6)  EBL W 49 ST  (Actuated)	Dwell	<G	G	R	R	R	R	DW	W/F		
	Clear	(2 + 6)	<Y	G	R	R	R	DW	DW		
	to										
(2 + 6)  E/W W 49 ST  (Recall)	Dwell	<R	G	G	R	R	R	W/F	W/F		
	Clear	(4)	<R	Y	Y	R	R	R	DW		DW
	to	(1 + 6)	<R	G	Y	R	R	R	DW		DW
(4)  NB  SR 826 NB "OFF" (Actuated)	Dwell	<R	R	R	<G	<G/G	G	DW	DW		
	Clear	(1 + 6)	<R	R	R	Y	Y	Y	DW		DW
	to	(2 + 6)	<R	R	R	Y	Y	Y	DW		DW
	Dwell										
	Clear										
	to										
	Dwell										
	Clear										
	to	P/O MODE - HEAD 1 is PROTECTED ONLY									

Flashing Operation

F<R    FY    FY    FR    FR    FR

Page 1 of 2

### Miami-Dade County Public Works Department

Drawn by:  
Diana I. Ospina

Date:  
5/14/2018

NW 103 ST & SR-826 NB OFF RAMP

Checked by:  
*[Signature]*

Date:  
8/27/19

Placed in Service

Phasing No.

Asset Number

Date:

By:

7

3683

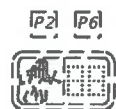
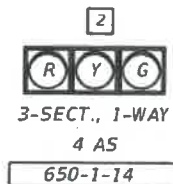
# SIGNAL OPERATING PLAN



Direction	EB	WB	NB				Ped Heads		Movements/Display/Actuation	
Timing Phases	Head No.	1/6	6	2	7	7/4	4	P2	P6	
EBL W 49 ST  (Actuated)	Dwell	<G/G	G	R	R	R	R	DW	W/F	
	(2+6)	<Y/G	G	R	R	R	R	DW	DW	
	C									
	lear									
E/W W 49 ST  (Recall)	Dwell	G	G	G	R	R	R	W/F	W/F	
	(4)	Y	Y	Y	R	R	R	DW	DW	
	(1+6)	G	G	Y	R	R	R	DW	DW	
	C									
NB  SR 826 NB "OFF" (Actuated)	Dwell	<R	R	R	<G	<G/G	G	DW	DW	
	(1+6)	<R	R	R	Y	Y	Y	DW	DW	
	(2+6)	<R	R	R	Y	Y	Y	DW	DW	
	C									
	Dwell									
	C									
	lear									
	to									
	Dwell									
	C									
	lear									
	to									
<b>PIP MODE - HEAD 1/6 is PROTECTED/PERMISSIVE</b>										

Flashing Operation	F<R	FY	FY	FR	FR	FR				Page 2 of 2
<b>Miami-Dade County Public Works Department</b>										
Drawn by: Diana I. Ospina	Date: 5/14/2018	<b>NW 103 ST &amp; SR-826 NB OFF RAMP</b>								
Checked by: <i>ES</i>	Date: 8/27/18	Placed in Service			Phasing No.		Asset Number			
		Date:	By:	7		3683				

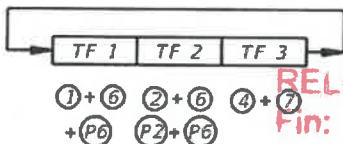
EXISTING SIGNAL HEADS



EXISTING SIGNS



S.O.P.



Signal Technology Inc.

AS-BUILT

RELEASED FOR CONSTRUCTION  
Fin: 432687-1-52-01  
Contract: 55105  
12/14/17

CONTROLLER OPERATION

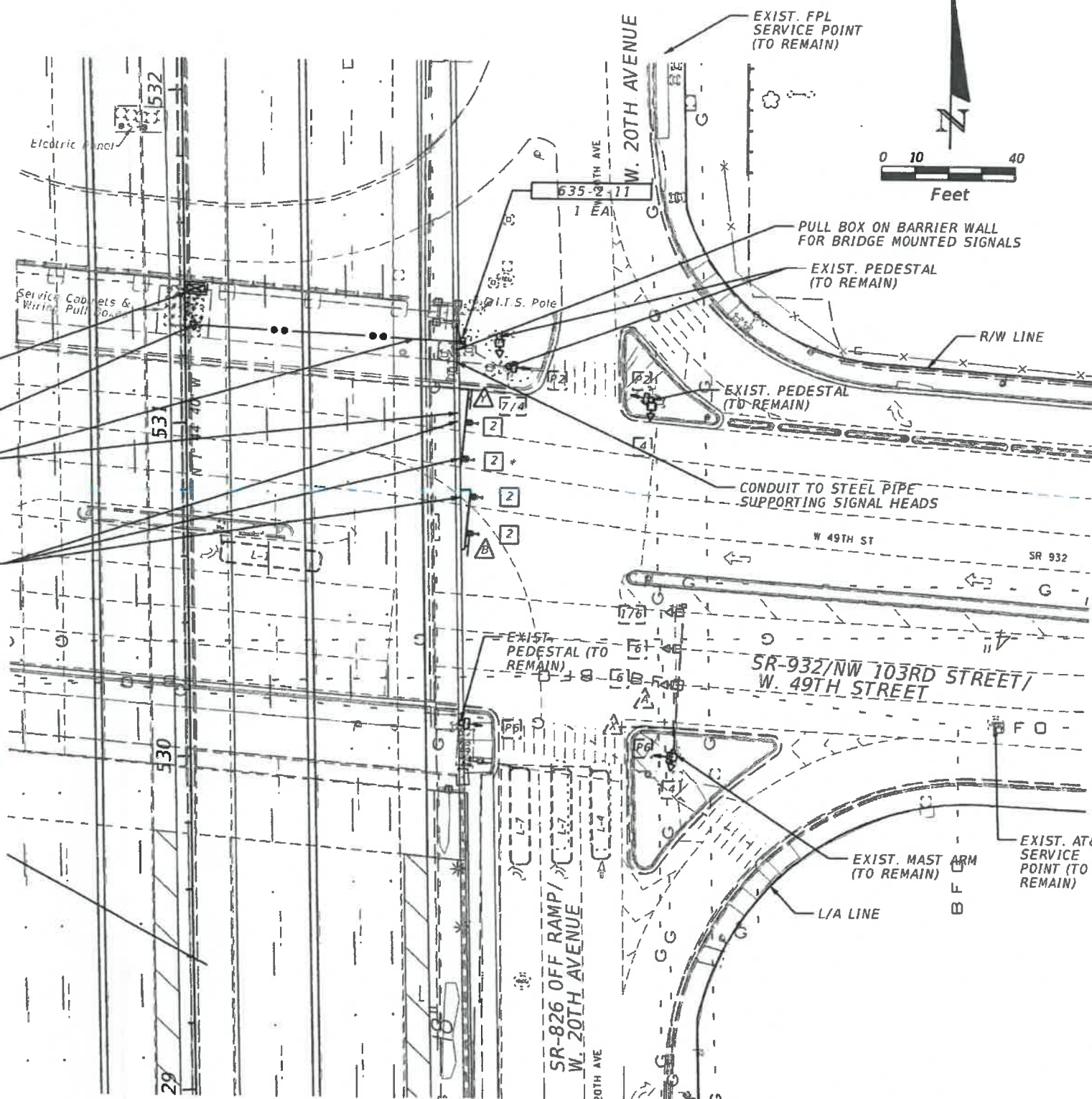
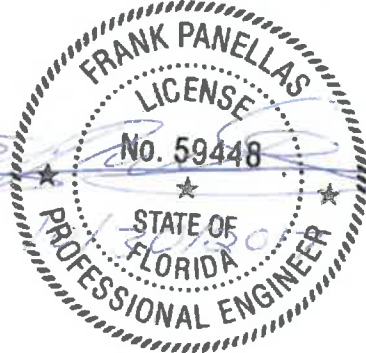
1. MAJOR STREET: NW 103 ST./ W. 49 ST.  
MINOR STREET: SR-826 NB OFF RAMP
2. EXISTING S.O.P. TO REMAIN.  
PHASE 1 & 3 ACTUATED, PHASE 2 RECALL  
FLASHING OPERATION:  
MOVEMENTS 2 & 6 YELLOW  
MOVEMENTS 4 & 7 RED

NOTES

1. SIGNAL TIMING TO BE PROVIDED BY MIAMI-DADE COUNTY SIGNAL DIVISION.
2. FOR BRIDGE-MOUNTED SIGNAL HEAD CONNECTION DETAIL REFER TO "BRIDGE MOUNTED TRAFFIC SIGNAL STRUCTURES DETAILS" SHEETS.

REMOVAL ITEMS

650-1-60 2 AS



SR-826 NB OFF RAMP & SR-932/  
NW 103RD ST. (W. 49TH ST.)  
ID. NO. 3683

\* SIGNAL HEADS MUST BE ALIGNED TO BE PARALLEL TO THE APPROACH LANES.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

TRACE CONSULTANTS, INC.  
12485 SW 137 AVENUE, SUITE 207  
MIAMI, FLORIDA 33186  
TEL. (305) 281-1195  
C.A. NO. 29942  
ENGINEER OF RECORD: FRANK PANELLAS, P.E. NO. 59448

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
826	MIAMI-DADE	432687-1-52-01

SIGNALIZATION PLAN

SHEET NO.  
T-3

**TOD Schedule Report**  
for 4109: W 18 Ct&W 49 St

Print Date:  
10/4/2021

Print Time:  
5:52 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
4109	W 18 Ct&W 49 St	DOW-2	TOD	N/A	0	0	N/A	0	Max 0

**Splits**

<u>PH 1</u>	<u>PH 2</u>	<u>PH 3</u>	<u>PH 4</u>	<u>PH 5</u>	<u>PH 6</u>	<u>PH 7</u>	<u>PH 8</u>
-	WBT	-	NBT	WBL	EBT	-	-
0	0	0	0	0	0	0	0



Active Phase Bank: Phase Bank 1

<u>Phase</u>	<u>Walk</u>			<u>Don't Walk</u>			<u>Min Initial</u>			<u>Veh Ext</u>			<u>Max Limit</u>			<u>Max 2</u>			<u>Yellow</u>	<u>Red</u>
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 WBT	7	7	7	20	20	20	7	7	7	1	1	1	50	50	50	0	50	50	4.4	2
3 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 NBT	7	7	7	22	22	22	7	7	7	3	3	3	25	80	25	80	45	45	4	2.6
5 WBL	0	0	0	0	0	0	7	7	7	2.5	-2.5	-2.5	12	12	12	22	22	22	4.4	2
6 EBT	7	7	7	20	20	20	7	7	7	1	1	1	50	50	50	0	50	50	4.4	2
7 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Last In Service Date: unknown

<b>Permitted Phases</b>	
	<b>12345678</b>
Default	-2-456--
External Permit 0	-2-4-6--
External Permit 1	-2-4-6--
External Permit 2	-2-4-6--

**TOD Schedule Report**  
for 4109: W 18 Ct&W 49 St

Print Date:  
10/4/2021

Print Time:  
5:52 PM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 -	2 WBT	3 -	4 NBT	5 WBL	6 EBT	7 -	8 -		
1		130	0	87	0	30	0	87	0	0	0	36
2		150	0	104	0	33	10	88	0	0	0	131
3		160	0	118	0	29	13	99	0	0	0	76
4		110	0	75	0	22	6	63	0	0	0	56
5		170	0	123	0	34	12	105	0	0	0	97
6		140	0	97	0	30	12	79	0	0	0	25
7		160	0	117	0	30	13	98	0	0	0	117
8		140	0	97	0	30	17	74	0	0	0	38
9		150	0	104	0	33	15	83	0	0	0	36
10		160	0	114	0	33	13	95	0	0	0	60
11		160	0	117	0	30	14	97	0	0	0	95
12		140	0	100	0	27	12	82	0	0	0	93
13		120	0	77	0	30	8	63	0	0	0	45
14		90	0	47	0	30	7	34	0	0	0	37
15		160	0	112	0	35	19	87	0	0	0	58
16		160	0	116	0	31	12	98	0	0	0	59
17		160	0	112	0	35	14	92	0	0	0	51
18		160	0	115	0	32	13	96	0	0	0	46
19		150	0	104	0	33	15	83	0	0	0	36
20		150	0	104	0	33	15	83	0	0	0	96
22		80	0	37	0	30	0	37	0	0	0	36
23		70	0	27	0	30	0	27	0	0	0	38
24		170	0	121	0	36	12	103	0	0	0	123
26		130	0	40	0	77	10	24	0	0	0	93

Local TOD Schedule		
Time	Plan	DOW
0000	Free	Su M T W Th F S
0600	5	M T W Th F
0700	22	Su S
0830	8	Su S
1000	6	M T W Th F
1100	24	Su S
1530	11	M T W Th F
1730	10	Su S
1830	14	Su S
1900	13	M T W Th F
2000	Free	Su M T W Th F S

Current Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	---5----	Su M T W ThF S
0600	TOD OUTPUTS	-----	M T W ThF
2200	TOD OUTPUTS	---5----	M T W ThF

Local Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	---5----	Su M T W ThF S
0600	TOD OUTPUTS	-----	M T W ThF
0700	TOD OUTPUTS	-----	Su S
2030	TOD OUTPUTS	---5----	Su S
2200	TOD OUTPUTS	---5----	M T W ThF

* Settings
Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

**TOD Schedule Report**  
**for 4109: W 18 Ct&W 49 St**

Print Date:  
**10/4/2021**

Print Time:  
**5:52 PM**

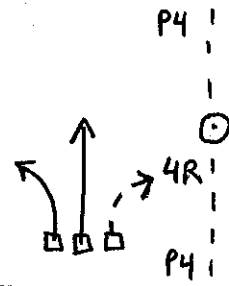
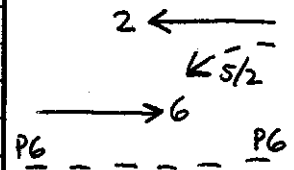
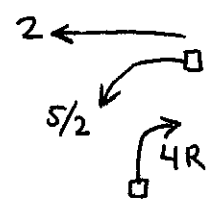
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<p><b><i>No Calendar Defined/Enabled</i></b></p>
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# SIGNAL OPERATING PLAN



Direction	Head No.	EB	WB	NB	Ped Heads	Drawing
Phase		6	5/2 2	4 4R	P6 P4	
	Dwell					
	Clear to					
(2+5) WL W 49 ST (Actuated)	Dwell	R	L/G/G	R	R/G> DW	DW
	(2+6)	R	L/Y/G	R	R/Y> DW	DW
	Clear to					
(2+6) E/W W 49 ST (Recall)	Dwell	G	G G	R R	W/F	DW
	(4)	Y	Y Y	R R	DW	DW
	(2+5)	Y	G G	R R	DW	DW
	Clear to					
	Dwell					
	Clear to					
	Dwell					
	Clear to					
(4) NB W 18 CT (Actuated)	Dwell	R	R R	L/G/G	DW	W/F
	(2+5)	R	R R	Y Y	DW	DW
	(2+6)	R	R R	Y Y	DW	DW
	Clear to					



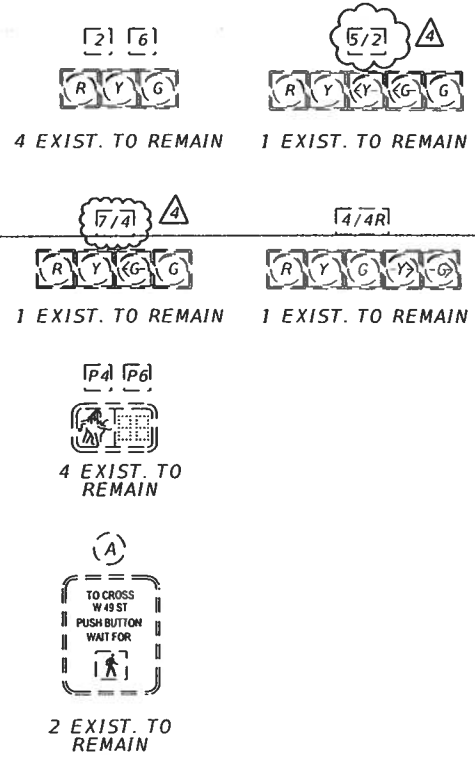
Flashing Operation      FY    FY    FY      FR    FR      Page 1 of 1

## Miami-Dade County Public Works Department

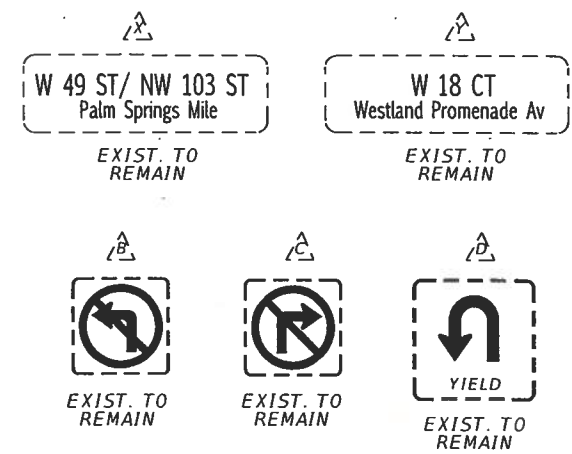
Drawn <i>[Signature]</i>	Date 12/20/01	W 18 CT & W 49 ST		
Checked H. HERNANDEZ	Date 4/25/02	Placed in Service Date 5/1/02	By MASTEC	Phasing No. 2
				Asset Number 4109



EXISTING SIGNAL HEADS



EXISTING SIGNS



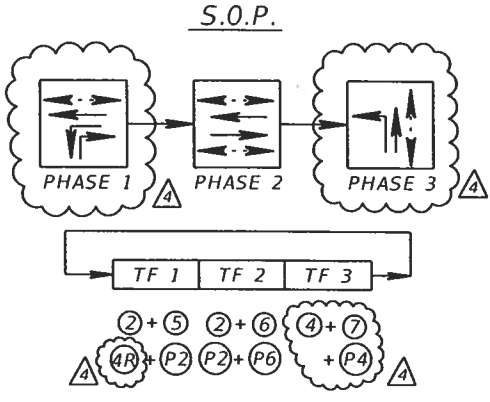
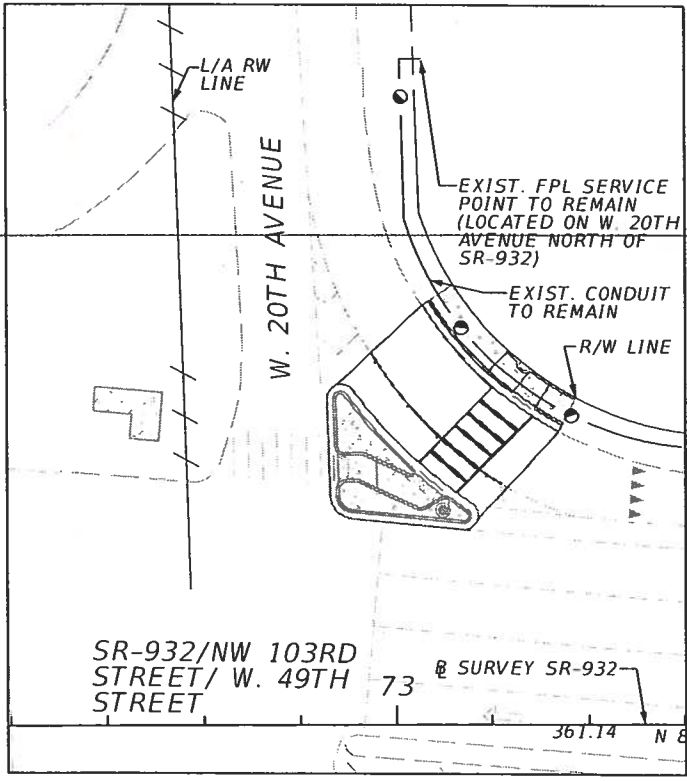
CONTROLLER OPERATION

1. MAJOR STREET: SR-932/ NW 103 ST./ W. 49 ST.  
MINOR STREET: W. 18TH COURT
2. S.O.P. AS SHOWN.  
PHASE 1 & 3 ACTUATED, PHASE 2 RECALL  
FLASHING OPERATION:  
MOVEMENTS 2 & 6 YELLOW  
MOVEMENT 4 RED

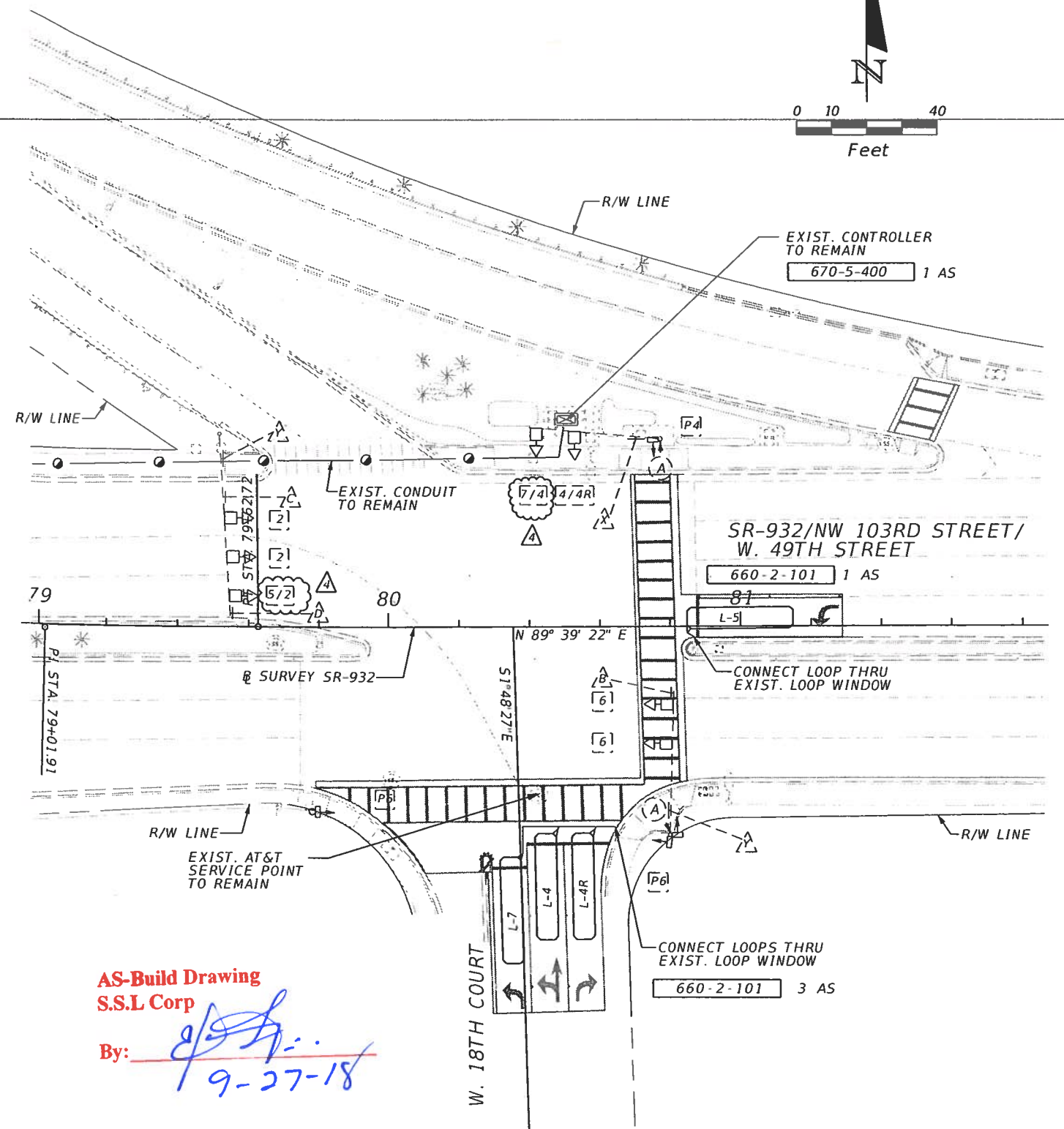
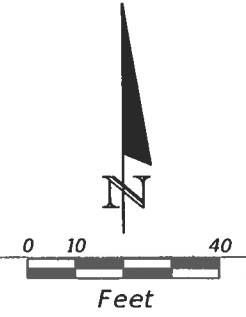
NOTES

1. SIGNAL TIMING TO BE PROVIDED BY MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS, (DTPW) TRAFFIC AND SIGN DIVISION.

LOCATION OF FPL SERVICE POINT DETAIL



DETECTORS FOR LOOPS				
LOOP	NO. OF LOOPS	NO. OF NEW DETS.	NO. OF EXIST. DETS.	DELAY TIME (SEC)
L-4	1		1	
L-4R	1		1	
L-5	1		1	
L-7	1		1	



AS-Build Drawing  
S.S.L Corp  
By: *[Signature]*  
9-27-18

ALL ACTIVITIES TO BE PAID UNDER FPID 434768-1-52-02

SR-932/NW 103RD ST. (W. 49TH ST.)  
& W. 18TH COURT  
ID. NO. 4109

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION
08-10-18	Revised Traffic Signal Heads naming and S.O.P.		

TRACE CONSULTANTS, INC.  
12485 SW 137 AVENUE, SUITE 207  
MIAMI, FLORIDA 33186  
TEL. (305) 281-1195  
C.A. NO. 29942  
ENGINEER OF RECORD: FRANK PANELLAS, P.E. NO. 59448

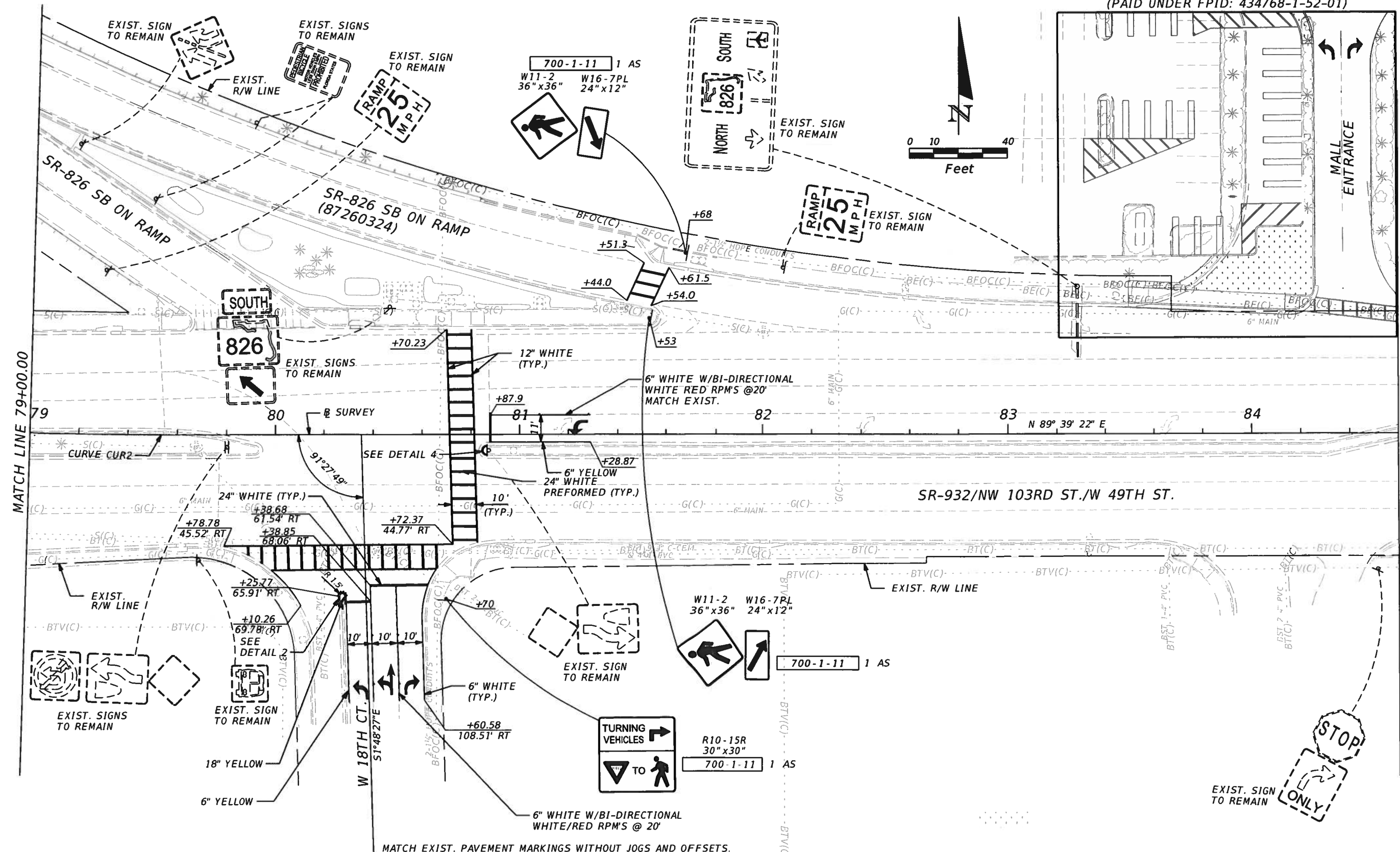
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 932	MIAMI-DADE	434768-1-52-01

SIGNALIZATION PLAN

SHEET NO.  
T-7

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

SEE SHEET S-19 FOR WESTLAND MALL  
PROPOSED IMPROVEMENTS.  
(PAID UNDER FPID: 434768-1-52-01)



SIGNING AND PAVEMENT MARKINGS PAID UNDER FPID: 434768-1-52-02,  
EXCEPT FOR W11-2/W16-7 SIGNS, WHICH ARE PAID UNDER FPID: 434768-1-52-01.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

RONALD LEE SPENCER, P.E.  
P.E. NO.: 39141  
BMA CONSULTING ENGINEERING  
18503 PINES BLVD, SUITE 210  
PEMBROKE PINES, FL 33029  
CERTIFICATE OF AUTHORIZATION: 29947

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 932	MIAMI-DADE	434768-1-52-01

**SIGNING AND PAVEMENT  
MARKING PLAN**

SHEET NO.  
S-10

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.









**TOD Schedule Report**  
for 3722: W 17 Ct&W 49 St

Print Date:  
10/4/2021

Print Time:  
5:12 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
3722	W 17 Ct&W 49 St	DOW-2	TOD	[11] PM PEAK	160	45	N/A	1	Max 2

**Splits**

<u>PH 1</u>	<u>PH 2</u>	<u>PH 3</u>	<u>PH 4</u>	<u>PH 5</u>	<u>PH 6</u>	<u>PH 7</u>	<u>PH 8</u>
EBL	WBT	SBL	NBT	WBL	EBT	NBL	SBT
9	75	19	31	9	75	20	31
							

Active Phase Bank: Phase Bank 1

Phase	<u>Walk</u>			<u>Don't Walk</u>			<u>Min Initial</u>			<u>Veh Ext</u>			<u>Max Limit</u>			<u>Max 2</u>			<u>Yellow</u>	<u>Red</u>
	Phase Bank																			
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1 EBL	0	0	0	0	0	0	5	7	7	2	2	2	7	15	15	35	12	15	4.4	2.1
2 WBT	7	7	7	25	25	25	7	7	7	1	1	1	30	55	65	0	47	65	4.4	2.1
3 SBL	0	0	0	0	0	0	5	7	7	2.5	-2.5	-2	7	7	10	22	5	10	4	2.3
4 NBT	7	7	7	23	23	23	7	7	7	2.5	-2.5	-2.5	15	25	28	40	35	40	4	2.7
5 WBL	0	0	0	0	0	0	5	7	7	2	2	2	7	15	15	35	12	15	4.4	2
6 EBT	7	7	7	25	25	25	7	7	7	1	1	1	30	55	65	0	47	65	4.4	2.1
7 NBL	0	0	0	0	0	0	5	7	7	2.5	-2.5	-2	7	7	10	22	5	20	4	2.2
8 SBT	7	7	7	23	23	23	7	7	7	2.5	-2.5	-2.5	7	7	28	40	35	40	4	2.7

Last In Service Date: unknown

<b>Permitted Phases</b>	
	<b>12345678</b>
Default	12345678
External Permit 0	-----
External Permit 1	12-4-6-8
External Permit 2	12-4-678

**TOD Schedule Report**  
for 3722: W 17 Ct&W 49 St

Print Date:  
10/4/2021

Print Time:  
5:12 PM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 EBL	2 WBT	3 SBL	4 NBT	5 WBL	6 EBT	7 NBL	8 SBT		
1		130	10	70	0	31	10	70	0	31	0	20
2		170	8	88	9	40	8	88	15	34	0	128
3		130	10	70	0	31	10	70	0	31	0	20
4		160	9	75	19	31	9	75	20	31	0	45
5		170	8	88	9	40	8	88	15	34	0	128
6		140	10	80	0	31	10	80	0	31	0	20
7		120	8	69	0	24	8	69	0	24	0	26
8		140	10	80	0	31	10	80	0	31	0	20
9		120	8	40	15	31	8	40	16	31	0	116
10		160	20	63	20	31	20	63	21	31	0	22
11		160	9	75	19	31	9	75	20	31	0	45
12		190	26	86	23	29	26	86	24	29	0	14
13		120	4	66	0	31	4	66	0	31	0	26
14		90	7	33	0	31	7	33	0	31	0	2
15		160	21	68	25	20	21	68	26	20	0	148
16		150	16	56	21	31	16	56	22	31	0	122
17		160	10	85	18	21	10	85	19	21	0	18
18		180	13	86	21	34	13	86	22	34	0	72
19		150	10	67	16	31	10	67	17	31	0	34
20		150	21	51	21	31	21	51	22	31	0	84
21		130	10	70	0	31	10	70	0	31	0	20
22		80	8	31	0	22	8	31	0	22	0	2
23		70	8	21	0	22	8	21	0	22	0	2
24		170	32	59	21	32	21	70	22	32	0	149

Local TOD Schedule		
Time	Plan	DOW
0000	1	
0000	Free	Su M T W Th F S
0600	5	M T W Th F
0700	22	Su S
0830	8	Su S
1000	6	M T W Th F
1100	24	Su S
1530	11	M T W Th F
1730	10	Su S
1830	14	Su S
1900	13	M T W Th F
2000	Free	M T W Th F
2030	1	Su S

Current Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S
0600	TOD OUTPUTS	-----	M T W ThF
0655	TOD OUTPUTS	-----	M T W ThF
2220	TOD OUTPUTS	-----1	M T W ThF S
2300	TOD OUTPUTS	-----2-	M T W ThF

Local Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S
0600	TOD OUTPUTS	-----	M T W ThF
0655	TOD OUTPUTS	-----	M T W ThF
0700	TOD OUTPUTS	-----	Su S
2030	TOD OUTPUTS	-----1	Su
2220	TOD OUTPUTS	-----1	M T W ThF S
2300	TOD OUTPUTS	-----2-	M T W ThF

* Settings
Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

**TOD Schedule Report**  
**for 3722: W 17 Ct&W 49 St**

Print Date:  
**10/4/2021**

Print Time:  
**5:12 PM**

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***No Calendar Defined/Enabled***

**SIGNAL OPERATING PLAN**



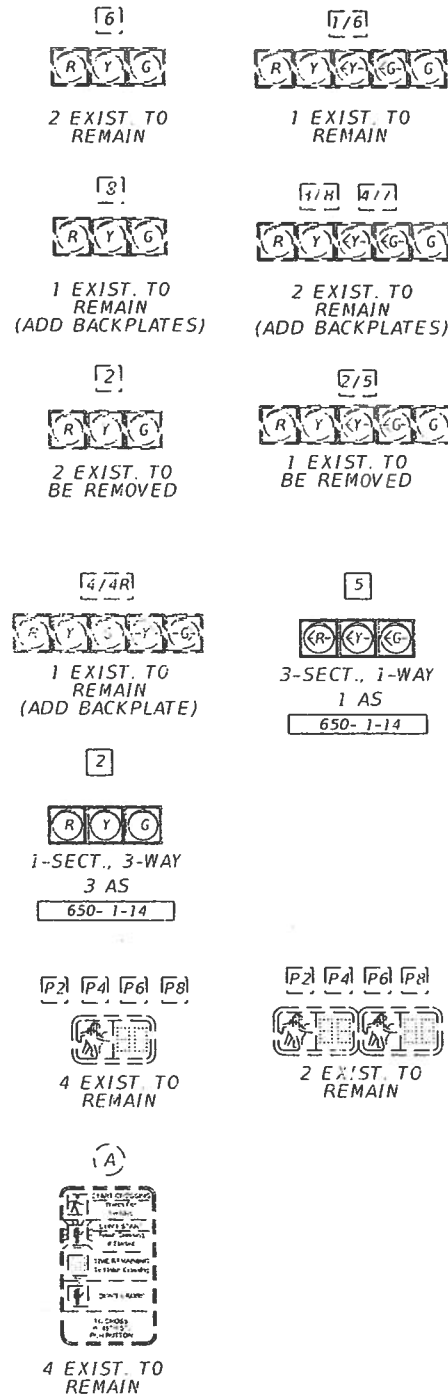
Timing Phases	Direction	EB		WB		SB		NB		Ped Heads				Movements/Display/Actuation	
	Head No.	1/6	6	5/2	2	3/8	8	7/4	4R	P2	P6	P8	P4		
(1+5) E/W LT. W 49 ST (Actuated)	Dwell	<G/R	R	<G/R	R	R	R	R	R/G	DW	DW	DW	DW		
	Clear	(1+6)	<G/R	R	<Y/R	R	R	R	R/Y	DW	DW	DW	DW		
		(2+5)	<Y/R	R	<G/R	R	R	R	R/G	DW	DW	DW	DW		
		(2+6)	<Y/R	R	<Y/R	R	R	R	R/Y	DW	DW	DW	DW		
(1+6) EB (Actuated)	Dwell	<G/G	G	R	R	R	R	R	R	DW	W/F	DW	DW		
	Clear	(2+6)	<Y/G	G	R	R	R	R	R	DW	DW	DW	DW		
(2+5) WB (Actuated)	Dwell	R	R	<G/G	G	R	R	R	R/G	W/F	DW	DW	DW		
	Clear	(2+6)	R	R	<Y/G	G	R	R	R/Y	DW	DW	DW	DW		
(2+6) E/W W 49 ST (Recall)	Dwell	G	G	G	G	R	R	R	R	W/F	W/F	DW	DW		
	Clear	(3+7)	Y	Y	Y	Y	R	R	R	R	DW	DW	DW		DW
		(3+8)	Y	Y	Y	Y	R	R	R	R	DW	DW	DW		DW
		(4+7)	Y	Y	Y	Y	R	R	R	R	DW	DW	DW		DW
		(4+8)	Y	Y	Y	Y	R	R	R	R	DW	DW	DW		DW
(3+7) N/S LT W 17 CT (Actuated)	Dwell	R	R	R	R	<G/R	R	<G/R	R	DW	DW	DW	DW		
	Clear	(3+8)	R	R	R	R	<G/R	R	<Y/R	R	DW	DW	DW		DW
		(4+7)	R	R	R	R	<Y/R	R	<G/R	R	DW	DW	DW		DW
		(4+8)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
		(1+5)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
		(1+6)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
		(2+5)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
		(2+6)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
(3+8) SB (Actuated)	Dwell	R	R	R	R	<G/G	G	R	R	DW	DW	W/F	DW		
	Clear	(4+8)	R	R	R	R	<Y/G	G	R	R	DW	DW	DW		DW
		(1+5)	R	R	R	R	<Y/Y	Y	R	R	DW	DW	DW		DW
		(1+6)	R	R	R	R	<Y/Y	Y	R	R	DW	DW	DW		DW
		(2+5)	R	R	R	R	<Y/Y	Y	R	R	DW	DW	DW		DW
		(2+6)	R	R	R	R	<Y/Y	Y	R	R	DW	DW	DW		DW
(4+7) NB (Actuated)	Dwell	R	R	R	R	R	R	<G/G	G	DW	DW	DW	W/F		
	Clear	(4+8)	R	R	R	R	R	R	<Y/G	G	DW	DW	DW		DW
		(1+5)	R	R	R	R	R	R	<Y/Y	Y	DW	DW	DW		DW
		(1+6)	R	R	R	R	R	R	<Y/Y	Y	DW	DW	DW		DW
		(2+5)	R	R	R	R	R	R	<Y/Y	Y	DW	DW	DW		DW
(4+8) N/S W 17 CT (Actuated)	Dwell	R	R	R	R	G	G	G	G	DW	DW	W/F	W/F		
	Clear	(1+5)	R	R	R	R	Y	Y	Y	Y	DW	DW	DW		DW
		(1+6)	R	R	R	R	Y	Y	Y	Y	DW	DW	DW		DW
		(2+5)	R	R	R	R	Y	Y	Y	Y	DW	DW	DW		DW

Flashing Operation    FY FY    FY FY    FR FR    FR FR    Page 1 of 1

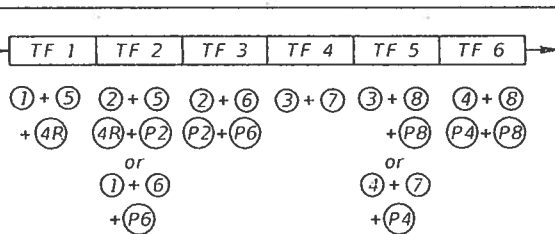
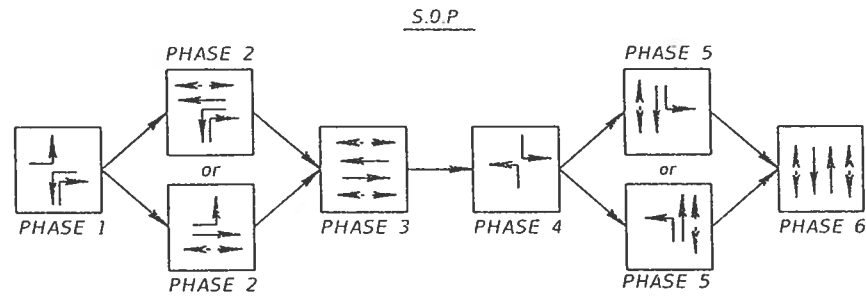
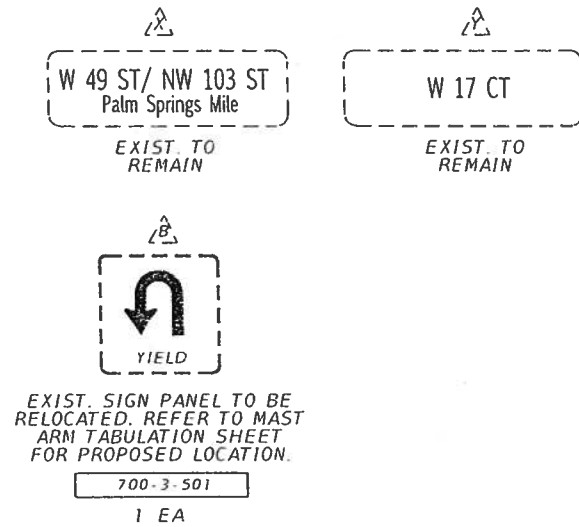
**Miami-Dade County Public Works Department**

Drawn C. LORES	Date 7/1/08	W 17 CT & W 49 ST			
Checked H. HERNANDEZ	Date 7/1/2008	Placed in Service Date 12/5/08	By SUO	Phasing No. 5	Asset Number 3722

EXISTING SIGNAL HEADS



EXISTING SIGNS

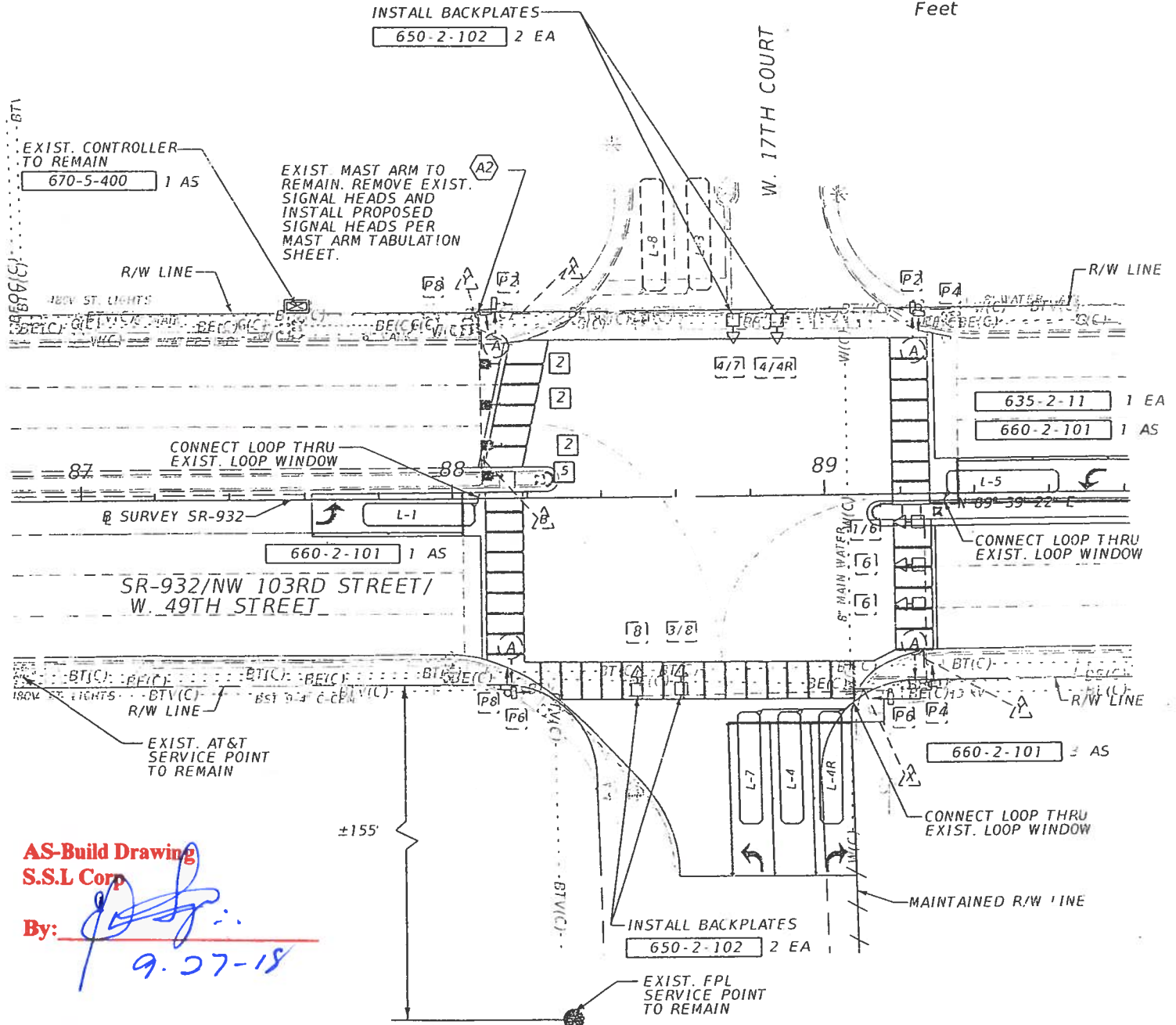


DETECTORS FOR LOOPS				
LOOP	NO. OF LOOPS	NO. OF NEW DETS.	NO. OF EXIST. DETS.	DELAY TIME (SEC)
L-1	1		1	
L-3	1		1	
L-4	1		1	
L-4R	1		1	
L-5	1		1	
L-7	1		1	
L-8	1		1	

REMOVAL ITEMS:  
650-1-60 3 AS

- CONTROLLER OPERATION**
- MAJOR STREET: NW 103 ST./ W. 49 ST.  
MINOR STREET: W. 17TH COURT
  - S.O.P. AS SHOWN  
PHASE 1,2,4,5 & 6 ACTUATED, PHASE 3 RECALL FLASHING OPERATION:  
MOVEMENTS 2 & 6 YELLOW  
MOVEMENTS 4, 5 & 8 RED

- NOTES**
- SIGNAL TIMING TO BE PROVIDED BY MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS, (DTPW) TRAFFIC AND SIGN DIVISION.



AS-Build Drawing  
S.S.L Corp  
By: [Signature]  
9.27-18

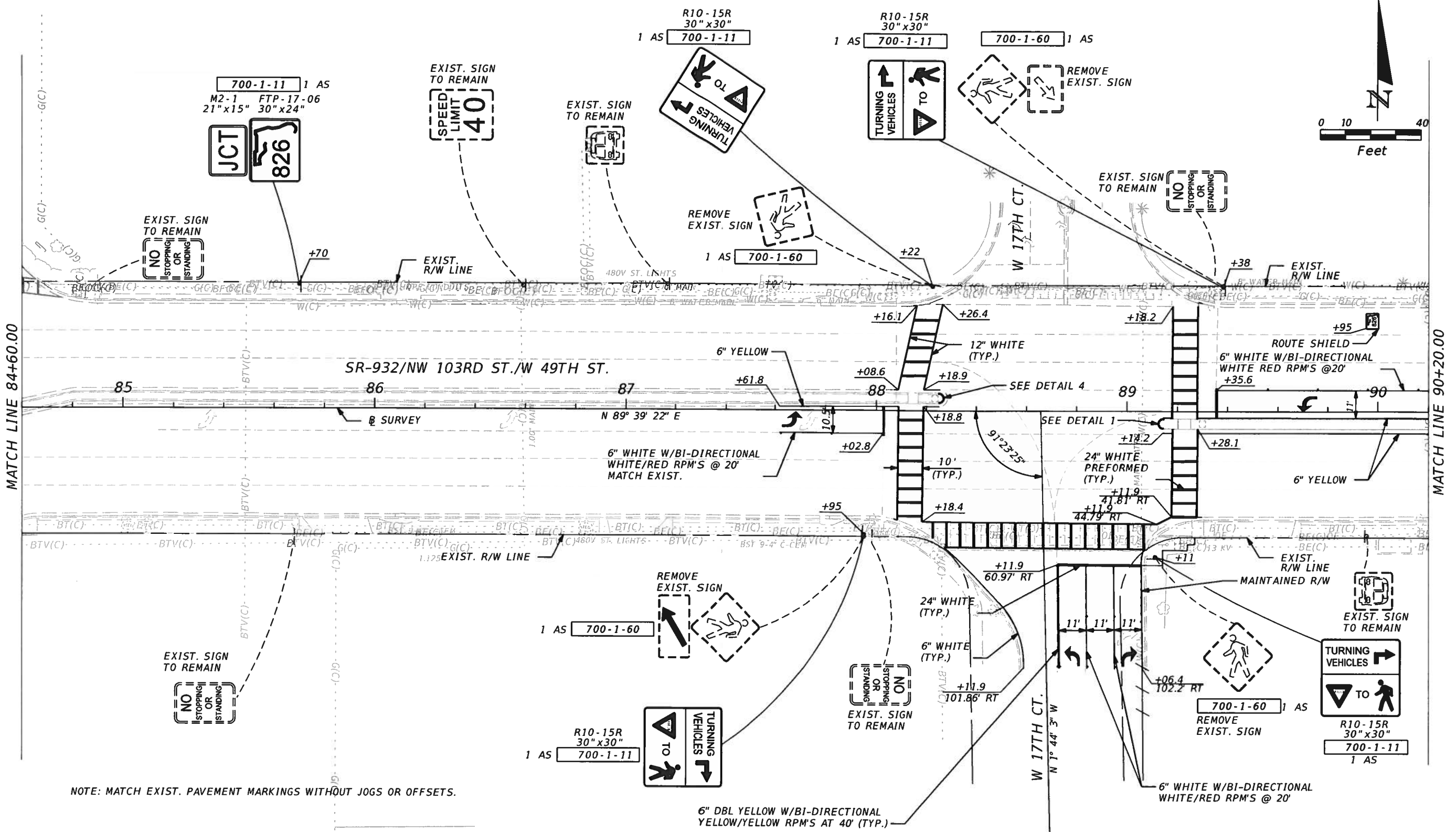
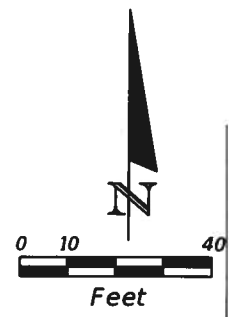
ALL ACTIVITIES TO BE PAID UNDER FPID 434768-1-52-01, EXCEPT FOR THE LOOPS REPLACEMENT FOR THE EASTBOUND AND NORTHBOUND APPROACHES TO THE INTERSECTION

WORK ASSOCIATED WITH LOOPS REPLACEMENT FOR THE EASTBOUND AND NORTHBOUND APPROACHES TO THE INTERSECTION TO BE PAID UNDER FPID 434768-1-52-02

SR-932/NW 103RD ST. (W. 49TH ST.) & W. 17TH COURT  
ID. NO. 3722

REVISIONS				TRACE CONSULTANTS, INC. 12485 SW 137 AVENUE, SUITE 207 MIAMI, FLORIDA 33186 TEL. (305) 281-1195 C.A. NO. 29942 ENGINEER OF RECORD: FRANK PANELLAS, P.E. NO. 59448	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO. T-8
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
					SR 932	MIAMI-DADE	434768-1-52-01	SIGNALIZATION PLAN

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



NOTE: MATCH EXIST. PAVEMENT MARKINGS WITHOUT JOGS OR OFFSETS.

SIGNING PAID UNDER FPID: 434768-1-52-01.  
 SR 932 EAST LEG LEFT TURN PAVEMENT MARKINGS PAID UNDER FPID: 434768-1-52-01.  
 THE REST OF THE PAVEMENT MARKINGS PAID UNDER FPID: 434768-1-52-02.

REVISIONS		REVISIONS		RONALD LEE SPENCER, P.E. P.E. NO.: 39141 BMA CONSULTING ENGINEERING 18503 PINES BLVD, SUITE 210 PEMBROKE PINES, FL 33029 CERTIFICATE OF AUTHORIZATION: 29947	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<b>SIGNING AND PAVEMENT MARKING PLAN</b>	SHEET NO.  S-11
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
				SR 932	MIAMI-DADE	434768-1-52-01			

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.











**TOD Schedule Report**  
for 3723: W 16 Av&W 49 St

Print Date:  
10/4/2021

Print Time:  
5:13 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
3723	W 16 Av&W 49 St	DOW-2	TOD	[18] WEEKEND AM	180	39	N/A	1	Max 2

**Splits**

<u>PH 1</u>	<u>PH 2</u>	<u>PH 3</u>	<u>PH 4</u>	<u>PH 5</u>	<u>PH 6</u>	<u>PH 7</u>	<u>PH 8</u>
EBL	WBT	SBL	NBT	WBL	EBT	NBL	SBT
25	63	23	44	25	63	23	44
							

Active Phase Bank: Phase Bank 1

Phase	<u>Walk</u>			<u>Don't Walk</u>			<u>Min Initial</u>			<u>Veh Ext</u>			<u>Max Limit</u>			<u>Max 2</u>			<u>Yellow</u>	<u>Red</u>
	Phase Bank																			
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1 EBL	0	0	0	0	0	0	5	5	5	2	2	2	7	7	7	27	20	20	4.4	2
2 WBT	7	7	7	21	21	21	5	5	5	1	1	1	30	35	26	0	30	53	4.4	2
3 SBL	0	0	0	0	0	0	5	5	0	2	2	0	7	7	0	25	12	0	4.4	2
4 NBT	7	7	7	24	24	24	5	5	5	2.5	2.5	2.5	32	32	18	53	32	53	4.4	2.1
5 WBL	0	0	0	0	0	0	5	5	5	2	2	2	7	7	7	27	20	20	4.4	2
6 EBT	7	7	7	21	21	21	5	5	5	1	1	1	30	35	26	0	30	53	4.4	2
7 NBL	0	0	0	0	0	0	5	5	0	2	2	0	7	7	0	25	12	0	4.4	2
8 SBT	7	7	7	24	24	24	5	5	5	2.5	2.5	2.5	32	32	18	53	32	53	4.4	2.1

Last In Service Date: unknown

<b>Permitted Phases</b>	
	<b>12345678</b>
Default	12345678
External Permit 0	-2-4-6-8
External Permit 1	-2-4-6-8
External Permit 2	-2-4-6-8

**TOD Schedule Report**  
for 3723: W 16 Av&W 49 St

Print Date:  
10/4/2021

Print Time:  
5:13 PM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 EBL	2 WBT	3 SBL	4 NBT	5 WBL	6 EBT	7 NBL	8 SBT		
1		160	12	56	19	48	12	56	19	48	0	10
2		170	20	64	16	45	25	59	16	45	0	108
3		130	16	59	9	21	16	59	9	21	0	8
4		160	16	66	17	36	16	66	17	36	0	8
5		140	20	35	17	43	20	35	17	43	0	138
6		160	22	54	24	35	22	54	24	35	0	157
7		120	5	52	6	32	5	52	6	32	0	11
8		160	13	54	17	51	13	54	17	51	0	123
9		120	16	32	15	32	16	32	15	32	0	94
10		160	27	53	17	39	27	53	17	39	0	157
11		170	23	66	21	35	23	66	21	35	0	31
12		190	30	58	31	47	30	58	31	47	0	180
13		160	23	52	20	40	23	52	20	40	0	118
14		150	19	64	16	26	19	64	16	26	0	101
15		160	21	58	23	33	21	58	23	33	0	125
16		150	19	64	16	26	19	64	16	26	0	101
17		160	27	53	17	39	27	53	17	39	0	157
18		180	25	63	23	44	25	63	23	44	0	39
19		150	21	54	16	34	21	54	16	34	0	15
20		150	19	64	16	26	19	64	16	26	0	77
21		130	16	59	9	21	16	59	9	21	0	8
22		80	0	36	0	32	0	36	0	32	0	21
23		80	0	35	0	33	0	35	0	33	0	29
24		170	24	60	25	36	24	60	25	36	0	157

Local TOD Schedule		
Time	Plan	DOW
0000	22	Su M T W Th F S
0100	Free	M T W Th F
0130	Free	Su S
0530	3	M T W Th F
0600	22	Su S
0630	2	M T W Th F
0830	5	Su S
1000	4	M T W Th F
1100	24	Su S
1130	13	M T W Th F
1330	11	M T W Th F
1530	18	M T W Th F
1730	6	Su S
1830	9	Su S
1900	19	M T W Th F
2030	7	Su S
2100	21	M T W Th F
2300	7	M T W Th F

Current Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	---5-3--	SuM T W ThF S
0100	TOD OUTPUTS	---5--2-	M T W ThF
0530	TOD OUTPUTS	---5-3--	M T W ThF
0600	TOD OUTPUTS	-----	M T W ThF
2300	TOD OUTPUTS	---5-3--	M T W ThF

Local Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	---5-3--	SuM T W ThF S
0100	TOD OUTPUTS	---5--2-	M T W ThF
0130	TOD OUTPUTS	---5--2-	Su S
0530	TOD OUTPUTS	---5-3--	M T W ThF
0600	TOD OUTPUTS	---5-3--	Su S
0600	TOD OUTPUTS	-----	M T W ThF
0800	TOD OUTPUTS	-----	Su S
2130	TOD OUTPUTS	---5-3--	Su S
2300	TOD OUTPUTS	---5-3--	M T W ThF

* Settings
Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

**TOD Schedule Report**  
**for 3723: W 16 Av&W 49 St**

Print Date:  
**10/4/2021**

Print Time:  
**5:13 PM**

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***No Calendar Defined/Enabled***

# SIGNAL OPERATING PLAN

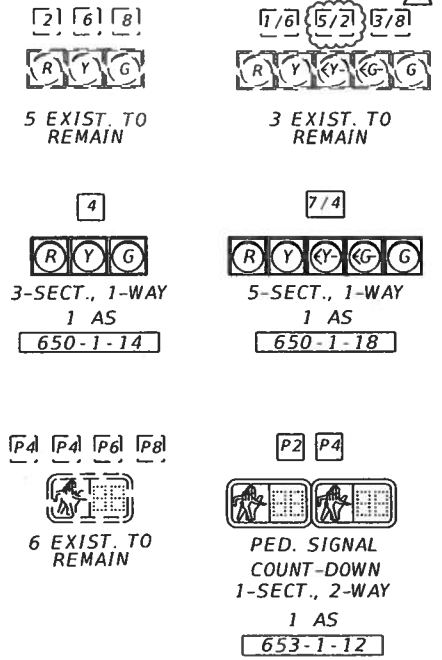


Phase	Direction Head No.	EB		WB		SB		NB		Ped Heads				Drawing	
		1/6	6	5/2	2	3/8	8	7/4	4	P6	P2	P8	P4		
(1+5) E/W L W 49 ST (Actuated)	Dwell	<G/R	R	<G/R	R	R	R	R	R	DW	DW	DW	DW		
	Clear	(1+6)	<G/R	R	<Y/R	R	R	R	R	R	DW	DW	DW		DW
		(2+5)	<Y/R	R	<G/R	R	R	R	R	R	DW	DW	DW		DW
		(2+6)	<Y/R	R	<Y/R	R	R	R	R	R	DW	DW	DW		DW
(1+6) EL (Actuated)	Dwell	<G/G	G	R	R	R	R	R	R	W/F	DW	DW	DW		
	Clear	(2+6)	<Y/G	G	R	R	R	R	R	DW	DW	DW	DW		
(2+5) WL (Actuated)	Dwell	R	R	<G/G	G	R	R	R	R	DW	W/F	DW	DW		
	Clear	(2+6)	R	R	<Y/G	G	R	R	R	DW	DW	DW	DW		
(2+6) E/W W 49 ST (Recall)	Dwell	G	G	G	G	R	R	R	R	W/F	W/F	DW	DW		
	Clear	(3+7)	Y	Y	Y	Y	R	R	R	R	DW	DW	DW		DW
		(3+8)	Y	Y	Y	Y	R	R	R	R	DW	DW	DW		DW
		(4+7)	Y	Y	Y	Y	R	R	R	R	DW	DW	DW		DW
(3+7) N/S L W 16 AVE (Actuated)	Dwell	R	R	R	R	<G/R	R	<G/R	R	DW	DW	DW	DW		
	Clear	(3+8)	R	R	R	R	<G/R	R	<Y/R	R	DW	DW	DW		DW
		(4+7)	R	R	R	R	<Y/R	R	<G/R	R	DW	DW	DW		DW
		(4+8)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
		(1+5)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
		(1+6)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
		(2+5)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
		(2+6)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
(3+8) SL (Actuated)	Dwell	R	R	R	R	<G/G	G	R	R	DW	DW	W/F	DW		
	Clear	(4+8)	R	R	R	R	<Y/G	G	R	R	DW	DW	DW		DW
		(1+5)	R	R	R	R	<Y/Y	Y	R	R	DW	DW	DW		DW
		(1+6)	R	R	R	R	<Y/Y	Y	R	R	DW	DW	DW		DW
		(2+5)	R	R	R	R	<Y/Y	Y	R	R	DW	DW	DW		DW
(4+7) NL (Actuated)	Dwell	R	R	R	R	R	R	<G/G	G	DW	DW	DW	W/F		
	Clear	(4+8)	R	R	R	R	R	R	<Y/G	G	DW	DW	DW		DW
		(1+5)	R	R	R	R	R	R	<Y/Y	Y	DW	DW	DW		DW
		(1+6)	R	R	R	R	R	R	<Y/Y	Y	DW	DW	DW		DW
		(2+5)	R	R	R	R	R	R	<Y/Y	Y	DW	DW	DW		DW
(4+8) N/S W 16 AVE (Actuated)	Dwell	R	R	R	R	G	G	G	G	DW	DW	W/F	W/F		
	Clear	(1+5)	R	R	R	R	Y	Y	Y	Y	DW	DW	DW		DW
		(1+6)	R	R	R	R	Y	Y	Y	Y	DW	DW	DW		DW
		(2+5)	R	R	R	R	Y	Y	Y	Y	DW	DW	DW		DW

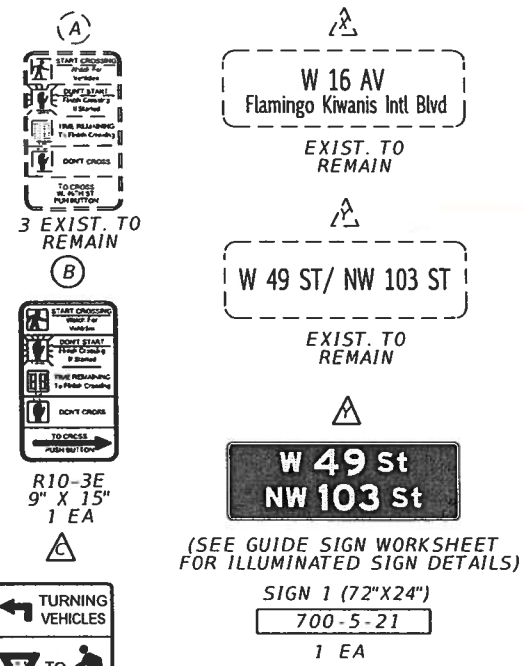
## Miami-Dade County Public Works Department

Drawn 	Date 10/11/01	W 16 AVE & W 49 ST		
Checked H. HERMANOZ	Date 10/30/01	Placed in Service Date 5/14/97	Phasing No. 10	Asset Number 3723

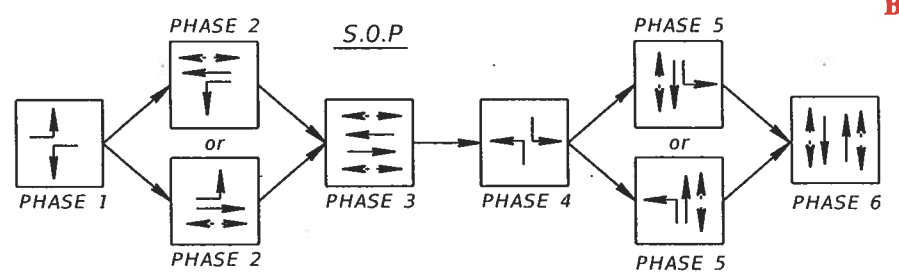
**EXISTING SIGNAL HEADS**



**EXISTING SIGNS**



**AS-Build Drawing**  
**S.S.L Corp**  
 By: *[Signature]*  
 11-6-18

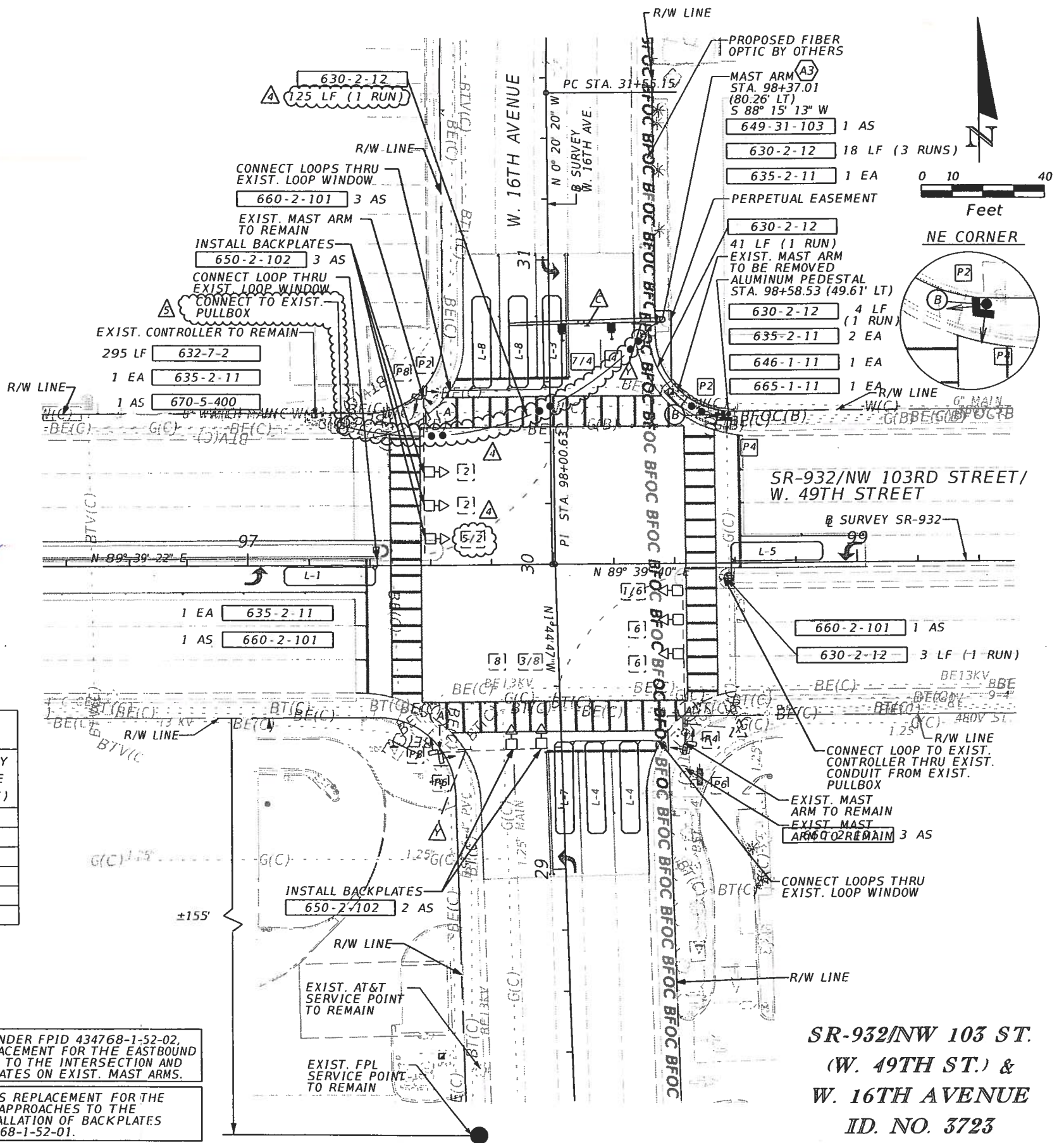


LOOP	NO. OF LOOPS	NO. OF NEW DETS.	NO. OF EXIST. DETS.	DELAY TIME (SEC)
L-1	1		1	
L-3	1		1	
L-4	2		1	
L-5	1		1	
L-7	1		1	
L-8	2		1	

- REMOVAL ITEMS**
- 632-7-6 1 PI
  - 649-36-300 1 EA

ALL ACTIVITIES TO BE PAID UNDER FPID 434768-1-52-02, EXCEPT FOR THE LOOPS REPLACEMENT FOR THE EASTBOUND AND WESTBOUND APPROACHES TO THE INTERSECTION AND THE INSTALLATION OF BACKPLATES ON EXIST. MAST ARMS.

WORK ASSOCIATED WITH LOOPS REPLACEMENT FOR THE EASTBOUND AND WESTBOUND APPROACHES TO THE INTERSECTION AND THE INSTALLATION OF BACKPLATES TO BE PAID UNDER FPID 434768-1-52-01.



**SR-932/NW 103 ST.**  
**(W. 49TH ST.) &**  
**W. 16TH AVENUE**  
**ID. NO. 3723**

DATE	DESCRIPTION	DATE	DESCRIPTION
08-10-18	Revised Traffic Signal Heads naming and Conduit run.		
09-25-18	Revised Pullbox Connection.		

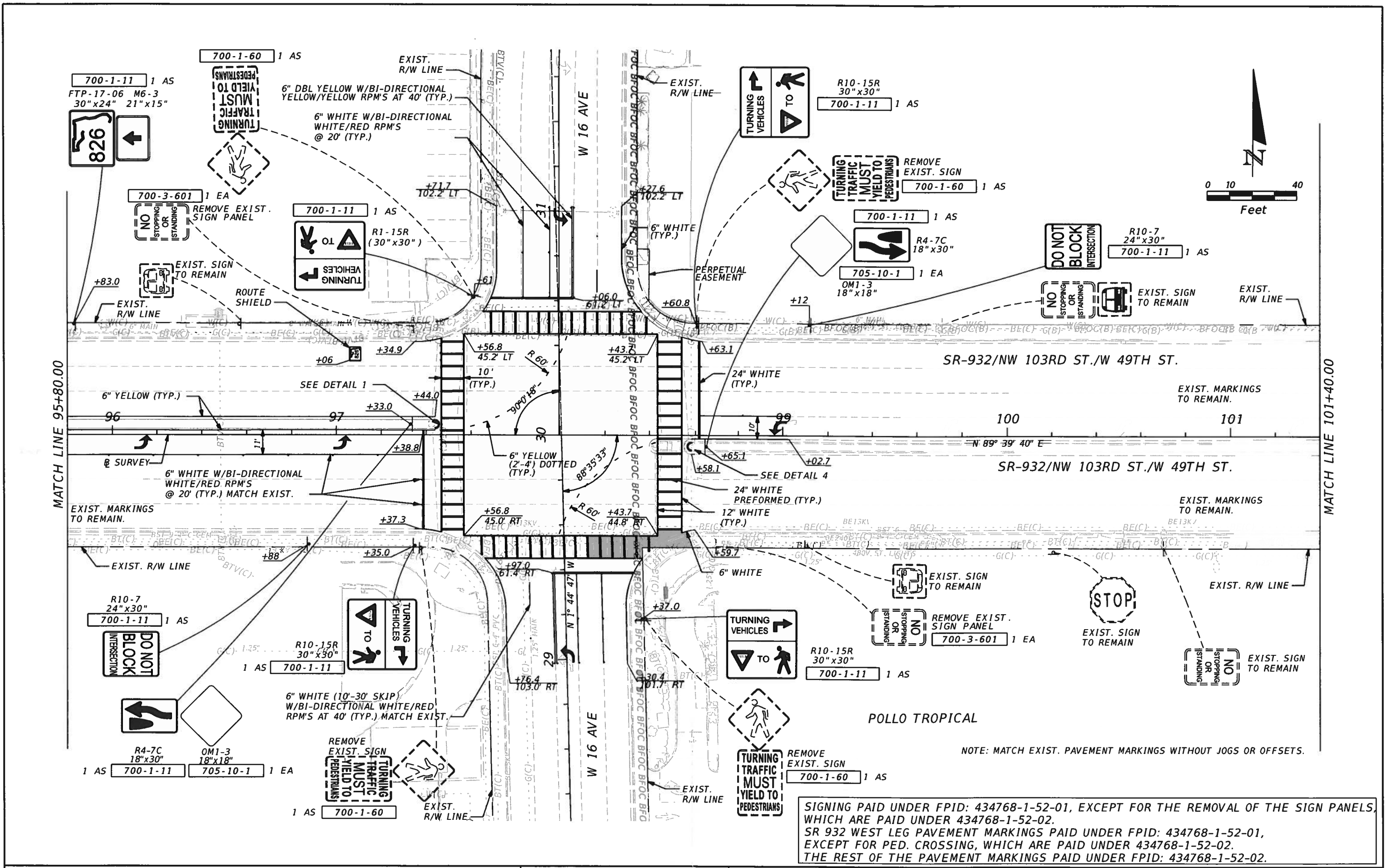
TRACE CONSULTANTS, INC.  
 12485 SW 137 AVENUE, SUITE 207  
 MIAMI, FLORIDA 33186  
 TEL. (305) 281-1195  
 C.A. NO. 29942  
 ENGINEER OF RECORD: FRANK PANELLAS, P.E. NO. 59448

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 932	MIAMI-DADE	434768-1-52-01

**SIGNALIZATION PLAN**

SHEET NO. T-9

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



SIGNING PAID UNDER FPID: 434768-1-52-01, EXCEPT FOR THE REMOVAL OF THE SIGN PANELS, WHICH ARE PAID UNDER 434768-1-52-02.  
 SR 932 WEST LEG PAVEMENT MARKINGS PAID UNDER FPID: 434768-1-52-01, EXCEPT FOR PED. CROSSING, WHICH ARE PAID UNDER 434768-1-52-02.  
 THE REST OF THE PAVEMENT MARKINGS PAID UNDER FPID: 434768-1-52-02.

REVISIONS				RONALD LEE SPENCER, P.E. P.E. NO.: 39141 BMA CONSULTING ENGINEERING 18503 PINES BLVD, SUITE 210 PEMBROKE PINES, FL 33029 CERTIFICATE OF AUTHORIZATION: 29947	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.  S-13
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
					SR 932	MIAMI-DADE	434768-1-52-01	

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.







**TOD Schedule Report**  
for 3681: W 14 Ln&W 49 St

Print Date:  
10/4/2021

Print Time:  
5:07 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
3681	W 14 Ln&W 49 St	DOW-2	TOD	N/A	0	0	N/A	0	Max 0

**Splits**

<u>PH 1</u>	<u>PH 2</u>	<u>PH 3</u>	<u>PH 4</u>	<u>PH 5</u>	<u>PH 6</u>	<u>PH 7</u>	<u>PH 8</u>
EBL	WBT	-	NBT	WBL	EBT	-	SBT
0	0	0	0	0	0	0	0
							

Active Phase Bank: Phase Bank 1

<u>Phase</u>	<u>Walk</u>			<u>Don't Walk</u>			<u>Min Initial</u>			<u>Veh Ext</u>			<u>Max Limit</u>			<u>Max 2</u>			<u>Yellow</u>	<u>Red</u>
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1 EBL	0	0	0	0	0	0	5	7	7	2	2	2	7	7	7	20	10	15	4.4	2
2 WBT	7	7	7	20	20	20	7	7	7	1	1	1	30	30	30	0	46	46	4.4	2
3 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 NBT	7	7	7	22	22	22	7	7	7	2.5	-2.5	-2.5	20	30	30	46	46	46	4	2.7
5 WBL	0	0	0	0	0	0	5	7	7	2	2	2	7	7	7	20	10	15	4.4	2
6 EBT	7	7	7	20	20	20	7	7	7	1	1	1	30	30	30	0	46	46	4.4	2
7 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 SBT	7	7	7	22	22	22	7	7	7	2.5	-2.5	-2.5	20	30	30	46	46	46	4	2.7

Last In Service Date: unknown

<b>Permitted Phases</b>	
	<b>12345678</b>
Default	12-456-8
External Permit 0	-2-4-6-8
External Permit 1	-2-4-6-8
External Permit 2	-2-4-6-8

**TOD Schedule Report**  
for 3681: W 14 Ln&W 49 St

Print Date:  
10/4/2021

Print Time:  
5:07 PM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 EBL	2 WBT	3 -	4 NBT	5 WBL	6 EBT	7 -	8 SBT		
1		160	5	97	0	39	5	97	0	39	0	69
2		170	9	108	0	34	9	108	0	34	0	128
3		130	0	87	0	30	0	87	0	30	0	21
4		160	7	101	0	33	7	101	0	33	0	27
5		140	7	79	0	35	7	79	0	35	0	34
6		160	16	82	0	43	16	82	0	43	0	15
7		120	7	74	0	20	7	74	0	20	0	26
8		160	5	107	0	29	5	107	0	29	0	139
9		120	7	61	0	33	7	61	0	33	0	112
10		160	18	80	0	43	18	80	0	43	0	15
11		170	19	81	0	51	19	81	0	51	0	24
12		190	20	92	0	59	20	92	0	59	0	9
13		160	8	91	0	42	8	91	0	42	0	83
14		150	6	94	0	31	6	94	0	31	0	109
15		160	8	99	0	34	8	99	0	34	0	148
16		150	6	94	0	31	6	94	0	31	0	109
17		160	6	90	0	45	6	90	0	45	0	15
18		180	10	103	0	48	10	103	0	48	0	50
19		150	7	88	0	36	7	88	0	36	0	34
20		150	6	94	0	31	6	94	0	31	0	95
21		130	0	96	0	21	0	96	0	21	0	21
22		80	0	52	0	15	0	52	0	15	0	31
23		80	0	52	0	15	0	52	0	15	0	31
24		170	17	91	0	43	17	91	0	43	0	48

Local TOD Schedule		
Time	Plan	DOW
0000	22	Su M T W Th F S
0100	Flash	M T W Th F
0130	Flash	Su S
0530	3	M T W Th F
0600	Free	Su S
0630	2	M T W Th F
0830	5	Su S
1000	4	M T W Th F
1100	24	Su S
1130	13	M T W Th F
1330	11	M T W Th F
1530	18	M T W Th F
1730	6	Su S
1830	9	Su
1900	9	S
1900	19	M T W Th F
2030	7	Su
2100	21	M T W Th F
2130	23	Su
2200	7	S
2300	7	M T W Th F

Current Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S
0600	TOD OUTPUTS	---5---	M T W ThF
0655	TOD OUTPUTS	-----	M T W ThF
2300	TOD OUTPUTS	---5---1	M T W ThF

Local Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S
0600	TOD OUTPUTS	---5---	M T W ThF
0655	TOD OUTPUTS	-----	M T W ThF
0700	TOD OUTPUTS	---5---1	Su S
0800	TOD OUTPUTS	-----	Su S
2130	TOD OUTPUTS	---5---1	Su S
2300	TOD OUTPUTS	---5---1	M T W ThF

* Settings
Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA



**TOD Schedule Report**  
**for 3681: W 14 Ln&W 49 St**

Print Date:  
**10/4/2021**

Print Time:  
**5:07 PM**

---

***No Calendar Defined/Enabled***

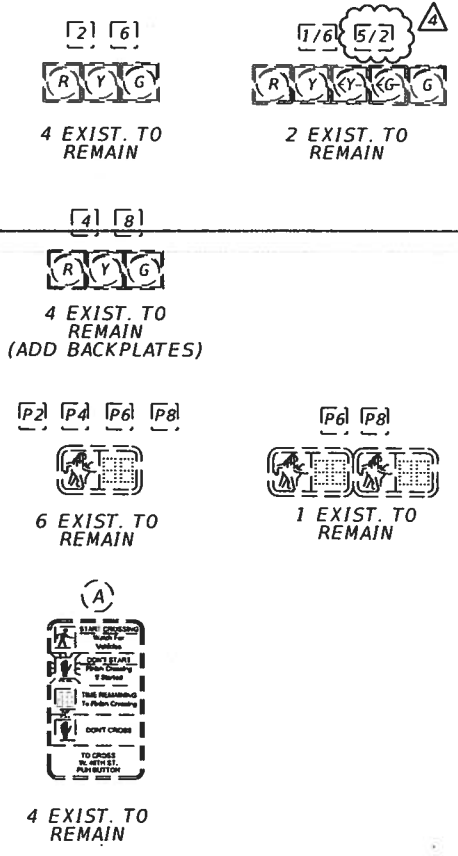
# SIGNAL OPERATING PLAN



Timing Phases	Direction	EB		WB		SB		NB		Ped Heads				Movements/Display/Actuation
	Head No.	1/6	6	5/2	2	8	4	P2	P6	P8	P4			
(1+5) E/W LT  W 49 ST (Actuated)	Dwell	<G/R	R	<G/R	R	R	R	DW	DW	DW	DW			
	Clear	(1+6)	<G/R	R	<Y/R	R	R	R	DW	DW	DW		DW	
		(2+5)	<Y/R	R	<G/R	R	R	R	DW	DW	DW		DW	
		(2+6)	<Y/R	R	<Y/R	R	R	R	DW	DW	DW		DW	
(1+6) EB  (Actuated)	Dwell	<G/G	G	R	R	R	R	DW	W/F	DW	DW			
	Clear	(2+6)	<Y/G	G	R	R	R	R	DW	DW	DW		DW	
(2+5) WB  (Actuated)	Dwell	R	R	<G/G	G	R	R	W/F	DW	DW	DW			
	Clear	(2+6)	R	R	<Y/G	G	R	R	DW	DW	DW		DW	
(2+6) E/W  W 49 ST (Recall)	Dwell	G	G	G	G	R	R	W/F	W/F	DW	DW			
	Clear													
		(4+8)	Y	Y	Y	Y	R	R	DW	DW	DW		DW	
	Dwell													
	Clear													
	Dwell													
	Clear													
(4+8) N/S  W 14 LN (Actuated)	Dwell	R	R	R	R	G	G	DW	DW	W/F	W/F			
	Clear	(1+5)	R	R	R	R	Y	Y	DW	DW	DW		DW	
		(1+6)	R	R	R	R	Y	Y	DW	DW	DW		DW	
		(2+5)	R	R	R	R	Y	Y	DW	DW	DW		DW	
		(2+6)	R	R	R	R	Y	Y	DW	DW	DW		DW	

Flashing Operation		FY	FY	FY	FY	FR	FR	Page 1 of 1					
<b>Miami-Dade County Public Works Department</b>													
Drawn <b>R. Fernandez</b>	Date <b>5/30/08</b>	<b>W 14 LANE &amp; W 49 ST.</b>											
Checked <b>H. HERNANDEZ</b>	Date <b>6/4/8</b>	Placed in Service				Phasing No.				Asset Number			
		Date <b>12/5/08</b>	By <b>SJU</b>			<b>5</b>				<b>3681</b>			

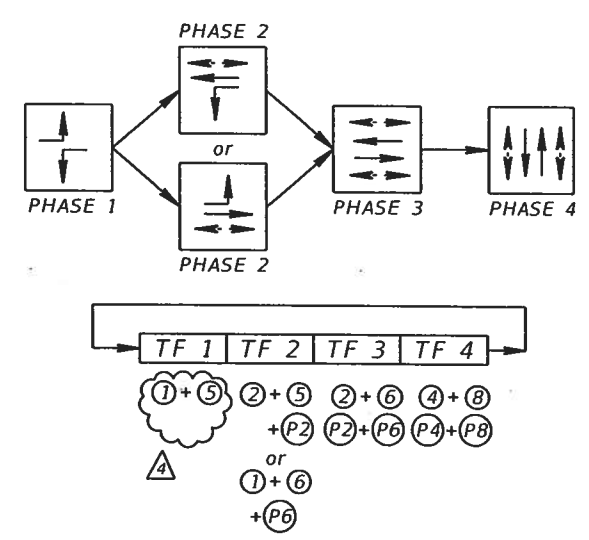
**EXISTING SIGNAL HEADS**



**EXISTING SIGNS**



**S.O.P.**



DETECTORS FOR LOOPS				
LOOP	NO. OF LOOPS	NO. OF NEW DETS.	NO. OF EXIST. DETS.	DELAY TIME (SEC)
L-1	1		1	
L-4	3		2	
L-5	1		1	
L-8	2		1	

**CONTROLLER OPERATION**

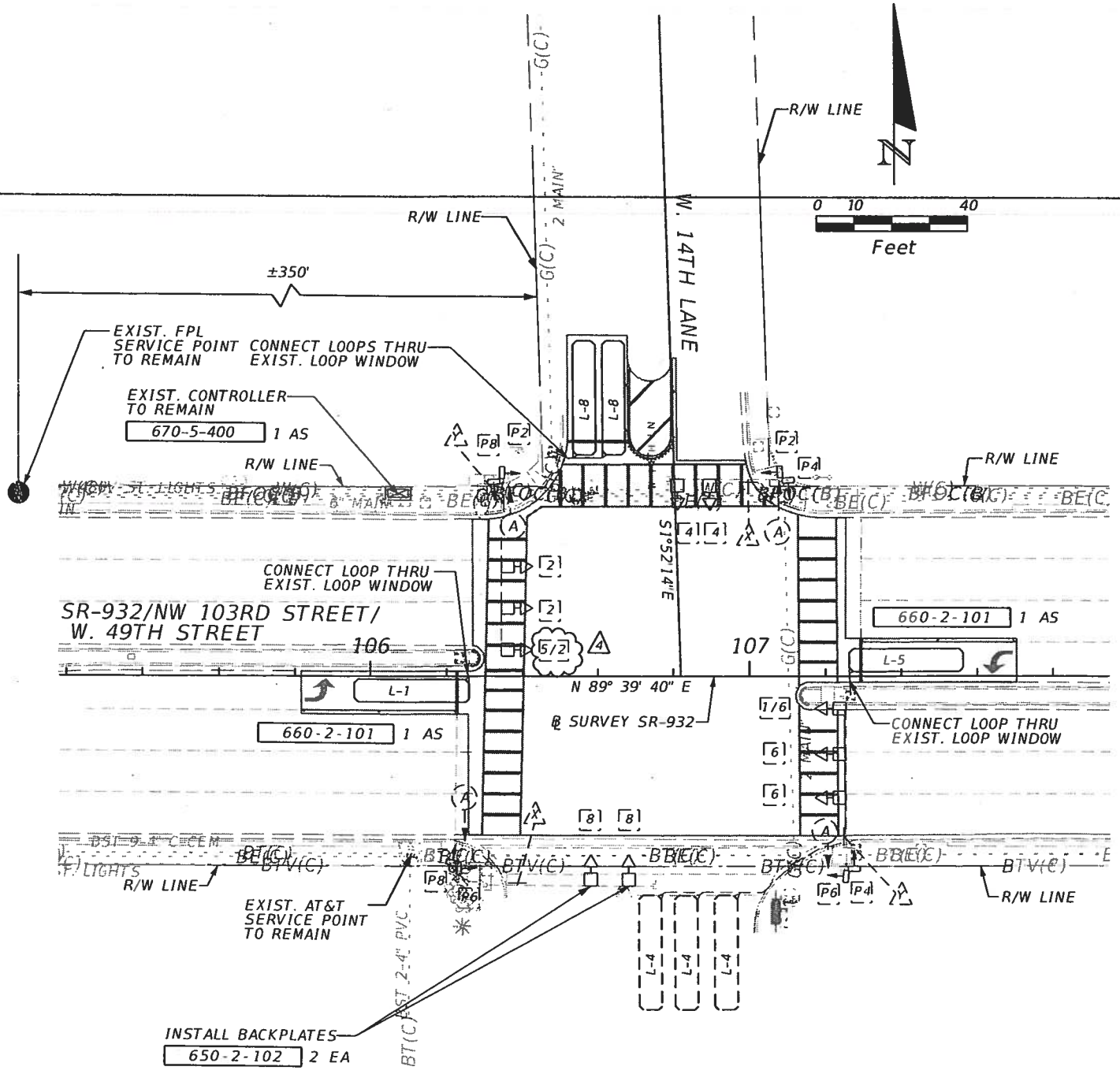
- MAJOR STREET: NW 103 ST. / W. 49 ST  
MINOR STREET: W. 14TH LANE
- EXISTING S.O.P. TO REMAIN  
PHASE 1, 2, 4 ACTUATED, PHASE 3 RECALL FLASHING OPERATION:  
MOVEMENTS 2 & 6 YELLOW  
MOVEMENTS 4 & 8 RED

**NOTES**

- SIGNAL TIMING TO BE PROVIDED BY MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS, (DTPW) TRAFFIC AND SIGN DIVISION.

ALL ACTIVITIES TO BE PAID UNDER FPID 434768-1-52-02, EXCEPT FOR THE INSTALLATION OF BACKPLATES ON EXIST. MAST ARMS.

WORK ASSOCIATED WITH THE INSTALLATION OF BACKPLATES TO BE PAID UNDER FPID 434768-1-52-01.



AS-Build Drawing  
S.S.L Corp

By: *[Signature]*  
19.27-18

**SR-932/NW 103RD ST. (W. 49TH ST.)  
& W. 14TH LANE  
ID. NO. 3681**

REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	
08-10-18	Revised Traffic Signal Heads naming and S.O.P.			SR 932	MIAMI-DADE	T-10
					FINANCIAL PROJECT ID	

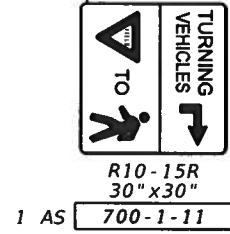
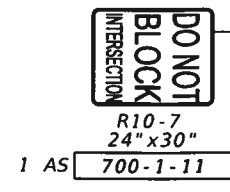
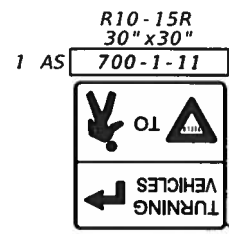
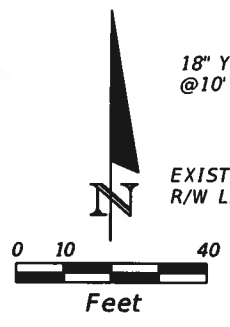
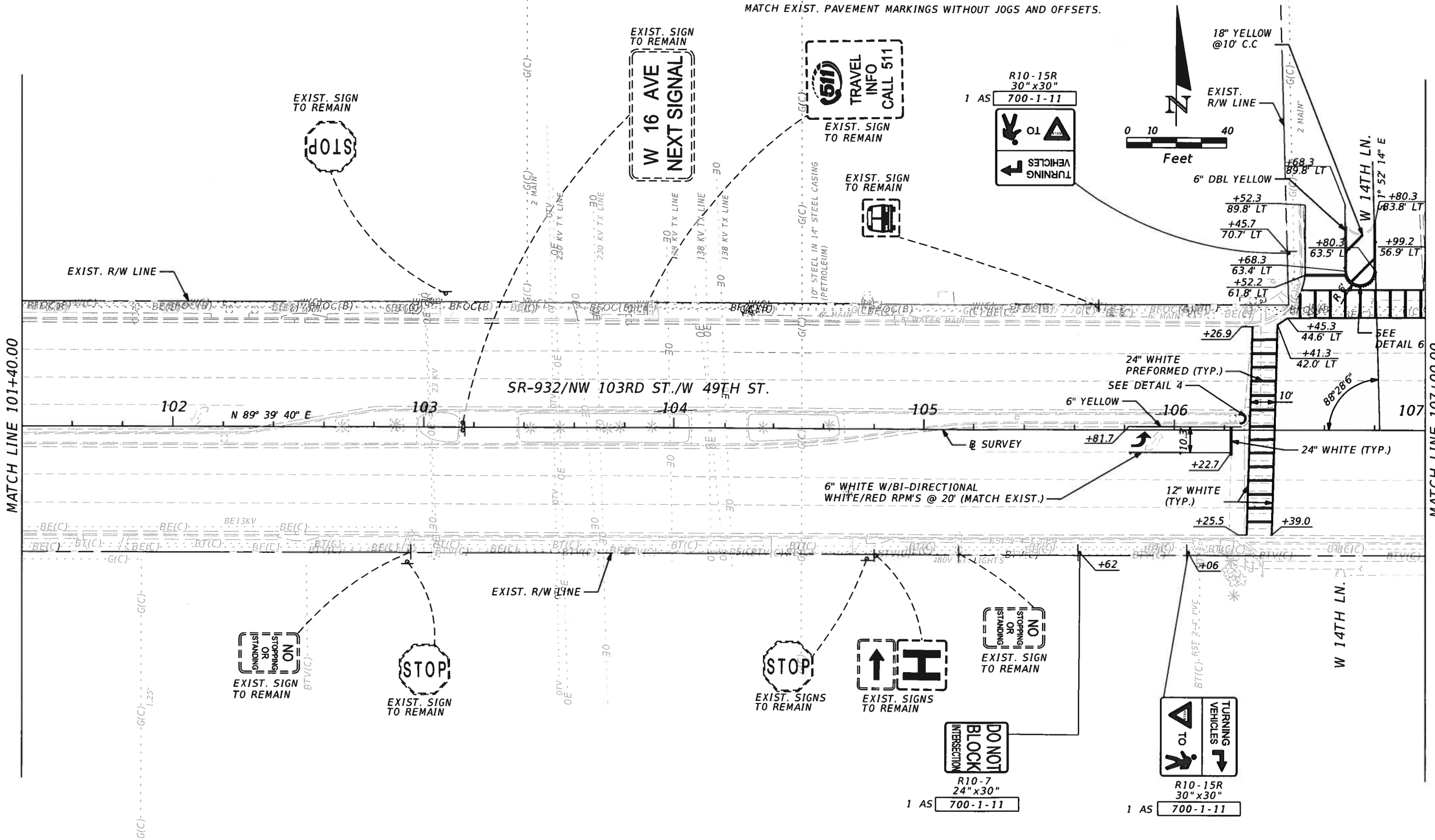
TRACE CONSULTANTS, INC.  
12485 SW 137 AVENUE, SUITE 207  
MIAMI, FLORIDA 33186  
TEL. (305) 281-1195  
C.A. NO. 29942  
ENGINEER OF RECORD: FRANK PANELLAS, P.E. NO. 59448

STATE OF FLORIDA  
DEPARTMENT OF TRANSPORTATION  
ROAD NO. SR 932  
COUNTY MIAMI-DADE  
FINANCIAL PROJECT ID 434768-1-52-01

**SIGNALIZATION PLAN**

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

MATCH EXIST. PAVEMENT MARKINGS WITHOUT JOGS AND OFFSETS.



SIGNING PAID UNDER FPID: 434768-1-52-01.  
PAVEMENT MARKINGS PAID UNDER FPID: 434768-1-52-02.

REVISIONS				RONALD LEE SPENCER, P.E. P.E. NO.: 39141 BMA CONSULTING ENGINEERING 18503 PINES BLVD, SUITE 210 PEMBROKE PINES, FL 33029 CERTIFICATE OF AUTHORIZATION: 29947	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO. S-14
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
					SR 932	MIAMI-DADE	434768-1-52-01	

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.









**TOD Schedule Report**  
for 3078: Ludlam Rd&W 49 St

Print Date:  
10/4/2021

Print Time:  
4:02 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
3078	Ludlam Rd&W 49 St	DOW-2	TOD	N/A	0	0	N/A	0	Max 0

**Splits**

<u>PH 1</u>	<u>PH 2</u>	<u>PH 3</u>	<u>PH 4</u>	<u>PH 5</u>	<u>PH 6</u>	<u>PH 7</u>	<u>PH 8</u>
EBL	WBT	SBL	NBT	WBL	EBT	NBL	SBT
0	0	0	0	0	0	0	0
							

Active Phase Bank: Phase Bank 1

Phase	<u>Walk</u>			<u>Don't Walk</u>			<u>Min Initial</u>			<u>Veh Ext</u>			<u>Max Limit</u>			<u>Max 2</u>			<u>Yellow</u>	<u>Red</u>
	Phase Bank																			
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1 EBL	0	0	0	0	0	0	7	7	7	3	3	3	7	7	22	25	25	25	4.4	2
2 WBT	7	7	7	21	21	21	7	7	7	1	1	1	30	30	68	0	38	68	4.4	2
3 SBL	0	0	0	0	0	0	7	7	7	3	3	3	7	7	22	22	22	22	4.4	2
4 NBT	7	7	7	24	24	24	7	7	7	3	-2.5	-2.5	32	32	56	68	36	68	4.4	2.1
5 WBL	0	0	0	0	0	0	7	7	7	3	3	3	7	7	22	25	25	25	4.4	2
6 EBT	7	7	7	21	21	21	7	7	7	1	1	1	30	30	68	0	38	68	4.4	2
7 NBL	0	0	0	0	0	0	7	7	7	3	3	3	7	7	22	22	22	22	4.4	2
8 SBT	7	7	7	24	24	24	7	7	7	3	-2.5	-2.5	32	32	56	68	36	68	4.4	2.1

Last In Service Date: unknown

<b>Permitted Phases</b>	
	<b>12345678</b>
Default	12345678
External Permit 0	-2-4-6-8
External Permit 1	-2-4-6-8
External Permit 2	-2-4-6-8

**TOD Schedule Report**  
for 3078: Ludlam Rd&W 49 St

Print Date:  
10/4/2021

Print Time:  
4:02 PM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 EBL	2 WBT	3 SBL	4 NBT	5 WBL	6 EBT	7 NBL	8 SBT		
1		160	12	45	13	65	12	45	13	65	0	46
2		170	12	50	15	68	12	50	15	68	0	3
3		130	7	57	9	32	7	57	9	32	0	52
4		160	11	68	9	47	11	68	9	47	0	56
5		140	16	54	10	35	16	54	10	35	0	68
6		160	17	66	13	39	17	66	13	39	0	50
7		120	7	48	8	32	7	48	8	32	0	56
8		160	14	46	15	60	14	46	15	60	0	82
9		120	12	42	9	32	12	42	9	32	0	27
10		160	18	66	13	38	18	66	13	38	0	50
11		170	20	72	15	38	20	72	15	38	0	159
12		190	24	81	19	41	24	81	19	41	0	49
13		160	19	62	14	40	19	62	14	40	0	81
14		150	16	64	14	31	16	64	14	31	0	49
15		160	19	63	17	36	19	63	17	36	0	81
16		150	16	64	14	31	16	64	14	31	0	49
18		180	22	68	19	46	22	68	19	46	0	2
19		150	16	62	11	36	16	62	11	36	0	68
20		150	16	60	14	35	16	60	14	35	0	24
21		130	7	57	9	32	7	57	9	32	0	52
22		80	0	36	0	32	0	36	0	32	0	65
23		80	0	36	0	32	0	36	0	32	0	61
24		170	18	72	14	41	18	72	14	41	0	32

Local TOD Schedule		
Time	Plan	DOW
0000	22	Su M T W Th F S
0000	9	Su
0100	Free	M T W Th F
0130	Free	Su S
0530	3	M T W Th F
0600	22	Su S
0630	2	M T W Th F
0830	5	Su S
1000	4	M T W Th F
1100	24	Su S
1130	13	M T W Th F
1330	11	M T W Th F
1530	18	M T W Th F
1730	6	Su S
1900	19	M T W Th F
1900	9	S
2030	7	Su
2100	21	M T W Th F
2130	23	Su
2200	7	S
2300	7	M T W Th F

Current Time of Day Function			
Time	Function	Settings *	Day of Week
0100	TOD OUTPUTS	---5---1	M T W ThF
0530	TOD OUTPUTS	-----	M T W ThF

Local Time of Day Function			
Time	Function	Settings *	Day of Week
0100	TOD OUTPUTS	---5---1	M T W ThF
0130	TOD OUTPUTS	---5---1	Su S
0530	TOD OUTPUTS	-----	M T W ThF
0600	TOD OUTPUTS	-----	Su S

* Settings
Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

**TOD Schedule Report**  
**for 3078: Ludlam Rd&W 49 St**

Print Date:  
**10/4/2021**

Print Time:  
**4:02 PM**

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<p><b><i>No Calendar Defined/Enabled</i></b></p>
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# SIGNAL OPERATING PLAN



Timing Phases	Direction Head No.	EB		WB		SB		NB		Ped Heads				Movements/Display/Actuation	
		1/6	6	5/2	2	3/8	8	7/4	4	P6	P2	P8	P4		
(1+5) E/W LT W 49 ST (Actuated)	Dwell	<G/R	R	<G/R	R	R	R	R	R	DW	DW	DW	DW		
	Clear	(1+6)	<G/R	R	<Y/R	R	R	R	R	R	DW	DW	DW		DW
		(2+5)	<Y/R	R	<G/R	R	R	R	R	R	DW	DW	DW		DW
		(2+6)	<Y/R	R	<Y/R	R	R	R	R	R	DW	DW	DW		DW
(1+6) EB (Actuated)	Dwell	<G/G	G	R	R	R	R	R	R	W/F	DW	DW	DW		
	Clear	(2+6)	<Y/G	G	R	R	R	R	R	DW	DW	DW	DW		
(2+5) WB (Actuated)	Dwell	R	R	<G/G	G	R	R	R	R	DW	W/F	DW	DW		
	Clear	(2+6)	R	R	<Y/G	G	R	R	R	DW	DW	DW	DW		
(2+6) E/W W 49 ST (Recall)	Dwell	G	G	G	G	R	R	R	R	W/F	W/F	DW	DW		
	Clear	(3+7)	Y	Y	Y	Y	R	R	R	R	DW	DW	DW		DW
		(3+8)	Y	Y	Y	Y	R	R	R	R	DW	DW	DW		DW
		(4+7)	Y	Y	Y	Y	R	R	R	R	DW	DW	DW		DW
(3+7) N/S LT W 12 AVE (Actuated)	Dwell	R	R	R	R	<G/R	R	<G/R	R	DW	DW	DW	DW		
	Clear	(3+8)	R	R	R	R	<G/R	R	<Y/R	R	DW	DW	DW		DW
		(4+7)	R	R	R	R	<Y/R	R	<G/R	R	DW	DW	DW		DW
		(4+8)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
		(1+5)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
		(1+6)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
		(2+5)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
(2+6)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW	DW			
(3+8) SB (Actuated)	Dwell	R	R	R	R	<G/G	G	R	R	DW	DW	W/F	DW		
	Clear	(4+8)	R	R	R	R	<Y/G	G	R	R	DW	DW	DW		DW
		(1+5)	R	R	R	R	<Y/Y	Y	R	R	DW	DW	DW		DW
		(1+6)	R	R	R	R	<Y/Y	Y	R	R	DW	DW	DW		DW
		(2+5)	R	R	R	R	<Y/Y	Y	R	R	DW	DW	DW		DW
(4+7) NB (Actuated)	Dwell	R	R	R	R	R	R	<G/G	G	DW	DW	DW	W/F		
	Clear	(4+8)	R	R	R	R	R	R	<Y/G	G	DW	DW	DW		DW
		(1+5)	R	R	R	R	R	R	<Y/Y	Y	DW	DW	DW		DW
		(1+6)	R	R	R	R	R	R	<Y/Y	Y	DW	DW	DW		DW
		(2+5)	R	R	R	R	R	R	<Y/Y	Y	DW	DW	DW		DW
(4+8) N/S W 12 AVE (Actuated)	Dwell	R	R	R	R	G	G	G	G	DW	DW	W/F	W/F		
	Clear	(1+5)	R	R	R	R	Y	Y	Y	Y	DW	DW	DW		DW
		(1+6)	R	R	R	R	Y	Y	Y	Y	DW	DW	DW		DW
		(2+5)	R	R	R	R	Y	Y	Y	Y	DW	DW	DW		DW
		(2+6)	R	R	R	R	Y	Y	Y	Y	DW	DW	DW		DW

Flashing Operation

FY FY

FY FY

FR FR

FR FR

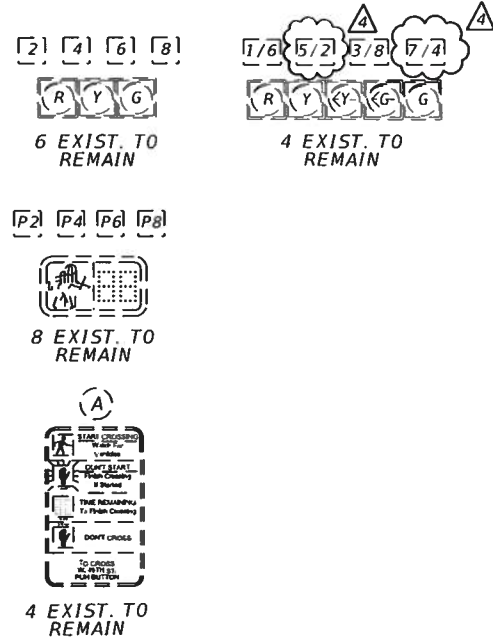
Page 1 of 1

## Miami-Dade County Public Works Department

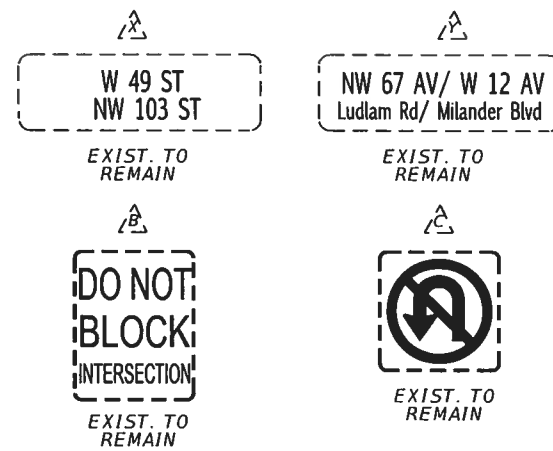
Drawn	Date 7/3/03	LUDLAM RD & W 49 ST		
Checked H. Hernandez	Date 7/8/03	Placed in Service Date 7/13/03	Phasing No. 7	Asset Number 3078
		By MASTEC		



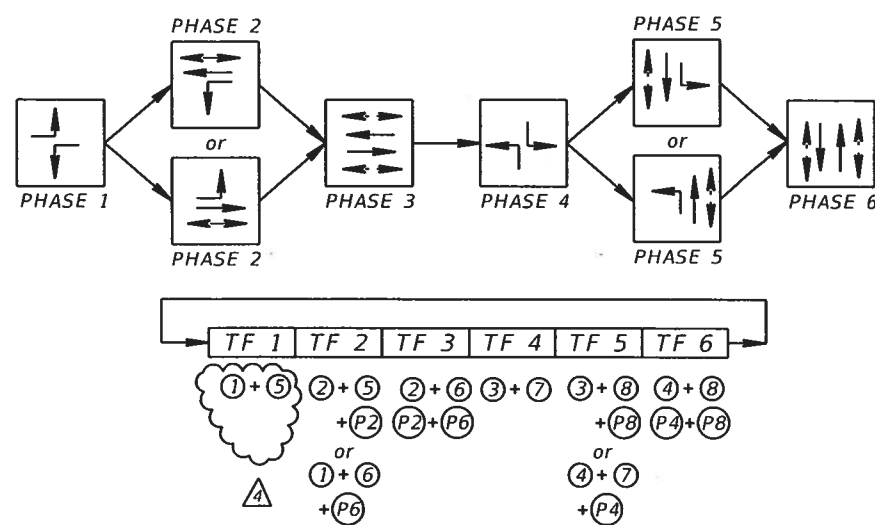
EXISTING SIGNAL HEADS



EXISTING SIGNS



S.O.P



CONTROLLER OPERATION

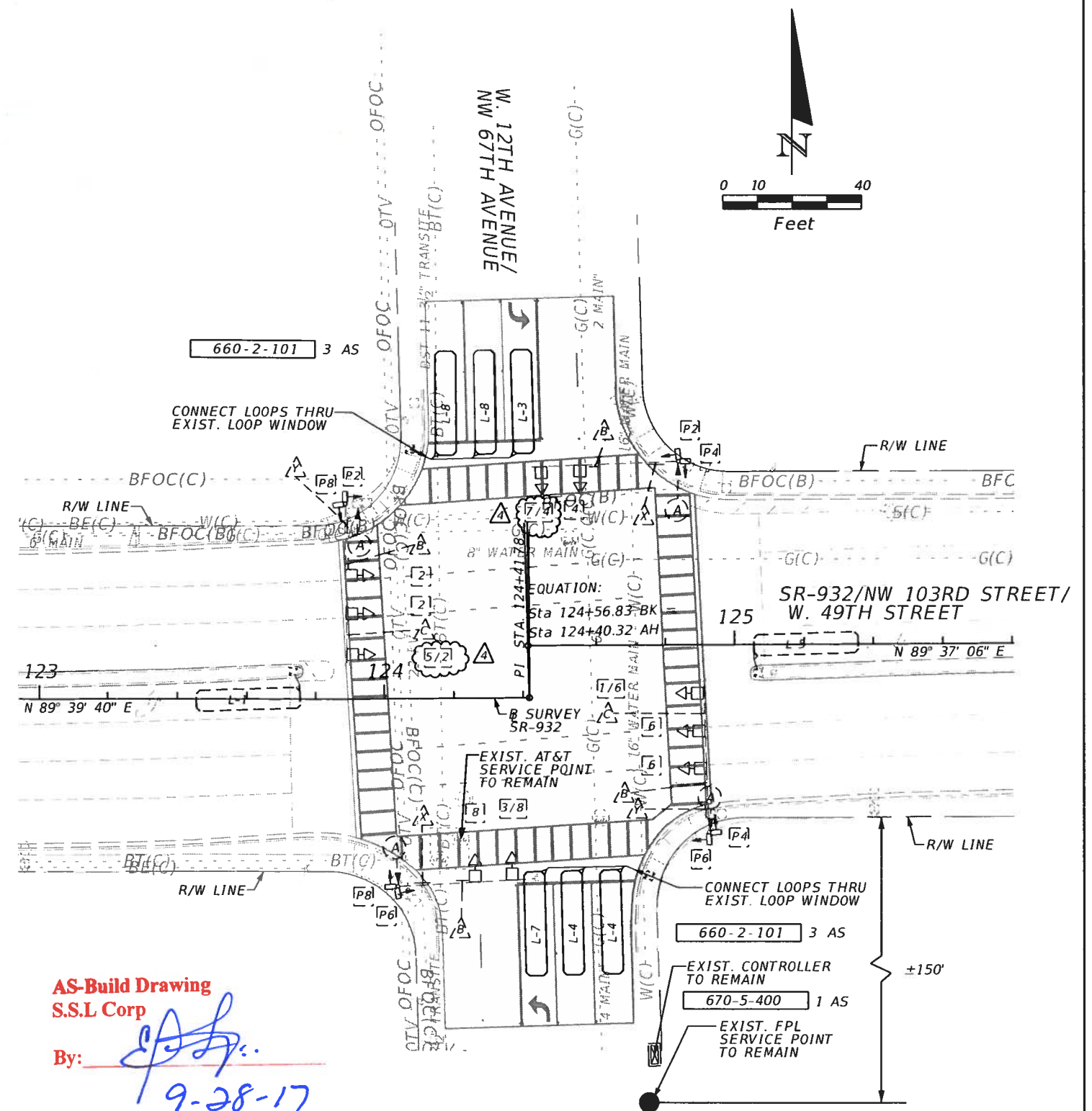
- MAJOR STREET: NW 103 ST. / W. 49 ST  
MINOR STREET: W. 12TH AVENUE
- EXISTING S.O.P. TO REMAIN  
PHASE 1, 2, 4, 5 & 6 ACTUATED, PHASE 3 RECALL  
FLASHING OPERATION:  
MOVEMENTS 2 & 6 YELLOW  
MOVEMENTS 4 & 8 RED

NOTES

- SIGNAL TIMING TO BE PROVIDED BY MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS, (DTPW) TRAFFIC AND SIGN DIVISION.

DETECTORS FOR LOOPS				
LOOP	NO. OF LOOPS	NO. OF NEW DETS.	NO. OF EXIST. DETS.	DELAY TIME (SEC)
L-1	1		1	
L-3	1		1	
L-4	2		1	
L-5	1		1	
L-7	1		1	
L-8	2		1	

ALL ACTIVITIES TO BE PAID UNDER FPID 434768-1-52-02

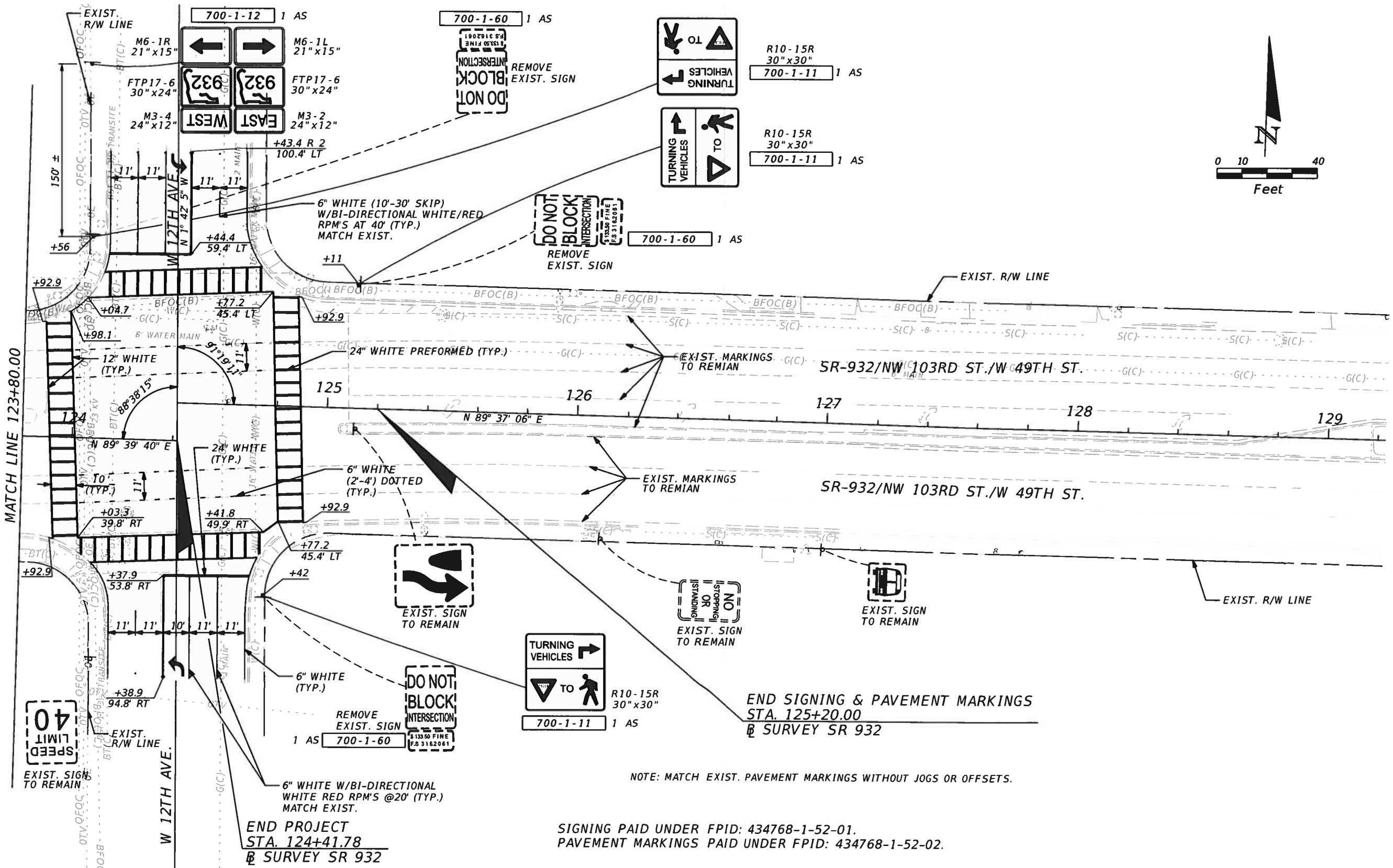
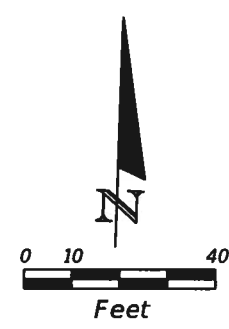


AS-Build Drawing  
S.S.L Corp

By: *[Signature]*  
9-28-17

SR-932/NW 103RD ST. (W. 49TH ST.) &  
NW. 67 AVE (W. 12TH AVE)  
ID. NO. 3078

REVISIONS		DATE	DESCRIPTION	TRACE CONSULTANTS, INC. 12485 SW 137 AVENUE, SUITE 207 MIAMI, FLORIDA 33186 TEL. (305) 281-1195 C.A. NO. 29942 ENGINEER OF RECORD: FRANK PANNELAS, P.E. NO. 59448	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.  T-11
DATE	DESCRIPTION				ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
08-10-18	Revised Traffic Signal Heads naming and S.O.P.				SR 932	MIAMI-DADE	434768-1-52-01	



NOTE: MATCH EXIST. PAVEMENT MARKINGS WITHOUT JOGS OR OFFSETS.

SIGNING PAID UNDER FPID: 434768-1-52-01.  
 PAVEMENT MARKINGS PAID UNDER FPID: 434768-1-52-02.

END PROJECT  
 STA. 124+41.78  
 @ SURVEY SR 932

END SIGNING & PAVEMENT MARKINGS  
 STA. 125+20.00  
 @ SURVEY SR 932

REVISIONS				RONALD LEE SPENCER, P.E. P.E. NO.: 39141 BMA CONSULTING ENGINEERING 18503 PINES BLVD, SUITE 210 PEMBROKE PINES, FL 33029 CERTIFICATE OF AUTHORIZATION: 29947	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<b>SIGNING AND PAVEMENT MARKING PLAN</b>	SHEET NO.
DATE	DESCRIPTION	DATE	ROAD NO.		COUNTY	FINANCIAL PROJECT ID			
			SR 932		MIAMI-DADE	434768-1-52-01			S-18

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.







**TOD Schedule Report**  
for 4108: W 10 Av&W 49 St

Print Date:  
10/4/2021

Print Time:  
5:52 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
4108	W 10 Av&W 49 St	DOW-2	TOD	N/A	0	0	N/A	0	Max 0

**Splits**

<u>PH 1</u>	<u>PH 2</u>	<u>PH 3</u>	<u>PH 4</u>	<u>PH 5</u>	<u>PH 6</u>	<u>PH 7</u>	<u>PH 8</u>
EBL	WBT	-	NBT	WBL	EBT	-	SBT
0	0	0	0	0	0	0	0
							

Active Phase Bank: Phase Bank 1

Phase	<u>Walk</u>			<u>Don't Walk</u>			<u>Min Initial</u>			<u>Veh Ext</u>			<u>Max Limit</u>			<u>Max 2</u>			<u>Yellow</u>	<u>Red</u>
	Phase Bank																			
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1 EBL	0	0	0	0	0	0	7	7	7	2	2	2	7	7	7	12	9	9	4.4	2
2 WBT	7	7	7	20	20	20	7	7	7	1	1	1	30	30	30	0	30	30	4.4	2
3 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 NBT	7	4	4	22	22	22	7	7	7	2.5	2.5	2.5	30	30	30	40	40	40	4	2.7
5 WBL	0	0	0	0	0	0	7	7	7	2	2	2	7	7	7	12	9	9	4.4	2
6 EBT	7	7	7	20	20	20	7	7	7	1	1	1	30	30	30	0	30	30	4.4	2
7 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 SBT	7	4	4	22	22	22	7	7	7	2.5	2.5	2.5	30	30	30	40	40	40	4	2.7

Last In Service Date: unknown

<b>Permitted Phases</b>	
	<b>12345678</b>
Default	12-456-8
External Permit 0	-2-4-6-8
External Permit 1	-2-4-6-8
External Permit 2	-2-4-6-8

**TOD Schedule Report**  
for 4108: W 10 Av&W 49 St

Print Date:  
10/4/2021

Print Time:  
5:52 PM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 EBL	2 WBT	3 -	4 NBT	5 WBL	6 EBT	7 -	8 SBT		
1		160	6	105	0	30	6	105	0	30	0	125
2		170	7	110	0	34	7	110	0	34	0	60
3		130	0	97	0	20	0	97	0	20	0	71
4		160	5	107	0	29	5	107	0	29	0	75
5		140	5	87	0	29	5	87	0	29	0	93
6		160	6	101	0	34	6	101	0	34	0	73
7		120	0	87	0	20	0	87	0	20	0	75
8		110	4	66	0	21	4	66	0	21	0	42
9		120	4	73	0	24	4	73	0	24	0	49
10		160	6	98	0	37	6	98	0	37	0	73
11		170	7	106	0	38	7	106	0	38	0	169
12		190	7	125	0	39	7	125	0	39	0	83
13		160	6	102	0	33	6	102	0	33	0	146
14		150	5	106	0	20	5	106	0	20	0	109
15		160	7	106	0	28	7	106	0	28	0	148
16		150	5	106	0	20	5	106	0	20	0	109
17		160	6	96	0	39	6	96	0	39	0	82
18		180	9	110	0	42	9	110	0	42	0	3
19		150	6	95	0	30	6	95	0	30	0	93
20		150	5	106	0	20	5	106	0	20	0	83
21		130	0	97	0	20	0	97	0	20	0	71
22		80	0	53	0	14	0	53	0	14	0	25
23		80	0	47	0	20	0	47	0	20	0	41
24		170	8	106	0	37	8	106	0	37	0	102

Local TOD Schedule		
Time	Plan	DOW
0000	22	Su M T W Th F S
0100	Free	M T W Th F
0130	Free	Su S
0530	3	M T W Th F
0600	22	Su S
0630	2	M T W Th F
0830	5	Su S
1000	4	M T W Th F
1100	24	Su S
1130	13	M T W Th F
1330	11	M T W Th F
1530	18	M T W Th F
1730	6	Su S
1830	9	Su S
1900	9	S
1900	19	M T W Th F
1930	8	Su
2030	7	Su
2100	21	M T W Th F
2130	23	Su
2300	7	M T W Th F S

Current Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	---5----	SuM T W ThF S
0100	TOD OUTPUTS	---5---1	M T W ThF
0530	TOD OUTPUTS	---5----	M T W ThF
0655	TOD OUTPUTS	-----	M T W ThF
2220	TOD OUTPUTS	---5----	M T W ThF S

Local Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	---5----	SuM T W ThF S
0100	TOD OUTPUTS	---5---1	M T W ThF
0130	TOD OUTPUTS	---5---1	Su S
0530	TOD OUTPUTS	---5----	M T W ThF
0600	TOD OUTPUTS	---5----	Su S
0655	TOD OUTPUTS	-----	M T W ThF
0830	TOD OUTPUTS	-----	S
0900	TOD OUTPUTS	-----	Su
2030	TOD OUTPUTS	---5----	Su
2220	TOD OUTPUTS	---5----	M T W ThF S

* Settings
Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

**TOD Schedule Report**  
**for 4108: W 10 Av&W 49 St**

Print Date:  
**10/4/2021**

Print Time:  
**5:52 PM**

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***No Calendar Defined/Enabled***

# SIGNAL OPERATING PLAN



Timing Phases	Direction						Ped Heads				Movements/Display/Actuation		
	Head No.	1/6	6	5/2	2	8	4	P6	P2	P8		P4	
(1+5) E/W LT W 49 ST (Actuated)	Dwell	<G/R	R	<G/R	R	R	R	DW	DW	DW	DW		
	Clear	(1+6)	<G/R	R	<Y/R	R	R	R	DW	DW	DW		DW
		(2+5)	<Y/R	R	<G/R	R	R	R	DW	DW	DW		DW
		(2+6)	<Y/R	R	<Y/R	R	R	R	DW	DW	DW		DW
(1+6) EB (Actuated)	Dwell	<G/G	G	R	R	R	R	W/F	DW	DW	DW		
	Clear	(2+6)	<Y/G	G	R	R	R	R	DW	DW	DW		DW
(2+5) WB (Actuated)	Dwell	R	R	<G/G	G	R	R	DW	W/F	DW	DW		
	Clear	(2+6)	R	R	<Y/G	G	R	R	DW	DW	DW		DW
(2+6) E/W W 49 ST (Recall)	Dwell	G	G	G	G	R	R	W/F	W/F	DW	DW		
	Clear												
		(4+8)	Y	Y	Y	Y	R	R	DW	DW	DW		DW
	Dwell												
	Clear												
	Dwell												
	Clear												
	Dwell												
	Clear												
(4+8) N/S W 10 AVE (Actuated)	Dwell	R	R	R	R	G	G	DW	DW	W/F	W/F		
	Clear	(1+5)	R	R	R	R	Y	Y	DW	DW	DW		DW
		(1+6)	R	R	R	R	Y	Y	DW	DW	DW		DW
		(2+5)	R	R	R	R	Y	Y	DW	DW	DW		DW
		(2+6)	R	R	R	R	Y	Y	DW	DW	DW		DW

Flashing Operation		FY	FY	FY	FY	FR	FR	Page 1 of 1			
<b>Miami-Dade County Public Works Department</b>											
Drawn			Date	7/10/03		W 10 AVE & W 49 ST					
Checked	H. HERNANDEZ	Date	7/10/03	Placed in Service			Phasing No.		Asset Number		
				Date	7/12/03		By MASTEC		3		4108

3-SECT., 1-WAY  
4 EXISTING (TO REMAIN)

3-SECT., 1-WAY  
4 EXISTING (TO REMAIN)  
BACK PLATES W/RETRO-REFLECTIVE BORDER (TO BE INSTALLED)  
650-2-102 4 EA

3-SECT., 1-WAY  
2 EXISTING (TO REMAIN)  
BACK PLATES W/RETRO-REFLECTIVE BORDER (TO BE INSTALLED)  
650-2-102 2 EA

PED. SIGNAL COUNT-DOWN 1-SECT., 1-WAY  
5 EXISTING (TO REMAIN)

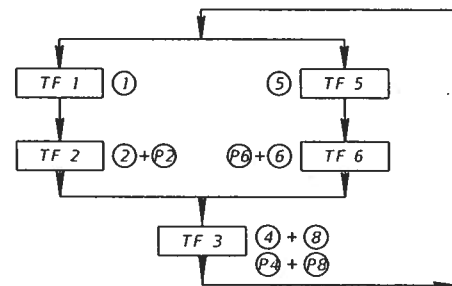
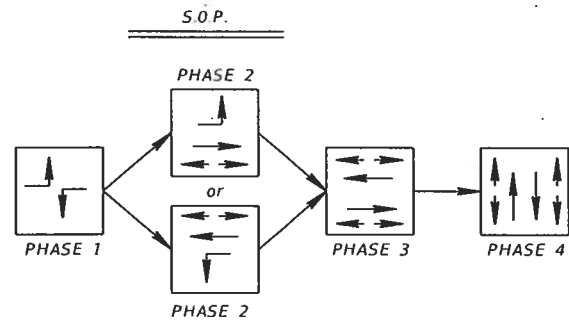
PED. SIGNAL 1-SECT., 1-WAY  
3 EXISTING (TO BE REMOVED)  
653-1-60 3 EA

PED. SIGNAL COUNT-DOWN 1-SECT., 1-WAY  
3 AS  
653-1-11

R10-3E (MOD)  
9" x 15"  
(COST INCLUDED IN PAY ITEM 665-1-11)  
4 EA

W 49 ST/NW103 ST  
Palm Springs Mile  
EXISTING SIGN (TO REMAIN)

W 10 AV  
EXISTING SIGN (TO REMAIN)



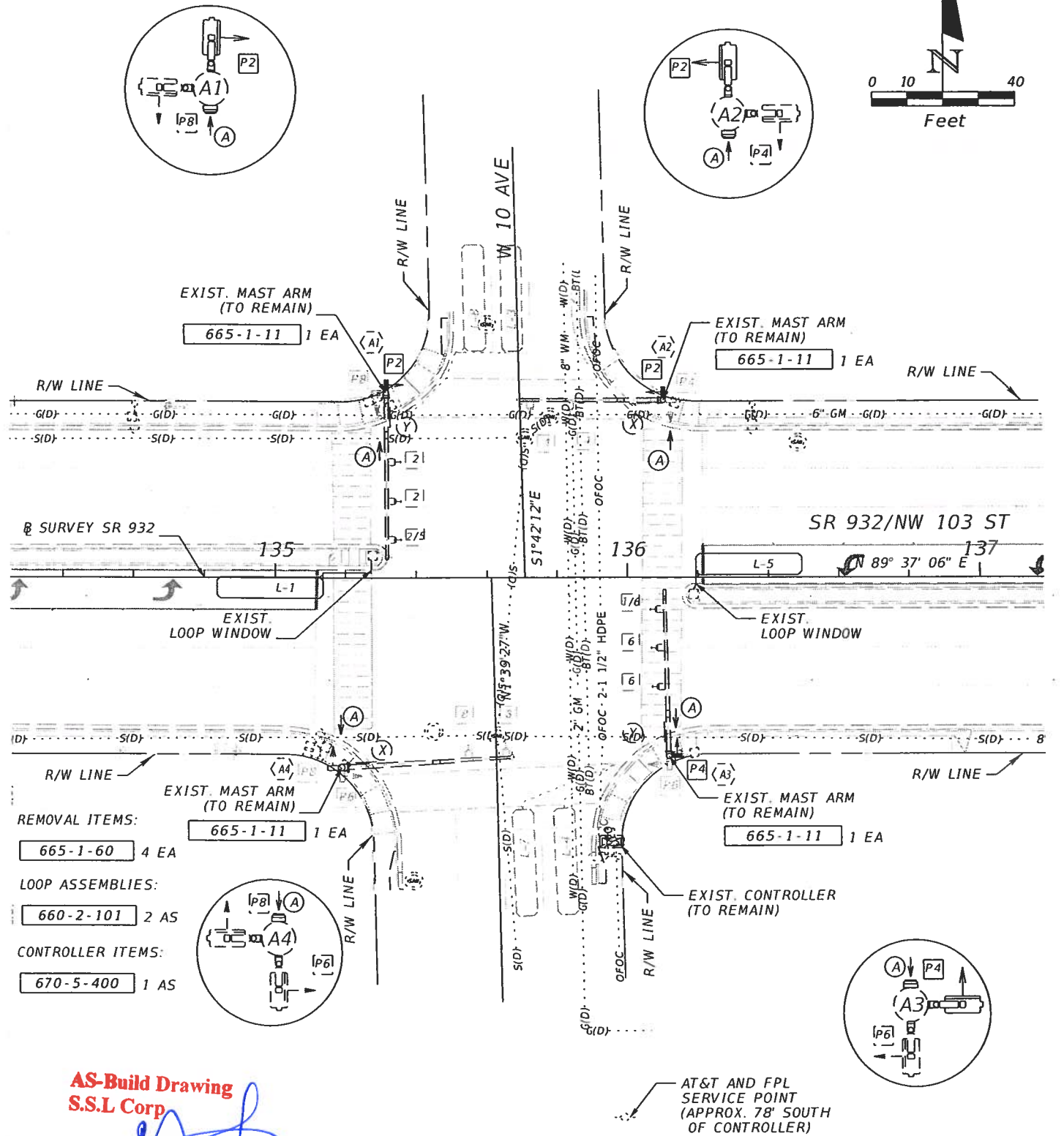
CONTROLLER OPERATIONS:

1. MAJOR STREET: SR 932 (W 49 ST/ NW 103 ST)  
MINOR STREET: W 10 AVE
2. FLASHING OPERATION TO BE:  
MOVEMENTS No. 2 AND 6, YELLOW  
MOVEMENTS No. 4 AND 8, RED
3. S.O.P.: EXISTING TO REMAIN

NOTES:

1. SIGNAL TIMING TO BE PROVIDED BY MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS, TRAFFIC SIGNALS AND SIGNS DIVISION.
2. ALL PEDESTRIAN SIGNAL HEADS SHALL ALIGN WITH CENTER OF FAR-SIDED END OF CORRESPONDING CROSSWALK.
3. LOOP ASSEMBLIES SHALL BE 6'x30' FOR ALL LANES.

DETECTORS FOR LOOPS			
LOOP	NO. OF EXIST. LOOPS	NO. OF EXIST. DETS.	NO. OF NEW LOOPS
L-1		1	1
L-3	1		
L-4	1	1	
L-5		1	1
L-7	1		
L-8	1	1	



AS-Build Drawing  
S.S.L Corp  
By: [Signature]  
9-28-18

AT&T AND FPL SERVICE POINT (APPROX. 78' SOUTH OF CONTROLLER)

INTERSECTION ID No. 4108  
NW 103 ST/ W 49 ST AND W 10 AV

REVISIONS				RAUL E. ALESSANDRI, P.E. P.E. NO.: 75506 ALVAREZ ENGINEERS, INC. 10305 N.W. 41 ST. SUITE 103 DORAL, FL 33178 CERTIFICATE OF AUTHORIZATION: 7538	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SIGNALIZATION PLAN	SHEET NO. T-4
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 932	MIAMI-DADE	434768-2-52-01		

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

**TOD Schedule Report**  
for 4150: W 49 St@W 900 Blk


Print Date:  
10/4/2021

Print Time:  
5:58 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
4150	W 49 St@W 900 Blk	DOW-2	TOD	N/A	0	0	N/A	0	Max 0

**Splits**

<u>PH 1</u>	<u>PH 2</u>	<u>PH 3</u>	<u>PH 4</u>	<u>PH 5</u>	<u>PH 6</u>	<u>PH 7</u>	<u>PH 8</u>
EBL	WBT	-	NBT	WBL	EBT	-	-
0	0	0	0	0	0	0	0



Active Phase Bank: Phase Bank 1

<u>Phase</u>	<u>Walk</u>			<u>Don't Walk</u>			<u>Min Initial</u>			<u>Veh Ext</u>			<u>Max Limit</u>			<u>Max 2</u>			<u>Yellow</u>	<u>Red</u>
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1 EBL	0	0	0	0	0	0	5	5	5	2	2	2	9	9	7	12	9	9	4.4	2
2 WBT	0	0	0	0	0	0	16	16	16	1	1	1	30	30	30	0	30	30	4.4	2.1
3 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 NBT	7	7	7	23	15	15	7	7	7	2.5	2.5	2.5	30	23	23	35	25	28	4	2.7
5 WBL	0	0	0	0	0	0	7	7	7	2	2	2	9	9	7	12	9	9	4.4	2
6 EBT	0	0	0	0	0	0	16	16	16	1	1	1	30	30	30	0	30	30	4.4	2.1
7 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Last In Service Date: unknown

<b>Permitted Phases</b>	
	<b>12345678</b>
Default	12-456--
External Permit 0	-2-456--
External Permit 1	-2-456--
External Permit 2	-2-456--



**TOD Schedule Report**  
for 4150: W 49 St@W 900 Blk

Print Date:  
10/4/2021

Print Time:  
5:58 PM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 EBL	2 WBT	3 -	4 NBT	5 WBL	6 EBT	7 -	8 -		
1		160	5	115	0	21	5	115	0	0	0	141
2		170	7	120	0	24	7	120	0	0	0	40
3		130	6	84	0	21	6	84	0	0	0	16
4		160	6	114	0	21	6	114	0	0	0	11
5		140	7	93	0	21	7	93	0	0	0	32
6		160	6	114	0	21	6	114	0	0	0	14
7		120	5	75	0	21	5	75	0	0	0	22
8		160	6	114	0	21	6	114	0	0	0	147
9		120	5	75	0	21	5	75	0	0	0	115
10		160	6	113	0	22	6	113	0	0	0	14
11		170	7	122	0	22	7	122	0	0	0	6
12		190	7	142	0	22	7	142	0	0	0	8
13		160	7	112	0	22	7	112	0	0	0	9
14		150	6	104	0	21	6	104	0	0	0	77
15		160	6	114	0	21	6	114	0	0	0	140
16		150	6	104	0	21	6	104	0	0	0	39
17		160	6	114	0	21	6	114	0	0	0	106
18		180	9	128	0	24	9	128	0	0	0	146
19		150	5	105	0	21	5	105	0	0	0	32
20		150	6	104	0	21	6	104	0	0	0	77
21		130	0	96	0	21	0	96	0	0	0	16
22		80	5	35	0	21	5	35	0	0	0	0
24		170	7	113	0	31	7	113	0	0	0	90

Local TOD Schedule		
Time	Plan	DOW
0000	22	Su M T W Th F S
0100	Flash	M T W Th F
0130	Flash	Su S
0530	3	M T W Th F
0600	22	Su S
0630	2	M T W Th F
0830	5	Su S
1000	4	M T W Th F
1100	24	Su S
1130	13	M T W Th F
1330	11	M T W Th F
1530	18	M T W Th F
1730	6	Su S
1830	9	Su S
1900	9	S
1900	19	M T W Th F
1930	8	Su
2030	7	Su
2100	21	M T W Th F
2130	Free	Su
2300	7	M T W Th F S

Current Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S

Local Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S

* Settings
Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

**TOD Schedule Report**  
**for 4150: W 49 St@W 900 Blk**

Print Date:  
**10/4/2021**

Print Time:  
**5:58 PM**

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<p><i>No Calendar Defined/Enabled</i></p>
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# SIGNAL OPERATING PLAN

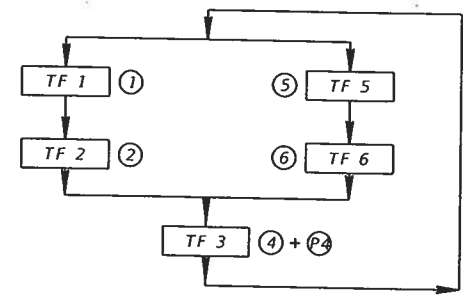
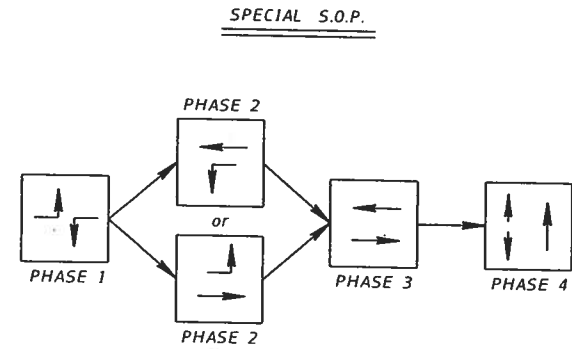
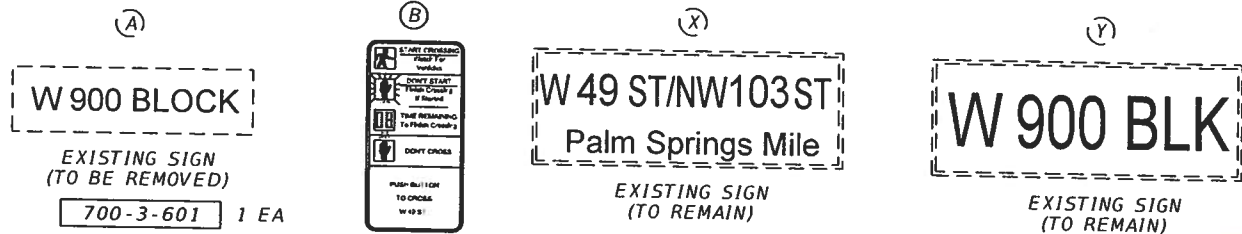
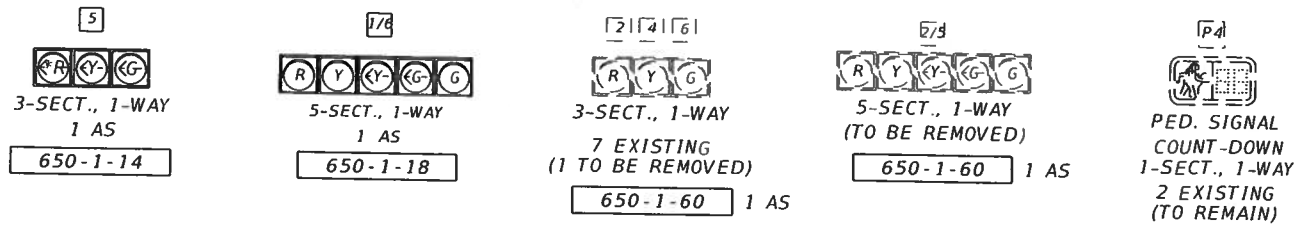


Direction	EB	WB	NB	Ped Heads					
Timing Phases	Head No.	6	5/2 2	4				P4	Movements/Display/Actuation
	Dwell								
	C								
	l								
	e								
	a								
(2+5) WB  (Actuated)	Dwell	R	KG/6 G	R				DW	
	(2+6)	R	KY/6 G	R				DW	
	C								
	l								
	e								
(2+6) E/W  W 49 ST (Recall)	Dwell	G	G G	R				DW	
	(4)	Y	Y Y	R				DW	
	C								
	l								
	e								
	Dwell								
	C								
	l								
	e								
	a								
(4) NB  W 900 BLK (Actuated)	Dwell	R	R R	G				W/F	
	(2+5)	R	R R	Y				DW	
	(2+6)	R	R R	Y				DW	
	C								
	l								

Flashing Operation      FY    FY    FY      FR      Page 1 of 1

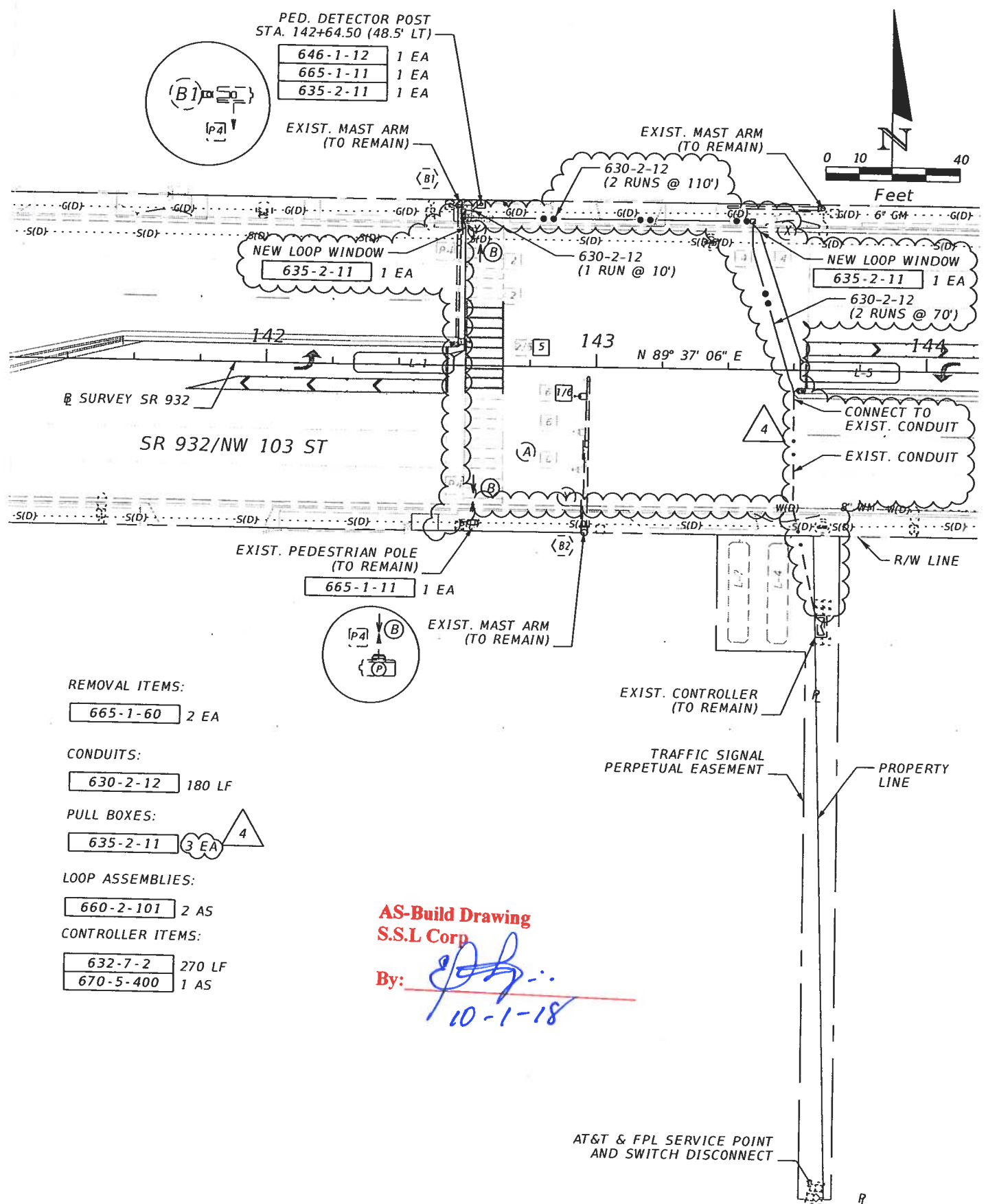
## Miami-Dade County Public Works Department

Drawn	Date	W 49 ST @ W 900 BLOCK		
<i>JCR</i>	7/14/03			
Checked	Date	Placed in Service	Phasing No.	Asset Number
H. HERNANDEZ	7/14/3	Date 7/15/03 By MASTEC	3	4150



DETECTORS FOR LOOPS				
LOOP	NO. OF EXIST. LOOPS	NO. OF EXIST. DETS.	NO. OF NEW LOOPS	NO. OF NEW DETS.
L-1			1	1
L-4	1	1		
L-5		1	1	
L-7	1	1		

- CONTROLLER OPERATIONS:**
- MAJOR STREET: SR 932 (W 49 ST/ NW 103 ST)  
MINOR STREET: EXIT FROM BANK OFFICE
  - FLASHING OPERATION TO BE:  
MOVEMENTS No. 2 AND 6, YELLOW  
MOVEMENT No. 1, 4 AND 5, RED
  - MOVEMENT 5 IS PROTECTED ONLY.
- NOTES:**
- SIGNAL TIMING TO BE PROVIDED BY MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS, TRAFFIC SIGNALS AND SIGNS DIVISION.
  - LOOP ASSEMBLIES SHALL BE 6'x30' FOR ALL LANES.
  - ALL CONDUCTORS AND GROUND WIRE FOR POWER SHALL BE RHW-2/RHH/XLP. (NO OTHER TYPE IS ALLOWED).



- REMOVAL ITEMS:**
- 665-1-60 2 EA
- CONDUITS:**
- 630-2-12 180 LF
- PULL BOXES:**
- 635-2-11 3 EA 4
- LOOP ASSEMBLIES:**
- 660-2-101 2 AS
- CONTROLLER ITEMS:**
- 632-7-2 270 LF
- 670-5-400 1 AS

AS-Build Drawing  
S.S.L Corp  
By: [Signature]  
10-1-18

REVISIONS		DESCRIPTION		RAUL E. ALESSANDRI, P.E. P.E. NO.: 75506 ALVAREZ ENGINEERS, INC. 10305 N.W. 41 ST. SUITE 103 DORAL, FL 33178 CERTIFICATE OF AUTHORIZATION: 7536	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO. T-5
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
5/4/18	4 REVISD CONDUIT, NEW LOOP WINDOW LOCATIONS AND ADDED ONE PULL BOX.				SR 932	MIAMI-DADE	434768-2-52-01	

INTERSECTION ID No. 4150  
NW 103 ST/ W 49 ST AND W 900 BLK

SIGNALIZATION PLAN

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.









**TOD Schedule Report**  
for 3129: W 8 Av&W 49 St

Print Date:  
10/4/2021

Print Time:  
4:06 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
3129	W 8 Av&W 49 St	DOW-2	TOD	[18] WEEKEND AM	180	136	N/A	1	Max 2

**Splits**

<u>PH 1</u>	<u>PH 2</u>	<u>PH 3</u>	<u>PH 4</u>	<u>PH 5</u>	<u>PH 6</u>	<u>PH 7</u>	<u>PH 8</u>
EBL	WBT	SBL	NBT	WBL	EBT	NBL	SBT
34	69	15	38	21	81	15	38
							

Active Phase Bank: Phase Bank 1

Phase	<u>Walk</u>			<u>Don't Walk</u>			<u>Min Initial</u>			<u>Veh Ext</u>			<u>Max Limit</u>			<u>Max 2</u>			<u>Yellow</u>	<u>Red</u>
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1 EBL	0	0	0	0	0	0	7	7	7	3	2	2	10	7	7	35	24	22	4.4	2
2 WBT	7	7	7	21	21	21	7	7	7	1	1	1	26	30	29	0	38	53	4.4	2
3 SBL	0	0	0	0	0	0	5	5	5	2	2	2	7	7	7	17	17	16	4.4	2
4 NBT	7	7	7	24	24	24	7	7	7	2	-2.5	-2.5	18	32	22	54	35	53	4.4	2.1
5 WBL	0	0	0	0	0	0	7	7	7	2	2	2	7	7	7	26	24	22	4.4	2
6 EBT	7	7	7	21	21	21	7	7	7	1	1	1	26	30	29	0	38	53	4.4	2
7 NBL	0	0	0	0	0	0	5	5	5	2	2	2	7	7	7	17	17	16	4.4	2
8 SBT	7	7	7	24	24	24	7	7	7	2	-2.5	-2.5	18	32	22	54	35	53	4.4	2.1

Last In Service Date: unknown

<b>Permitted Phases</b>	
	<b>12345678</b>
Default	12345678
External Permit 0	12-456-8
External Permit 1	12-456-8
External Permit 2	12-456-8

**TOD Schedule Report**  
for 3129: W 8 Av&W 49 St

Print Date:  
10/4/2021

Print Time:  
4:06 PM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 EBL	2 WBT	3 SBL	4 NBT	5 WBL	6 EBT	7 NBL	8 SBT		
1		160	9	59	16	51	9	59	16	51	0	106
2		170	19	69	16	41	17	71	16	41	0	104
3		130	8	56	9	32	8	56	9	32	0	3
4		160	14	74	12	35	10	78	12	35	0	134
5		140	10	61	12	32	10	61	12	32	0	13
6		160	18	69	14	34	18	69	14	34	0	16
7		120	7	50	6	32	7	50	6	32	0	10
8		160	11	69	14	41	11	69	14	41	0	127
9		120	9	43	10	33	9	43	10	33	0	93
10		160	18	75	14	28	18	75	14	28	0	159
11		170	20	78	15	32	20	78	15	32	0	122
12		190	22	86	21	36	22	86	21	36	0	174
13		160	18	71	12	34	14	75	12	34	0	147
14		150	13	69	11	32	13	69	11	32	0	59
15		160	16	74	16	29	16	74	16	29	0	141
16		150	13	69	11	32	13	69	11	32	0	56
17		160	18	70	12	35	18	70	12	35	0	96
18		180	34	69	15	38	21	81	15	38	0	136
19		150	12	68	11	34	12	68	11	34	0	13
20		150	13	69	11	32	13	69	11	32	0	62
21		130	7	57	9	32	7	57	9	32	0	3
22		100	7	30	6	32	7	30	6	32	0	21
23		100	7	30	6	32	7	30	6	32	0	21
24		170	19	76	15	35	19	76	15	35	0	80

Local TOD Schedule		
Time	Plan	DOW
0000	22	Su M T W Th F S
0100	Free	M T W Th F
0130	Free	Su S
0530	3	M T W Th F
0600	22	Su S
0630	2	M T W Th F
0830	5	Su S
1000	4	M T W Th F
1100	24	Su S
1130	13	M T W Th F
1330	11	M T W Th F
1530	18	M T W Th F
1730	6	Su S
1830	9	Su
1900	9	S
1900	19	M T W Th F
1930	8	Su
2030	7	Su
2100	21	M T W Th F
2130	23	Su
2200	7	S
2300	7	M T W Th F

Current Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	---5----	SuM T W ThF S
0100	TOD OUTPUTS	---5---1	M T W ThF
0530	TOD OUTPUTS	---5----	M T W ThF
0600	TOD OUTPUTS	-----	M T W ThF

Local Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	---5----	SuM T W ThF S
0100	TOD OUTPUTS	---5---1	M T W ThF
0130	TOD OUTPUTS	---5---1	Su S
0530	TOD OUTPUTS	---5----	M T W ThF
0600	TOD OUTPUTS	---5----	Su S
0600	TOD OUTPUTS	-----	M T W ThF
0800	TOD OUTPUTS	-----	Su S

* Settings
Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

**TOD Schedule Report**

**for 3129: W 8 Av&W 49 St**

**Print Date:**  
**10/4/2021**

**Print Time:**  
**4:06 PM**

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<p><i>No Calendar Defined/Enabled</i></p>
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# SIGNAL OPERATING PLAN



Phase	Direction	EB		WB		SB		NB		Ped Heads				Drawing	
		Head No.	1/6	6	5/2	2	3/8	8	7/4	4	P6	P2	P8		P4
(1+5) E/WL W 49 ST (Actuated)	Dwell	<G/R	R	<G/R	R	R	R	R	R	DW	DW	DW	DW		
	Clear	(1+6)	<Y/R	R	<Y/R	R	R	R	R	R	DW	DW	DW		DW
		(2+5)	<Y/R	R	<G/R	R	R	R	R	R	DW	DW	DW		DW
		(2+6)	<Y/R	R	<Y/R	R	R	R	R	R	DW	DW	DW		DW
(1+6) EL (Actuated)	Dwell	<G/G	G	R	R	R	R	R	R	W/F	DW	DW	DW		
	Clear	(2+6)	<Y/G	G	R	R	R	R	R	R	DW	DW	DW		DW
(2+5) WL (Actuated)	Dwell	R	R	<G/G	G	R	R	R	R	DW	W/F	DW	DW		
	Clear	(2+6)	R	R	<Y/G	G	R	R	R	R	DW	DW	DW		DW
(2+6) E/W W 49 ST (Recall)	Dwell	G	G	G	G	R	R	R	R	W/F	W/F	DW	DW		
	Clear	(3+7)	Y	Y	Y	Y	R	R	R	R	DW	DW	DW		DW
		(3+8)	Y	Y	Y	Y	R	R	R	R	DW	DW	DW		DW
		(4+7)	Y	Y	Y	Y	R	R	R	R	DW	DW	DW		DW
		(4+8)	Y	Y	Y	Y	R	R	R	R	DW	DW	DW		DW
(3+7) N/S L W 8 AVE (Actuated)	Dwell	R	R	R	R	<G/R	R	<G/R	R	DW	DW	DW	DW		
	Clear	(3+8)	R	R	R	R	<G/R	R	<Y/R	R	DW	DW	DW		DW
		(4+7)	R	R	R	R	<Y/R	R	<G/R	R	DW	DW	DW		DW
		(4+8)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
		(1+5)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
		(1+6)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
		(2+5)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
		(2+6)	R	R	R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
(3+8) SL (Actuated)	Dwell	R	R	R	R	<G/G	G	R	R	DW	DW	W/F	DW		
	Clear	(4+8)	R	R	R	R	<Y/G	G	R	R	DW	DW	DW		DW
		(1+5)	R	R	R	R	<Y/Y	Y	R	R	DW	DW	DW		DW
		(1+6)	R	R	R	R	<Y/Y	Y	R	R	DW	DW	DW		DW
		(2+5)	R	R	R	R	<Y/Y	Y	R	R	DW	DW	DW		DW
		(2+6)	R	R	R	R	<Y/Y	Y	R	R	DW	DW	DW		DW
(4+7) NL (Actuated)	Dwell	R	R	R	R	R	R	<G/G	G	DW	DW	DW	W/F		
	Clear	(4+8)	R	R	R	R	R	R	<Y/G	G	DW	DW	DW		DW
		(1+5)	R	R	R	R	R	R	<Y/Y	Y	DW	DW	DW		DW
		(1+6)	R	R	R	R	R	R	<Y/Y	Y	DW	DW	DW		DW
		(2+5)	R	R	R	R	R	R	<Y/Y	Y	DW	DW	DW		DW
		(2+6)	R	R	R	R	R	R	<Y/Y	Y	DW	DW	DW		DW
(4+8) N/S W 8 AVE (Actuated)	Dwell	R	R	R	R	G	G	G	G	DW	DW	W/F	W/F		
	Clear	(1+5)	R	R	R	R	Y	Y	Y	Y	DW	DW	DW		DW
		(1+6)	R	R	R	R	Y	Y	Y	Y	DW	DW	DW		DW
		(2+5)	R	R	R	R	Y	Y	Y	Y	DW	DW	DW		DW
		(2+6)	R	R	R	R	Y	Y	Y	Y	DW	DW	DW		DW

Flashing Operation

FY FY    FY FY    FR FR    FR FR

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## Miami-Dade County Public Works Department

Drawn 	Date 6/14/01	W 8 AVE & W 49 ST			
Checked H. HERNANDEZ	Date 6/21/01	Placed in Service		Phasing No.	Asset Number
		Date 5/8/00	By SHOP	8	3129



# SIGNAL OPERATING PLAN



Phase	Direction	EB	WB	SB	NB	Ped Heads				Drawing	
	Head No.	1/6 6	5/2 2	3/8 8	7/4 4	P6	P2	P8	P4		
BEGIN FIRE PRE-EMPTION	Dwell										
	Clear to	(1+5)	<Y/R R	<Y/R R	R R	R R	DW	DW	DW	DW	
		(1+6)	<Y/Y Y	R R	R R	R R	DW	DW	DW	DW	
		(2+5)	R R	<Y/Y Y	R R	R R	DW	DW	DW	DW	
		(2+6)	Y Y	Y Y	R R	R R	DW	DW	DW	DW	
		(3+7)	R R	R R	<Y/R R	<Y/R R	DW	DW	DW	DW	
		(3+8)	R R	R R	<Y/Y Y	R R	DW	DW	DW	DW	
		(4+7)	R R	R R	R R	<G/G G	DW	DW	DW	DW	
		(4+8)	R R	R R	Y Y	Y Y	DW	DW	DW	DW	
		BEGIN FIRE TRUCK PASSAGE	Dwell	R R	R R	R R	<G/G G	DW	DW	DW	DW
(1+5)			R R	R R	R R	<Y/Y Y	DW	DW	DW	DW	
Clear to											
	Dwell										
	Clear to										
	Dwell										
	Clear to										

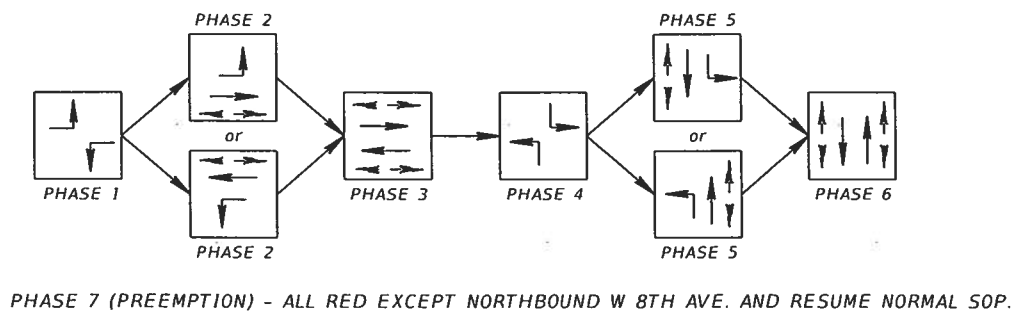
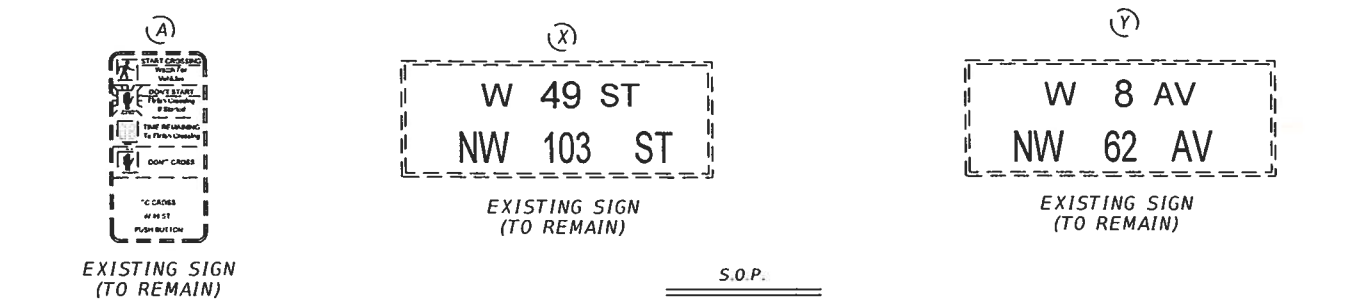
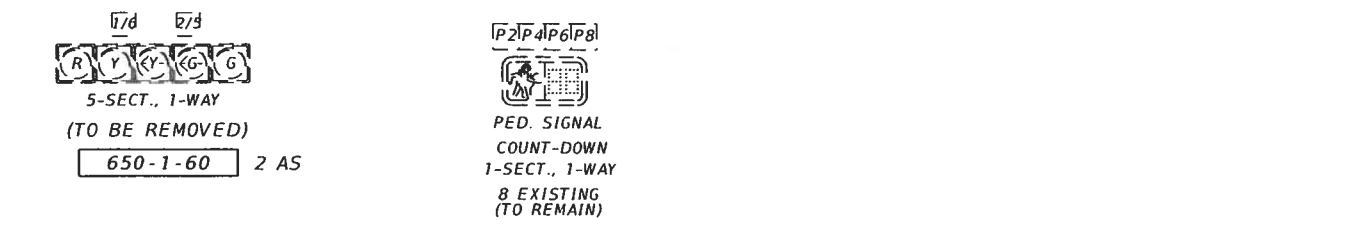
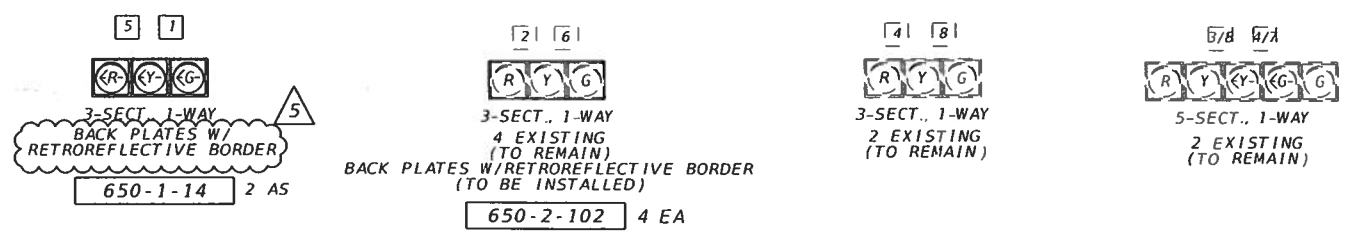


Flashing Operation

Page 2 of 2

## Miami-Dade County Public Works Department

Drawn <i>[Signature]</i>	Date 6/14/01	W 8 AVE & W 49 ST		
Checked <i>[Signature]</i>	Date 6/21/01	Placed in Service Date 5/8/00	By SHOP	Phasing No. 8
		Asset Number 3129		

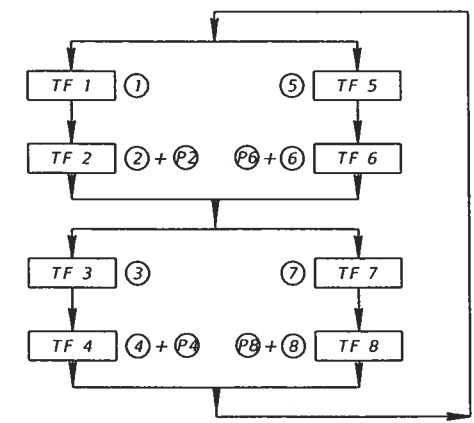


**CONTROLLER OPERATIONS:**

1. MAJOR STREET: SR 932 (W 49 ST/NW 103 ST)  
MINOR STREET: W 8 AVE
2. FLASHING OPERATION:  
MOVEMENTS No. 2 AND 6, YELLOW  
MOVEMENTS No. 1, 4, 5 AND 8, RED

**NOTES:**

1. SIGNAL TIMING TO BE PROVIDED BY MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS, TRAFFIC SIGNALS AND SIGNS DIVISION.
2. CONTACT MIAMI-DADE PUBLIC WORKS AND FIRE STATION TO COORDINATE PREEMPTION.
3. LOOP ASSEMBLIES SHALL BE 6'x30' FOR ALL LANES.
4. ALL CONDUCTORS AND GROUND WIRE FOR POWER SHALL BE RHW-2/RHH/XLP. (NO OTHER TYPE IS ALLOWED).

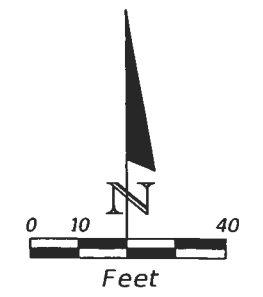
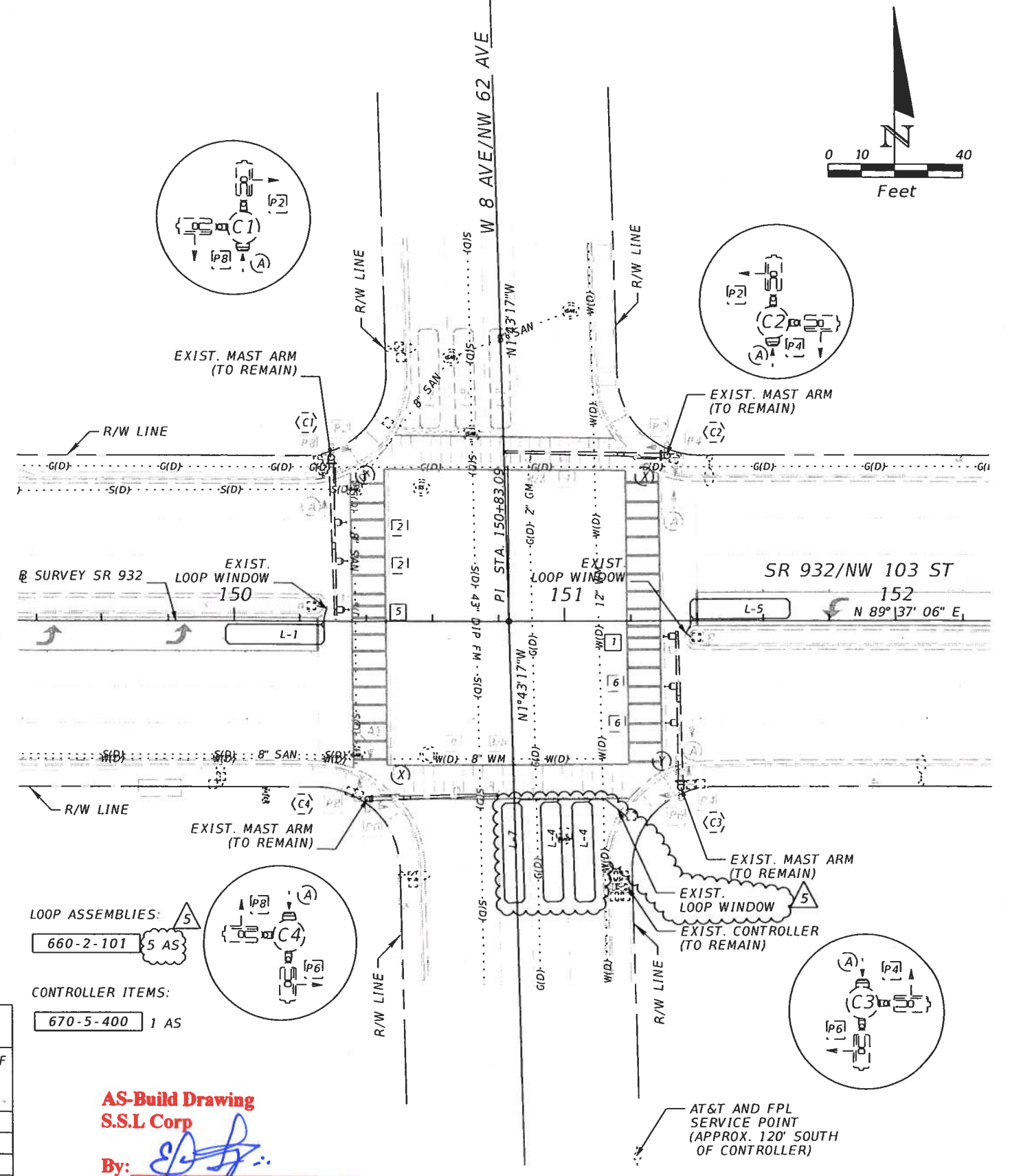


DETECTORS FOR LOOPS			
LOOP	NO. OF EXIST. LOOPS	NO. OF EXIST. DETS.	NO. OF NEW. LOOPS
L-1		1	1
L-3	1	1	
L-4	2	1	
L-5		1	1
L-7	1	1	
L-8	2	1	

- LOOP ASSEMBLIES:  
660-2-101 5 AS
- CONTROLLER ITEMS:  
670-5-400 1 AS

AS-Build Drawing  
S.S.L Corp

By: *[Signature]*  
10-1-18



INTERSECTION ID No. 3129  
NW 103 ST/ W 49 ST AND W 8 AV

REVISIONS				RAUL E. ALESSANDRI, P.E. P.E. NO.: 75506 ALVAREZ ENGINEERS, INC. 10305 N.W. 41 ST. SUITE 103 DORAL, FL 33178 CERTIFICATE OF AUTHORIZATION: 7538	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.  T-6
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
09/27/18	5 MODIFIED NOTES AND REPLACED LOOPS			SR 932	MIAMI-DADE	434768-2-52-01		

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.







**TOD Schedule Report**  
for 3280: W 6 Av&W 49 St

Print Date:  
10/4/2021

Print Time:  
4:21 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
3280	W 6 Av&W 49 St	DOW-2	TOD	N/A	0	0	N/A	0	Max 0

**Splits**

<u>PH 1</u>	<u>PH 2</u>	<u>PH 3</u>	<u>PH 4</u>	<u>PH 5</u>	<u>PH 6</u>	<u>PH 7</u>	<u>PH 8</u>
EBL	WBT	-	NBT	WBL	EBT	-	SBT
0	0	0	0	0	0	0	0
							

Active Phase Bank: Phase Bank 1

<u>Phase</u>	<u>Walk</u>			<u>Don't Walk</u>			<u>Min Initial</u>			<u>Veh Ext</u>			<u>Max Limit</u>			<u>Max 2</u>			<u>Yellow</u>	<u>Red</u>
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1 EBL	0	0	0	0	0	0	7	7	7	2	2	2	7	7	7	22	7	18	4.4	2
2 WBT	7	7	7	20	20	20	7	7	7	1	1	1	30	30	30	0	30	36	4.4	2
3 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 NBT	7	7	7	18	18	18	7	7	7	2.5	2.5	2.5	25	27	25	36	30	36	4	2.7
5 WBL	0	0	0	0	0	0	7	7	7	2	2	2	7	7	7	22	7	18	4.4	2
6 EBT	7	7	7	20	20	20	7	7	7	1	1	1	30	30	30	0	30	36	4.4	2
7 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 SBT	7	7	7	18	18	18	7	7	7	2.5	2.5	2.5	25	27	25	36	30	36	4	2.7

Last In Service Date: unknown

<b>Permitted Phases</b>	
	<b>12345678</b>
Default	12-456-8
External Permit 0	12-456-8
External Permit 1	12-456-8
External Permit 2	12-456-8

**TOD Schedule Report**  
for 3280: W 6 Av&W 49 St

Print Date:  
10/4/2021

Print Time:  
4:21 PM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 EBL	2 WBT	3 -	4 NBT	5 WBL	6 EBT	7 -	8 SBT		
1		160	8	104	0	29	8	104	0	29	0	7
2		170	10	109	0	32	10	109	0	32	0	86
3		130	7	78	0	26	7	78	0	26	0	81
4		160	9	105	0	27	9	105	0	27	0	13
5		140	11	80	0	30	11	80	0	30	0	128
6		160	18	90	0	33	18	90	0	33	0	14
7		120	7	68	0	26	7	68	0	26	0	80
8		160	7	108	0	26	7	108	0	26	0	149
9		120	9	65	0	27	9	65	0	27	0	68
10		160	18	90	0	33	18	90	0	33	0	134
11		170	14	101	0	36	14	101	0	36	0	100
12		190	28	101	0	42	28	101	0	42	0	146
13		160	13	94	0	34	13	94	0	34	0	24
14		150	10	97	0	24	10	97	0	24	0	72
15		160	15	97	0	29	15	97	0	29	0	2
16		150	10	97	0	24	10	97	0	24	0	72
17		160	15	91	0	35	15	91	0	35	0	138
18		180	13	120	0	28	13	120	0	28	0	120
19		150	13	88	0	30	13	88	0	30	0	128
20		150	10	97	0	24	10	97	0	24	0	67
21		130	7	78	0	26	7	78	0	26	0	81
22		80	7	28	0	26	7	28	0	26	0	73
23		80	7	28	0	26	7	28	0	26	0	73
24		170	21	96	0	34	21	96	0	34	0	146

Local TOD Schedule		
Time	Plan	DOW
0000	Free	Su M T W Th F S
0130	Free	Su S
0530	3	M T W Th F
0600	22	Su S
0630	2	M T W Th F
0830	5	Su S
1000	4	M T W Th F
1100	24	Su S
1130	13	M T W Th F
1330	11	M T W Th F
1530	18	M T W Th F
1730	6	Su S
1830	9	Su S
1900	9	S
1900	19	M T W Th F
1930	8	Su
2030	7	Su
2100	21	M T W Th F
2130	23	Su
2300	7	M T W Th F

Current Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S

Local Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S

- \* Settings**
- Blank - FREE - Phase Bank 1, Max 1
  - Blank - Plan - Phase Bank 1, Max 2
  - 1 - Phase Bank 2, Max 1
  - 2 - Phase Bank 2, Max 2
  - 3 - Phase Bank 3, Max 1
  - 4 - Phase Bank 3, Max 2
  - 5 - EXTERNAL PERMIT 1
  - 6 - EXTERNAL PERMIT 2
  - 7 - X-PED OMIT
  - 8 - TBA

**TOD Schedule Report**

**for 3280: W 6 Av&W 49 St**

**Print Date:**  
**10/4/2021**

**Print Time:**  
**4:21 PM**

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<p><i>No Calendar Defined/Enabled</i></p>
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# SIGNAL OPERATING PLAN



Timing Phases	Direction	EB		WB		SB		NB		Ped Heads				Movements/Display/Actuation*
	Head No.	1/6	6	5/2	2	8	4	4R	P6	P2	P8	P4		
(1+5) E/W LT W 49 ST (Actuated)	Dwell	<G/R	R	<G/R	R	R	R	R	R/6>	DW	DW	DW	DW	
	Clear	(1+6)	<G/R	R	<Y/R	R	R	R	R/Y>	DW	DW	DW	DW	
		(2+5)	<Y/R	R	<G/R	R	R	R	R/6>	DW	DW	DW	DW	
		(2+6)	<Y/R	R	<Y/R	R	R	R	R/Y>	DW	DW	DW	DW	
(1+6) EB (Actuated)	Dwell	<G/G	G	R	R	R	R	R	R	W/F	DW	DW	DW	
	Clear	(2+6)	<Y/G	G	R	R	R	R	R	DW	DW	DW	DW	
(2+5) WB (Actuated)	Dwell	R	R	<G/G	G	R	R	R/6>	DW	W/F	DW	DW		
	Clear	(2+6)	R	R	<Y/G	G	R	R/Y>	DW	DW	DW	DW		
(2+6) E/W W 49 ST (Recall)	Dwell	G	G	G	G	R	R	R	W/F	W/F	DW	DW		
	Clear													
		(4+8)	Y	Y	Y	Y	R	R	R	DW	DW	DW		DW
	Dwell													
	Clear													
	Clear													
	Clear													
	Dwell													
	Clear													
	Clear													
	Clear													
(4+8) N/S W 6 AVE (Actuated)	Dwell	R	R	R	R	G	G	G	DW	DW	W/F	W/F		
	Clear	(1+5)	R	R	R	R	Y	Y	Y	DW	DW	DW		DW
		(1+6)	R	R	R	R	Y	Y	Y	DW	DW	DW		DW
		(2+5)	R	R	R	R	Y	Y	Y	DW	DW	DW		DW
	(2+6)	R	R	R	R	Y	Y	Y	DW	DW	DW	DW		

Flashing Operation    FY    FY    FY    FY    FR    FR    FR    Page 1 of 1

## Miami-Dade County Public Works Department

Drawn 	Date 7/15/03	W 6 AVE & W 49 ST	
Checked H. Heppander	Date 7/15/03	Placed in Service Date 7/15/03 -	By MASTEC
		Phasing No. 6	Asset Number 3280

7/23/03

1 5  
3-SECT., 1-WAY  
2 AS  
BACK PLATES W/  
RETRO-REFLECTIVE  
BORDER  
650-1-14

2 1 6 1  
3-SECT., 1-WAY  
4 EXISTING  
(TO REMAIN)  
BACK PLATES WITH  
RETRO-REFLECTIVE  
BORDER  
(TO BE INSTALLED)  
650-2-102 4 EA

1 7 d 6 7 d  
5-SECT., 1-WAY  
(TO BE REMOVED)  
650-1-60 2 AS

P6 P8  
PED. SIGNAL  
COUNT-DOWN  
1-SECT., 1-WAY  
3 EXISTING  
(TO REMAIN)

P2 P4 P8  
PED. SIGNAL  
1-SECT., 1-WAY  
5 EXISTING  
(TO BE REMOVED)  
653-1-60 5 AS

P2 P4 P8  
PED. SIGNAL  
COUNT-DOWN  
1-SECT., 1-WAY  
5 AS  
653-1-11

X  
W 6 AV  
EXISTING  
(TO REMAIN)

Y  
W 49 ST  
NW 103 ST  
EXISTING  
(TO REMAIN)

4 1 8 1  
3-SECT., 1-WAY  
3 EXISTING  
(TO REMAIN)

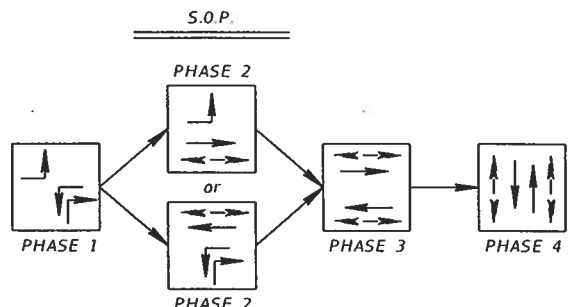
4 R  
5-SECT., 1-WAY  
1 EXISTING  
(TO REMAIN)

(A)  
YIELD  
EXISTING  
(TO REMAIN)

(B)  
DO NOT  
BLOCK  
INTERSECTION  
EXISTING  
(TO REMAIN)

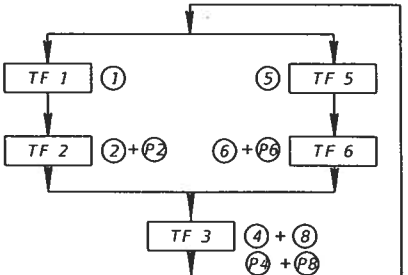
(C)  
R10-3E (MOD)  
9" x 15"  
4 EA  
(3 INCLUDED IN  
PAY ITEM 665-1-11)  
700-3-101 1 EA

(D)  
EXISTING  
(TO BE REMOVED)  
700-3-601 1 AS

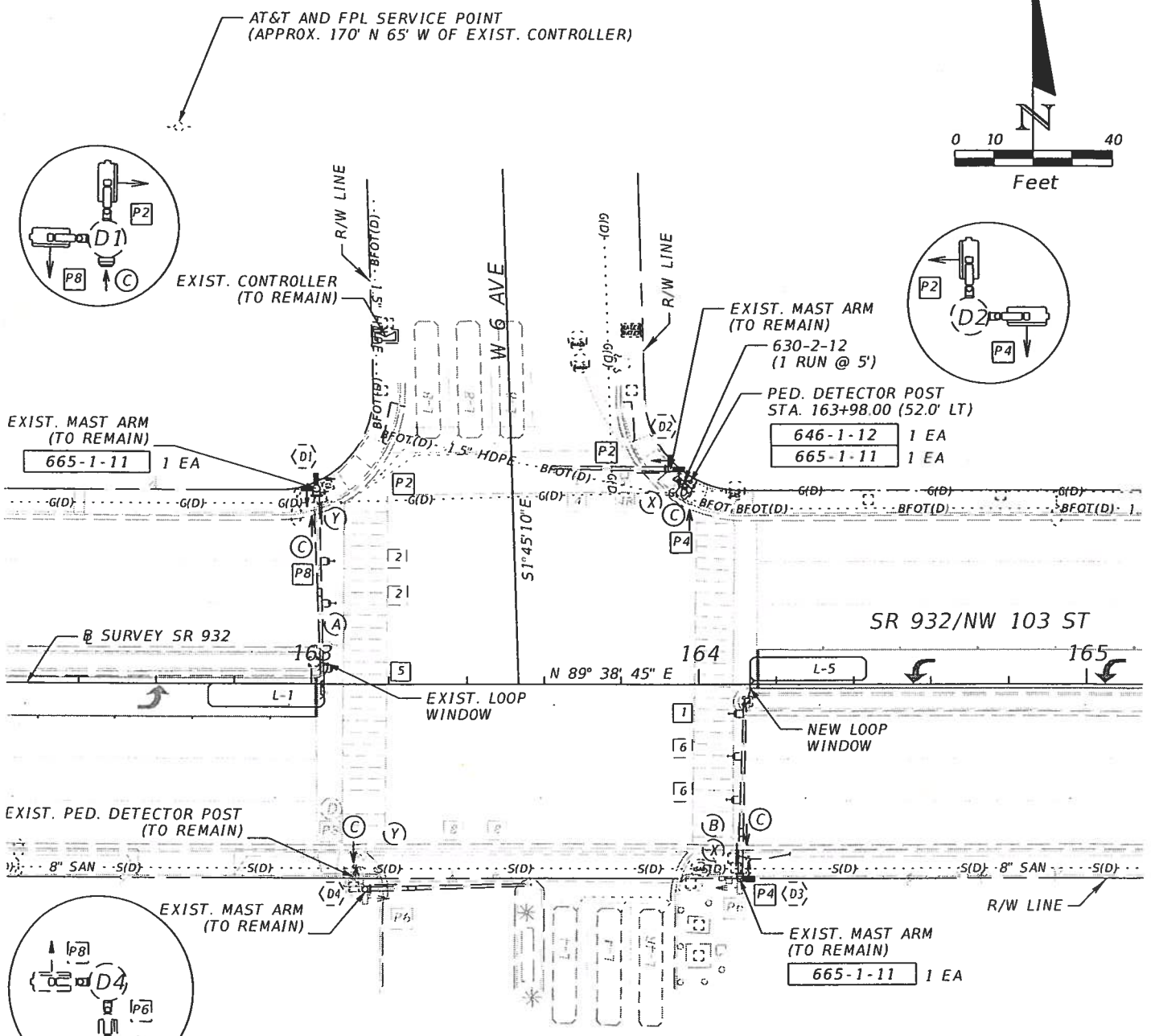


- CONTROLLER OPERATIONS:**
- MAJOR STREET: SR 932 (W 49 ST/NW 103 ST)  
MINOR STREET: W 6 AVE
  - FLASHING OPERATION:  
MOVEMENTS No. 2 AND 6, YELLOW  
MOVEMENTS No. 1, 4, 5 AND 8, RED

- NOTES:**
- SIGNAL TIMING TO BE PROVIDED BY MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS, TRAFFIC SIGNALS AND SIGNS DIVISION.
  - ALL PEDESTRIAN SIGNAL HEADS SHALL ALIGN WITH CENTER OF FAR-SIDED END OF CORRESPONDING CROSSWALK.
  - LOOP ASSEMBLIES SHALL BE 6'x30' FOR ALL LANES.
  - ALL CONDUCTORS AND GROUND WIRE FOR POWER SHALL BE RHW-2/RHH/XLP. (NO OTHER TYPE IS ALLOWED).



DETECTORS FOR LOOPS			
LOOP	NO. OF EXIST. LOOPS	NO. OF EXIST. DETS.	NO. OF NEW LOOPS
L-1		1	1
L-4	2	1	
L-4R	1	1	
L-5		1	1
L-8	3	2	



- REMOVAL ITEMS:**  
665-1-60 3 EA
- CONDUIT:**  
630-2-12 10 LF
- LOOP ASSEMBLIES:**  
660-2-101 2 AS
- PULL BOXES:**  
635-2-11 3 EA
- CONTROLLER ITEMS:**  
632-7-2 200 LF  
670-5-400 1 AS

**AS-Build Drawing**  
**S.S.L Corp**  
By: *[Signature]*  
10-1-18

INTERSECTION ID No. 3280  
NW 103 ST/W 49 ST AND W 6 AV

REVISIONS		RAUL E. ALESSANDRI, P.E. P.E. NO.: 75506 ALVAREZ ENGINEERS, INC. 10305 N.W. 41 ST. SUITE 103 DORAL, FL 33178 CERTIFICATE OF AUTHORIZATION: 7538	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.  T-7
DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
			SR 932	MIAMI-DADE	434768-2-52-01	

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.









**TOD Schedule Report**  
for 4589: W 49 St@W 500 Blk

Print Date:  
10/4/2021

Print Time:  
6:45 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
4589	W 49 St@W 500 Blk	DOW-2	TOD	N/A	0	0	N/A	0	Max 0

**Splits**

<u>PH 1</u>	<u>PH 2</u>	<u>PH 3</u>	<u>PH 4</u>	<u>PH 5</u>	<u>PH 6</u>	<u>PH 7</u>	<u>PH 8</u>
EBL	WBT	SBL	NBT	WBL	EBT	NBL	SBT
0	0	0	0	0	0	0	0
							

Active Phase Bank: Phase Bank 1

Phase	<u>Walk</u>			<u>Don't Walk</u>			<u>Min Initial</u>			<u>Veh Ext</u>			<u>Max Limit</u>			<u>Max 2</u>			<u>Yellow</u>	<u>Red</u>
	Phase Bank																			
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1 EBL	0	0	0	0	0	0	5	5	5	3.5	3	3	9	7	15	30	7	45	4.4	2.1
2 WBT	7	7	7	25	25	25	7	7	7	1	1	1	35	32	35	0	32	45	4.4	2.1
3 SBL	0	0	0	0	0	0	5	5	5	2	2	2	8	7	8	20	7	26	4	2.3
4 NBT	7	7	7	23	23	23	7	7	7	2.5	2.5	2.5	30	30	30	35	30	30	4	2.7
5 WBL	0	0	0	0	0	0	5	5	5	3.5	3	3	9	7	15	30	7	45	4.4	2
6 EBT	7	7	7	25	25	25	7	7	7	1	1	1	35	32	35	0	32	45	4.4	2.1
7 NBL	0	0	0	0	0	0	5	5	5	2	2	2	8	7	8	20	7	26	4	2.2
8 SBT	7	7	7	23	23	23	7	7	7	2.5	2.5	2.5	30	30	30	35	30	30	4	2.7

Last In Service Date: unknown

<b>Permitted Phases</b>	
	<b>12345678</b>
Default	12345678
External Permit 0	12-456-8
External Permit 1	12-456-8
External Permit 2	12-456-8



**TOD Schedule Report**  
for 4589: W 49 St@W 500 Blk

Print Date:  
10/4/2021

Print Time:  
6:45 PM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 EBL	2 WBT	3 SBL	4 NBT	5 WBL	6 EBT	7 NBL	8 SBT		
1		160	18	99	7	11	18	99	6	11	0	14
2		170	16	103	13	11	23	96	14	12	0	74
3		130	14	51	9	31	14	51	8	31	0	54
4		160	16	94	7	18	23	87	6	18	0	1
5		140	20	66	10	18	26	60	11	18	0	116
6		160	25	75	16	18	28	72	17	18	0	149
7		120	15	65	7	8	15	65	6	8	0	67
8		160	15	104	7	9	15	104	6	9	0	141
9		120	14	56	7	18	14	56	6	18	0	54
10		160	30	68	18	18	30	68	19	18	0	119
11		170	35	70	21	18	35	70	22	18	0	74
12		190	43	79	24	18	43	79	25	18	0	130
13		160	23	81	12	18	23	81	13	18	0	24
14		150	18	76	11	19	18	76	12	19	0	26
15		160	20	80	16	18	20	80	17	18	0	132
16		150	18	76	11	19	18	76	12	19	0	26
17		160	20	82	14	18	20	82	15	18	0	138
18		180	23	93	17	21	26	90	18	21	0	128
19		150	18	77	11	18	18	77	12	18	0	116
20		150	18	76	11	19	18	76	12	19	0	24
21		130	14	51	9	31	14	51	8	31	0	54
22		80	5	34	6	10	5	34	5	10	0	64
23		100	14	46	7	8	14	46	6	8	0	64
24		170	26	69	18	31	29	66	19	31	0	137

Local TOD Schedule		
Time	Plan	DOW
0000	22	Su M T W Th F S
0130	Flash	Su M T W Th F S
0530	3	M T W Th F
0600	22	Su S
0630	2	M T W Th F
0830	5	Su S
1000	4	M T W Th F
1100	24	Su S
1130	13	M T W Th F
1330	11	M T W Th F
1530	18	M T W Th F
1730	6	Su S
1830	9	Su S
1900	9	S
1900	19	M T W Th F
1930	8	Su
2030	7	Su
2100	21	M T W Th F
2130	23	Su
2300	7	M T W Th F S

Current Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	Su M T W Th F S

Local Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	Su M T W Th F S

* Settings
Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

**TOD Schedule Report**  
**for 4589: W 49 St@W 500 Blk**

Print Date:  
**10/4/2021**

Print Time:  
**6:45 PM**

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<p><b><i>No Calendar Defined/Enabled</i></b></p>
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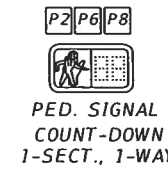
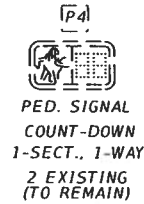
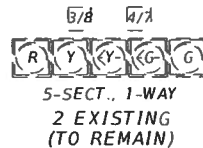
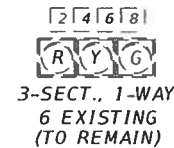
# SIGNAL OPERATING PLAN



Phase	Direction	EB		WB		SB		NB		Ped Heads				Drawing	
		Head No.	1	6	5	2	3/8	8	7/4	4	P6	P2	P8		P4
(1+5) <i>(Actuated)</i>	Dwell	<G	R	<G	R	R	R	R	R	DW	DW	DW	DW		
	Clear	(1+6)	<G	R	<Y	R	R	R	R	R	DW	DW	DW		DW
		(2+5)	<Y	R	<G	R	R	R	R	R	DW	DW	DW		DW
		(2+6)	<Y	R	<Y	R	R	R	R	R	DW	DW	DW		DW
(1+6) <i>(Actuated)</i>	Dwell	<G	G	<R	R	R	R	R	R	W/F	DW	DW	DW		
	Clear	(2+6)	<Y	G	<R	R	R	R	R	DW	DW	DW	DW		
(2+5) <i>(Actuated)</i>	Dwell	<R	R	<G	G	R	R	R	R	DW	W/F	DW	DW		
	Clear	(2+6)	<R	R	<Y	G	R	R	R	DW	DW	DW	DW		
(2+6) <i>(Recall)</i>	Dwell	<R	G	<R	G	R	R	R	R	W/F	W/F	DW	DW		
	Clear	(3+7)	<R	Y	<R	Y	R	R	R	R	DW	DW	DW		DW
		(3+8)	<R	Y	<R	Y	R	R	R	R	DW	DW	DW		DW
		(4+7)	<R	Y	<R	Y	R	R	R	R	DW	DW	DW		DW
		(4+8)	<R	Y	<R	Y	R	R	R	R	DW	DW	DW		DW
		(1+5)	<R	Y	<R	Y	R	R	R	R	DW	DW	DW		DW
		(1+6)	<R	G	<R	Y	R	R	R	R	DW	DW	DW		DW
		(2+5)	<R	Y	<R	G	R	R	R	R	DW	DW	DW		DW
(3+7) <i>(Actuated)</i>	Dwell	<R	R	<R	R	<G/R	R	<G/R	R	DW	DW	DW	DW		
	Clear	(3+8)	<R	R	<R	R	<G/R	R	<Y/R	R	DW	DW	DW		DW
		(4+7)	<R	R	<R	R	<Y/R	R	<G/R	R	DW	DW	DW		DW
		(4+8)	<R	R	<R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
		(1+5)	<R	R	<R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
		(1+6)	<R	R	<R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
		(2+5)	<R	R	<R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
		(2+6)	<R	R	<R	R	<Y/R	R	<Y/R	R	DW	DW	DW		DW
(3+8) <i>(Actuated)</i>	Dwell	<R	R	<R	R	<G/G	G	R	R	DW	DW	W/F	DW		
	Clear	(4+8)	<R	R	<R	R	<Y/G	G	R	R	DW	DW	DW		DW
		(1+5)	<R	R	<R	R	<Y/Y	Y	R	R	DW	DW	DW		DW
		(1+6)	<R	R	<R	R	<Y/Y	Y	R	R	DW	DW	DW		DW
		(2+5)	<R	R	<R	R	<Y/Y	Y	R	R	DW	DW	DW		DW
(2+6)	<R	R	<R	R	<Y/Y	Y	R	R	DW	DW	DW	DW			
(4+7) <i>(Actuated)</i>	Dwell	<R	R	<R	R	R	R	<G/G	G	DW	DW	DW	W/F		
	Clear	(4+8)	<R	R	<R	R	R	R	<Y/G	G	DW	DW	DW		DW
		(1+5)	<R	R	<R	R	R	R	<Y/Y	Y	DW	DW	DW		DW
		(1+6)	<R	R	<R	R	R	R	<Y/Y	Y	DW	DW	DW		DW
		(2+5)	<R	R	<R	R	R	R	<Y/Y	Y	DW	DW	DW		DW
(2+6)	<R	R	<R	R	R	R	<Y/Y	Y	DW	DW	DW	DW			
(4+8) <i>(Actuated)</i>	Dwell	<R	R	<R	R	G	G	G	G	DW	DW	W/F	W/F		
	Clear	(1+5)	<R	R	<R	R	Y	Y	Y	Y	DW	DW	DW		DW
		(1+6)	<R	R	<R	R	Y	Y	Y	Y	DW	DW	DW		DW
		(2+5)	<R	R	<R	R	Y	Y	Y	Y	DW	DW	DW		DW
(2+6)	<R	R	<R	R	Y	Y	Y	Y	DW	DW	DW	DW			

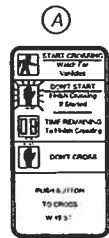
## Miami-Dade County Public Works Department

Drawn	Date 2/14/02	W 49 ST @ W 500 BLOCK		
Checked H. Hernandez	Date 2/14/02	Placed in Service	Phasing No.	Asset Number
		Date 5/10/00	By SSI	4
				4589



653-1-60 6 AS

653-1-11 6 AS



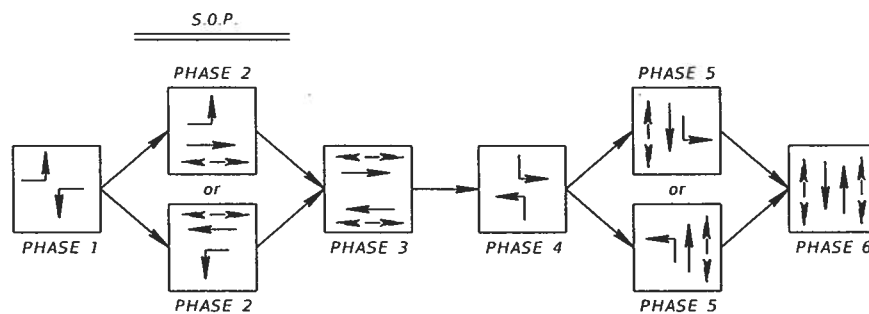
R10-3E (MOD)  
9' x 15'  
(COST INCLUDED IN  
PAY ITEM 665-1-11)  
4 EA



EXISTING SIGN  
(TO REMAIN)



EXISTING SIGN  
(TO REMAIN)

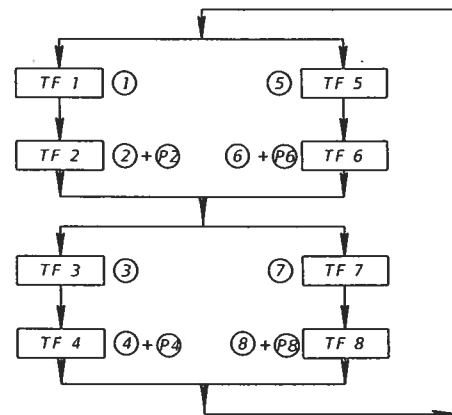


**CONTROLLER OPERATIONS:**

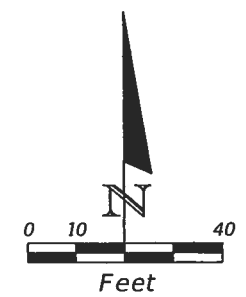
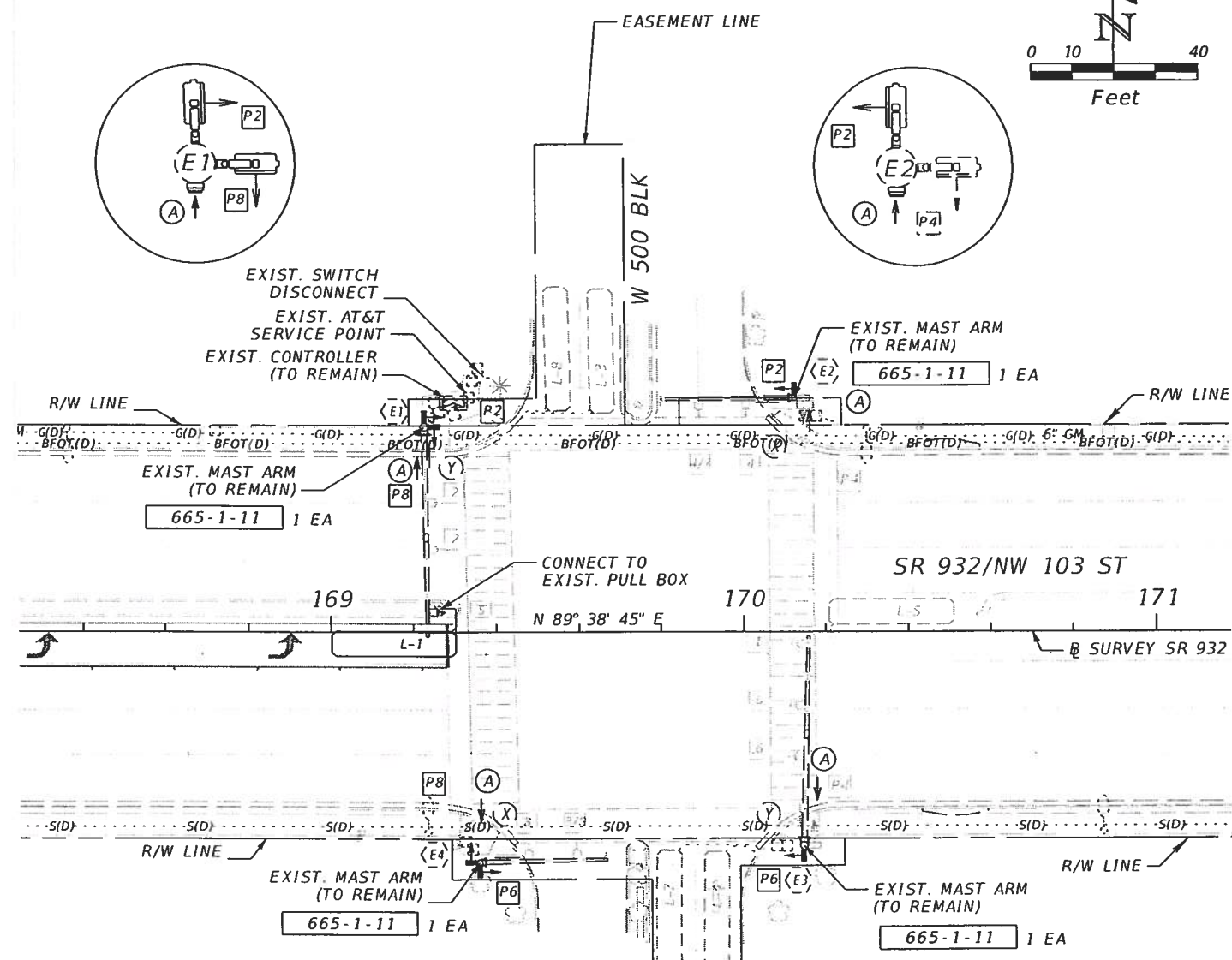
1. MAJOR STREET: SR 932 (W 49 ST/NW 103 ST)  
MINOR STREET: W 5 AVE
2. FLASHING OPERATION:  
MOVEMENTS No. 2 AND 6, YELLOW  
MOVEMENTS No. 1, 4, 4/7, 5, 8 AND 3/8, RED
3. S.O.P. EXISTING TO REMAIN

**NOTES:**

1. SIGNAL TIMING TO BE PROVIDED BY MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS, TRAFFIC SIGNALS AND SIGNS DIVISION.
2. ALL PEDESTRIAN SIGNAL HEADS SHALL ALIGN WITH CENTER OF FAR-SIDED END OF CORRESPONDING CROSSWALK.
3. LOOP ASSEMBLIES SHALL BE 6'x30' FOR ALL LANES.
4. ALL CONDUCTORS AND GROUND WIRE FOR POWER SHALL BE RHW-2/RHH/XLP. (NO OTHER TYPE IS ALLOWED).



DETECTORS FOR LOOPS			
LOOP	NO. OF EXIST. LOOPS	NO. OF EXIST. DETS.	NO. OF NEW LOOPS
L-1		1	1
L-3	1	1	
L-4	1	1	
L-5	1	1	
L-7	1	1	
L-8	1	1	



- REMOVAL ITEMS:**  
665-1-60 4 EA
- LOOP ASSEMBLIES:**  
660-2-101 1 AS
- CONDUIT:**  
630-2-12 12 LF
- CONTROLLER ITEMS:**  
632-7-2 24 LF  
670-5-400 1 AS

AS-Build Drawing  
S.S.L Corp

By: *[Signature]*  
10-1-18

INTERSECTION ID No. 4589  
NW 103 ST/W 49 ST AND 500 BLK

REVISIONS				RAUL E. ALESSANDRI, P.E. P.E. NO.: 75506 ALVAREZ ENGINEERS, INC. 10305 N.W. 41 ST. SUITE 103 DORAL, FL. 33178 CERTIFICATE OF AUTHORIZATION: 7538	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.  T-8
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
					SR 932	MIAMI-DADE	434768-2-52-01	

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.









**TOD Schedule Report**  
for 2882: Red Rd&W 49 St

Print Date:  
10/4/2021

Print Time:  
3:44 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
2882	Red Rd&W 49 St	DOW-2	TOD	N/A	0	0	N/A	0	Max 0

**Splits**

<u>PH 1</u>	<u>PH 2</u>	<u>PH 3</u>	<u>PH 4</u>	<u>PH 5</u>	<u>PH 6</u>	<u>PH 7</u>	<u>PH 8</u>
EBL	WBT	SBL	NBT	WBL	EBT	NBL	SBT
0	0	0	0	0	0	0	0
							

Active Phase Bank: Phase Bank 1

Phase	<u>Walk</u>			<u>Don't Walk</u>			<u>Min Initial</u>			<u>Veh Ext</u>			<u>Max Limit</u>			<u>Max 2</u>			<u>Yellow</u>	<u>Red</u>
	Phase Bank																			
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1 EBL	0	0	0	0	0	0	7	7	7	2.5	-2.5	-2.5	18	15	18	25	20	25	4.4	2.7
2 WBT	7	7	7	23	23	23	7	7	7	1	1	1	40	38	40	65	42	45	4.4	2.7
3 SBL	0	0	0	0	0	0	7	7	7	2.5	-2.5	-2.5	15	20	20	25	23	25	4.8	2.5
4 NBT	7	7	7	23	23	23	7	7	7	1	1	1	30	40	45	70	45	50	4.8	2.5
5 WBL	0	0	0	0	0	0	7	7	7	2.5	-2.5	-2.5	18	15	18	25	20	25	4.4	2.7
6 EBT	7	7	7	23	23	23	7	7	7	1	1	1	40	38	40	65	42	45	4.4	2.7
7 NBL	0	0	0	0	0	0	7	7	7	2.5	-2.5	-2.5	15	20	20	25	23	25	4.8	2.5
8 SBT	7	7	7	23	23	23	7	7	7	1	1	1	30	40	45	70	45	50	4.8	2.5

Last In Service Date: unknown

<b>Permitted Phases</b>	
	<b>12345678</b>
Default	12345678
External Permit 0	-234-678
External Permit 1	-234-678
External Permit 2	-234-678

**TOD Schedule Report**  
for 2882: Red Rd&W 49 St

Print Date:  
10/4/2021

Print Time:  
3:44 PM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 EBL	2 WBT	3 SBL	4 NBT	5 WBL	6 EBT	7 NBL	8 SBT		
1		160	6	50	14	62	6	50	8	68	0	55
2		170	12	48	20	62	12	48	20	62	0	59
3		130	17	43	11	31	17	43	11	31	0	58
4		160	20	56	16	40	20	56	16	40	0	80
5		140	20	35	18	39	20	35	18	39	0	100
6		160	22	46	23	41	22	46	23	41	0	98
7		120	15	37	9	31	15	37	9	31	0	98
8		110	5	44	11	22	5	44	11	22	0	41
9		120	15	32	15	30	15	32	15	30	0	41
10		160	10	63	19	40	10	63	19	40	0	107
11		170	11	68	23	40	11	68	23	40	0	111
12		190	13	77	26	46	13	77	26	46	0	114
13		160	23	57	17	35	23	57	17	35	0	8
14		150	11	57	15	39	11	57	15	39	0	148
15		160	10	59	19	44	10	59	19	44	0	98
16		150	11	57	15	39	11	57	15	39	0	148
17		160	9	60	6	57	9	60	20	43	0	107
18		180	23	63	15	51	23	63	22	44	0	110
19		150	20	51	12	39	20	51	17	34	0	56
20		150	16	52	15	39	16	52	15	39	0	145
21		130	17	43	11	31	17	43	11	31	0	58
22		110	13	30	8	31	13	30	8	31	0	46
23		120	12	41	8	31	12	41	8	31	0	59
24		170	23	50	24	45	23	50	24	45	0	118

Local TOD Schedule		
Time	Plan	DOW
0000	22	Su M T W Th F S
0000	19	
0100	Free	M T W Th F
0130	Free	Su S
0530	3	M T W Th F
0600	22	Su S
0630	2	M T W Th F
0830	5	Su S
1000	4	M T W Th F
1100	24	Su S
1130	13	M T W Th F
1330	11	M T W Th F
1530	18	M T W Th F
1730	6	Su S
1830	9	Su
1900	9	S
1900	19	M T W Th F
2030	7	Su
2100	21	M T W Th F
2130	23	Su
2300	7	M T W Th F S

Current Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S

Local Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S

* Settings
Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

**TOD Schedule Report**  
**for 2882: Red Rd&W 49 St**

Print Date:  
**10/4/2021**

Print Time:  
**3:44 PM**

---

***No Calendar Defined/Enabled***

**SIGNAL OPERATING PLAN**



Timing Phases	Direction	EB			WB			SB			NB			Ped Heads				Movements/Display/Actuation	
	Head No.	1/6	6	6R	5/2	2	2R	3	8	8R	7	4	4R	P2	P6	P4	P8		
(1+5) EBL/WBL NW 103 ST/W 49 St (Actuated)	Dwell	R<G	R	R	R<G	R	R	<R	R	R/G>	<R	R	R/G>	DW	DW	DW	DW		
	Clear to	(1+6)	R<G	R	R	R<Y	R	R	<R	R	R/G>	<R	R	R/Y>	DW	DW	DW		DW
		(2+5)	R<Y	R	R	R<G	R	R	<R	R	R/Y>	<R	R	R/G>	DW	DW	DW		DW
		(2+6)	R<Y	R	R	R<Y	R	R	<R	R	R/Y>	<R	R	R/Y>	DW	DW	DW		DW
(1+6) EBL NW 103 ST/W 49 St (Actuated)	Dwell	G<G	G	G	R	R	R	<R	R	R/G>	<R	R	R	DW	W/F	DW	DW		
	Clear to	(2+5)	G<Y	Y	Y	R	R	R	<R	R	R/Y>	<R	R	R	DW	DW	DW		DW
		(2+6)	G	G	G	R	R	R	<R	R	R/Y>	<R	R	R	DW	W/F	DW		DW
(2+5) WBL NW 103 ST/W 49 St (Actuated)	Dwell	R	R	R	G<G	G	G	<R	R	R	<R	R	R/G>	W/F	DW	DW	DW		
	Clear to	(2+6)	R	R	R	G<Y	G	G	<R	R	R	<R	R	R/Y>	W/F	DW	DW		DW
(2+6) E/W NW 103 ST/W 49 St  (Recall)	Dwell	G	G	G	G	G	G	<R	R	R	<R	R	R	W/F	W/F	DW	DW		
	Clear to	(3+7)	Y	Y	Y	Y	Y	Y	<R	R	R	<R	R	R	DW	DW	DW		DW
		(3+8)	Y	Y	Y	Y	Y	Y	<R	R	R	<R	R	R	DW	DW	DW		DW
		(4+7)	Y	Y	Y	Y	Y	Y	<R	R	R	<R	R	R	DW	DW	DW		DW
		(4+8)	Y	Y	Y	Y	Y	Y	<R	R	R	<R	R	R	DW	DW	DW		DW
(3+7) NBL/SBL RED RD/W 4 AV (Actuated)	Dwell	R	R	R/G>	R	R	R/G>	<G	R	R	<G	R	R	DW	DW	DW	DW		
	Clear to	(3+8)	R	R	R/G>	R	R	R/Y>	<G	R	R	<Y	R	R	DW	DW	DW		DW
		(4+7)	R	R	R/Y>	R	R	R/G>	<Y	R	R	<G	R	R	DW	DW	DW		DW
		(4+8)	R	R	R/Y>	R	R	R/Y>	<Y	R	R	<Y	R	R	DW	DW	DW		DW
		(1+5)	R	R	R/Y>	R	R	R/Y>	<Y	R	R	<Y	R	R	DW	DW	DW		DW
		(1+6)	R	R	R/Y>	R	R	R/Y>	<Y	R	R	<Y	R	R	DW	DW	DW		DW
		(2+5)	R	R	R/Y>	R	R	R/Y>	<Y	R	R	<Y	R	R	DW	DW	DW		DW
(2+6)	R	R	R/Y>	R	R	R/Y>	<Y	R	R	<Y	R	R	DW	DW	DW	DW			
(3+8) SBL RED RD/W 4 AV (Actuated)	Dwell	R	R	R	R	R	R/G>	<G	G	G	R	R	R	DW	DW	DW	W/F		
	Clear to	(4+8)	R	R	R	R	R	R/Y>	<Y	G	G	R	R	R	DW	DW	DW		W/F
		(1+5)	R	R	R	R	R	R/Y>	<Y	Y	G	R	R	R	DW	DW	DW		DW
		(1+6)	R	R	R	R	R	R/Y>	<Y	Y	G	R	R	R	DW	DW	DW		DW
		(2+5)	R	R	R	R	R	R/Y>	<Y	Y	G	R	R	R	DW	DW	DW		DW
		(2+6)	R	R	R	R	R	R/Y>	<Y	Y	G	R	R	R	DW	DW	DW		DW
(4+7) NBL RED RD/W 4 AV (Actuated)	Dwell	R	R	R/G>	R	R	R	<R	R	R	<G	G	G	DW	DW	W/F	DW		
	Clear to	(4+8)	R	R	R/Y>	R	R	R	<R	R	R	<Y	G	G	DW	DW	W/F		DW
		(1+5)	R	R	R/Y>	R	R	R	<R	R	R	<Y	Y	Y	DW	DW	DW		DW
		(1+6)	R	R	R/Y>	R	R	R	<R	R	R	<Y	Y	Y	DW	DW	DW		DW
		(2+5)	R	R	R/Y>	R	R	R	<R	R	R	<Y	Y	Y	DW	DW	DW		DW
		(2+6)	R	R	R/Y>	R	R	R	<R	R	R	<Y	Y	Y	DW	DW	DW		DW
(4+8) N/S RED RD/W 4 AV (Recall)	Dwell	R	R	R	R	R	R	<R	G	G	<R	G	G	DW	DW	W/F	W/F		
	Clear to	(1+5)	R	R	R	R	R	R	<R	Y	Y	<R	Y	Y	DW	DW	DW		DW
		(1+6)	R	R	R	R	R	R	<R	Y	Y	<R	Y	Y	DW	DW	DW		DW
		(2+5)	R	R	R	R	R	R	<R	Y	Y	<R	Y	Y	DW	DW	DW		DW
		(2+6)	R	R	R	R	R	R	<R	Y	Y	<R	Y	Y	DW	DW	DW		DW

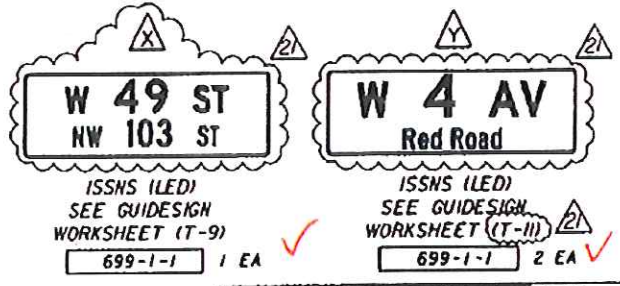
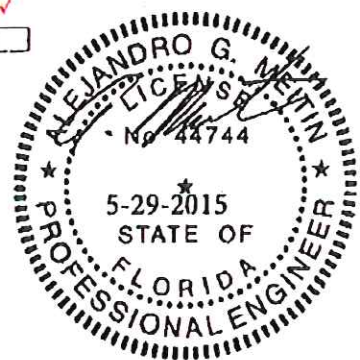
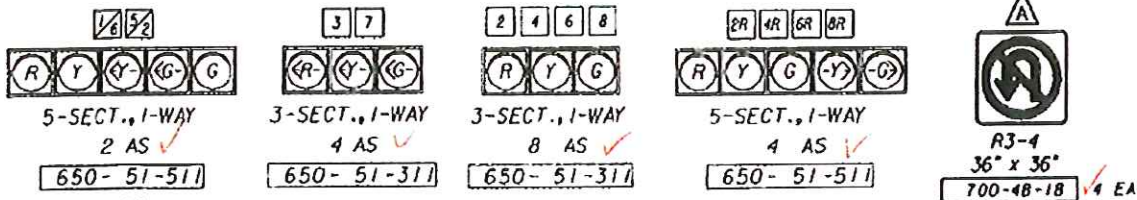
Flashing Operation: FY FY FY FY FY FY <FR FR FR <FR FR FR Page 1 of 1

**Miami-Dade County Public Works Department**

Drawn by: Diana Ospina	Date: 6/25/2015	RED RD/W 4 AV & NW 103 ST/W 49 ST			
Checked by: H. Hernandez	Date: 7/15/15	Placed in Service	Phasing No. 7	Asset Number 2882	



SIGNAL HEAD AND SIGN DETAILS



ID	STA.	OFFSET	ALUM POLE	ALUM POST	PUSH BUTTON
E1	1133+70.937	64.156' LT	1		
E2	1133+59.115	61.884' LT	1		
E3	1135+14.216	69.649' LT	1		
E4	1134+98.159	63.011' RT	1		
E5	1133+64.414	58.506' RT	1		
E6	1133+79.078	69.545' RT	1		
E7	1134+96.14	85.472' LT	1		

CONTROLLER OPERATIONS:

- MAJOR STREET - SR-932 / NW 103 ST (W 49 ST)  
MINOR STREET - SR-823 / W 4 AVE (RED ROAD)
- SIGNAL OPERATING PLAN (SOP) AS SHOWN.
- FLASHING OPERATION: 1, 2, 5, 6 - YELLOW  
3, 4, 7, 8 - RED

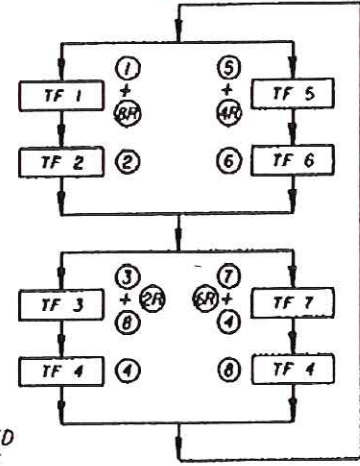
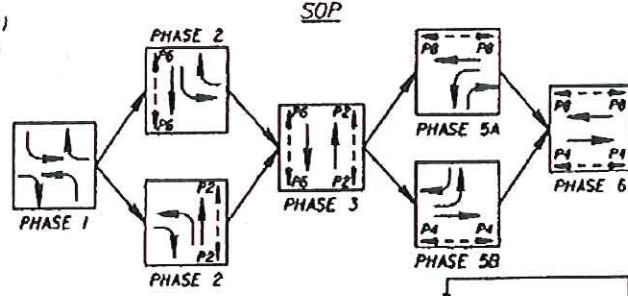
ENTERPRISE ELECTRICAL CONTRACTING, INC

AS-BUILT DATE 6-10-15

FOREMAN H. Michel

SUPERVISOR *[Signature]*

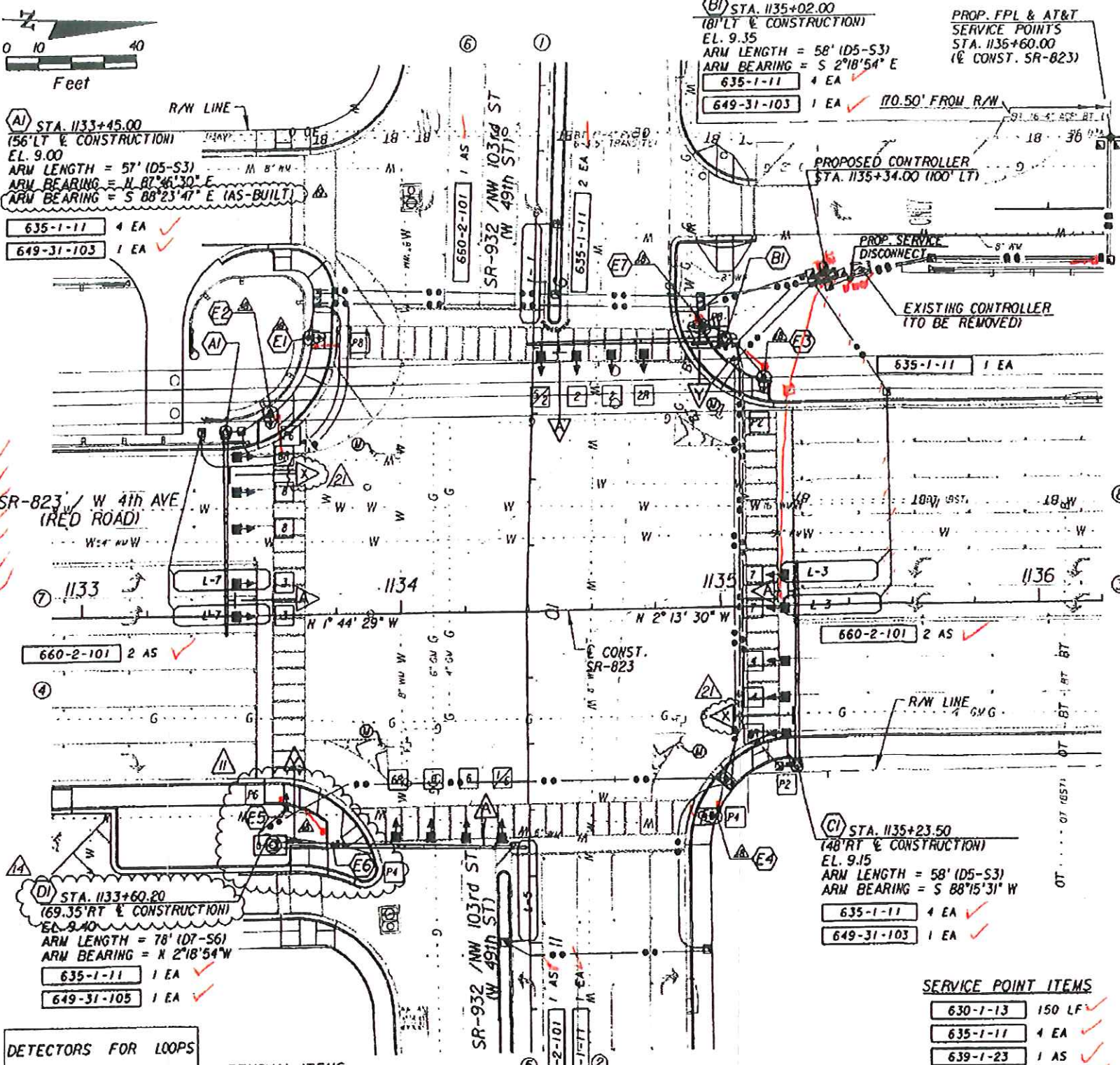
- SIGNAL TIMING TO BE PROVIDED BY MIAMI-DADE COUNTY TRAFFIC SIGNALS DIVISION.
- PEDESTRIAN SIGNAL HEADS TO BE ORIENTED TO THE CENTER OF THE RAMP THEY SERVE.
- MAST ARM FOUNDATIONS WITHIN THE LIMITS OF EXISTING AND/OR PROPOSED SIDEWALK SHALL BE FLUSHED WITH THE GRADE OF THE SIDEWALK. SIDEWALK CURB SHALL NOT BE CONSTRUCTED AROUND MAST ARM FOUNDATIONS.
- THE CONTRACTOR SHALL CONSTRUCT A CONCRETE PAD AROUND THE PROPOSED MAST ARMS A1, B1 AND C1. COST OF CONCRETE PAD IS INCLUDED IN THE COST OF MAST ARM. SEE INDEX 17500 FOR DETAILS AND NOTES.
- LOUVERED BACKPLATES WITH RETROREFLECTIVE BACKPLATE BORDERS SHALL BE INSTALLED ON ALL SIGNAL SECTIONS.



LOOP	NO. OF LOOPS	NO. OF NEW DETS.
L-1	1	1
L-3	2	1
L-5	1	1
L-7	2	1

ITEM	QUANTITY
690-10	10 EA
690-32-2	4 EA
690-50	1 EA
690-70	4 EA
690-90	1 PI
690-100	1 PI
700-48-60	4 EA

ITEM	QUANTITY
632-7-1	1 PI
635-1-11	5 EA
660-1-109	4 EA
670-5-130	1 AS



ITEM	QUANTITY
630-1-13	150 LF
635-1-11	4 EA
639-1-23	1 AS
639-2-1	300 LF

Ⓧ DENOTES REMOVAL OF EXISTING SIGNAL STRUCTURE

ITEM	QUANTITY
630-1-13	1525 LF

FPL & AT&T SERVICE POINT TO BE PROVIDED BY CORRESPONDING UTILITIES

SR-823 / W 4 AVE / RED ROAD AND SR-932 / NW 103 ST / W 49 ST INTERSECTION ID No. 2882

DATE	DESCRIPTION	DATE	DESCRIPTION
12/22/14	REVISD PROP. CONC. SIDEWALK. ADDED CONC. SLAB.	4/23/15	ADDED MAST ARM AS-BUILT BEARING
02/27/15	REVISD LOCATION FOR MAST ARM D1 AND CONC. SLAB.	5-28-15	REVISD INTERNALLY ILLUMINATED SIGNS
4/14/15	REVISD PEDESTRIAN POLE LOCATIONS		

CH Perez & Associates Consulting Engineers, Inc.  
Certificate Of Authorization No. EB-25976  
9594 NW 41 Street, Suite 201  
Doral, Florida 33178  
(305) 592-1070 / FAX: (305) 592-1078  
Alejandro G. Mellin, P.E.  
P.E. License No. 44744

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
823	MIAMI-DADE	249941-1-52-01

SIGNALIZATION PLAN

SHEET NO.  
T-4

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 68F5-23.003, F.A.C.

## **Appendix C**

### **Crash Summary Table**



**Crash Summary**

Year	Crash Number	Day/Night	Dry/Wet	Ped/Bike	Conitions/Contributing Causes
2017	868571710	Night	Dry	Bicycle	EB Vehicle turning right to gas station struck bicyclist (WB on EB sidewalk)
	867282740	Day	Dry	Pedestrian	NB Vehicle turning right from W 18 Court struck pedestrian (WB on marked crosswalk)
	873563690	Night	Dry	Bicycle	EB Vehicle turning left at W 17 Ct struck bicyclist (NB on W 17 Ct)
	867278990	Night	Dry	Pedestrian	SB Vehicle turning left struck pedestrian (crossing on marked crosswalk)
	873598440	Day	Dry	Pedestrian	NB Vehicle (at fault) turning right from W 17 Court struck pedestrian (NB on marked crosswalk)
	867290560	Night	Wet	Pedestrian	SB Vehicle (at fault) turning right from W 16 Ave struck pedestrian (SB on marked crosswalk)
	867286780	Day	Dry	Pedestrian	WB Vehicle (at fault) turning left at W 16 Ave struck pedestrian (WB on marked crosswalk)
	873572320	Day	Dry	Pedestrian	WB Vehicle (at fault) turning right from driveway to W 16 Ave struck pedestrian (SB on sidewalk)
	867341320	Day	Wet	Bicycle	NB Vehicle (hit and run) at W 13 Ln existing parking lot struck bicyclist (EB on marked crosswalk)
	867272780	Night	Dry	Pedestrian	EB Vehicle struck pedestrian (jump in traffic) (at fault)
	873576900	Day	Dry	Pedestrian	NB Vehicle (at fault) turning right from parking lot struck pedestrian (wheelchair WB on sidewalk)
	867347650	Day	Dry	Pedestrian	EB Vehicle (at fault) approaching W 6 Ave struck pedestrian (SB on midblock)
	867322540	Night	Wet	Pedestrian	WB Vehicle west of W 4 Ave struck pedestrian (NB on midblock) (at fault)
873564300	Day	Dry	Pedestrian	EB Vehicle (at fault) east of W 17 Ct struck driver himself while checking vehicle	
2018	878048600	Day	Dry	Bicycle	EB Vehicle approaching W 5 Ave stopped and struck by bicyclist (EB along roadway)
	878038120	Day	Wet	Pedestrian	SB Vehicle on W 18 Ct struck pedestrian (WB on midblock) (at fault)
	873648530	Day	Dry	Bicycle	SB Vehicle (at fault) on W 17 Ct struck bicyclist (crossing on marked crosswalk)
	878030900	Day	Dry	Pedestrian	NB Vehicle (hit and run) turning right from parking lot struck pedestrian (WB on sidewalk)
	873647770	Day	Dry	Pedestrian	EB Vehicle (at fault) east of W 13 Ln struck pedestrian (NB on midblock)
	873645160	Day	Dry	Pedestrian	EB Vehicle at W 12 Ln struck bicyclist (NB on midblock) (at fault)
	878058930	Day	Dry	Pedestrian	NB Vehicle on W 12 Ave struck pedestrian (WB on midblock) (at fault)
	878075070	Night	Wet	Pedestrian	NB Vehicle (hit and run) at W 12 Ave struck pedestrian (WB on marked crosswalk)
	878034480	Night	Dry	Pedestrian	WB Vehicle (at fault) approaching W 12 Ave struck pedestrian (SB on marked crosswalk)
	873650210	Day	Dry	Pedestrian	WB Vehicle approaching W 12 Ave struck pedestrian (NB on midblock) (at fault)
	878081400	Night	Dry	Pedestrian	WB Vehicle (at fault) west of W 10 Ave struck pedestrian (NB on midblock)
	878064840	Day	Dry	Pedestrian	EB Vehicle (at fault) approaching W 10 Ave struck pedestrian (SB on marked crosswalk)
	878074720	Night	Dry	Bicycle	NB Vehicle on W 9 Ave driveway struck bicyclist (WB on sidewalk)
	878105490	Night	Dry	Pedestrian	EB Vehicle (at fault) approaching W 8 Ave struck pedestrian (SB on midblock)
	873627400	Night	Wet	Pedestrian	WB Vehicle (at fault) (speeding) approaching W 4 Ave struck pedestrian (SB on midblock) (at fault)
	878091900	Day	Dry	Bicycle	EB Vehicle (at fault) east of W 6 Ave struck bicyclist (SB on marked crosswalk)
2019	889708690	Day	Dry	Pedestrian	NB Vehicle (at fault) turning right on W 16 Ave struck pedestrian (on sidewalk)
	889719660	Day	Wet	Pedestrian	WB Vehicle turning left to W 16 Ave struck pedestrian (EB on marked crosswalk)
	889861170	Day	Dry	Bicycle	NB Vehicle (at fault) turning right from W 16 Ave struck bicyclist (SB on marked crosswalk)
	889867330	Day	Dry	Bicycle	NB Vehicle turning right from W 16 Ave struck bicyclist (NB on marked crosswalk) (at fault)
	893122610	Day	Dry	Bicycle	NB Vehicle (at fault) at W 13 Ln struck bicyclist (WB on marked crosswalk)
	889723040	Night	Dry	Bicycle	NB Vehicle (at fault) existing parking lot east of W 6 Ave struck bicyclist (WB on sidewalk)
	889697810	Night	Dry	Pedestrian	NB Vehicle on W 20 Ave struck pedestrian (WB on midblock) (at fault)
2020	893197440	Night	Wet	Pedestrian	NB Vehicle on W 16 Ave struck pedestrian (EB on midblock) (at fault)
	897962740	Day	Dry	Pedestrian	SB Vehicle turning left from W 16 Ave struck pedestrian (NB on marked crosswalk) (at fault)
	893176960	Day	Dry	Pedestrian	NB Vehicle (at fault) on W 12 Ave struck pedestrian (WB on marked crosswalk)
	893201180	Night	Dry	Bicycle	EB Vehicle approaching W 8 Ave struck bicyclist (SB on marked crosswalk) (at fault)
	897951070	Day	Dry	Pedestrian	SB Vehicle (at fault) turning right from W 6 Ave struck pedestrian (EB on marked crosswalk)
2021	898025600	Day	Dry	Bicycle	EB Vehicle (hit and run) turning right to W 17 Ct struck bicyclist (EB on marked crosswalk)

## Appendix D

# Field Review Sign-in Sheet





## Appendix E

### Concept Sketch





W 49 Street

W 18 Ct

Provide a leading pedestrian interval



**CTS**

Prepared for:  
Florida Department of Transportation, District 6

CTS ENGINEERING, INC.  
8095 NW 12th St  
SUITE 315  
Doral, FL 33126

STATE OF FLORIDA  
DEPARTMENT OF TRANSPORTATION

ROAD NO.

SR 932

COUNTY

MIAMI-DADE

Proposed Improvements (Pedestrian Assessment)  
SR 932/W 49 Street from SR 826 to W 4 Avenue

SHEET  
NO.

1

SUSERS

SDATES

STIMES

SFILES



Provide a leading pedestrian interval

W 49 Street

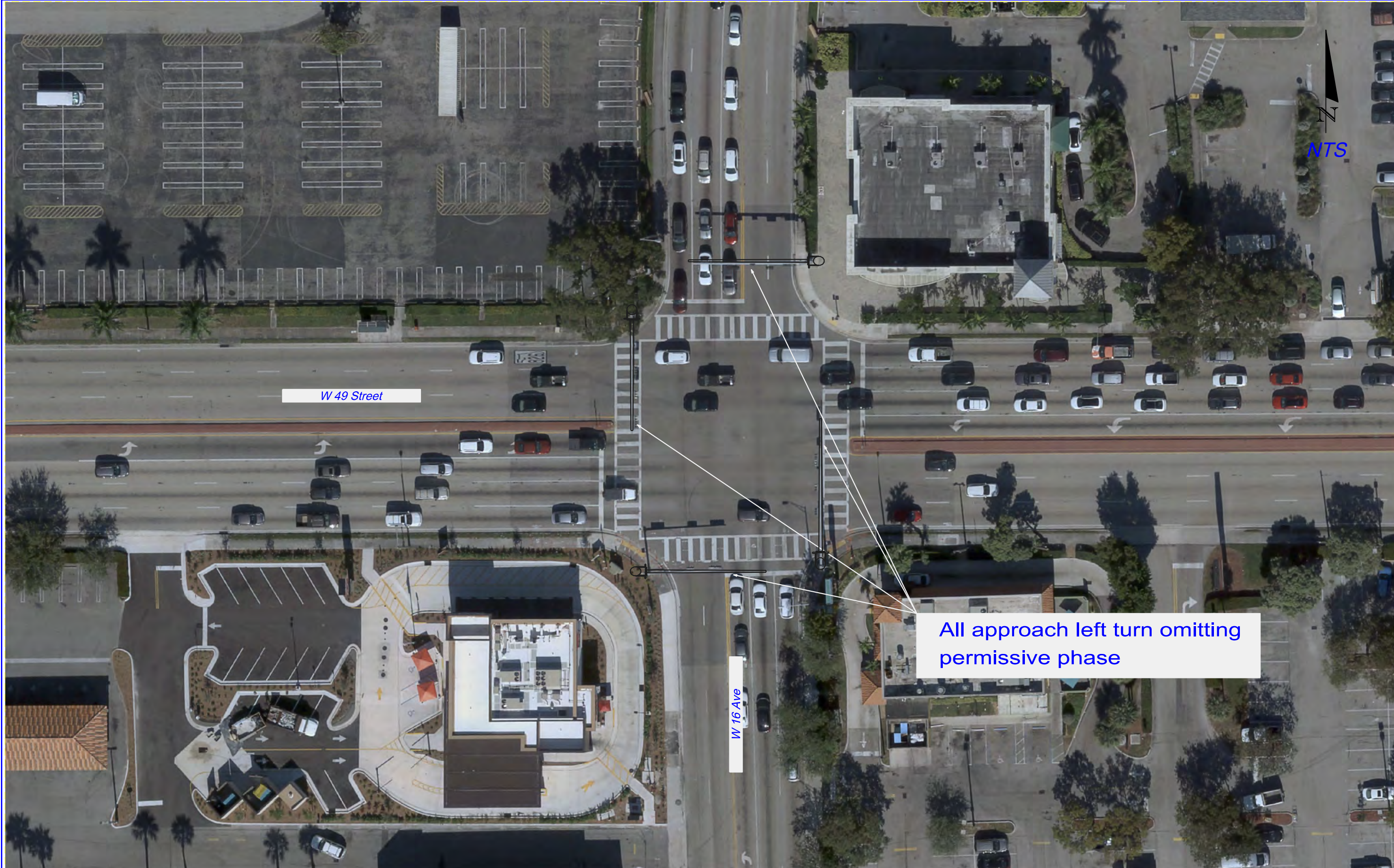
Provide a leading pedestrian interval

EB left turn omitting permissive phase

W 17 Ct

<b>CTS</b>	Prepared for: Florida Department of Transportation, District 6	CTS ENGINEERING, INC. 8095 NW 12th St SUITE 315 Doral, FL 33126	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		Proposed Improvements (Pedestrian Assessment) SR 932/W 49 Street from SR 826 to W 4 Avenue	SHEET NO.
			ROAD NO. SR 932	COUNTY MIAMI-DADE		2





W 49 Street

W 16 Ave

All approach left turn omitting permissive phase

NTS

**CTS**

Prepared for:  
Florida Department of Transportation, District 6

CTS ENGINEERING, INC.  
8095 NW 12th St  
SUITE 315  
Doral, FL 33126

STATE OF FLORIDA  
DEPARTMENT OF TRANSPORTATION

ROAD NO.

SR 932

COUNTY

MIAMI-DADE

Proposed Improvements (Pedestrian Assessment)  
SR 932/W 49 Street from SR 826 to W 4 Avenue

SHEET  
NO.

3



Provide a leading pedestrian interval

Provide a leading pedestrian interval

<b>CTS</b> Prepared for: Florida Department of Transportation, District 6	CTS ENGINEERING, INC. 8095 NW 12th St SUITE 315 Doral, FL 33126	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		Proposed Improvements (Pedestrian Assessment) SR 932/W 49 Street from SR 826 to W 4 Avenue	SHEET NO.
		ROAD NO. SR 932	COUNTY MIAMI-DADE		4



**CTS**

Prepared for:  
Florida Department of Transportation, District 6

CTS ENGINEERING, INC.  
8095 NW 12th St  
SUITE 315  
Doral, FL 33126

STATE OF FLORIDA  
DEPARTMENT OF TRANSPORTATION

ROAD NO.

SR 932

COUNTY

MIAMI-DADE

PROPOSED MID-BLOCK CROSSWALK  
SR 932/W 49 Street at W 13 Ln

SHEET  
NO.

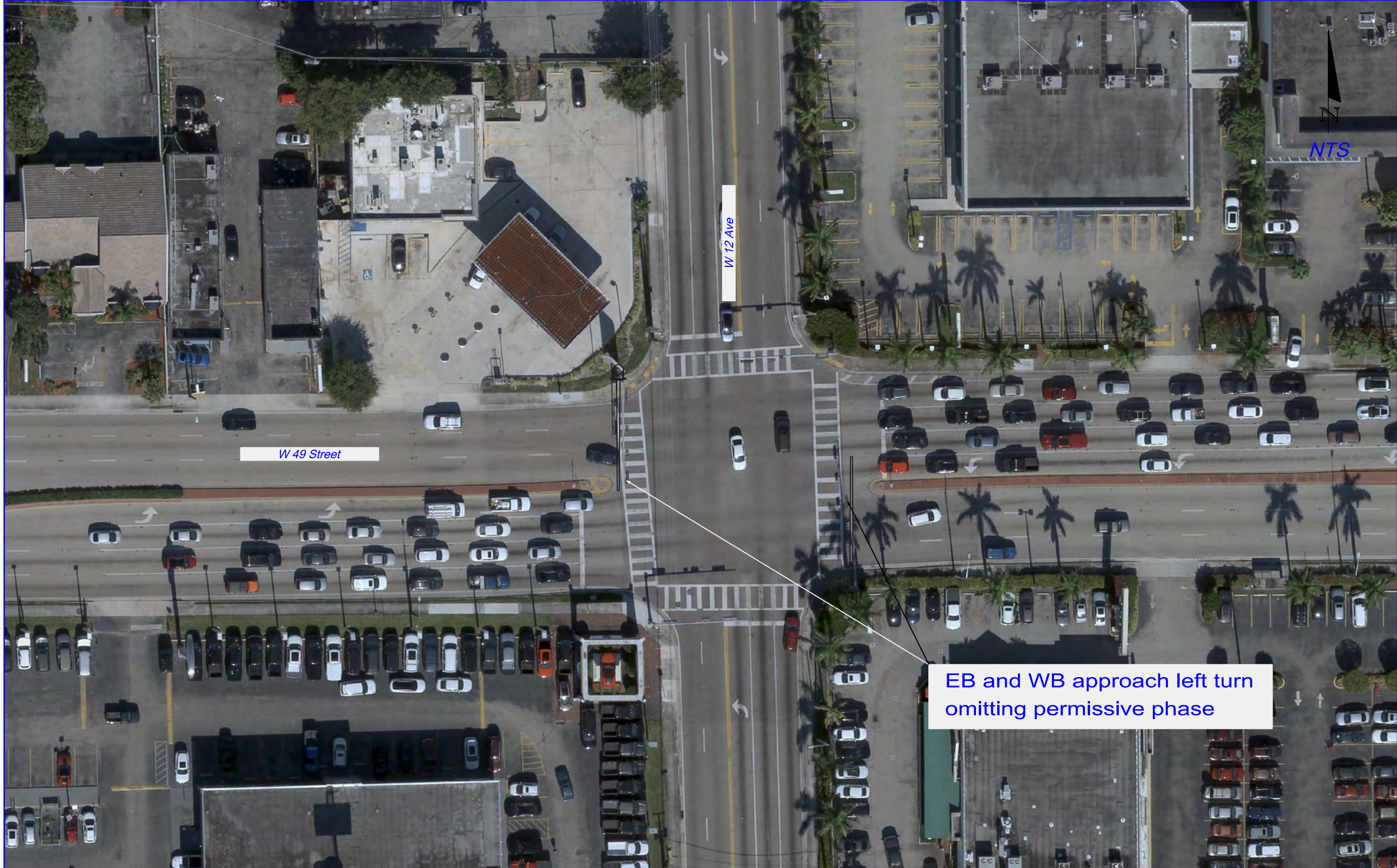
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SUSERS

SDATES

STIMES

SFILES



W 49 Street

W 12 Ave

EB and WB approach left turn  
omitting permissive phase

NTS

**CTS**

Prepared for:  
Florida Department of Transportation, District 6

CTS ENGINEERING, INC.  
8095 NW 12th St  
SUITE 315  
Doral, FL 33126

STATE OF FLORIDA  
DEPARTMENT OF TRANSPORTATION

ROAD NO.

COUNTY

SR 932

MIAMI-DADE

Proposed Improvements (Pedestrian Assessment)  
SR 932/W 49 Street from SR 826 to W 4 Avenue

SHEET  
NO.

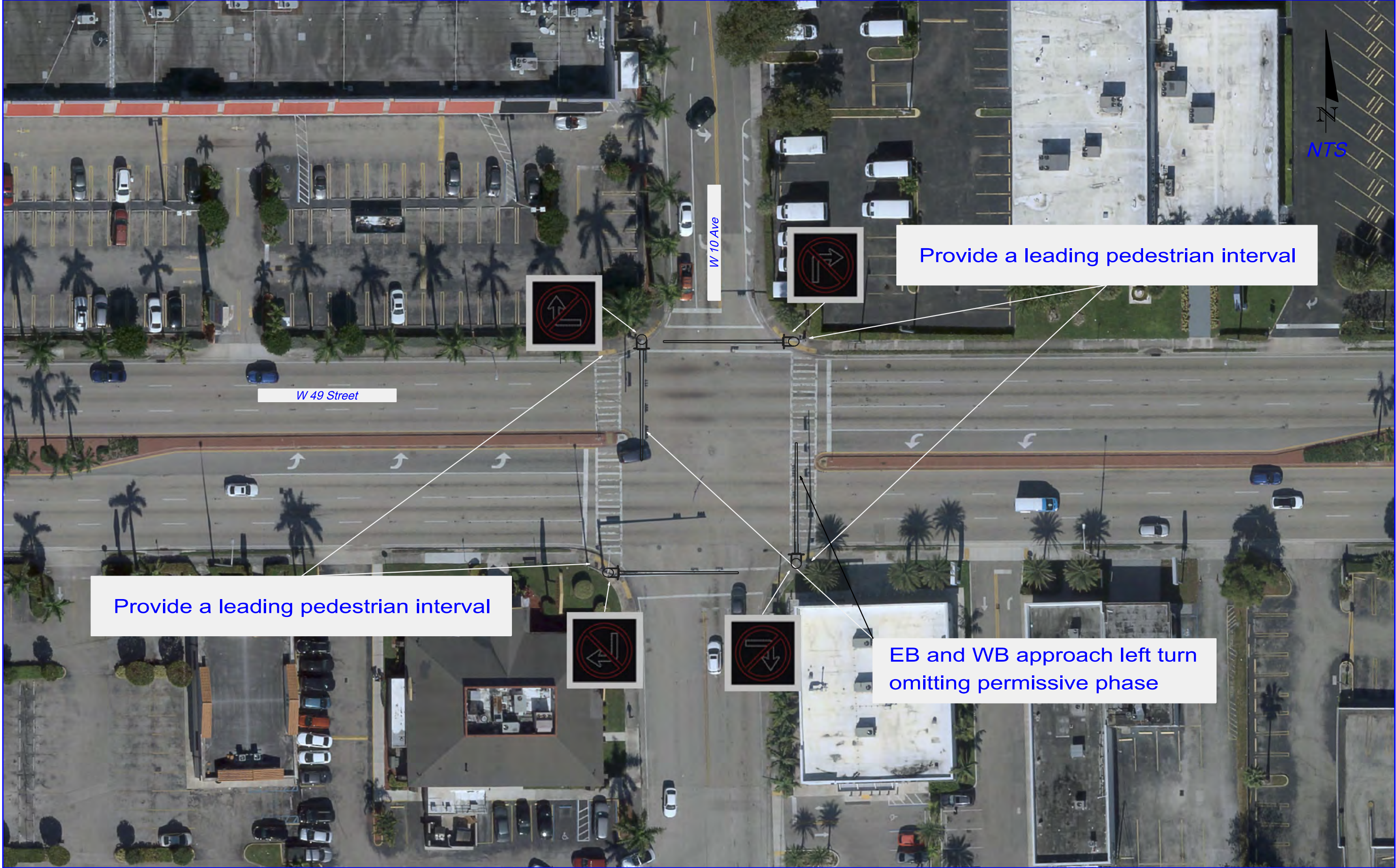
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SUSERS

SDATES

STIMES

SFILES

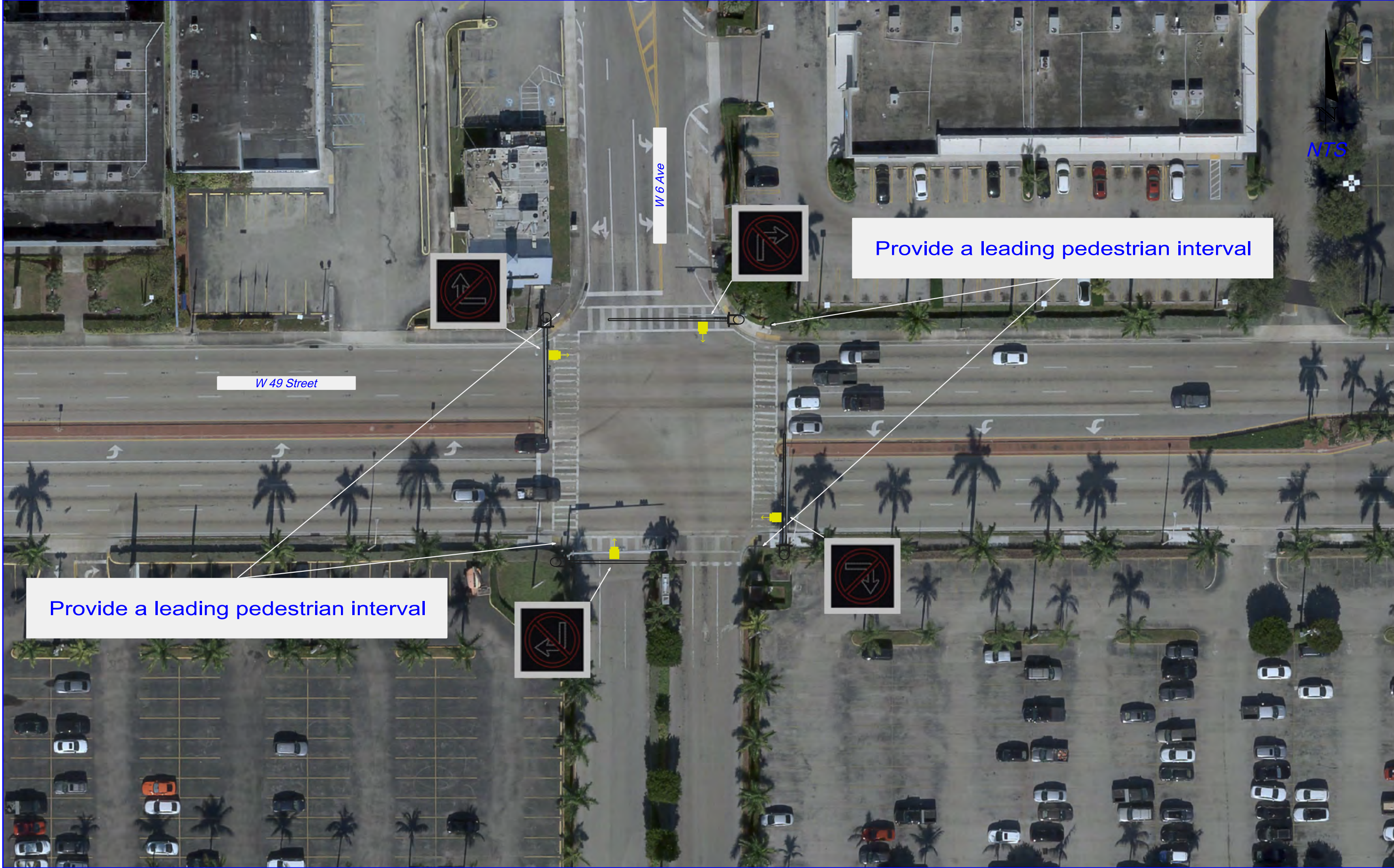


Provide a leading pedestrian interval

Provide a leading pedestrian interval

EB and WB approach left turn omitting permissive phase

<b>CTS</b>	Prepared for: Florida Department of Transportation, District 6	CTS ENGINEERING, INC. 8095 NW 12th St SUITE 315 Doral, FL 33126	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		Proposed Improvements (Pedestrian Assessment) SR 932/W 49 Street from SR 826 to W 4 Avenue	SHEET NO.
			ROAD NO. SR 932	COUNTY MIAMI-DADE		6



NTS

Provide a leading pedestrian interval

Provide a leading pedestrian interval

W 49 Street

W 6 Ave

<b>CTS</b> Prepared for: Florida Department of Transportation, District 6	CTS ENGINEERING, INC. 8095 NW 12th St SUITE 315 Doral, FL 33126	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		Proposed Improvements (Pedestrian Assessment) SR 932/W 49 Street from SR 826 to W 4 Avenue	SHEET NO. 7
		ROAD NO. SR 932	COUNTY MIAMI-DADE		



NTS

Provide a leading pedestrian interval

W 49 Street

W 500 BLK

Provide a leading pedestrian interval

CTS

Prepared for:  
Florida Department of Transportation, District 6

CTS ENGINEERING, INC.  
8095 NW 12th St  
SUITE 315  
Doral, FL 33126

STATE OF FLORIDA  
DEPARTMENT OF TRANSPORTATION

ROAD NO.

SR 932

COUNTY

MIAMI-DADE

Proposed Improvements (Pedestrian Assessment)  
SR 932/W 49 Street from SR 826 to W 4 Avenue

SHEET  
NO.

8



**CTS**

Prepared for:  
Florida Department of Transportation, District 6

CTS ENGINEERING, INC.  
8095 NW 12th St  
SUITE 315  
Doral, FL 33126

STATE OF FLORIDA  
DEPARTMENT OF TRANSPORTATION

ROAD NO.

SR 932

COUNTY

MIAMI-DADE

Conceptual Sketch - Curb Extension  
SR 932/W 49 Street at Red Road

SHEET  
NO.

1

SUSERS

SDATES

STIMES

SFILES



## Appendix F Speed Data





























## Appendix G

### Traffic Count Data



# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 18th Ct and W 49th St  
County: Miami-Dade County

File Name : 1-W 18th Ct & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Autos - Heavy Vehicles

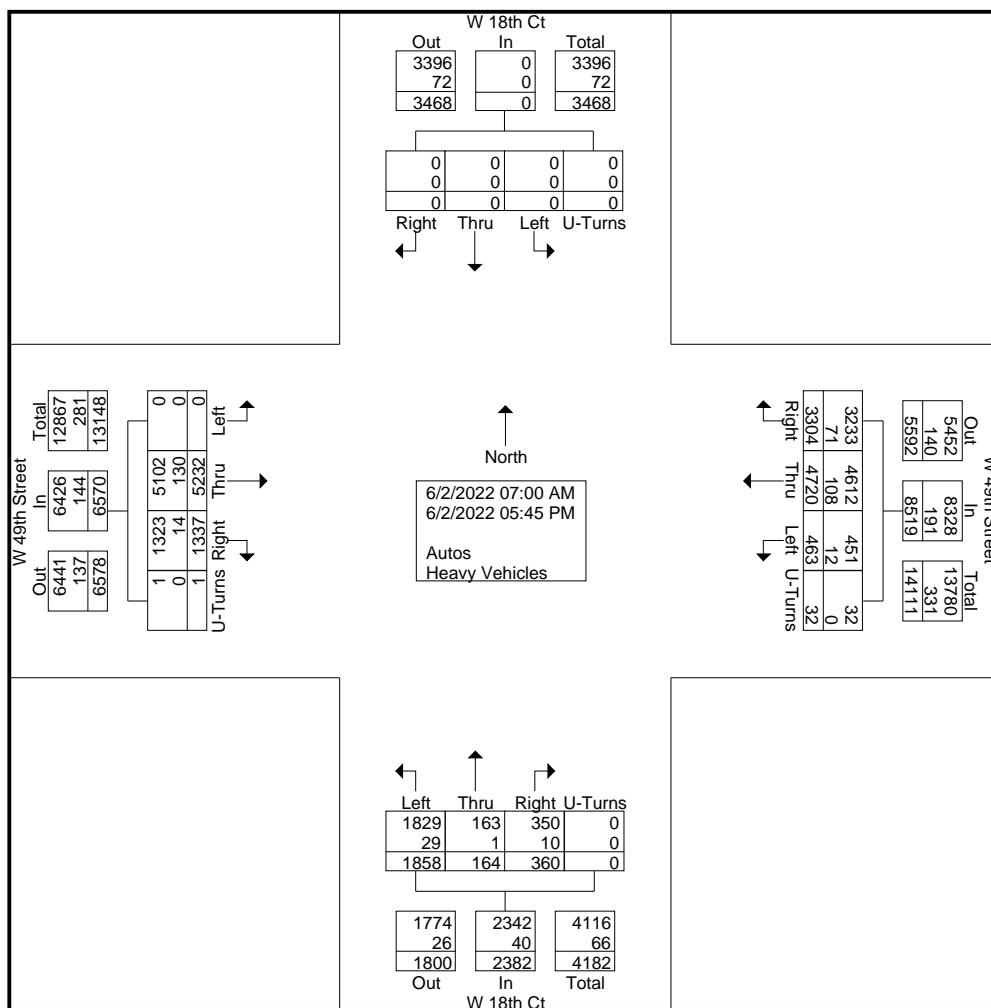
Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 18th Ct Northbound					W 18th Ct Southbound					Int. Total	
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total		
07:00 AM	0	0	209	68	277	0	24	303	296	623	0	101	8	11	120	0	0	0	0	0	0	1020
07:15 AM	0	0	251	64	315	1	23	273	317	614	0	122	17	6	145	0	0	0	0	0	0	1074
07:30 AM	0	0	248	51	299	1	22	283	313	619	0	78	10	9	97	0	0	0	0	0	0	1015
07:45 AM	0	0	339	96	435	1	36	308	241	586	0	82	12	11	105	0	0	0	0	0	0	1126
<b>Total</b>	0	0	1047	279	1326	3	105	1167	1167	2442	0	383	47	37	467	0	0	0	0	0	0	4235
08:00 AM	0	0	339	87	426	0	25	272	233	530	0	116	16	14	146	0	0	0	0	0	0	1102
08:15 AM	0	0	356	90	446	2	39	255	257	553	0	104	11	15	130	0	0	0	0	0	0	1129
08:30 AM	1	0	361	92	454	2	41	258	257	558	0	113	20	16	149	0	0	0	0	0	0	1161
08:45 AM	0	0	347	86	433	0	41	213	197	451	0	95	3	11	109	0	0	0	0	0	0	993
<b>Total</b>	1	0	1403	355	1759	4	146	998	944	2092	0	428	50	56	534	0	0	0	0	0	0	4385
*** BREAK ***																						
04:00 PM	0	0	350	101	451	4	36	319	198	557	0	106	13	30	149	0	0	0	0	0	0	1157
04:15 PM	0	0	357	88	445	2	19	321	139	481	0	151	10	45	206	0	0	0	0	0	0	1132
04:30 PM	0	0	314	77	391	4	30	304	164	502	0	146	9	32	187	0	0	0	0	0	0	1080
04:45 PM	0	0	369	88	457	2	17	343	126	488	0	134	4	34	172	0	0	0	0	0	0	1117
<b>Total</b>	0	0	1390	354	1744	12	102	1287	627	2028	0	537	36	141	714	0	0	0	0	0	0	4486
05:00 PM	0	0	322	84	406	4	26	332	152	514	0	137	11	32	180	0	0	0	0	0	0	1100
05:15 PM	0	0	337	100	437	1	32	336	138	507	0	127	5	38	170	0	0	0	0	0	0	1114
05:30 PM	0	0	375	92	467	2	18	291	155	466	0	122	8	30	160	0	0	0	0	0	0	1093
05:45 PM	0	0	358	73	431	6	34	309	121	470	0	124	7	26	157	0	0	0	0	0	0	1058
<b>Total</b>	0	0	1392	349	1741	13	110	1268	566	1957	0	510	31	126	667	0	0	0	0	0	0	4365
<b>Grand Total</b>	1	0	5232	1337	6570	32	463	4720	3304	8519	0	1858	164	360	2382	0	0	0	0	0	0	17471
<b>Apprch %</b>	0	0	79.6	20.4		0.4	5.4	55.4	38.8		0	78	6.9	15.1		0	0	0	0	0		
<b>Total %</b>	0	0	29.9	7.7	37.6	0.2	2.7	27	18.9	48.8	0	10.6	0.9	2.1	13.6	0	0	0	0	0	0	
<b>Autos</b>	1	0	5102	1323	6426	32	451	4612	3233	8328	0	1829	163	350	2342	0	0	0	0	0	0	17096
<b>% Autos</b>	100	0	97.5	99	97.8	100	97.4	97.7	97.9	97.8	0	98.4	99.4	97.2	98.3	0	0	0	0	0	0	97.9
<b>Heavy Vehicles</b>	0	0	130	14	144	0	12	108	71	191	0	29	1	10	40	0	0	0	0	0	0	375
<b>% Heavy Vehicles</b>	0	0	2.5	1	2.2	0	2.6	2.3	2.1	2.2	0	1.6	0.6	2.8	1.7	0	0	0	0	0	0	2.1

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 18th Ct and W 49th St  
County: Miami-Dade County

File Name : 1-W 18th Ct & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 2





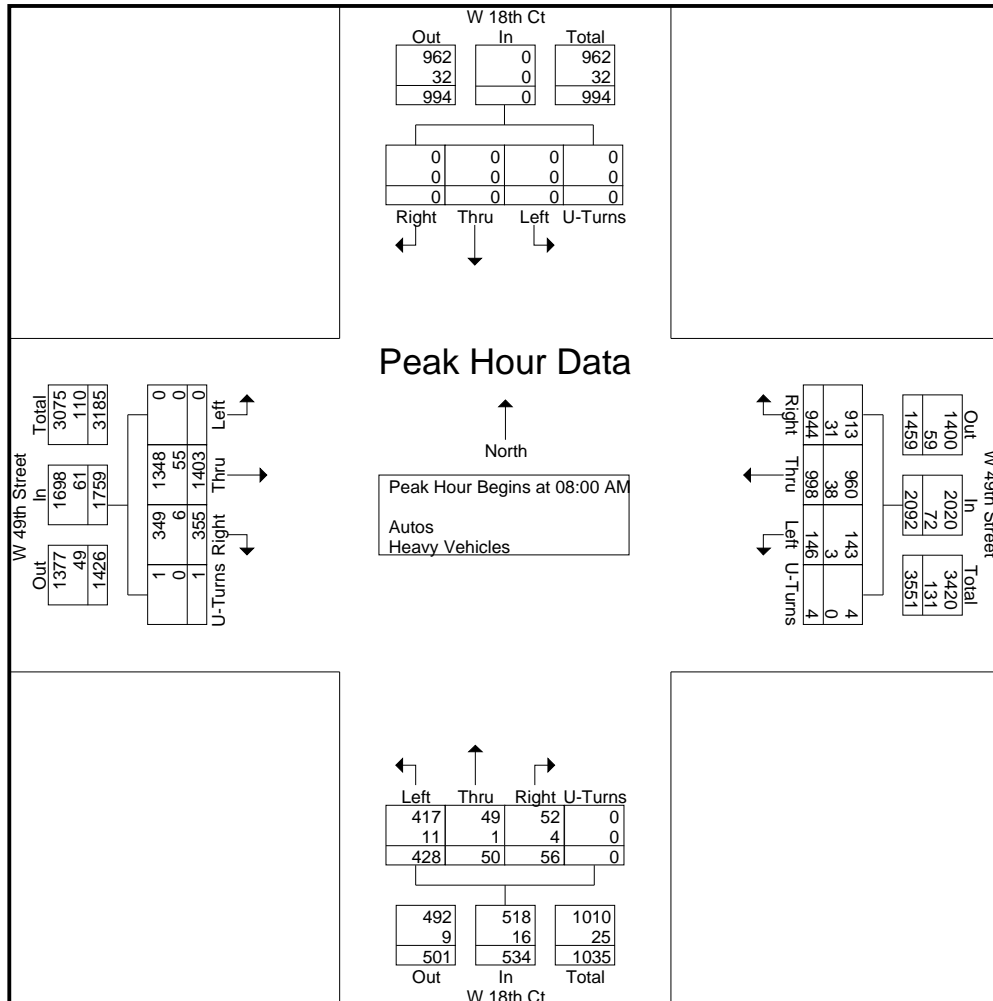
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Doral, FL, 33126

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Page No : 3

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 18th Ct Northbound					W 18th Ct Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	339	87	426	0	25	<b>272</b>	233	530	0	<b>116</b>	16	14	146	0	0	0	0	0	1102
08:15 AM	0	0	356	90	446	2	39	255	<b>257</b>	553	0	104	11	15	130	0	0	0	0	0	1129
08:30 AM	1	0	<b>361</b>	<b>92</b>	<b>454</b>	2	<b>41</b>	258	257	<b>558</b>	0	113	<b>20</b>	<b>16</b>	<b>149</b>	0	0	0	0	0	<b>1161</b>
08:45 AM	0	0	347	86	433	0	41	213	197	451	0	95	3	11	109	0	0	0	0	0	993
Total Volume	1	0	1403	355	1759	4	146	998	944	2092	0	428	50	56	534	0	0	0	0	0	4385
% App. Total	0.1	0	79.8	20.2		0.2	7	47.7	45.1		0	80.1	9.4	10.5		0	0	0	0	0	
PHF	.250	.000	.972	.965	.969	.500	.890	.917	.918	.937	.000	.922	.625	.875	.896	.000	.000	.000	.000	.000	.944
Autos	1	0	1348	349	1698	4	143	960	913	2020	0	417	49	52	518	0	0	0	0	0	4236
% Autos	100	0	96.1	98.3	96.5	100	97.9	96.2	96.7	96.6	0	97.4	98.0	92.9	97.0	0	0	0	0	0	96.6
Heavy Vehicles	0	0	55	6	61	0	3	38	31	72	0	11	1	4	16	0	0	0	0	0	149
% Heavy Vehicles	0	0	3.9	1.7	3.5	0	2.1	3.8	3.3	3.4	0	2.6	2.0	7.1	3.0	0	0	0	0	0	3.4



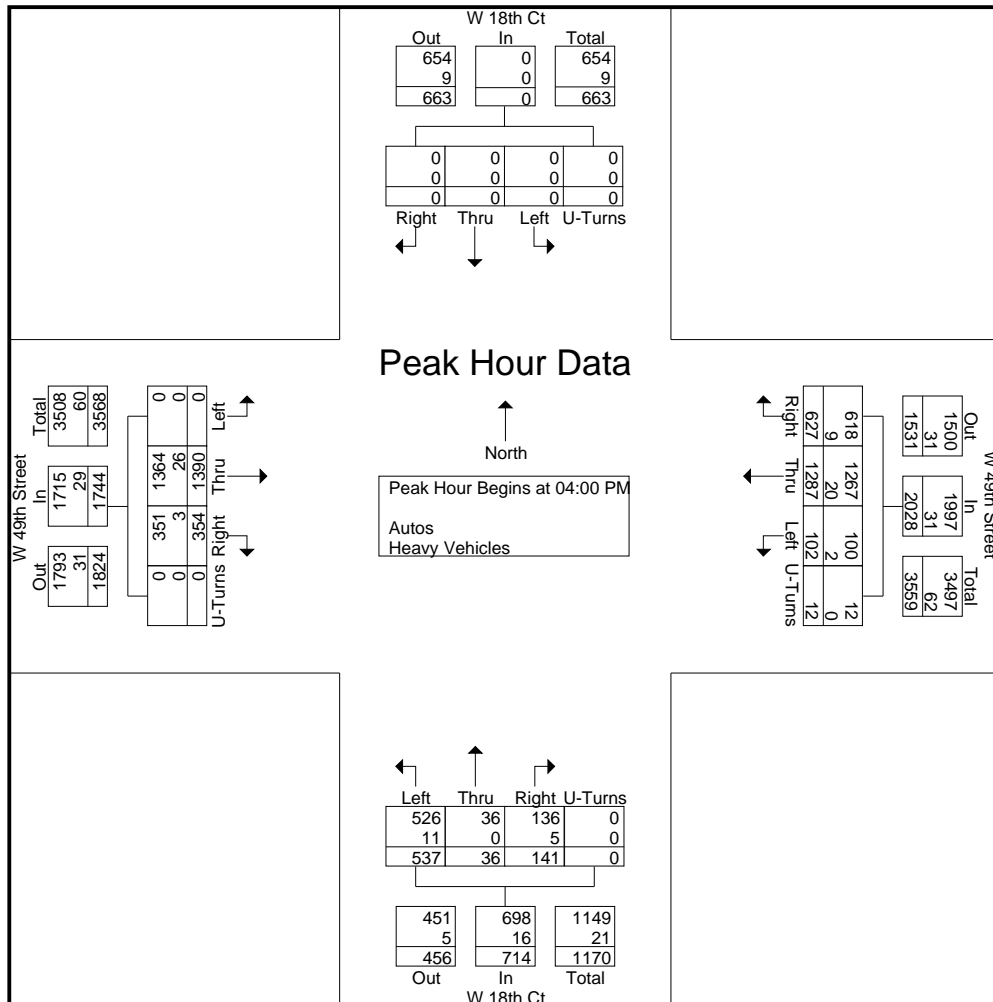
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8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 18th Ct and W 49th St  
County: Miami-Dade County

File Name : 1-W 18th Ct & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 4

Start Time	W 49th Street Eastbound				W 49th Street Westbound				W 18th Ct Northbound				W 18th Ct Southbound				Int. Total					
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns		Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:00 PM																						
04:00 PM	0	0	350	101	451	4	36	319	198	557	0	106	13	30	149	0	0	0	0	0	0	1157
04:15 PM	0	0	357	88	445	2	19	321	139	481	0	151	10	45	206	0	0	0	0	0	0	1132
04:30 PM	0	0	314	77	391	4	30	304	164	502	0	146	9	32	187	0	0	0	0	0	0	1080
04:45 PM	0	0	369	88	457	2	17	343	126	488	0	134	4	34	172	0	0	0	0	0	0	1117
Total Volume	0	0	1390	354	1744	12	102	1287	627	2028	0	537	36	141	714	0	0	0	0	0	0	4486
% App. Total	0	0	79.7	20.3		0.6	5	63.5	30.9		0	75.2	5	19.7		0	0	0	0	0	0	
PHF	.000	.000	.942	.876	.954	.750	.708	.938	.792	.910	.000	.889	.692	.783	.867	.000	.000	.000	.000	.000	.969	
Autos	0	0	1364	351	1715	12	100	1267	618	1997	0	526	36	136	698	0	0	0	0	0	0	4410
% Autos	0	0	98.1	99.2	98.3	100	98.0	98.4	98.6	98.5	0	98.0	100	96.5	97.8	0	0	0	0	0	0	98.3
Heavy Vehicles	0	0	26	3	29	0	2	20	9	31	0	11	0	5	16	0	0	0	0	0	0	76
% Heavy Vehicles	0	0	1.9	0.8	1.7	0	2.0	1.6	1.4	1.5	0	2.0	0	3.5	2.2	0	0	0	0	0	0	1.7



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File Name : 1-W 18th Ct & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Heavy Vehicles

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 18th Ct Northbound					W 18th Ct Southbound					Int. Total	
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total		
07:00 AM	0	0	4	0	4	0	0	8	4	12	0	0	0	0	0	0	0	0	0	0	0	16
07:15 AM	0	0	12	3	15	0	1	9	8	18	0	0	0	0	0	0	0	0	0	0	0	33
07:30 AM	0	0	10	0	10	0	2	3	9	14	0	3	0	1	4	0	0	0	0	0	0	28
07:45 AM	0	0	8	0	8	0	3	7	2	12	0	0	0	0	0	0	0	0	0	0	0	20
<b>Total</b>	0	0	34	3	37	0	6	27	23	56	0	3	0	1	4	0	0	0	0	0	0	97
08:00 AM	0	0	9	1	10	0	1	8	6	15	0	3	0	2	5	0	0	0	0	0	0	30
08:15 AM	0	0	17	2	19	0	2	8	9	19	0	3	1	0	4	0	0	0	0	0	0	42
08:30 AM	0	0	18	1	19	0	0	9	4	13	0	4	0	2	6	0	0	0	0	0	0	38
08:45 AM	0	0	11	2	13	0	0	13	12	25	0	1	0	0	1	0	0	0	0	0	0	39
<b>Total</b>	0	0	55	6	61	0	3	38	31	72	0	11	1	4	16	0	0	0	0	0	0	149
*** BREAK ***																						
04:00 PM	0	0	2	0	2	0	0	9	4	13	0	2	0	2	4	0	0	0	0	0	0	19
04:15 PM	0	0	7	1	8	0	0	7	0	7	0	4	0	2	6	0	0	0	0	0	0	21
04:30 PM	0	0	3	1	4	0	0	2	4	6	0	3	0	1	4	0	0	0	0	0	0	14
04:45 PM	0	0	14	1	15	0	2	2	1	5	0	2	0	0	2	0	0	0	0	0	0	22
<b>Total</b>	0	0	26	3	29	0	2	20	9	31	0	11	0	5	16	0	0	0	0	0	0	76
05:00 PM	0	0	3	0	3	0	0	8	3	11	0	2	0	0	2	0	0	0	0	0	0	16
05:15 PM	0	0	3	1	4	0	1	7	1	9	0	0	0	0	0	0	0	0	0	0	0	13
05:30 PM	0	0	7	1	8	0	0	4	3	7	0	1	0	0	1	0	0	0	0	0	0	16
05:45 PM	0	0	2	0	2	0	0	4	1	5	0	1	0	0	1	0	0	0	0	0	0	8
<b>Total</b>	0	0	15	2	17	0	1	23	8	32	0	4	0	0	4	0	0	0	0	0	0	53
<b>Grand Total</b>	0	0	130	14	144	0	12	108	71	191	0	29	1	10	40	0	0	0	0	0	0	375
<b>Apprch %</b>	0	0	90.3	9.7		0	6.3	56.5	37.2		0	72.5	2.5	25		0	0	0	0			
<b>Total %</b>	0	0	34.7	3.7	38.4	0	3.2	28.8	18.9	50.9	0	7.7	0.3	2.7	10.7	0	0	0	0			0

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File Name : 1-W 18th Ct & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Peds & Bikes

Start Time	W 49th Street Eastbound				W 49th Street Westbound				W 18th Ct Northbound				W 18th Ct Southbound				Int. Total	
	Peds		Bikes	App. Total	Peds		Bikes	App. Total	Peds		Bikes	App. Total	Peds		Bikes	App. Total		
*** BREAK ***																		
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
*** BREAK ***																		
04:30 PM	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	2	0	0	0	2	0	0	1	1	0	0	0	0	3
*** BREAK ***																		
05:15 PM	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	2	0	0	0	2	0	0	1	1	0	0	0	0	3
*** BREAK ***																		
Total	0	0	0	0	2	0	0	1	3	0	0	1	1	0	0	0	0	4
Grand Total	0	0	0	0	4	0	0	1	5	0	0	2	2	0	0	0	0	7
Apprch %	0	0	0	0	80	0	0	20		0	0	100		0	0	0	0	
Total %	0	0	0	0	57.1	0	0	14.3	71.4	0	0	28.6	28.6	0	0	0	0	

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 17th Ct and W 49th St  
County: Miami-Dade County

File Name : 2-W 17th Ct & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Autos - Heavy Vehicles

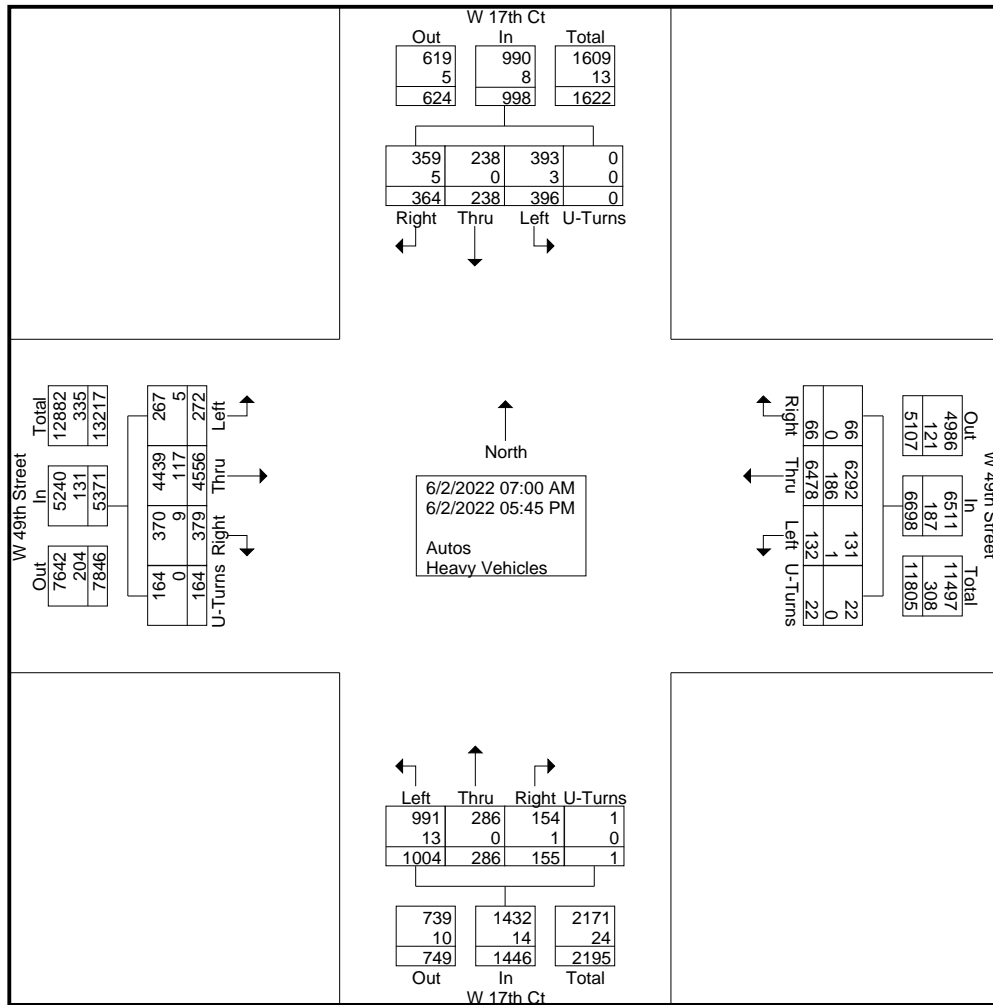
Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 17th Ct Northbound					W 17th Ct Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
07:00 AM	5	4	206	12	227	0	3	550	1	554	0	45	10	5	60	0	12	9	26	47	888
07:15 AM	8	4	216	17	245	0	4	504	0	508	0	48	8	1	57	0	16	17	25	58	868
07:30 AM	6	3	199	14	222	0	3	477	1	481	0	51	6	5	62	0	17	16	42	75	840
07:45 AM	9	4	287	19	319	1	13	487	1	502	0	52	4	6	62	0	17	16	37	70	953
<b>Total</b>	28	15	908	62	1013	1	23	2018	3	2045	0	196	28	17	241	0	62	58	130	250	3549
08:00 AM	9	2	334	16	361	1	4	438	1	444	0	43	7	3	53	0	15	19	26	60	918
08:15 AM	10	3	293	24	330	1	7	423	0	431	0	41	2	8	51	0	11	10	24	45	857
08:30 AM	9	5	314	18	346	0	5	423	1	429	0	43	2	4	49	0	13	16	20	49	873
08:45 AM	6	11	315	19	351	1	11	389	1	402	0	27	6	4	37	0	20	20	22	62	852
<b>Total</b>	34	21	1256	77	1388	3	27	1673	3	1706	0	154	17	19	190	0	59	65	92	216	3500
*** BREAK ***																					
04:00 PM	14	35	300	28	377	2	5	374	5	386	0	90	28	19	137	0	40	13	21	74	974
04:15 PM	18	34	319	25	396	1	5	345	6	357	1	77	27	15	120	0	23	16	14	53	926
04:30 PM	13	22	323	34	392	2	9	401	10	422	0	81	30	12	123	0	36	12	22	70	1007
04:45 PM	16	32	273	25	346	2	12	295	8	317	0	76	33	11	120	0	38	9	9	56	839
<b>Total</b>	61	123	1215	112	1511	7	31	1415	29	1482	1	324	118	57	500	0	137	50	66	253	3746
05:00 PM	13	17	276	28	334	6	8	375	7	396	0	98	43	25	166	0	31	20	21	72	968
05:15 PM	11	25	284	25	345	0	15	339	9	363	0	88	29	18	135	0	37	14	22	73	916
05:30 PM	7	39	319	36	401	2	15	324	7	348	0	76	23	9	108	0	26	10	15	51	908
05:45 PM	10	32	298	39	379	3	13	334	8	358	0	68	28	10	106	0	44	21	18	83	926
<b>Total</b>	41	113	1177	128	1459	11	51	1372	31	1465	0	330	123	62	515	0	138	65	76	279	3718
<b>Grand Total</b>	164	272	4556	379	5371	22	132	6478	66	6698	1	1004	286	155	1446	0	396	238	364	998	14513
<b>Apprch %</b>	3.1	5.1	84.8	7.1		0.3	2	96.7	1		0.1	69.4	19.8	10.7		0	39.7	23.8	36.5		
<b>Total %</b>	1.1	1.9	31.4	2.6	37	0.2	0.9	44.6	0.5	46.2	0	6.9	2	1.1	10	0	2.7	1.6	2.5	6.9	
<b>Autos</b>	164	267	4439	370	5240	22	131	6292	66	6511	1	991	286	154	1432	0	393	238	359	990	14173
<b>% Autos</b>	100	98.2	97.4	97.6	97.6	100	99.2	97.1	100	97.2	100	98.7	100	99.4	99	0	99.2	100	98.6	99.2	97.7
<b>Heavy Vehicles</b>	0	5	117	9	131	0	1	186	0	187	0	13	0	1	14	0	3	0	5	8	340
<b>% Heavy Vehicles</b>	0	1.8	2.6	2.4	2.4	0	0.8	2.9	0	2.8	0	1.3	0	0.6	1	0	0.8	0	1.4	0.8	2.3

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 17th Ct and W 49th St  
County: Miami-Dade County

File Name : 2-W 17th Ct & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 2



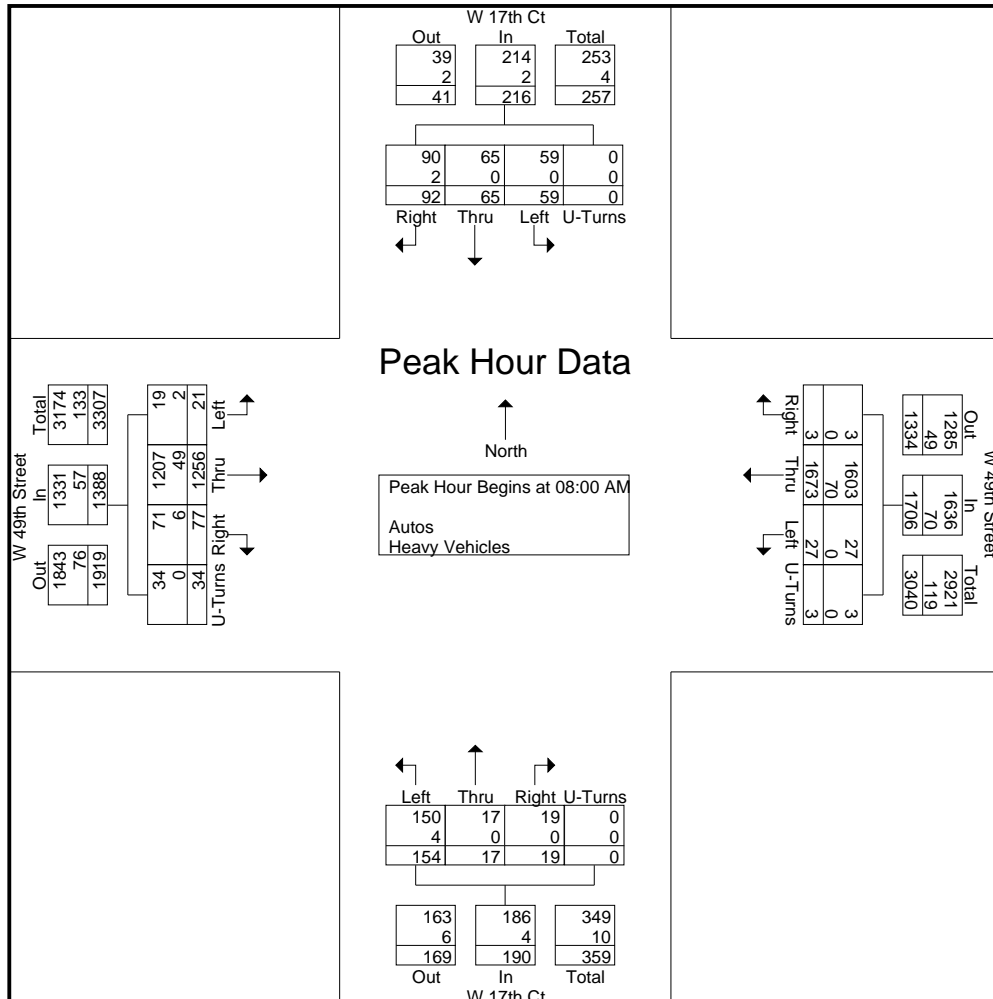
# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 17th Ct and W 49th St  
County: Miami-Dade County

File Name : 2-W 17th Ct & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 3

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 17th Ct Northbound					W 17th Ct Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	9	2	334	16	361	1	4	438	1	444	0	43	7	3	53	0	15	19	26	60	918
08:15 AM	10	3	293	24	330	1	7	423	0	431	0	41	2	8	51	0	11	10	24	45	857
08:30 AM	9	5	314	18	346	0	5	423	1	429	0	43	2	4	49	0	13	16	20	49	873
08:45 AM	6	11	315	19	351	1	11	389	1	402	0	27	6	4	37	0	20	20	22	62	852
Total Volume	34	21	1256	77	1388	3	27	1673	3	1706	0	154	17	19	190	0	59	65	92	216	3500
% App. Total	2.4	1.5	90.5	5.5		0.2	1.6	98.1	0.2		0	81.1	8.9	10		0	27.3	30.1	42.6		
PHF	.850	.477	.940	.802	.961	.750	.614	.955	.750	.961	.000	.895	.607	.594	.896	.000	.738	.813	.885	.871	.953
Autos	34	19	1207	71	1331	3	27	1603	3	1636	0	150	17	19	186	0	59	65	90	214	3367
% Autos	100	90.5	96.1	92.2	95.9	100	100	95.8	100	95.9	0	97.4	100	100	97.9	0	100	100	97.8	99.1	96.2
Heavy Vehicles	0	2	49	6	57	0	0	70	0	70	0	4	0	0	4	0	0	0	2	2	133
% Heavy Vehicles	0	9.5	3.9	7.8	4.1	0	0	4.2	0	4.1	0	2.6	0	0	2.1	0	0	0	2.2	0.9	3.8



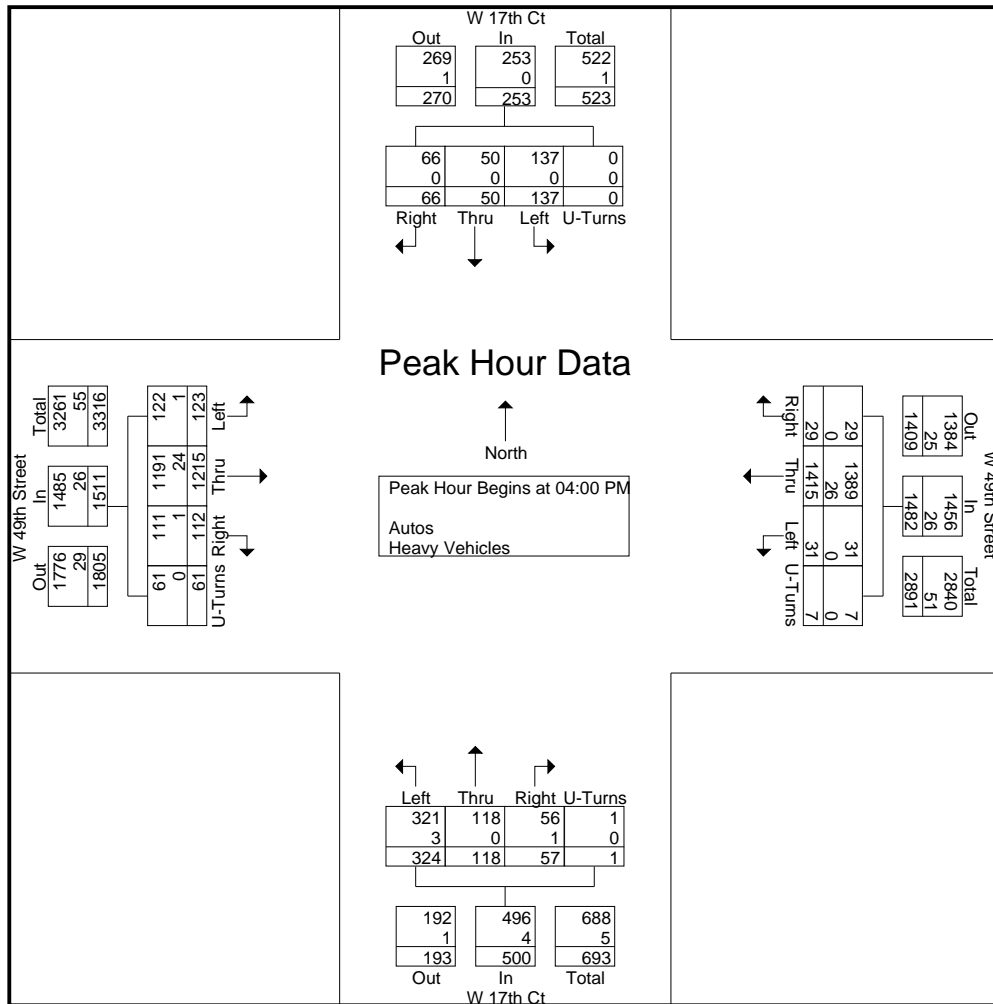
# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 17th Ct and W 49th St  
County: Miami-Dade County

File Name : 2-W 17th Ct & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 4

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 17th Ct Northbound					W 17th Ct Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	14	35	300	28	377	2	5	374	5	386	0	90	28	19	137	0	40	13	21	74	974
04:15 PM	18	34	319	25	396	1	5	345	6	357	1	77	27	15	120	0	23	16	14	53	926
04:30 PM	13	22	323	34	392	2	9	401	10	422	0	81	30	12	123	0	36	12	22	70	1007
04:45 PM	16	32	273	25	346	2	12	295	8	317	0	76	33	11	120	0	38	9	9	56	839
Total Volume	61	123	1215	112	1511	7	31	1415	29	1482	1	324	118	57	500	0	137	50	66	253	3746
% App. Total	4	8.1	80.4	7.4		0.5	2.1	95.5	2		0.2	64.8	23.6	11.4		0	54.2	19.8	26.1		
PHF	.847	.879	.940	.824	.954	.875	.646	.882	.725	.878	.250	.900	.894	.750	.912	.000	.856	.781	.750	.855	.930
Autos	61	122	1191	111	1485	7	31	1389	29	1456	1	321	118	56	496	0	137	50	66	253	3690
% Autos	100	99.2	98.0	99.1	98.3	100	100	98.2	100	98.2	100	99.1	100	98.2	99.2	0	100	100	100	100	98.5
Heavy Vehicles	0	1	24	1	26	0	0	26	0	26	0	3	0	1	4	0	0	0	0	0	56
% Heavy Vehicles	0	0.8	2.0	0.9	1.7	0	0	1.8	0	1.8	0	0.9	0	1.8	0.8	0	0	0	0	0	1.5





# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 17th Ct and W 49th St  
County: Miami-Dade County

File Name : 2-W 17th Ct & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Heavy Vehicles

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 17th Ct Northbound					W 17th Ct Southbound					Int. Total	
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total		
07:00 AM	0	0	6	0	6	0	1	16	0	17	0	0	0	0	0	0	1	0	0	1	1	24
07:15 AM	0	0	11	0	11	0	0	18	0	18	0	2	0	0	2	0	0	0	0	0	0	31
07:30 AM	0	0	9	1	10	0	0	11	0	11	0	0	0	0	0	0	1	0	1	2	2	23
07:45 AM	0	0	8	0	8	0	0	12	0	12	0	1	0	0	1	0	0	0	1	1	1	22
<b>Total</b>	0	0	34	1	35	0	1	57	0	58	0	3	0	0	3	0	2	0	2	4	4	100
08:00 AM	0	0	8	3	11	0	0	19	0	19	0	0	0	0	0	0	0	0	2	2	2	32
08:15 AM	0	0	14	1	15	0	0	15	0	15	0	2	0	0	2	0	0	0	0	0	0	32
08:30 AM	0	0	19	1	20	0	0	13	0	13	0	1	0	0	1	0	0	0	0	0	0	34
08:45 AM	0	2	8	1	11	0	0	23	0	23	0	1	0	0	1	0	0	0	0	0	0	35
<b>Total</b>	0	2	49	6	57	0	0	70	0	70	0	4	0	0	4	0	0	0	2	2	2	133
*** BREAK ***																						
04:00 PM	0	0	2	0	2	0	0	12	0	12	0	0	0	0	0	0	0	0	0	0	0	14
04:15 PM	0	1	9	0	10	0	0	8	0	8	0	1	0	0	1	0	0	0	0	0	0	19
04:30 PM	0	0	4	0	4	0	0	3	0	3	0	1	0	0	1	0	0	0	0	0	0	8
04:45 PM	0	0	9	1	10	0	0	3	0	3	0	1	0	1	2	0	0	0	0	0	0	15
<b>Total</b>	0	1	24	1	26	0	0	26	0	26	0	3	0	1	4	0	0	0	0	0	0	56
05:00 PM	0	2	3	0	5	0	0	13	0	13	0	0	0	0	0	0	0	0	0	0	0	18
05:15 PM	0	0	3	0	3	0	0	5	0	5	0	2	0	0	2	0	1	0	1	2	2	12
05:30 PM	0	0	4	0	4	0	0	7	0	7	0	1	0	0	1	0	0	0	0	0	0	12
05:45 PM	0	0	0	1	1	0	0	8	0	8	0	0	0	0	0	0	0	0	0	0	0	9
<b>Total</b>	0	2	10	1	13	0	0	33	0	33	0	3	0	0	3	0	1	0	1	2	2	51
<b>Grand Total</b>	0	5	117	9	131	0	1	186	0	187	0	13	0	1	14	0	3	0	5	8	8	340
<b>Apprch %</b>	0	3.8	89.3	6.9		0	0.5	99.5	0		0	92.9	0	7.1		0	37.5	0	62.5			
<b>Total %</b>	0	1.5	34.4	2.6	38.5	0	0.3	54.7	0	55	0	3.8	0	0.3	4.1	0	0.9	0	1.5	2.4		

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301

Doral, FL, 33126

Client: FDOT District 6  
 Project: TWO 30  
 Location: W 17th Ct and W 49th St  
 County: Miami-Dade County

File Name : 2-W 17th Ct & W 49th St  
 Site Code : 00000000  
 Start Date : 6/2/2022  
 Page No : 1

### Groups Printed- Peds & Bikes

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 17th Ct Northbound					W 17th Ct Southbound					Int. Total
	Peds		Bikes	App. Total		Peds		Bikes	App. Total		Peds		Bikes	App. Total		Peds		Bikes	App. Total		
*** BREAK ***																					
07:15 AM	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
07:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
*** BREAK ***																					
Total	1	0	0	0	1	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	3
08:00 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	1	0	0	0	1	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	3
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
*** BREAK ***																					
Total	1	0	0	0	1	2	0	0	0	2	1	0	0	0	1	1	0	0	0	1	5
*** BREAK ***																					
04:00 PM	1	0	0	0	1	4	0	0	0	4	0	0	0	1	1	0	0	0	0	0	6
04:15 PM	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
04:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
Total	4	0	0	0	4	7	0	0	0	7	0	0	0	1	1	0	0	0	0	0	12
05:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
*** BREAK ***																					
05:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Total	2	0	0	0	2	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	4
Grand Total	8	0	0	0	8	10	0	0	0	10	4	0	0	1	5	1	0	0	0	1	24
Apprch %	100	0	0	0		100	0	0	0		80	0	0	20		100	0	0	0		
Total %	33.3	0	0	0	33.3	41.7	0	0	0	41.7	16.7	0	0	4.2	20.8	4.2	0	0	0	4.2	

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301

Doral, FL, 33126

Client: FDOT District 6  
 Project: TWO 30  
 Location: W 16th Ave and W 49th St  
 County: Miami-Dade County

File Name : 3-W 16th Ave & W 49th St  
 Site Code : 00000000  
 Start Date : 6/2/2022  
 Page No : 1

### Groups Printed- Autos - Heavy Vehicles

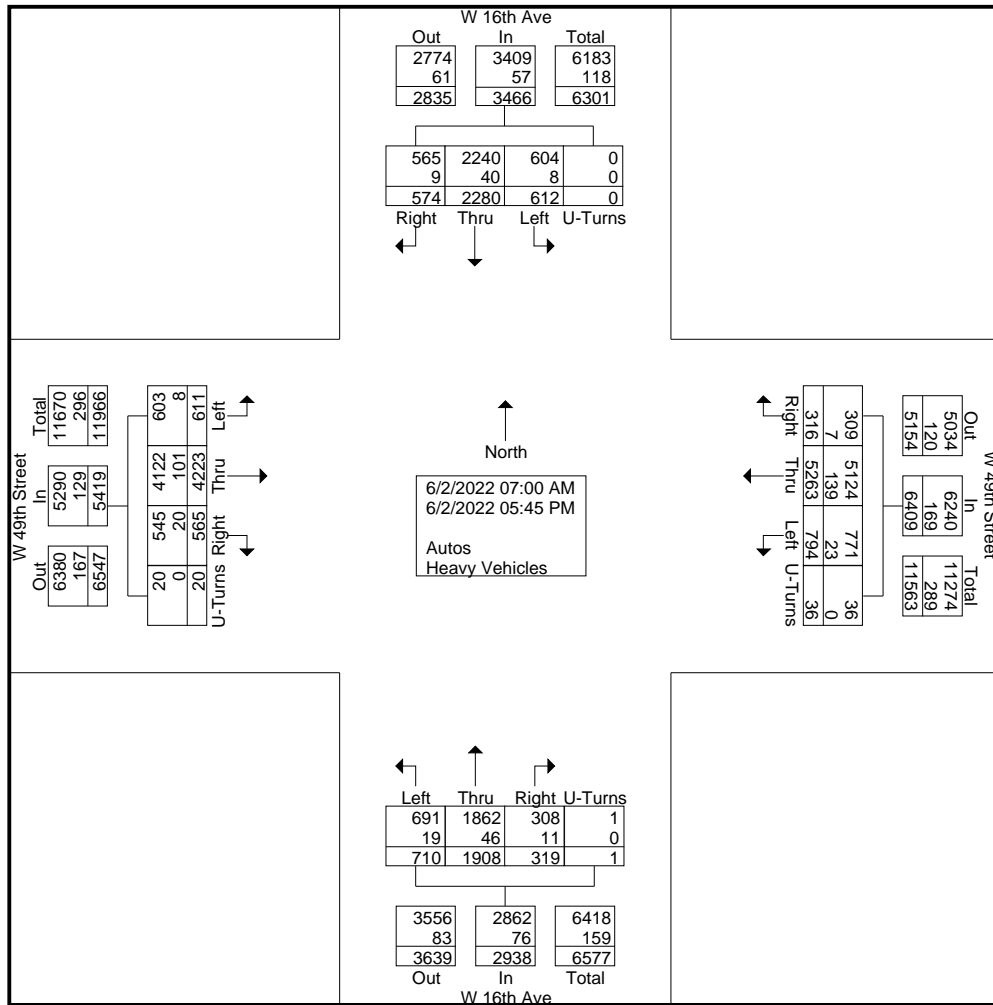
Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 16th Ave Northbound					W 16th Ave Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
07:00 AM	0	20	171	28	219	0	36	421	11	468	0	44	50	8	102	0	37	134	47	218	1007
07:15 AM	0	27	189	27	243	2	44	377	7	430	0	42	78	8	128	0	47	138	33	218	1019
07:30 AM	1	11	172	29	213	1	52	369	12	434	1	37	77	11	126	0	39	154	55	248	1021
07:45 AM	0	33	228	37	298	0	56	370	9	435	0	40	94	24	158	0	24	168	34	226	1117
<b>Total</b>	<b>1</b>	<b>91</b>	<b>760</b>	<b>121</b>	<b>973</b>	<b>3</b>	<b>188</b>	<b>1537</b>	<b>39</b>	<b>1767</b>	<b>1</b>	<b>163</b>	<b>299</b>	<b>51</b>	<b>514</b>	<b>0</b>	<b>147</b>	<b>594</b>	<b>169</b>	<b>910</b>	<b>4164</b>
08:00 AM	0	32	287	47	366	1	52	320	12	385	0	35	100	16	151	0	34	147	32	213	1115
08:15 AM	1	17	281	40	339	0	40	298	13	351	0	47	88	22	157	0	38	165	46	249	1096
08:30 AM	0	37	273	31	341	1	58	312	16	387	0	45	90	15	150	0	40	158	37	235	1113
08:45 AM	0	30	297	51	378	2	30	285	20	337	0	33	91	26	150	0	36	128	24	188	1053
<b>Total</b>	<b>1</b>	<b>116</b>	<b>1138</b>	<b>169</b>	<b>1424</b>	<b>4</b>	<b>180</b>	<b>1215</b>	<b>61</b>	<b>1460</b>	<b>0</b>	<b>160</b>	<b>369</b>	<b>79</b>	<b>608</b>	<b>0</b>	<b>148</b>	<b>598</b>	<b>139</b>	<b>885</b>	<b>4377</b>
*** BREAK ***																					
04:00 PM	2	51	326	41	420	1	63	356	40	460	0	52	155	32	239	0	48	156	35	239	1358
04:15 PM	2	53	286	28	369	2	44	261	26	333	0	44	157	17	218	0	27	103	34	164	1084
04:30 PM	2	58	298	42	400	4	56	360	20	440	0	51	155	23	229	0	37	142	24	203	1272
04:45 PM	4	52	283	27	366	3	53	306	30	392	0	39	139	21	199	0	42	124	39	205	1162
<b>Total</b>	<b>10</b>	<b>214</b>	<b>1193</b>	<b>138</b>	<b>1555</b>	<b>10</b>	<b>216</b>	<b>1283</b>	<b>116</b>	<b>1625</b>	<b>0</b>	<b>186</b>	<b>606</b>	<b>93</b>	<b>885</b>	<b>0</b>	<b>154</b>	<b>525</b>	<b>132</b>	<b>811</b>	<b>4876</b>
05:00 PM	1	57	239	27	324	3	56	295	17	371	0	56	149	32	237	0	31	134	29	194	1126
05:15 PM	3	44	293	36	376	3	47	381	27	458	0	52	167	14	233	0	46	153	29	228	1295
05:30 PM	3	46	299	39	387	5	51	270	27	353	0	52	163	26	241	0	41	126	37	204	1185
05:45 PM	1	43	301	35	380	8	56	282	29	375	0	41	155	24	220	0	45	150	39	234	1209
<b>Total</b>	<b>8</b>	<b>190</b>	<b>1132</b>	<b>137</b>	<b>1467</b>	<b>19</b>	<b>210</b>	<b>1228</b>	<b>100</b>	<b>1557</b>	<b>0</b>	<b>201</b>	<b>634</b>	<b>96</b>	<b>931</b>	<b>0</b>	<b>163</b>	<b>563</b>	<b>134</b>	<b>860</b>	<b>4815</b>
<b>Grand Total</b>	<b>20</b>	<b>611</b>	<b>4223</b>	<b>565</b>	<b>5419</b>	<b>36</b>	<b>794</b>	<b>5263</b>	<b>316</b>	<b>6409</b>	<b>1</b>	<b>710</b>	<b>1908</b>	<b>319</b>	<b>2938</b>	<b>0</b>	<b>612</b>	<b>2280</b>	<b>574</b>	<b>3466</b>	<b>18232</b>
<b>Apprch %</b>	<b>0.4</b>	<b>11.3</b>	<b>77.9</b>	<b>10.4</b>		<b>0.6</b>	<b>12.4</b>	<b>82.1</b>	<b>4.9</b>		<b>0</b>	<b>24.2</b>	<b>64.9</b>	<b>10.9</b>		<b>0</b>	<b>17.7</b>	<b>65.8</b>	<b>16.6</b>		
<b>Total %</b>	<b>0.1</b>	<b>3.4</b>	<b>23.2</b>	<b>3.1</b>	<b>29.7</b>	<b>0.2</b>	<b>4.4</b>	<b>28.9</b>	<b>1.7</b>	<b>35.2</b>	<b>0</b>	<b>3.9</b>	<b>10.5</b>	<b>1.7</b>	<b>16.1</b>	<b>0</b>	<b>3.4</b>	<b>12.5</b>	<b>3.1</b>	<b>19</b>	
<b>Autos</b>	<b>20</b>	<b>603</b>	<b>4122</b>	<b>545</b>	<b>5290</b>	<b>36</b>	<b>771</b>	<b>5124</b>	<b>309</b>	<b>6240</b>	<b>1</b>	<b>691</b>	<b>1862</b>	<b>308</b>	<b>2862</b>	<b>0</b>	<b>604</b>	<b>2240</b>	<b>565</b>	<b>3409</b>	<b>17801</b>
<b>% Autos</b>	<b>100</b>	<b>98.7</b>	<b>97.6</b>	<b>96.5</b>	<b>97.6</b>	<b>100</b>	<b>97.1</b>	<b>97.4</b>	<b>97.8</b>	<b>97.4</b>	<b>100</b>	<b>97.3</b>	<b>97.6</b>	<b>96.6</b>	<b>97.4</b>	<b>0</b>	<b>98.7</b>	<b>98.2</b>	<b>98.4</b>	<b>98.4</b>	<b>97.6</b>
<b>Heavy Vehicles</b>	<b>0</b>	<b>8</b>	<b>101</b>	<b>20</b>	<b>129</b>	<b>0</b>	<b>23</b>	<b>139</b>	<b>7</b>	<b>169</b>	<b>0</b>	<b>19</b>	<b>46</b>	<b>11</b>	<b>76</b>	<b>0</b>	<b>8</b>	<b>40</b>	<b>9</b>	<b>57</b>	<b>431</b>
<b>% Heavy Vehicles</b>	<b>0</b>	<b>1.3</b>	<b>2.4</b>	<b>3.5</b>	<b>2.4</b>	<b>0</b>	<b>2.9</b>	<b>2.6</b>	<b>2.2</b>	<b>2.6</b>	<b>0</b>	<b>2.7</b>	<b>2.4</b>	<b>3.4</b>	<b>2.6</b>	<b>0</b>	<b>1.3</b>	<b>1.8</b>	<b>1.6</b>	<b>1.6</b>	<b>2.4</b>

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 16th Ave and W 49th St  
County: Miami-Dade County

File Name : 3-W 16th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 2



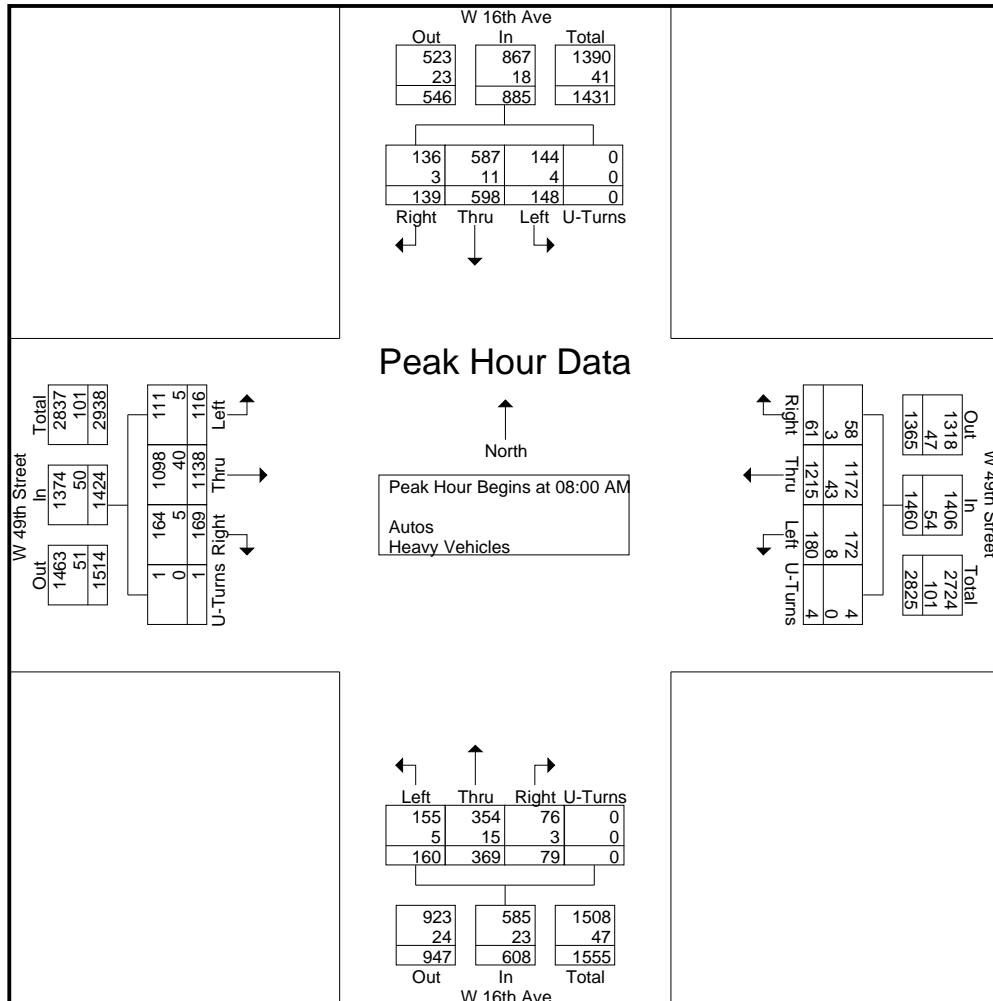
# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 16th Ave and W 49th St  
County: Miami-Dade County

File Name : 3-W 16th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 3

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 16th Ave Northbound					W 16th Ave Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	32	287	47	366	1	52	<b>320</b>	12	385	0	35	<b>100</b>	16	151	0	34	147	32	213	<b>1115</b>
08:15 AM	1	17	281	40	339	0	40	298	13	351	0	<b>47</b>	88	22	<b>157</b>	0	38	<b>165</b>	<b>46</b>	<b>249</b>	1096
08:30 AM	0	<b>37</b>	273	31	341	1	<b>58</b>	312	16	<b>387</b>	0	45	90	15	150	0	<b>40</b>	158	37	235	1113
08:45 AM	0	30	<b>297</b>	<b>51</b>	<b>378</b>	<b>2</b>	30	285	<b>20</b>	337	0	33	91	<b>26</b>	150	0	36	128	24	188	1053
Total Volume	1	116	1138	169	1424	4	180	1215	61	1460	0	160	369	79	608	0	148	598	139	885	4377
% App. Total	0.1	8.1	79.9	11.9		0.3	12.3	83.2	4.2		0	26.3	60.7	13		0	16.7	67.6	15.7		
PHF	.250	.784	.958	.828	.942	.500	.776	.949	.763	.943	.000	.851	.923	.760	.968	.000	.925	.906	.755	.889	.981
Autos	1	111	1098	164	1374	4	172	1172	58	1406	0	155	354	76	585	0	144	587	136	867	4232
% Autos	100	95.7	96.5	97.0	96.5	100	95.6	96.5	95.1	96.3	0	96.9	95.9	96.2	96.2	0	97.3	98.2	97.8	98.0	96.7
Heavy Vehicles	0	5	40	5	50	0	8	43	3	54	0	5	15	3	23	0	4	11	3	18	145
% Heavy Vehicles	0	4.3	3.5	3.0	3.5	0	4.4	3.5	4.9	3.7	0	3.1	4.1	3.8	3.8	0	2.7	1.8	2.2	2.0	3.3



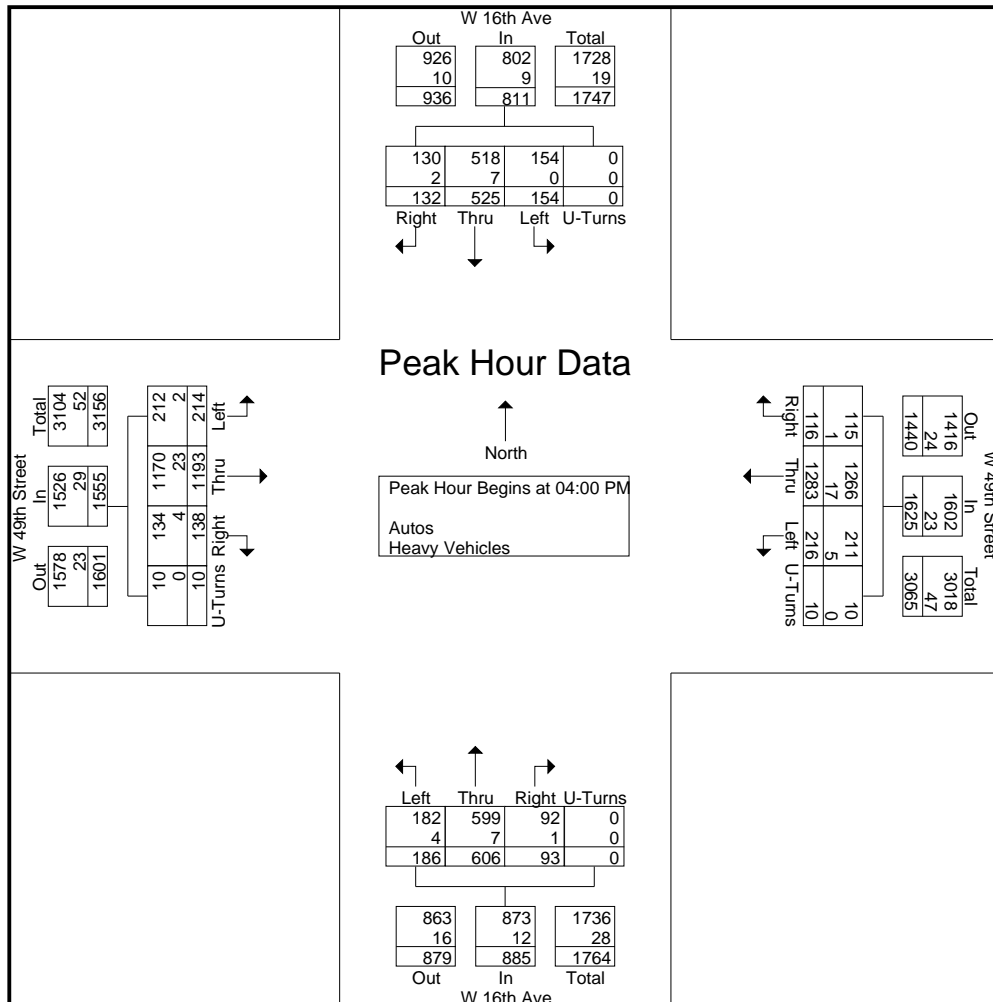
# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 16th Ave and W 49th St  
County: Miami-Dade County

File Name : 3-W 16th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 4

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 16th Ave Northbound					W 16th Ave Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	2	51	<b>326</b>	41	<b>420</b>	1	<b>63</b>	356	<b>40</b>	<b>460</b>	0	<b>52</b>	155	<b>32</b>	<b>239</b>	0	<b>48</b>	<b>156</b>	35	<b>239</b>	<b>1358</b>
04:15 PM	2	53	286	28	369	2	44	261	26	333	0	44	<b>157</b>	17	218	0	27	103	34	164	1084
04:30 PM	2	<b>58</b>	298	<b>42</b>	<b>400</b>	<b>4</b>	56	<b>360</b>	20	<b>440</b>	0	51	155	23	229	0	37	142	24	203	1272
04:45 PM	<b>4</b>	52	283	27	<b>366</b>	3	53	306	30	<b>392</b>	0	39	139	21	199	0	42	124	<b>39</b>	<b>205</b>	<b>1162</b>
Total Volume	10	214	1193	138	1555	10	216	1283	116	1625	0	186	606	93	885	0	154	525	132	811	4876
% App. Total	0.6	13.8	76.7	8.9		0.6	13.3	79	7.1		0	21	68.5	10.5		0	19	64.7	16.3		
PHF	.625	.922	.915	.821	.926	.625	.857	.891	.725	.883	.000	.894	.965	.727	.926	.000	.802	.841	.846	.848	.898
Autos	10	212	1170	134	1526	10	211	1266	115	1602	0	182	599	92	873	0	154	518	130	802	4803
% Autos	100	99.1	98.1	97.1	98.1	100	97.7	98.7	99.1	98.6	0	97.8	98.8	98.9	98.6	0	100	98.7	98.5	98.9	98.5
Heavy Vehicles	0	2	23	4	29	0	5	17	1	23	0	4	7	1	12	0	0	7	2	9	73
% Heavy Vehicles	0	0.9	1.9	2.9	1.9	0	2.3	1.3	0.9	1.4	0	2.2	1.2	1.1	1.4	0	0	1.3	1.5	1.1	1.5



# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 16th Ave and W 49th St  
County: Miami-Dade County

File Name : 3-W 16th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Heavy Vehicles

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 16th Ave Northbound					W 16th Ave Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
07:00 AM	0	0	4	1	5	0	1	13	1	15	0	0	4	2	6	0	1	0	0	1	27
07:15 AM	0	1	6	3	10	0	2	15	0	17	0	2	2	1	5	0	2	4	1	7	39
07:30 AM	0	0	9	2	11	0	2	10	2	14	0	2	2	1	5	0	0	5	1	6	36
07:45 AM	0	0	5	2	7	0	3	10	0	13	0	2	4	2	8	0	1	7	0	8	36
<b>Total</b>	0	1	24	8	33	0	8	48	3	59	0	6	12	6	24	0	4	16	2	22	138
08:00 AM	0	0	9	0	9	0	2	9	0	11	0	3	2	1	6	0	0	1	1	2	28
08:15 AM	0	1	12	1	14	0	1	11	1	13	0	0	8	0	8	0	1	4	0	5	40
08:30 AM	0	3	11	3	17	0	1	6	2	9	0	2	4	1	7	0	3	1	1	5	38
08:45 AM	0	1	8	1	10	0	4	17	0	21	0	0	1	1	2	0	0	5	1	6	39
<b>Total</b>	0	5	40	5	50	0	8	43	3	54	0	5	15	3	23	0	4	11	3	18	145
*** BREAK ***																					
04:00 PM	0	0	6	0	6	0	1	4	1	6	0	3	1	0	4	0	0	4	1	5	21
04:15 PM	0	1	6	1	8	0	0	7	0	7	0	0	3	1	4	0	0	1	1	2	21
04:30 PM	0	0	5	1	6	0	1	4	0	5	0	1	1	0	2	0	0	1	0	1	14
04:45 PM	0	1	6	2	9	0	3	2	0	5	0	0	2	0	2	0	0	1	0	1	17
<b>Total</b>	0	2	23	4	29	0	5	17	1	23	0	4	7	1	12	0	0	7	2	9	73
05:00 PM	0	0	3	1	4	0	0	15	0	15	0	1	4	0	5	0	0	0	0	0	24
05:15 PM	0	0	2	1	3	0	2	5	0	7	0	0	4	0	4	0	0	1	0	1	15
05:30 PM	0	0	6	1	7	0	0	7	0	7	0	0	3	1	4	0	0	2	2	4	22
05:45 PM	0	0	3	0	3	0	0	4	0	4	0	3	1	0	4	0	0	3	0	3	14
<b>Total</b>	0	0	14	3	17	0	2	31	0	33	0	4	12	1	17	0	0	6	2	8	75
<b>Grand Total</b>	0	8	101	20	129	0	23	139	7	169	0	19	46	11	76	0	8	40	9	57	431
<b>Apprch %</b>	0	6.2	78.3	15.5		0	13.6	82.2	4.1		0	25	60.5	14.5		0	14	70.2	15.8		
<b>Total %</b>	0	1.9	23.4	4.6	29.9	0	5.3	32.3	1.6	39.2	0	4.4	10.7	2.6	17.6	0	1.9	9.3	2.1	13.2	

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 16th Ave and W 49th St  
County: Miami-Dade County

File Name : 3-W 16th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Peds & Bikes

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 16th Ave Northbound					W 16th Ave Southbound					Int. Total	
	Peds			Bikes	App. Total	Peds			Bikes	App. Total	Peds			Bikes	App. Total	Peds			Bikes	App. Total		
07:00 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:15 AM	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	6
07:30 AM	2	0	0	1	3	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	4
07:45 AM	1	0	0	1	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3
<b>Total</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>11</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>14</b>
08:00 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																						
08:30 AM	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
08:45 AM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	3
<b>Total</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>6</b>
*** BREAK ***																						
04:00 PM	7	0	0	1	8	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	11
*** BREAK ***																						
04:30 PM	1	0	0	2	3	1	0	0	0	1	2	0	0	0	2	0	0	0	0	0	0	6
04:45 PM	3	0	0	0	3	2	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	6
<b>Total</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>14</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>7</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>23</b>
05:00 PM	2	0	0	0	2	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	4
05:15 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	2	0	0	2	4	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	5
05:45 PM	1	0	0	1	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3
<b>Total</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>8</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>
Grand Total	26	0	0	10	36	10	0	0	5	15	3	0	0	0	3	2	0	0	0	2	2	56
Apprch %	72.2	0	0	27.8		66.7	0	0	33.3		100	0	0	0		100	0	0	0			
Total %	46.4	0	0	17.9	64.3	17.9	0	0	8.9	26.8	5.4	0	0	0	5.4	3.6	0	0	0	3.6		



# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 14th Ln and W 49th St  
County: Miami-Dade County

File Name : 4-W 14th Ln & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Autos - Heavy Vehicles

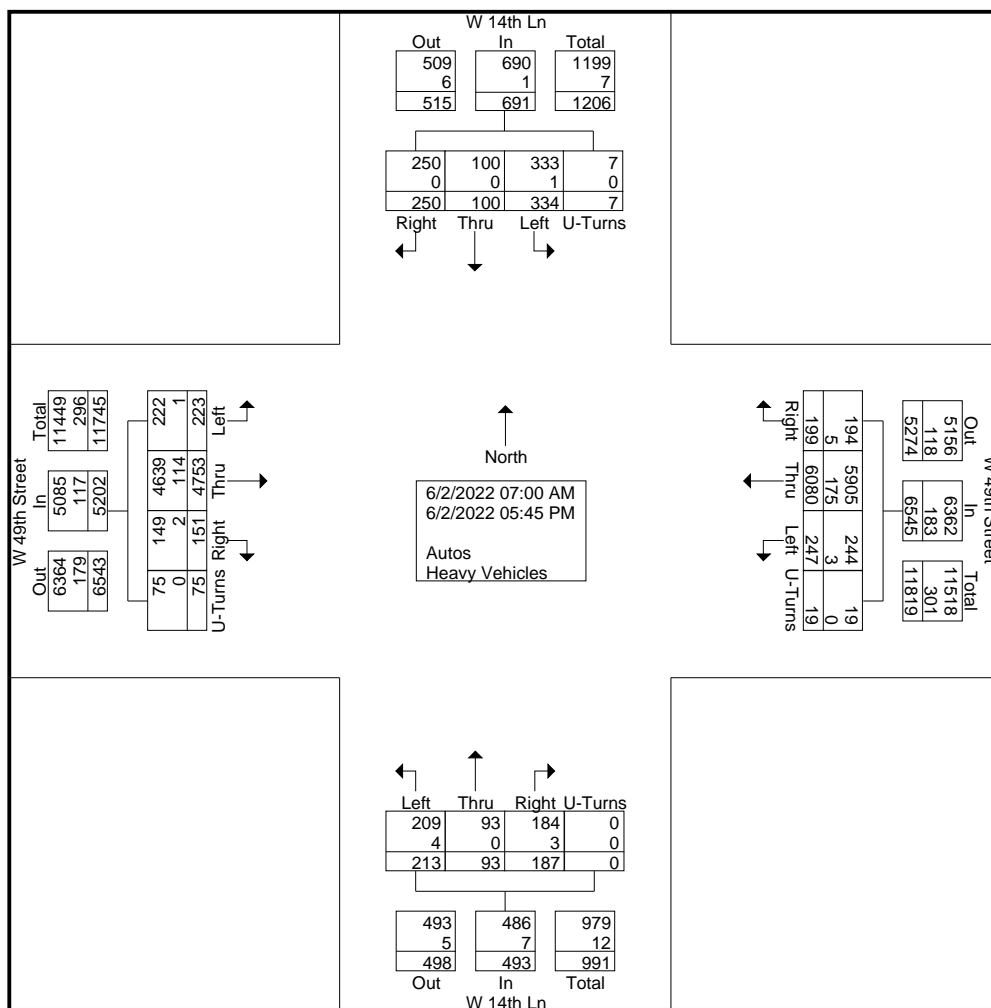
Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 14th Ln Northbound					W 14th Ln Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
07:00 AM	1	9	193	7	210	0	6	465	12	483	0	0	0	1	1	0	8	1	11	20	714
07:15 AM	1	17	452	4	474	1	9	423	9	442	0	8	1	4	13	0	13	0	18	31	960
07:30 AM	0	3	45	1	49	1	9	456	7	473	0	1	0	0	1	0	14	2	25	41	564
07:45 AM	0	8	209	5	222	0	9	407	6	422	0	5	2	4	11	0	14	7	11	32	687
<b>Total</b>	<b>2</b>	<b>37</b>	<b>899</b>	<b>17</b>	<b>955</b>	<b>2</b>	<b>33</b>	<b>1751</b>	<b>34</b>	<b>1820</b>	<b>0</b>	<b>14</b>	<b>3</b>	<b>9</b>	<b>26</b>	<b>0</b>	<b>49</b>	<b>10</b>	<b>65</b>	<b>124</b>	<b>2925</b>
08:00 AM	2	12	314	10	338	0	11	360	8	379	0	8	3	4	15	1	16	2	10	29	761
08:15 AM	4	24	299	10	337	0	13	362	11	386	0	5	2	4	11	0	21	4	12	37	771
08:30 AM	5	17	308	7	337	2	15	408	11	436	0	5	2	3	10	0	12	5	9	26	809
08:45 AM	14	24	306	12	356	0	14	334	7	355	0	6	1	3	10	1	20	3	10	34	755
<b>Total</b>	<b>25</b>	<b>77</b>	<b>1227</b>	<b>39</b>	<b>1368</b>	<b>2</b>	<b>53</b>	<b>1464</b>	<b>37</b>	<b>1556</b>	<b>0</b>	<b>24</b>	<b>8</b>	<b>14</b>	<b>46</b>	<b>2</b>	<b>69</b>	<b>14</b>	<b>41</b>	<b>126</b>	<b>3096</b>
*** BREAK ***																					
04:00 PM	8	12	341	19	380	2	24	396	16	438	0	26	16	23	65	0	33	9	13	55	938
04:15 PM	10	17	365	10	402	3	27	353	14	397	0	29	8	23	60	0	38	8	15	61	920
04:30 PM	11	15	264	10	300	2	22	332	11	367	0	14	12	17	43	2	16	11	21	50	760
04:45 PM	2	17	393	10	422	3	20	362	17	402	0	23	13	24	60	0	26	9	21	56	940
<b>Total</b>	<b>31</b>	<b>61</b>	<b>1363</b>	<b>49</b>	<b>1504</b>	<b>10</b>	<b>93</b>	<b>1443</b>	<b>58</b>	<b>1604</b>	<b>0</b>	<b>92</b>	<b>49</b>	<b>87</b>	<b>228</b>	<b>2</b>	<b>113</b>	<b>37</b>	<b>70</b>	<b>222</b>	<b>3558</b>
05:00 PM	2	9	269	14	294	3	19	370	12	404	0	21	8	23	52	1	25	7	27	60	810
05:15 PM	3	14	329	10	356	0	13	393	18	424	0	27	6	26	59	1	29	12	16	58	897
05:30 PM	5	12	340	11	368	1	19	299	21	340	0	15	7	14	36	1	22	10	17	50	794
05:45 PM	7	13	326	11	357	1	17	360	19	397	0	20	12	14	46	0	27	10	14	51	851
<b>Total</b>	<b>17</b>	<b>48</b>	<b>1264</b>	<b>46</b>	<b>1375</b>	<b>5</b>	<b>68</b>	<b>1422</b>	<b>70</b>	<b>1565</b>	<b>0</b>	<b>83</b>	<b>33</b>	<b>77</b>	<b>193</b>	<b>3</b>	<b>103</b>	<b>39</b>	<b>74</b>	<b>219</b>	<b>3352</b>
<b>Grand Total</b>	<b>75</b>	<b>223</b>	<b>4753</b>	<b>151</b>	<b>5202</b>	<b>19</b>	<b>247</b>	<b>6080</b>	<b>199</b>	<b>6545</b>	<b>0</b>	<b>213</b>	<b>93</b>	<b>187</b>	<b>493</b>	<b>7</b>	<b>334</b>	<b>100</b>	<b>250</b>	<b>691</b>	<b>12931</b>
<b>Apprch %</b>	<b>1.4</b>	<b>4.3</b>	<b>91.4</b>	<b>2.9</b>		<b>0.3</b>	<b>3.8</b>	<b>92.9</b>	<b>3</b>		<b>0</b>	<b>43.2</b>	<b>18.9</b>	<b>37.9</b>		<b>1</b>	<b>48.3</b>	<b>14.5</b>	<b>36.2</b>		
<b>Total %</b>	<b>0.6</b>	<b>1.7</b>	<b>36.8</b>	<b>1.2</b>	<b>40.2</b>	<b>0.1</b>	<b>1.9</b>	<b>47</b>	<b>1.5</b>	<b>50.6</b>	<b>0</b>	<b>1.6</b>	<b>0.7</b>	<b>1.4</b>	<b>3.8</b>	<b>0.1</b>	<b>2.6</b>	<b>0.8</b>	<b>1.9</b>	<b>5.3</b>	
<b>Autos</b>	<b>75</b>	<b>222</b>	<b>4639</b>	<b>149</b>	<b>5085</b>	<b>19</b>	<b>244</b>	<b>5905</b>	<b>194</b>	<b>6362</b>	<b>0</b>	<b>209</b>	<b>93</b>	<b>184</b>	<b>486</b>	<b>7</b>	<b>333</b>	<b>100</b>	<b>250</b>	<b>690</b>	<b>12623</b>
<b>% Autos</b>	<b>100</b>	<b>99.6</b>	<b>97.6</b>	<b>98.7</b>	<b>97.8</b>	<b>100</b>	<b>98.8</b>	<b>97.1</b>	<b>97.5</b>	<b>97.2</b>	<b>0</b>	<b>98.1</b>	<b>100</b>	<b>98.4</b>	<b>98.6</b>	<b>100</b>	<b>99.7</b>	<b>100</b>	<b>100</b>	<b>99.9</b>	<b>97.6</b>
<b>Heavy Vehicles</b>	<b>0</b>	<b>1</b>	<b>114</b>	<b>2</b>	<b>117</b>	<b>0</b>	<b>3</b>	<b>175</b>	<b>5</b>	<b>183</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>3</b>	<b>7</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>308</b>
<b>% Heavy Vehicles</b>	<b>0</b>	<b>0.4</b>	<b>2.4</b>	<b>1.3</b>	<b>2.2</b>	<b>0</b>	<b>1.2</b>	<b>2.9</b>	<b>2.5</b>	<b>2.8</b>	<b>0</b>	<b>1.9</b>	<b>0</b>	<b>1.6</b>	<b>1.4</b>	<b>0</b>	<b>0.3</b>	<b>0</b>	<b>0</b>	<b>0.1</b>	<b>2.4</b>

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 14th Ln and W 49th St  
County: Miami-Dade County

File Name : 4-W 14th Ln & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 2



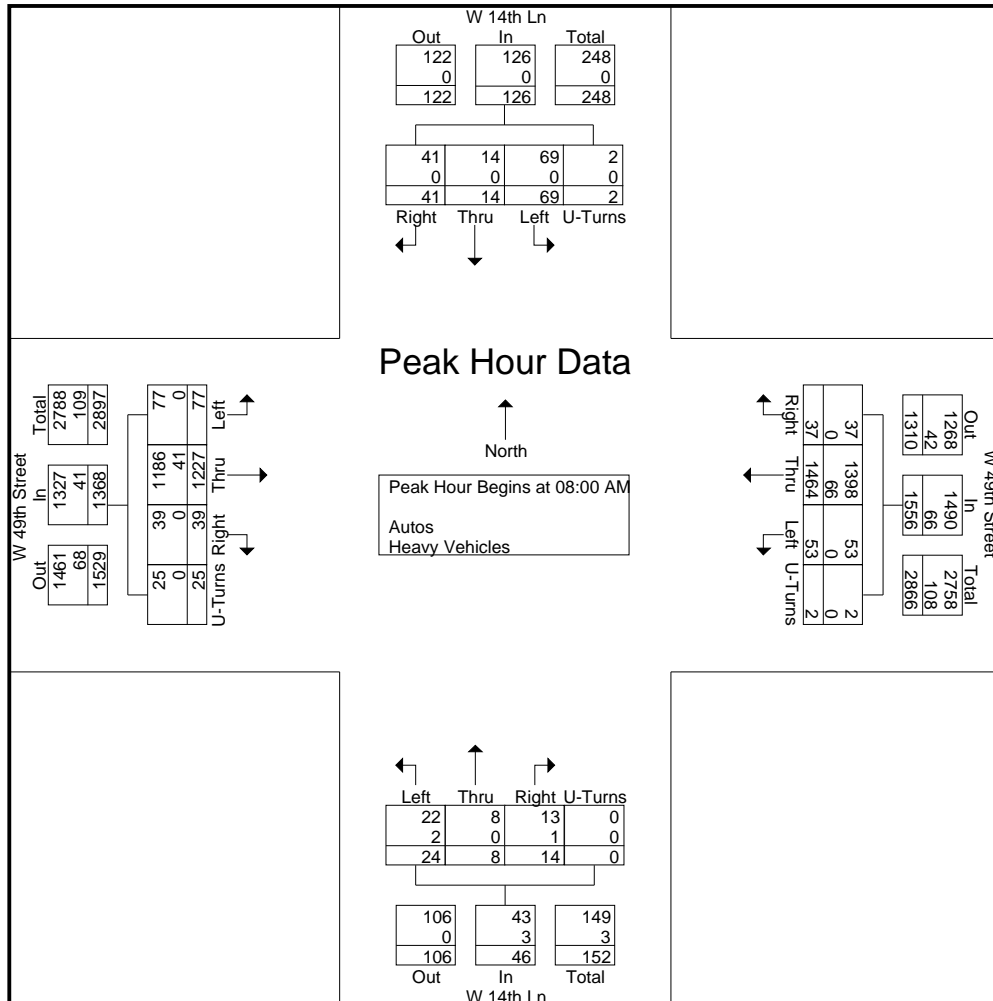
# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 14th Ln and W 49th St  
County: Miami-Dade County

File Name : 4-W 14th Ln & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 3

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 14th Ln Northbound					W 14th Ln Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	2	12	314	10	338	0	11	360	8	379	0	8	3	4	15	1	16	2	10	29	761
08:15 AM	4	24	299	10	337	0	13	362	11	386	0	5	2	4	11	0	21	4	12	37	771
08:30 AM	5	17	308	7	337	2	15	408	11	436	0	5	2	3	10	0	12	5	9	26	809
08:45 AM	14	24	306	12	356	0	14	334	7	355	0	6	1	3	10	1	20	3	10	34	755
Total Volume	25	77	1227	39	1368	2	53	1464	37	1556	0	24	8	14	46	2	69	14	41	126	3096
% App. Total	1.8	5.6	89.7	2.9		0.1	3.4	94.1	2.4		0	52.2	17.4	30.4		1.6	54.8	11.1	32.5		
PHF	.446	.802	.977	.813	.961	.250	.883	.897	.841	.892	.000	.750	.667	.875	.767	.500	.821	.700	.854	.851	.957
Autos	25	77	1186	39	1327	2	53	1398	37	1490	0	22	8	13	43	2	69	14	41	126	2986
% Autos	100	100	96.7	100	97.0	100	100	95.5	100	95.8	0	91.7	100	92.9	93.5	100	100	100	100	100	96.4
Heavy Vehicles	0	0	41	0	41	0	0	66	0	66	0	2	0	1	3	0	0	0	0	0	110
% Heavy Vehicles	0	0	3.3	0	3.0	0	0	4.5	0	4.2	0	8.3	0	7.1	6.5	0	0	0	0	0	3.6



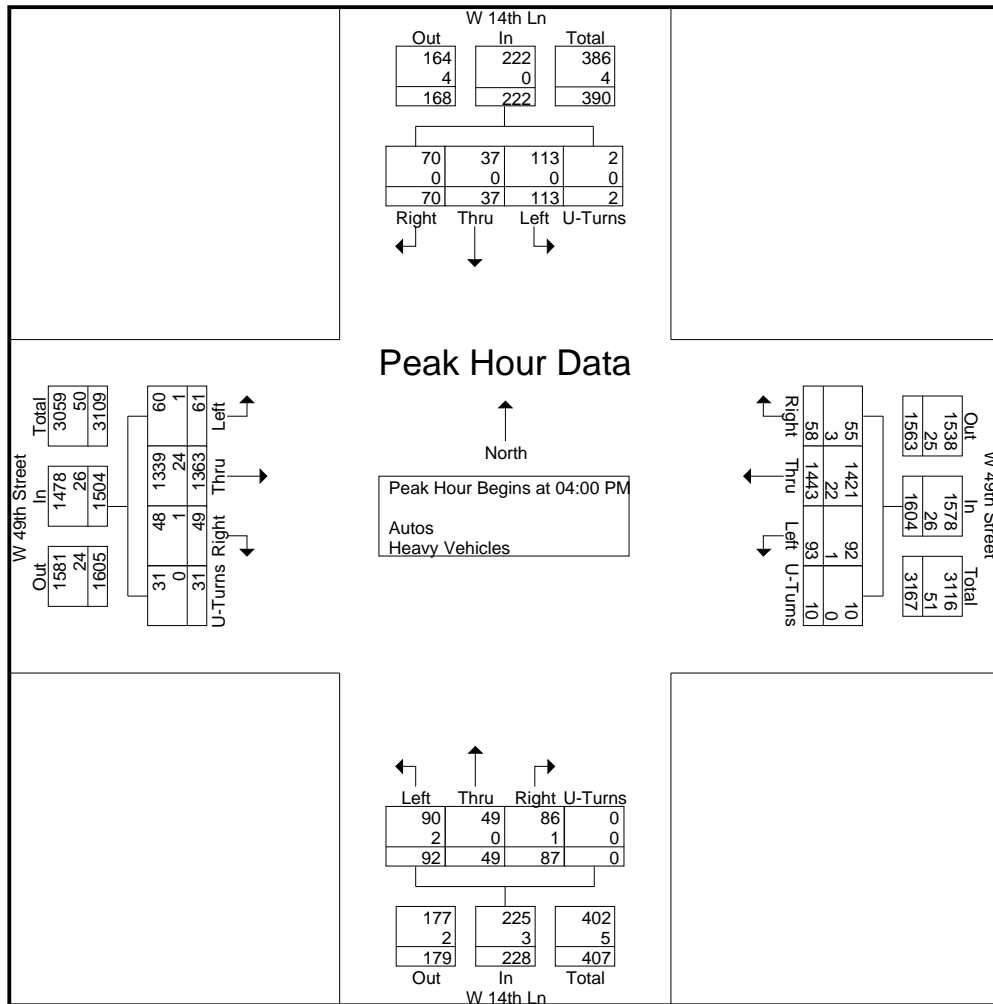
# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 14th Ln and W 49th St  
County: Miami-Dade County

File Name : 4-W 14th Ln & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 4

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 14th Ln Northbound					W 14th Ln Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	8	12	341	19	380	2	24	396	16	438	0	26	16	23	65	0	33	9	13	55	938
04:15 PM	10	17	365	10	402	3	27	353	14	397	0	29	8	23	60	0	38	8	15	61	920
04:30 PM	11	15	264	10	300	2	22	332	11	367	0	14	12	17	43	2	16	11	21	50	760
04:45 PM	2	17	393	10	422	3	20	362	17	402	0	23	13	24	60	0	26	9	21	56	940
Total Volume	31	61	1363	49	1504	10	93	1443	58	1604	0	92	49	87	228	2	113	37	70	222	3558
% App. Total	2.1	4.1	90.6	3.3		0.6	5.8	90	3.6		0	40.4	21.5	38.2		0.9	50.9	16.7	31.5		
PHF	.705	.897	.867	.645	.891	.833	.861	.911	.853	.916	.000	.793	.766	.906	.877	.250	.743	.841	.833	.910	.946
Autos	31	60	1339	48	1478	10	92	1421	55	1578	0	90	49	86	225	2	113	37	70	222	3503
% Autos	100	98.4	98.2	98.0	98.3	100	98.9	98.5	94.8	98.4	0	97.8	100	98.9	98.7	100	100	100	100	100	98.5
Heavy Vehicles	0	1	24	1	26	0	1	22	3	26	0	2	0	1	3	0	0	0	0	0	55
% Heavy Vehicles	0	1.6	1.8	2.0	1.7	0	1.1	1.5	5.2	1.6	0	2.2	0	1.1	1.3	0	0	0	0	0	1.5



# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 14th Ln and W 49th St  
County: Miami-Dade County

File Name : 4-W 14th Ln & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Heavy Vehicles

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 14th Ln Northbound					W 14th Ln Southbound					Int. Total	
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total		
07:00 AM	0	0	7	0	7	0	0	14	1	15	0	0	0	0	0	0	0	0	0	0	0	22
07:15 AM	0	0	18	0	18	0	0	18	0	18	0	0	0	0	0	0	0	0	0	0	0	36
07:30 AM	0	0	1	0	1	0	1	15	1	17	0	0	0	0	0	0	0	0	0	0	0	18
07:45 AM	0	0	7	0	7	0	1	12	0	13	0	0	0	1	1	0	1	0	0	0	1	22
<b>Total</b>	0	0	33	0	33	0	2	59	2	63	0	0	0	1	1	0	1	0	0	0	1	98
08:00 AM	0	0	10	0	10	0	0	13	0	13	0	0	0	1	1	0	0	0	0	0	0	24
08:15 AM	0	0	13	0	13	0	0	16	0	16	0	0	0	0	0	0	0	0	0	0	0	29
08:30 AM	0	0	12	0	12	0	0	11	0	11	0	1	0	0	1	0	0	0	0	0	0	24
08:45 AM	0	0	6	0	6	0	0	26	0	26	0	1	0	0	1	0	0	0	0	0	0	33
<b>Total</b>	0	0	41	0	41	0	0	66	0	66	0	2	0	1	3	0	0	0	0	0	0	110
*** BREAK ***																						
04:00 PM	0	0	6	0	6	0	0	4	1	5	0	1	0	0	1	0	0	0	0	0	0	12
04:15 PM	0	1	8	1	10	0	0	8	0	8	0	1	0	1	2	0	0	0	0	0	0	20
04:30 PM	0	0	4	0	4	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	7
04:45 PM	0	0	6	0	6	0	1	7	2	10	0	0	0	0	0	0	0	0	0	0	0	16
<b>Total</b>	0	1	24	1	26	0	1	22	3	26	0	2	0	1	3	0	0	0	0	0	0	55
05:00 PM	0	0	3	1	4	0	0	10	0	10	0	0	0	0	0	0	0	0	0	0	0	14
05:15 PM	0	0	2	0	2	0	0	8	0	8	0	0	0	0	0	0	0	0	0	0	0	10
05:30 PM	0	0	7	0	7	0	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0	13
05:45 PM	0	0	4	0	4	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	8
<b>Total</b>	0	0	16	1	17	0	0	28	0	28	0	0	0	0	0	0	0	0	0	0	0	45
<b>Grand Total</b>	0	1	114	2	117	0	3	175	5	183	0	4	0	3	7	0	1	0	0	1	308	
<b>Apprch %</b>	0	0.9	97.4	1.7		0	1.6	95.6	2.7		0	57.1	0	42.9		0	100	0	0			
<b>Total %</b>	0	0.3	37	0.6	38	0	1	56.8	1.6	59.4	0	1.3	0	1	2.3	0	0.3	0	0	0.3		

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 14th Ln and W 49th St  
County: Miami-Dade County

File Name : 4-W 14th Ln & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Peds & Bikes

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 14th Ln Northbound					W 14th Ln Southbound					Int. Total
	Peds			Bikes	App. Total	Peds			Bikes	App. Total	Peds			Bikes	App. Total	Peds			Bikes	App. Total	
07:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	3
07:15 AM	3	0	0	0	3	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	4
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	2
07:45 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1	2
<b>Total</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>5</b>	<b>11</b>
*** BREAK ***																					
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
*** BREAK ***																					
08:45 AM	4	0	0	1	5	0	0	0	0	0	5	0	0	1	6	0	0	0	0	0	11
<b>Total</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>12</b>
*** BREAK ***																					
04:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0	0	0	1	1	3
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
<b>Total</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>6</b>
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
05:15 PM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2
05:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>6</b>
<b>Grand Total</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>10</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>12</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>10</b>	<b>35</b>
Apprch %	90	0	0	10		100	0	0	0		75	0	0	25		70	0	0	30		
Total %	25.7	0	0	2.9	28.6	8.6	0	0	0	8.6	25.7	0	0	8.6	34.3	20	0	0	8.6	28.6	

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: Ludlam Rd and W 49th St  
County: Miami-Dade County

File Name : 5-Ludlam Rd & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Autos - Heavy Vehicles

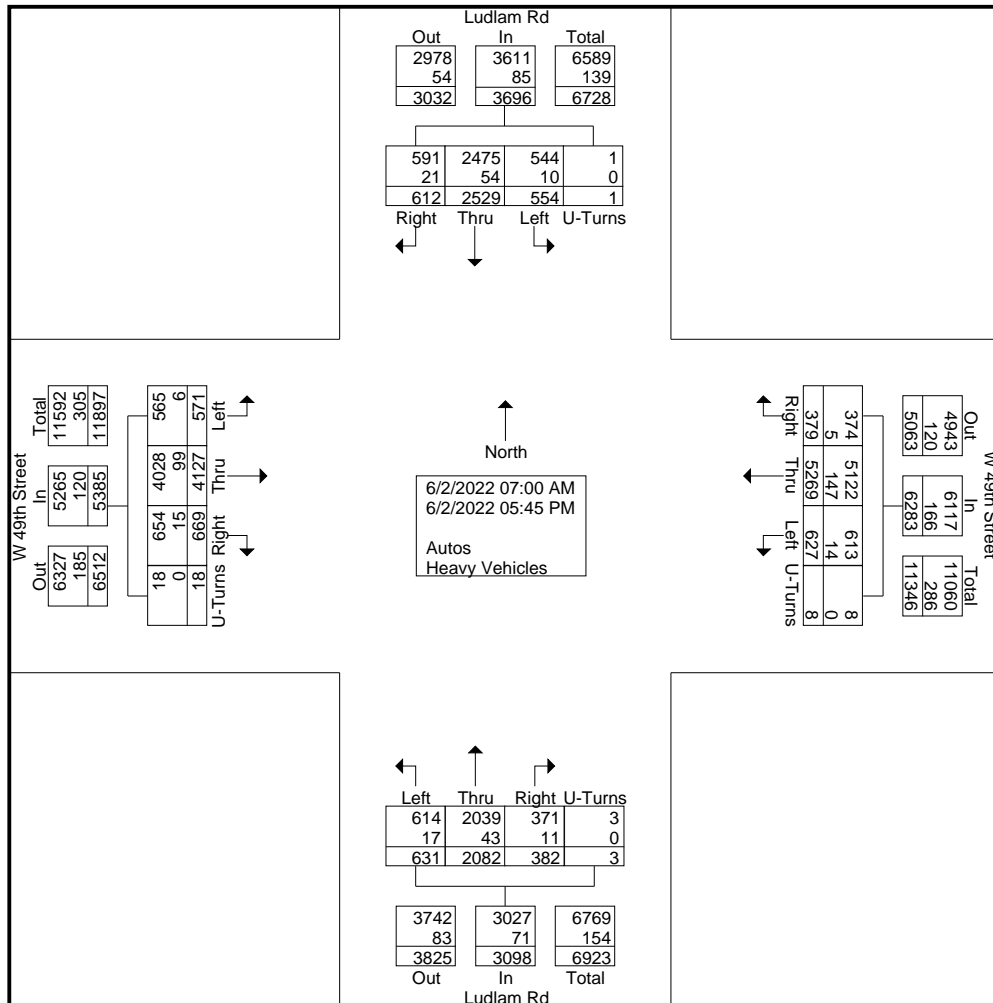
Start Time	W 49th Street Eastbound					W 49th Street Westbound					Ludlam Rd Northbound					Ludlam Rd Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
07:00 AM	0	10	155	26	191	0	28	340	8	376	0	18	75	18	111	0	37	172	56	265	943
07:15 AM	2	20	208	22	252	0	45	407	18	470	0	28	101	17	146	0	19	149	52	220	1088
07:30 AM	1	23	205	31	260	1	39	339	8	387	0	32	82	23	137	0	34	152	37	223	1007
07:45 AM	0	22	216	18	256	1	28	279	10	318	0	32	145	33	210	0	37	223	55	315	1099
<b>Total</b>	<b>3</b>	<b>75</b>	<b>784</b>	<b>97</b>	<b>959</b>	<b>2</b>	<b>140</b>	<b>1365</b>	<b>44</b>	<b>1551</b>	<b>0</b>	<b>110</b>	<b>403</b>	<b>91</b>	<b>604</b>	<b>0</b>	<b>127</b>	<b>696</b>	<b>200</b>	<b>1023</b>	<b>4137</b>
08:00 AM	0	33	235	26	294	0	34	263	9	306	0	35	98	26	159	0	36	159	52	247	1006
08:15 AM	2	27	289	41	359	0	36	335	20	391	0	36	91	28	155	0	28	147	57	232	1137
08:30 AM	1	35	254	33	323	0	40	300	9	349	0	45	137	22	204	0	41	214	49	304	1180
08:45 AM	1	22	249	28	300	0	30	271	13	314	0	51	97	29	177	0	32	174	52	258	1049
<b>Total</b>	<b>4</b>	<b>117</b>	<b>1027</b>	<b>128</b>	<b>1276</b>	<b>0</b>	<b>140</b>	<b>1169</b>	<b>51</b>	<b>1360</b>	<b>0</b>	<b>167</b>	<b>423</b>	<b>105</b>	<b>695</b>	<b>0</b>	<b>137</b>	<b>694</b>	<b>210</b>	<b>1041</b>	<b>4372</b>
*** BREAK ***																					
04:00 PM	1	49	314	60	424	2	38	344	32	416	0	52	163	30	245	1	37	141	30	209	1294
04:15 PM	2	56	311	58	427	1	47	334	31	413	0	39	152	16	207	0	34	155	13	202	1249
04:30 PM	2	42	245	48	337	1	48	341	35	425	0	39	164	21	224	0	28	144	28	200	1186
04:45 PM	3	42	309	62	416	1	45	369	49	464	0	55	136	35	226	0	43	150	33	226	1332
<b>Total</b>	<b>8</b>	<b>189</b>	<b>1179</b>	<b>228</b>	<b>1604</b>	<b>5</b>	<b>178</b>	<b>1388</b>	<b>147</b>	<b>1718</b>	<b>0</b>	<b>185</b>	<b>615</b>	<b>102</b>	<b>902</b>	<b>1</b>	<b>142</b>	<b>590</b>	<b>104</b>	<b>837</b>	<b>5061</b>
05:00 PM	1	47	271	56	375	0	41	360	32	433	3	41	149	21	214	0	29	121	30	180	1202
05:15 PM	1	43	296	59	399	0	43	338	33	414	0	41	173	20	234	0	38	149	22	209	1256
05:30 PM	1	47	283	58	389	0	34	316	45	395	0	41	159	21	221	0	44	131	23	198	1203
05:45 PM	0	53	287	43	383	1	51	333	27	412	0	46	160	22	228	0	37	148	23	208	1231
<b>Total</b>	<b>3</b>	<b>190</b>	<b>1137</b>	<b>216</b>	<b>1546</b>	<b>1</b>	<b>169</b>	<b>1347</b>	<b>137</b>	<b>1654</b>	<b>3</b>	<b>169</b>	<b>641</b>	<b>84</b>	<b>897</b>	<b>0</b>	<b>148</b>	<b>549</b>	<b>98</b>	<b>795</b>	<b>4892</b>
<b>Grand Total</b>	<b>18</b>	<b>571</b>	<b>4127</b>	<b>669</b>	<b>5385</b>	<b>8</b>	<b>627</b>	<b>5269</b>	<b>379</b>	<b>6283</b>	<b>3</b>	<b>631</b>	<b>2082</b>	<b>382</b>	<b>3098</b>	<b>1</b>	<b>554</b>	<b>2529</b>	<b>612</b>	<b>3696</b>	<b>18462</b>
<b>Apprch %</b>	<b>0.3</b>	<b>10.6</b>	<b>76.6</b>	<b>12.4</b>		<b>0.1</b>	<b>10</b>	<b>83.9</b>	<b>6</b>		<b>0.1</b>	<b>20.4</b>	<b>67.2</b>	<b>12.3</b>		<b>0</b>	<b>15</b>	<b>68.4</b>	<b>16.6</b>		
<b>Total %</b>	<b>0.1</b>	<b>3.1</b>	<b>22.4</b>	<b>3.6</b>	<b>29.2</b>	<b>0</b>	<b>3.4</b>	<b>28.5</b>	<b>2.1</b>	<b>34</b>	<b>0</b>	<b>3.4</b>	<b>11.3</b>	<b>2.1</b>	<b>16.8</b>	<b>0</b>	<b>3</b>	<b>13.7</b>	<b>3.3</b>	<b>20</b>	
<b>Autos</b>	<b>18</b>	<b>565</b>	<b>4028</b>	<b>654</b>	<b>5265</b>	<b>8</b>	<b>613</b>	<b>5122</b>	<b>374</b>	<b>6117</b>	<b>3</b>	<b>614</b>	<b>2039</b>	<b>371</b>	<b>3027</b>	<b>1</b>	<b>544</b>	<b>2475</b>	<b>591</b>	<b>3611</b>	<b>18020</b>
<b>% Autos</b>	<b>100</b>	<b>98.9</b>	<b>97.6</b>	<b>97.8</b>	<b>97.8</b>	<b>100</b>	<b>97.8</b>	<b>97.2</b>	<b>98.7</b>	<b>97.4</b>	<b>100</b>	<b>97.3</b>	<b>97.9</b>	<b>97.1</b>	<b>97.7</b>	<b>100</b>	<b>98.2</b>	<b>97.9</b>	<b>96.6</b>	<b>97.7</b>	<b>97.6</b>
<b>Heavy Vehicles</b>	<b>0</b>	<b>6</b>	<b>99</b>	<b>15</b>	<b>120</b>	<b>0</b>	<b>14</b>	<b>147</b>	<b>5</b>	<b>166</b>	<b>0</b>	<b>17</b>	<b>43</b>	<b>11</b>	<b>71</b>	<b>0</b>	<b>10</b>	<b>54</b>	<b>21</b>	<b>85</b>	<b>442</b>
<b>% Heavy Vehicles</b>	<b>0</b>	<b>1.1</b>	<b>2.4</b>	<b>2.2</b>	<b>2.2</b>	<b>0</b>	<b>2.2</b>	<b>2.8</b>	<b>1.3</b>	<b>2.6</b>	<b>0</b>	<b>2.7</b>	<b>2.1</b>	<b>2.9</b>	<b>2.3</b>	<b>0</b>	<b>1.8</b>	<b>2.1</b>	<b>3.4</b>	<b>2.3</b>	<b>2.4</b>

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: Ludlam Rd and W 49th St  
County: Miami-Dade County

File Name : 5-Ludlam Rd & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 2





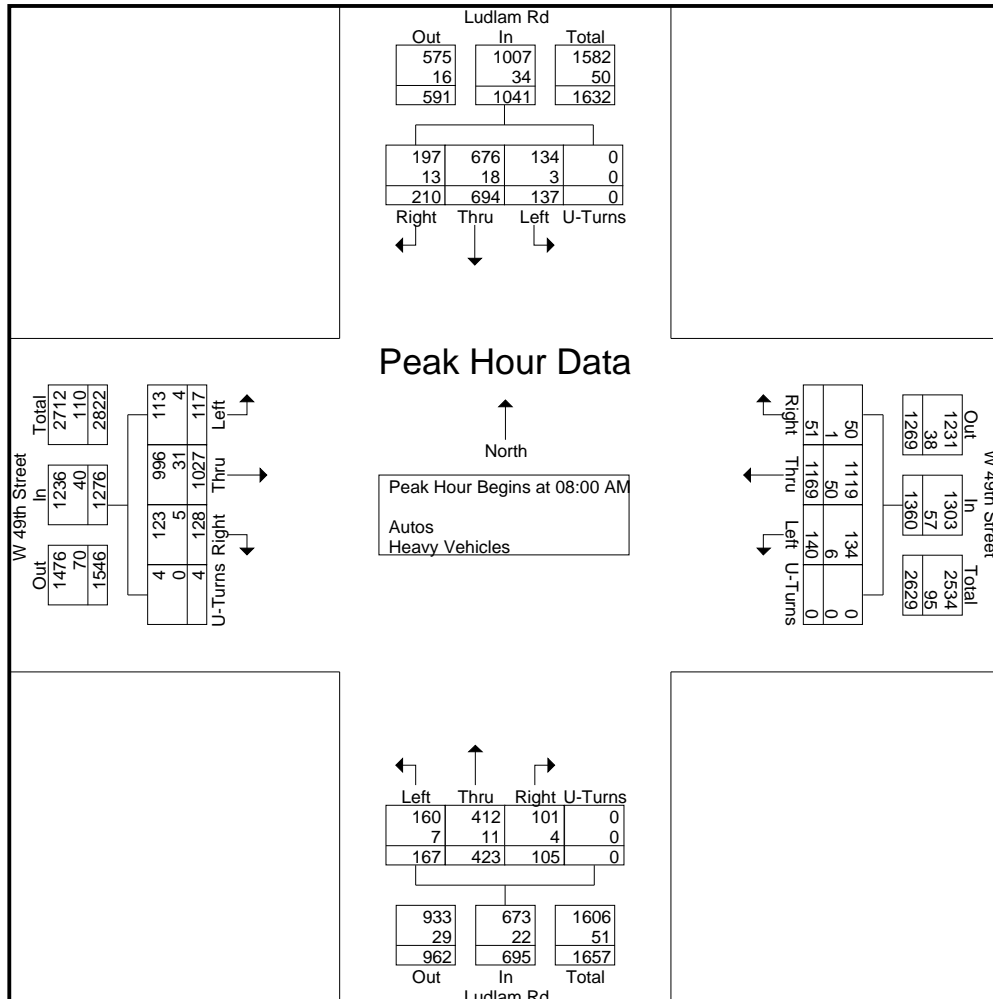
# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: Ludlam Rd and W 49th St  
County: Miami-Dade County

File Name : 5-Ludlam Rd & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 3

Start Time	W 49th Street Eastbound					W 49th Street Westbound					Ludlam Rd Northbound					Ludlam Rd Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	33	235	26	294	0	34	263	9	306	0	35	98	26	159	0	36	159	52	247	1006
08:15 AM	2	27	<b>289</b>	<b>41</b>	<b>359</b>	0	36	<b>335</b>	<b>20</b>	<b>391</b>	0	36	91	28	155	0	28	147	<b>57</b>	232	1137
08:30 AM	1	<b>35</b>	254	33	323	0	<b>40</b>	300	9	349	0	45	<b>137</b>	22	<b>204</b>	0	<b>41</b>	<b>214</b>	49	<b>304</b>	<b>1180</b>
08:45 AM	1	22	249	28	300	0	30	271	13	314	0	<b>51</b>	<b>97</b>	<b>29</b>	177	0	32	174	52	258	1049
Total Volume	4	117	1027	128	1276	0	140	1169	51	1360	0	167	423	105	695	0	137	694	210	1041	4372
% App. Total	0.3	9.2	80.5	10	0	10.3	86	3.8	0	24	60.9	15.1	0	13.2	66.7	20.2					
PHF	.500	.836	.888	.780	.889	.000	.875	.872	.638	.870	.000	.819	.772	.905	.852	.000	.835	.811	.921	.856	.926
Autos	4	113	996	123	1236	0	134	1119	50	1303	0	160	412	101	673	0	134	676	197	1007	4219
% Autos	100	96.6	97.0	96.1	96.9	0	95.7	95.7	98.0	95.8	0	95.8	97.4	96.2	96.8	0	97.8	97.4	93.8	96.7	96.5
Heavy Vehicles	0	4	31	5	40	0	6	50	1	57	0	7	11	4	22	0	3	18	13	34	153
% Heavy Vehicles	0	3.4	3.0	3.9	3.1	0	4.3	4.3	2.0	4.2	0	4.2	2.6	3.8	3.2	0	2.2	2.6	6.2	3.3	3.5



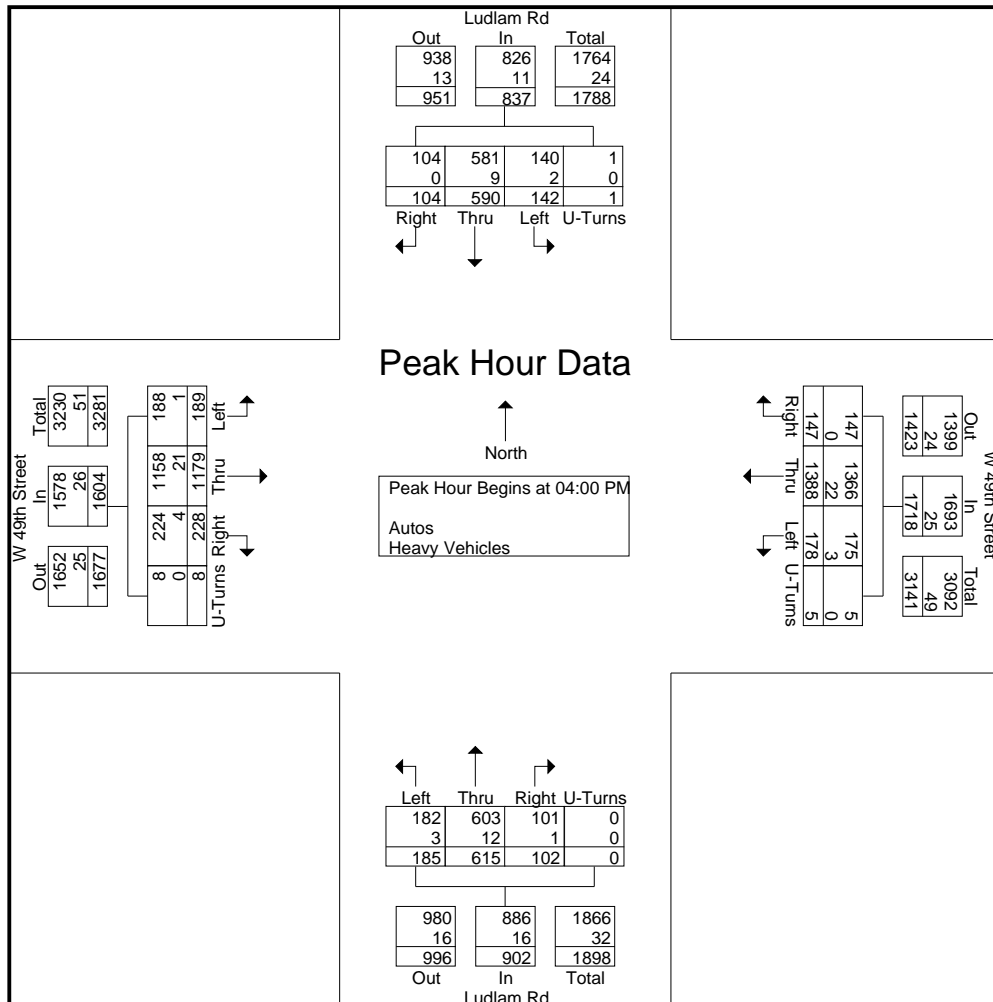
# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: Ludlam Rd and W 49th St  
County: Miami-Dade County

File Name : 5-Ludlam Rd & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 4

Start Time	W 49th Street Eastbound				W 49th Street Westbound				Ludlam Rd Northbound				Ludlam Rd Southbound				Int. Total				
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns		Left	Thru	Right	App. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	1	49	<b>314</b>	60	424	2	38	344	32	416	0	52	163	30	<b>245</b>	1	37	141	30	209	1294
04:15 PM	2	<b>56</b>	311	58	<b>427</b>	1	47	334	31	413	0	39	152	16	207	0	34	<b>155</b>	13	202	1249
04:30 PM	2	42	245	48	337	1	<b>48</b>	341	35	425	0	39	<b>164</b>	21	224	0	28	144	28	200	1186
04:45 PM	<b>3</b>	42	309	<b>62</b>	416	1	45	<b>369</b>	<b>49</b>	<b>464</b>	0	<b>55</b>	136	<b>35</b>	226	0	<b>43</b>	150	<b>33</b>	<b>226</b>	<b>1332</b>
Total Volume	8	189	1179	228	1604	5	178	1388	147	1718	0	185	615	102	902	1	142	590	104	837	5061
% App. Total	0.5	11.8	73.5	14.2	0.3	10.4	80.8	8.6		0	20.5	68.2	11.3		0.1	17	70.5	12.4			
PHF	.667	.844	.939	.919	.939	.625	.927	.940	.750	.926	.000	.841	.938	.729	.920	.250	.826	.952	.788	.926	.950
Autos	8	188	1158	224	1578	5	175	1366	147	1693	0	182	603	101	886	1	140	581	104	826	4983
% Autos	100	99.5	98.2	98.2	98.4	100	98.3	98.4	100	98.5	0	98.4	98.0	99.0	98.2	100	98.6	98.5	100	98.7	98.5
Heavy Vehicles	0	1	21	4	26	0	3	22	0	25	0	3	12	1	16	0	2	9	0	11	78
% Heavy Vehicles	0	0.5	1.8	1.8	1.6	0	1.7	1.6	0	1.5	0	1.6	2.0	1.0	1.8	0	1.4	1.5	0	1.3	1.5



# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: Ludlam Rd and W 49th St  
County: Miami-Dade County

File Name : 5-Ludlam Rd & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Heavy Vehicles

Start Time	W 49th Street Eastbound					W 49th Street Westbound					Ludlam Rd Northbound					Ludlam Rd Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
07:00 AM	0	0	5	1	6	0	0	13	1	14	0	1	3	1	5	0	1	5	1	7	32
07:15 AM	0	0	9	3	12	0	1	21	1	23	0	0	3	1	4	0	1	5	2	8	47
07:30 AM	0	0	10	1	11	0	2	8	0	10	0	4	6	1	11	0	0	3	2	5	37
07:45 AM	0	1	8	0	9	0	0	9	0	9	0	1	3	2	6	0	1	9	0	10	34
<b>Total</b>	0	1	32	5	38	0	3	51	2	56	0	6	15	5	26	0	3	22	5	30	150
08:00 AM	0	1	8	0	9	0	1	13	0	14	0	1	2	1	4	0	0	3	1	4	31
08:15 AM	0	3	8	1	12	0	0	14	0	14	0	1	0	1	2	0	1	5	3	9	37
08:30 AM	0	0	7	2	9	0	2	4	1	7	0	4	5	0	9	0	0	6	2	8	33
08:45 AM	0	0	8	2	10	0	3	19	0	22	0	1	4	2	7	0	2	4	7	13	52
<b>Total</b>	0	4	31	5	40	0	6	50	1	57	0	7	11	4	22	0	3	18	13	34	153
*** BREAK ***																					
04:00 PM	0	1	5	0	6	0	1	8	0	9	0	0	3	0	3	0	0	1	0	1	19
04:15 PM	0	0	6	2	8	0	1	5	0	6	0	1	2	0	3	0	1	2	0	3	20
04:30 PM	0	0	5	1	6	0	0	4	0	4	0	0	3	0	3	0	1	3	0	4	17
04:45 PM	0	0	5	1	6	0	1	5	0	6	0	2	4	1	7	0	0	3	0	3	22
<b>Total</b>	0	1	21	4	26	0	3	22	0	25	0	3	12	1	16	0	2	9	0	11	78
05:00 PM	0	0	3	0	3	0	2	8	0	10	0	0	2	0	2	0	0	1	1	2	17
05:15 PM	0	0	2	0	2	0	0	10	2	12	0	1	1	0	2	0	2	2	0	4	20
05:30 PM	0	0	4	1	5	0	0	3	0	3	0	0	1	1	2	0	0	1	1	2	12
05:45 PM	0	0	6	0	6	0	0	3	0	3	0	0	1	0	1	0	0	1	1	2	12
<b>Total</b>	0	0	15	1	16	0	2	24	2	28	0	1	5	1	7	0	2	5	3	10	61
<b>Grand Total</b>	0	6	99	15	120	0	14	147	5	166	0	17	43	11	71	0	10	54	21	85	442
<b>Apprch %</b>	0	5	82.5	12.5		0	8.4	88.6	3		0	23.9	60.6	15.5		0	11.8	63.5	24.7		
<b>Total %</b>	0	1.4	22.4	3.4	27.1	0	3.2	33.3	1.1	37.6	0	3.8	9.7	2.5	16.1	0	2.3	12.2	4.8	19.2	

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: Ludlam Rd and W 49th St  
County: Miami-Dade County

File Name : 5-Ludlam Rd & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Peds & Bikes

Start Time	W 49th Street Eastbound					W 49th Street Westbound					Ludlam Rd Northbound					Ludlam Rd Southbound					Int. Total
	Peds			Bikes	App. Total	Peds			Bikes	App. Total	Peds			Bikes	App. Total	Peds			Bikes	App. Total	
07:00 AM	1	0	0	4	5	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	7
07:15 AM	3	0	0	0	3	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1	5
07:30 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
<b>Total</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>9</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>15</b>
*** BREAK ***																					
08:15 AM	1	0	0	1	2	2	0	0	0	2	0	0	0	1	1	0	0	0	0	0	5
08:30 AM	0	0	0	0	0	2	0	0	1	3	0	0	0	0	0	0	0	0	0	0	3
08:45 AM	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<b>Total</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>
*** BREAK ***																					
04:00 PM	0	0	0	0	0	8	0	0	0	8	0	0	0	0	0	2	0	0	0	2	10
04:15 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	1	1	0	0	0	0	0	2
04:45 PM	3	0	0	1	4	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	6
<b>Total</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>19</b>
*** BREAK ***																					
05:15 PM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
05:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<b>Total</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>
<b>Grand Total</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>19</b>	<b>17</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>5</b>	<b>47</b>
<b>Apprch %</b>	<b>57.9</b>	<b>0</b>	<b>0</b>	<b>42.1</b>		<b>81</b>	<b>0</b>	<b>0</b>	<b>19</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>100</b>		<b>80</b>	<b>0</b>	<b>0</b>	<b>20</b>		
<b>Total %</b>	<b>23.4</b>	<b>0</b>	<b>0</b>	<b>17</b>	<b>40.4</b>	<b>36.2</b>	<b>0</b>	<b>0</b>	<b>8.5</b>	<b>44.7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4.3</b>	<b>4.3</b>	<b>8.5</b>	<b>0</b>	<b>0</b>	<b>2.1</b>	<b>10.6</b>	

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301

Doral, FL, 33126

Client: FDOT District 6  
 Project: TWO 30  
 Location: W 10th Ave and W 49th St  
 County: Miami-Dade County

File Name : 6-W 10th Ave & W 49th St  
 Site Code : 00000000  
 Start Date : 6/2/2022  
 Page No : 1

### Groups Printed- Autos - Heavy Vehicles

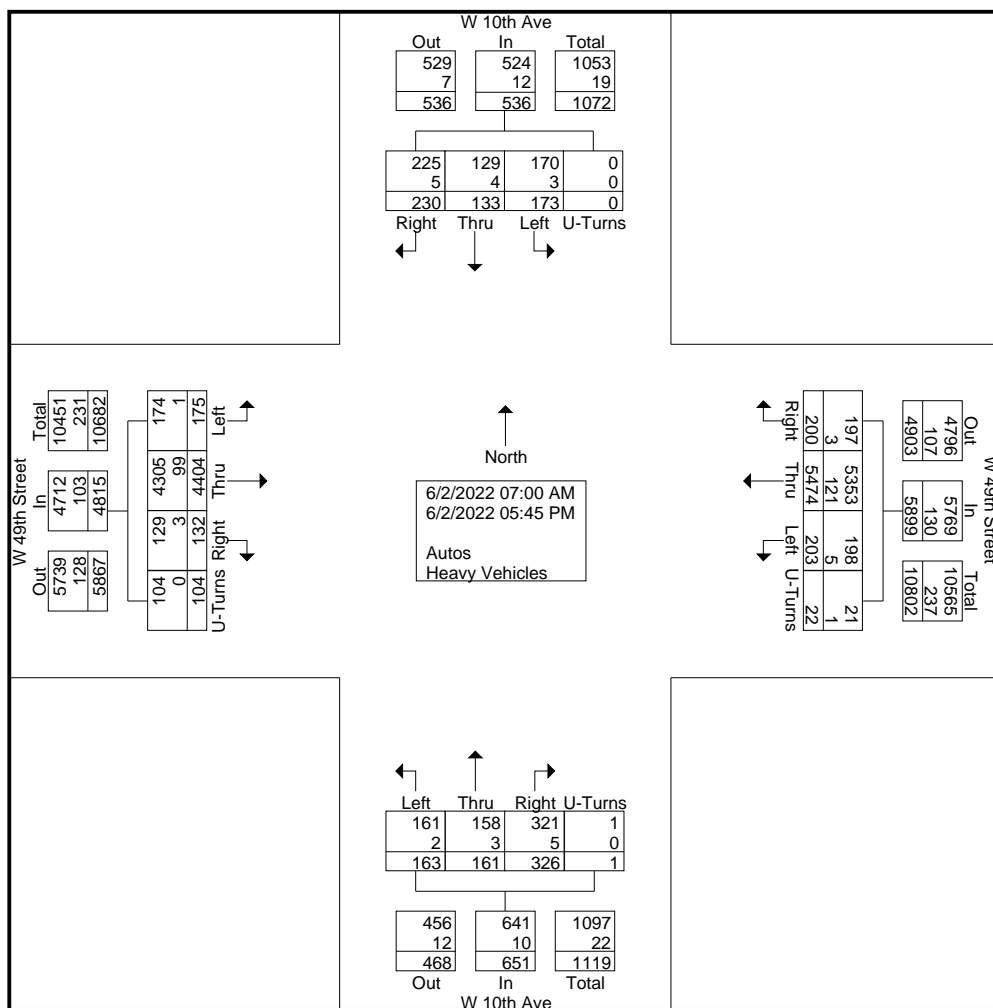
Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 10th Ave Northbound					W 10th Ave Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
07:00 AM	1	9	225	8	243	2	14	283	13	312	0	7	4	6	17	0	14	5	18	37	609
07:15 AM	2	2	188	8	200	3	24	318	15	360	0	3	2	10	15	0	9	7	11	27	602
07:30 AM	1	10	299	2	312	1	8	354	7	370	0	8	4	12	24	0	9	11	16	36	742
07:45 AM	2	12	275	6	295	3	13	302	10	328	1	6	9	12	28	0	8	11	21	40	691
<b>Total</b>	<b>6</b>	<b>33</b>	<b>987</b>	<b>24</b>	<b>1050</b>	<b>9</b>	<b>59</b>	<b>1257</b>	<b>45</b>	<b>1370</b>	<b>1</b>	<b>24</b>	<b>19</b>	<b>40</b>	<b>84</b>	<b>0</b>	<b>40</b>	<b>34</b>	<b>66</b>	<b>140</b>	<b>2644</b>
08:00 AM	6	11	269	4	290	2	6	347	12	367	0	13	13	22	48	0	12	8	18	38	743
08:15 AM	4	9	293	5	311	1	21	353	10	385	0	5	4	15	24	0	10	5	17	32	752
08:30 AM	5	15	251	11	282	0	17	304	7	328	0	11	9	17	37	0	12	9	14	35	682
08:45 AM	5	7	258	7	277	3	18	263	16	300	0	13	8	16	37	0	19	9	15	43	657
<b>Total</b>	<b>20</b>	<b>42</b>	<b>1071</b>	<b>27</b>	<b>1160</b>	<b>6</b>	<b>62</b>	<b>1267</b>	<b>45</b>	<b>1380</b>	<b>0</b>	<b>42</b>	<b>34</b>	<b>70</b>	<b>146</b>	<b>0</b>	<b>53</b>	<b>31</b>	<b>64</b>	<b>148</b>	<b>2834</b>
*** BREAK ***																					
04:00 PM	9	8	301	9	327	0	8	392	16	416	0	8	17	21	46	0	11	6	19	36	825
04:15 PM	11	14	299	14	338	1	13	350	12	376	0	7	9	26	42	0	11	9	3	23	779
04:30 PM	13	14	308	9	344	0	11	375	14	400	0	11	10	27	48	0	13	6	11	30	822
04:45 PM	11	12	279	12	314	0	13	369	12	394	0	10	12	23	45	0	9	17	11	37	790
<b>Total</b>	<b>44</b>	<b>48</b>	<b>1187</b>	<b>44</b>	<b>1323</b>	<b>1</b>	<b>45</b>	<b>1486</b>	<b>54</b>	<b>1586</b>	<b>0</b>	<b>36</b>	<b>48</b>	<b>97</b>	<b>181</b>	<b>0</b>	<b>44</b>	<b>38</b>	<b>44</b>	<b>126</b>	<b>3216</b>
05:00 PM	11	15	315	13	354	2	11	366	16	395	0	16	14	26	56	0	12	12	21	45	850
05:15 PM	8	17	306	7	338	1	11	370	18	400	0	14	18	29	61	0	9	6	11	26	825
05:30 PM	9	6	259	7	281	1	8	375	11	395	0	13	16	35	64	0	9	5	10	24	764
05:45 PM	6	14	279	10	309	2	7	353	11	373	0	18	12	29	59	0	6	7	14	27	768
<b>Total</b>	<b>34</b>	<b>52</b>	<b>1159</b>	<b>37</b>	<b>1282</b>	<b>6</b>	<b>37</b>	<b>1464</b>	<b>56</b>	<b>1563</b>	<b>0</b>	<b>61</b>	<b>60</b>	<b>119</b>	<b>240</b>	<b>0</b>	<b>36</b>	<b>30</b>	<b>56</b>	<b>122</b>	<b>3207</b>
<b>Grand Total</b>	<b>104</b>	<b>175</b>	<b>4404</b>	<b>132</b>	<b>4815</b>	<b>22</b>	<b>203</b>	<b>5474</b>	<b>200</b>	<b>5899</b>	<b>1</b>	<b>163</b>	<b>161</b>	<b>326</b>	<b>651</b>	<b>0</b>	<b>173</b>	<b>133</b>	<b>230</b>	<b>536</b>	<b>11901</b>
<b>Apprch %</b>	<b>2.2</b>	<b>3.6</b>	<b>91.5</b>	<b>2.7</b>		<b>0.4</b>	<b>3.4</b>	<b>92.8</b>	<b>3.4</b>		<b>0.2</b>	<b>25</b>	<b>24.7</b>	<b>50.1</b>		<b>0</b>	<b>32.3</b>	<b>24.8</b>	<b>42.9</b>		
<b>Total %</b>	<b>0.9</b>	<b>1.5</b>	<b>37</b>	<b>1.1</b>	<b>40.5</b>	<b>0.2</b>	<b>1.7</b>	<b>46</b>	<b>1.7</b>	<b>49.6</b>	<b>0</b>	<b>1.4</b>	<b>1.4</b>	<b>2.7</b>	<b>5.5</b>	<b>0</b>	<b>1.5</b>	<b>1.1</b>	<b>1.9</b>	<b>4.5</b>	
<b>Autos</b>	<b>104</b>	<b>174</b>	<b>4305</b>	<b>129</b>	<b>4712</b>	<b>21</b>	<b>198</b>	<b>5353</b>	<b>197</b>	<b>5769</b>	<b>1</b>	<b>161</b>	<b>158</b>	<b>321</b>	<b>641</b>	<b>0</b>	<b>170</b>	<b>129</b>	<b>225</b>	<b>524</b>	<b>11646</b>
<b>% Autos</b>	<b>100</b>	<b>99.4</b>	<b>97.8</b>	<b>97.7</b>	<b>97.9</b>	<b>95.5</b>	<b>97.5</b>	<b>97.8</b>	<b>98.5</b>	<b>97.8</b>	<b>100</b>	<b>98.8</b>	<b>98.1</b>	<b>98.5</b>	<b>98.5</b>	<b>0</b>	<b>98.3</b>	<b>97</b>	<b>97.8</b>	<b>97.8</b>	<b>97.9</b>
<b>Heavy Vehicles</b>	<b>0</b>	<b>1</b>	<b>99</b>	<b>3</b>	<b>103</b>	<b>1</b>	<b>5</b>	<b>121</b>	<b>3</b>	<b>130</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>10</b>	<b>0</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>12</b>	<b>255</b>
<b>% Heavy Vehicles</b>	<b>0</b>	<b>0.6</b>	<b>2.2</b>	<b>2.3</b>	<b>2.1</b>	<b>4.5</b>	<b>2.5</b>	<b>2.2</b>	<b>1.5</b>	<b>2.2</b>	<b>0</b>	<b>1.2</b>	<b>1.9</b>	<b>1.5</b>	<b>1.5</b>	<b>0</b>	<b>1.7</b>	<b>3</b>	<b>2.2</b>	<b>2.2</b>	<b>2.1</b>

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 10th Ave and W 49th St  
County: Miami-Dade County

File Name : 6-W 10th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 2



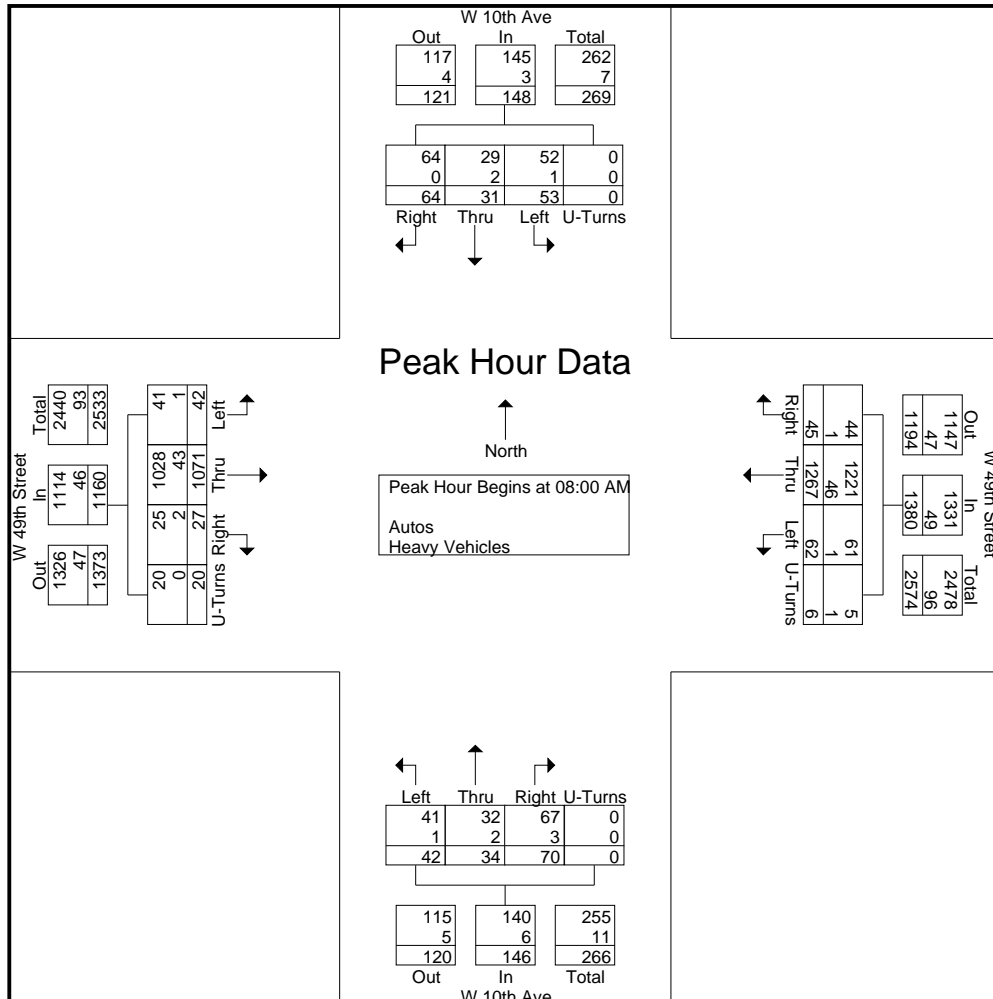
# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
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County: Miami-Dade County

File Name : 6-W 10th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 3

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 10th Ave Northbound					W 10th Ave Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	6	11	269	4	290	2	6	347	12	367	0	13	13	22	48	0	12	8	18	38	743
08:15 AM	4	9	293	5	311	1	21	353	10	385	0	5	4	15	24	0	10	5	17	32	752
08:30 AM	5	15	251	11	282	0	17	304	7	328	0	11	9	17	37	0	12	9	14	35	682
08:45 AM	5	7	258	7	277	3	18	263	16	300	0	13	8	16	37	0	19	9	15	43	657
Total Volume	20	42	1071	27	1160	6	62	1267	45	1380	0	42	34	70	146	0	53	31	64	148	2834
% App. Total	1.7	3.6	92.3	2.3		0.4	4.5	91.8	3.3		0	28.8	23.3	47.9		0	35.8	20.9	43.2		
PHF	.833	.700	.914	.614	.932	.500	.738	.897	.703	.896	.000	.808	.654	.795	.760	.000	.697	.861	.889	.860	.942
Autos	20	41	1028	25	1114	5	61	1221	44	1331	0	41	32	67	140	0	52	29	64	145	2730
% Autos	100	97.6	96.0	92.6	96.0	83.3	98.4	96.4	97.8	96.4	0	97.6	94.1	95.7	95.9	0	98.1	93.5	100	98.0	96.3
Heavy Vehicles	0	1	43	2	46	1	1	46	1	49	0	1	2	3	6	0	1	2	0	3	104
% Heavy Vehicles	0	2.4	4.0	7.4	4.0	16.7	1.6	3.6	2.2	3.6	0	2.4	5.9	4.3	4.1	0	1.9	6.5	0	2.0	3.7



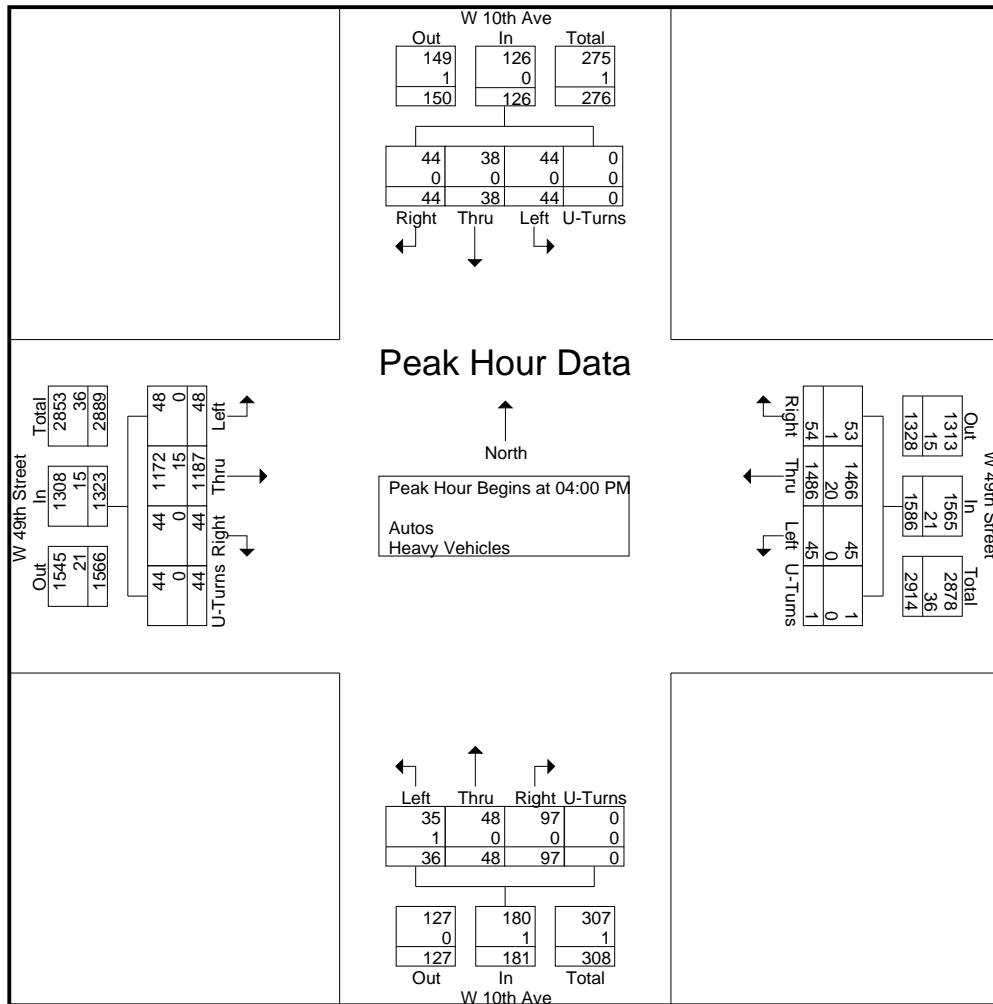
# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 10th Ave and W 49th St  
County: Miami-Dade County

File Name : 6-W 10th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 4

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 10th Ave Northbound					W 10th Ave Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	9	8	301	9	327	0	8	<b>392</b>	<b>16</b>	<b>416</b>	0	8	<b>17</b>	<b>21</b>	<b>46</b>	0	11	6	<b>19</b>	36	<b>825</b>
04:15 PM	11	<b>14</b>	299	<b>14</b>	338	<b>1</b>	<b>13</b>	350	12	376	0	7	9	26	42	0	11	9	3	23	779
04:30 PM	<b>13</b>	<b>14</b>	<b>308</b>	9	<b>344</b>	0	11	375	14	400	0	<b>11</b>	10	<b>27</b>	<b>48</b>	0	<b>13</b>	6	11	30	822
04:45 PM	11	12	279	12	314	0	13	369	12	394	0	10	12	23	45	0	9	<b>17</b>	11	<b>37</b>	790
Total Volume	44	48	1187	44	1323	1	45	1486	54	1586	0	36	48	97	181	0	44	38	44	126	3216
% App. Total	3.3	3.6	89.7	3.3		0.1	2.8	93.7	3.4		0	19.9	26.5	53.6		0	34.9	30.2	34.9		
PHF	.846	.857	.963	.786	.961	.250	.865	.948	.844	.953	.000	.818	.706	.898	.943	.000	.846	.559	.579	.851	.975
Autos	44	48	1172	44	1308	1	45	1466	53	1565	0	35	48	97	180	0	44	38	44	126	3179
% Autos	100	100	98.7	100	98.9	100	100	98.7	98.1	98.7	0	97.2	100	100	99.4	0	100	100	100	100	98.8
Heavy Vehicles	0	0	15	0	15	0	0	20	1	21	0	1	0	0	1	0	0	0	0	0	37
% Heavy Vehicles	0	0	1.3	0	1.1	0	0	1.3	1.9	1.3	0	2.8	0	0	0.6	0	0	0	0	0	1.2





# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 10th Ave and W 49th St  
County: Miami-Dade County

File Name : 6-W 10th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Heavy Vehicles

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 10th Ave Northbound					W 10th Ave Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
07:00 AM	0	0	5	1	6	0	1	16	0	17	0	0	1	0	1	0	2	0	2	4	28
07:15 AM	0	0	7	0	7	0	2	7	0	9	0	0	0	0	0	0	0	0	1	1	17
07:30 AM	0	0	7	0	7	0	1	9	0	10	0	0	0	0	0	0	0	1	0	1	18
07:45 AM	0	0	8	0	8	0	0	11	1	12	0	0	0	1	1	0	0	1	1	2	23
<b>Total</b>	0	0	27	1	28	0	4	43	1	48	0	0	1	1	2	0	2	2	4	8	86
08:00 AM	0	0	9	0	9	0	0	14	0	14	0	0	0	1	1	0	0	0	0	0	24
08:15 AM	0	0	10	0	10	1	1	19	0	21	0	0	0	1	1	0	0	0	0	0	32
08:30 AM	0	1	11	2	14	0	0	7	0	7	0	0	1	1	2	0	0	0	0	0	23
08:45 AM	0	0	13	0	13	0	0	6	1	7	0	1	1	0	2	0	1	2	0	3	25
<b>Total</b>	0	1	43	2	46	1	1	46	1	49	0	1	2	3	6	0	1	2	0	3	104
*** BREAK ***																					
04:00 PM	0	0	5	0	5	0	0	10	1	11	0	0	0	0	0	0	0	0	0	0	16
04:15 PM	0	0	4	0	4	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	6
04:30 PM	0	0	5	0	5	0	0	3	0	3	0	1	0	0	1	0	0	0	0	0	9
04:45 PM	0	0	1	0	1	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	6
<b>Total</b>	0	0	15	0	15	0	0	20	1	21	0	1	0	0	1	0	0	0	0	0	37
05:00 PM	0	0	1	0	1	0	0	2	0	2	0	0	0	1	1	0	0	0	0	0	4
05:15 PM	0	0	6	0	6	0	0	4	0	4	0	0	0	0	0	0	0	0	1	1	11
05:30 PM	0	0	3	0	3	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	6
05:45 PM	0	0	4	0	4	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	7
<b>Total</b>	0	0	14	0	14	0	0	12	0	12	0	0	0	1	1	0	0	0	1	1	28
<b>Grand Total</b>	0	1	99	3	103	1	5	121	3	130	0	2	3	5	10	0	3	4	5	12	255
<b>Apprch %</b>	0	1	96.1	2.9		0.8	3.8	93.1	2.3		0	20	30	50		0	25	33.3	41.7		
<b>Total %</b>	0	0.4	38.8	1.2	40.4	0.4	2	47.5	1.2	51	0	0.8	1.2	2	3.9	0	1.2	1.6	2	4.7	

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301

Doral, FL, 33126

Client: FDOT District 6  
 Project: TWO 30  
 Location: W 10th Ave and W 49th St  
 County: Miami-Dade County

File Name : 6-W 10th Ave & W 49th St  
 Site Code : 00000000  
 Start Date : 6/2/2022  
 Page No : 1

### Groups Printed- Peds & Bikes

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 10th Ave Northbound					W 10th Ave Southbound					Int. Total	
	Peds			Bikes	App. Total	Peds			Bikes	App. Total	Peds			Bikes	App. Total	Peds			Bikes	App. Total		
07:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2
07:30 AM	0	0	0	0	0	0	0	0	1	1	1	0	0	0	1	0	0	0	0	0	0	2
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1
<b>Total</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>6</b>
<b>*** BREAK ***</b>																						
08:15 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2	0	0	1	3	3	4
08:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
08:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<b>Total</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>6</b>
<b>*** BREAK ***</b>																						
04:00 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
<b>*** BREAK ***</b>																						
04:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	2	2	3
<b>Total</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>6</b>
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1
<b>*** BREAK ***</b>																						
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>3</b>
<b>Grand Total</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>5</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>8</b>	<b>8</b>	<b>21</b>
<b>Apprch %</b>	<b>66.7</b>	<b>0</b>	<b>0</b>	<b>33.3</b>		<b>50</b>	<b>0</b>	<b>0</b>	<b>50</b>		<b>60</b>	<b>0</b>	<b>0</b>	<b>40</b>		<b>37.5</b>	<b>0</b>	<b>0</b>	<b>62.5</b>			
<b>Total %</b>	<b>19</b>	<b>0</b>	<b>0</b>	<b>9.5</b>	<b>28.6</b>	<b>4.8</b>	<b>0</b>	<b>0</b>	<b>4.8</b>	<b>9.5</b>	<b>14.3</b>	<b>0</b>	<b>0</b>	<b>9.5</b>	<b>23.8</b>	<b>14.3</b>	<b>0</b>	<b>0</b>	<b>23.8</b>	<b>38.1</b>		

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301

Doral, FL, 33126

Client: FDOT District 6  
 Project: TWO 30  
 Location: Bank of America and W 49th St  
 County: Miami-Dade County

File Name : 7-Bank of America & W 49th St  
 Site Code : 00000000  
 Start Date : 6/2/2022  
 Page No : 1

### Groups Printed- Autos - Heavy Vehicles

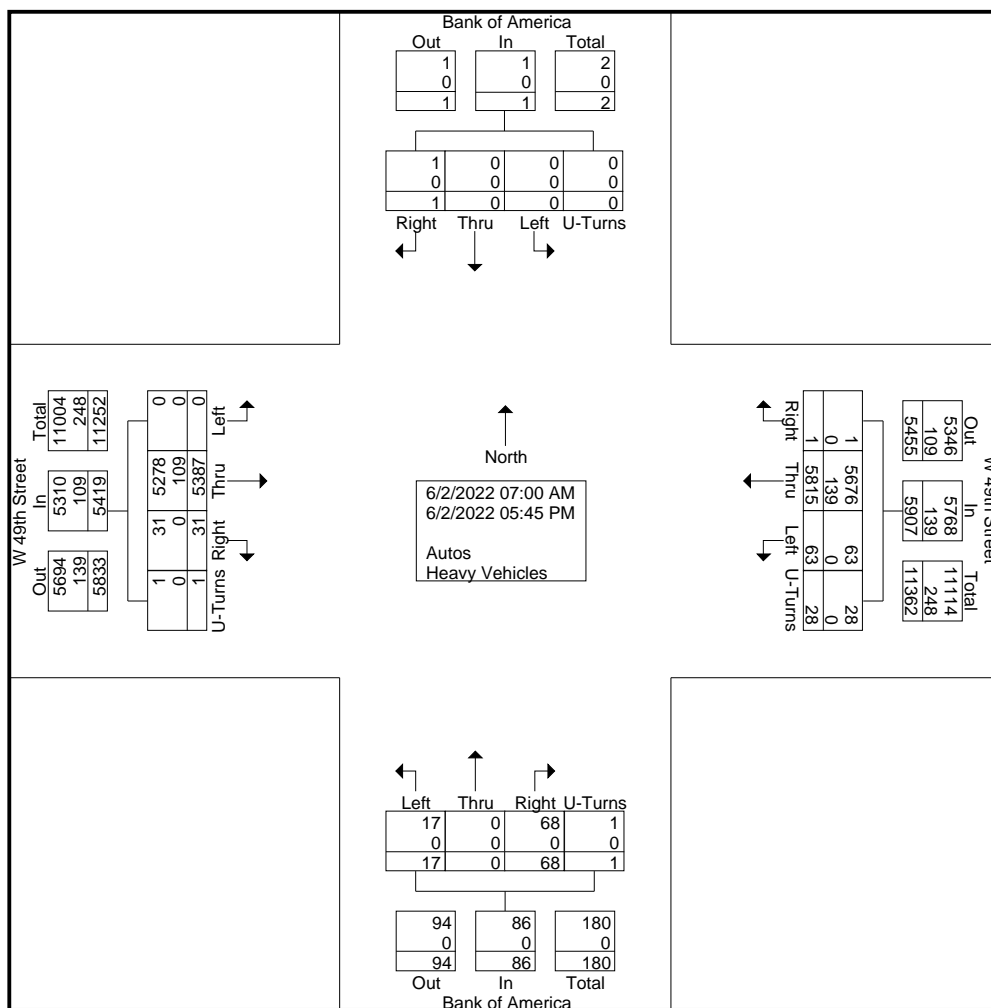
Start Time	W 49th Street Eastbound					W 49th Street Westbound					Bank of America Northbound					Bank of America Southbound					Int. Total	
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total		
07:00 AM	0	0	271	0	271	0	4	367	1	372	0	1	0	5	6	0	0	0	1	1	1	650
07:15 AM	0	0	274	2	276	2	8	390	0	400	0	1	0	6	7	0	0	0	0	0	0	683
07:30 AM	0	0	309	3	312	2	3	345	0	350	0	0	0	1	1	0	0	0	0	0	0	663
07:45 AM	0	0	274	1	275	0	5	309	0	314	0	0	0	4	4	0	0	0	0	0	0	593
<b>Total</b>	0	0	1128	6	1134	4	20	1411	1	1436	0	2	0	16	18	0	0	0	1	1	1	2589
08:00 AM	0	0	312	2	314	1	13	336	0	350	0	0	0	0	0	0	0	0	0	0	0	664
08:15 AM	0	0	310	3	313	3	1	371	0	375	0	1	0	6	7	0	0	0	0	0	0	695
08:30 AM	0	0	312	0	312	1	4	311	0	316	0	5	0	3	8	0	0	0	0	0	0	636
08:45 AM	0	0	319	1	320	3	4	323	0	330	0	0	0	4	4	0	0	0	0	0	0	654
<b>Total</b>	0	0	1253	6	1259	8	22	1341	0	1371	0	6	0	13	19	0	0	0	0	0	0	2649
*** BREAK ***																						
04:00 PM	0	0	412	1	413	2	1	409	0	412	0	3	0	7	10	0	0	0	0	0	0	835
04:15 PM	0	0	389	0	389	4	2	385	0	391	0	1	0	2	3	0	0	0	0	0	0	783
04:30 PM	1	0	369	0	370	2	3	389	0	394	0	0	0	2	2	0	0	0	0	0	0	766
04:45 PM	0	0	368	2	370	1	3	383	0	387	0	2	0	4	6	0	0	0	0	0	0	763
<b>Total</b>	1	0	1538	3	1542	9	9	1566	0	1584	0	6	0	15	21	0	0	0	0	0	0	3147
05:00 PM	0	0	393	7	400	4	2	407	0	413	0	1	0	10	11	0	0	0	0	0	0	824
05:15 PM	0	0	371	5	376	2	4	372	0	378	1	0	0	4	5	0	0	0	0	0	0	759
05:30 PM	0	0	349	3	352	1	4	358	0	363	0	0	0	3	3	0	0	0	0	0	0	718
05:45 PM	0	0	355	1	356	0	2	360	0	362	0	2	0	7	9	0	0	0	0	0	0	727
<b>Total</b>	0	0	1468	16	1484	7	12	1497	0	1516	1	3	0	24	28	0	0	0	0	0	0	3028
<b>Grand Total</b>	1	0	5387	31	5419	28	63	5815	1	5907	1	17	0	68	86	0	0	0	1	1	1	11413
<b>Apprch %</b>	0	0	99.4	0.6		0.5	1.1	98.4	0		1.2	19.8	0	79.1		0	0	0	100			
<b>Total %</b>	0	0	47.2	0.3	47.5	0.2	0.6	51	0	51.8	0	0.1	0	0.6	0.8	0	0	0	0	0	0	0
<b>Autos</b>	1	0	5278	31	5310	28	63	5676	1	5768	1	17	0	68	86	0	0	0	1	1	1	11165
<b>% Autos</b>	100	0	98	100	98	100	100	97.6	100	97.6	100	100	0	100	100	0	0	0	100	100	100	97.8
<b>Heavy Vehicles</b>	0	0	109	0	109	0	0	139	0	139	0	0	0	0	0	0	0	0	0	0	0	248
<b>% Heavy Vehicles</b>	0	0	2	0	2	0	0	2.4	0	2.4	0	0	0	0	0	0	0	0	0	0	0	2.2

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: Bank of America and W 49th St  
County: Miami-Dade County

File Name : 7-Bank of America & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 2



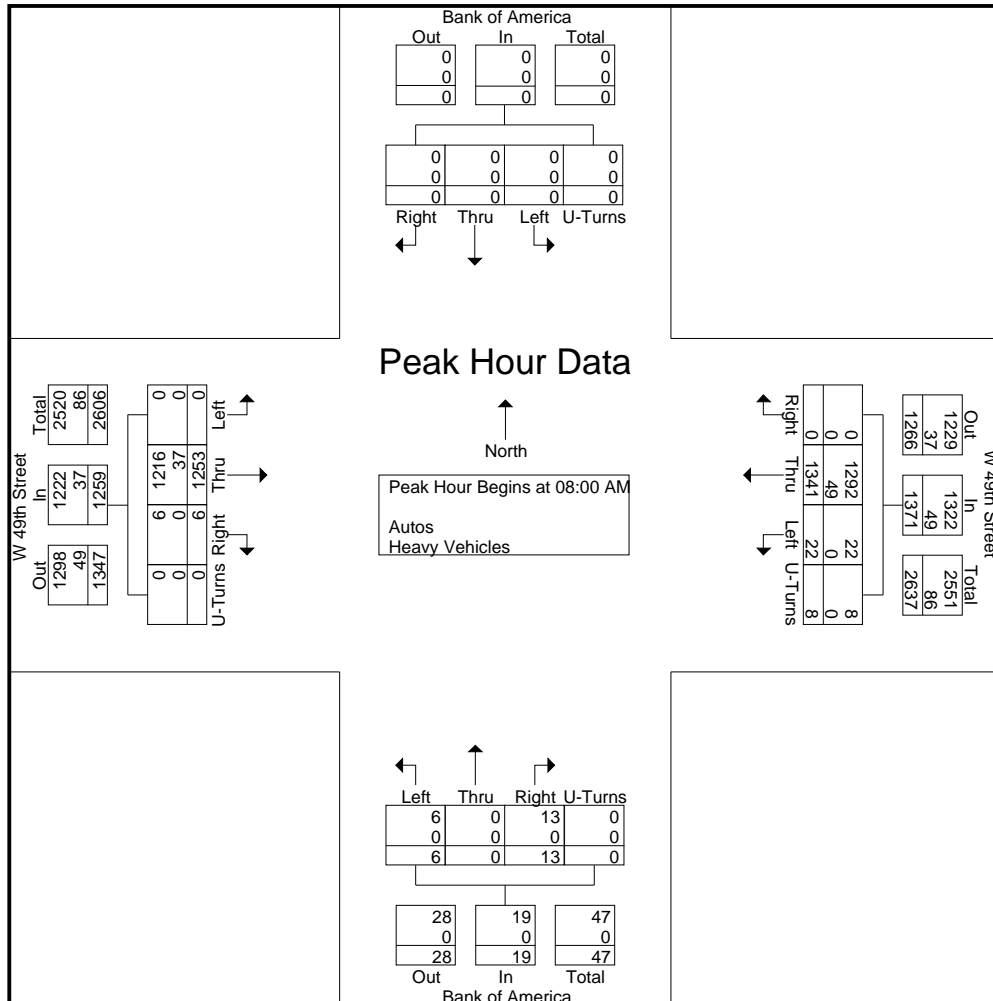
# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: Bank of America and W 49th St  
County: Miami-Dade County

File Name : 7-Bank of America & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 3

Start Time	W 49th Street Eastbound					W 49th Street Westbound					Bank of America Northbound					Bank of America Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	312	2	314	1	13	336	0	350	0	0	0	0	0	0	0	0	0	0	664
08:15 AM	0	0	310	3	313	3	1	371	0	375	0	1	0	6	7	0	0	0	0	0	695
08:30 AM	0	0	312	0	312	1	4	311	0	316	0	5	0	3	8	0	0	0	0	0	636
08:45 AM	0	0	319	1	320	3	4	323	0	330	0	0	0	4	4	0	0	0	0	0	654
Total Volume	0	0	1253	6	1259	8	22	1341	0	1371	0	6	0	13	19	0	0	0	0	0	2649
% App. Total	0	0	99.5	0.5		0.6	1.6	97.8	0		0	31.6	0	68.4		0	0	0	0	0	
PHF	.000	.000	.982	.500	.984	.667	.423	.904	.000	.914	.000	.300	.000	.542	.594	.000	.000	.000	.000	.000	.953
Autos	0	0	1216	6	1222	8	22	1292	0	1322	0	6	0	13	19	0	0	0	0	0	2563
% Autos	0	0	97.0	100	97.1	100	100	96.3	0	96.4	0	100	0	100	100	0	0	0	0	0	96.8
Heavy Vehicles	0	0	37	0	37	0	0	49	0	49	0	0	0	0	0	0	0	0	0	0	86
% Heavy Vehicles	0	0	3.0	0	2.9	0	0	3.7	0	3.6	0	0	0	0	0	0	0	0	0	0	3.2



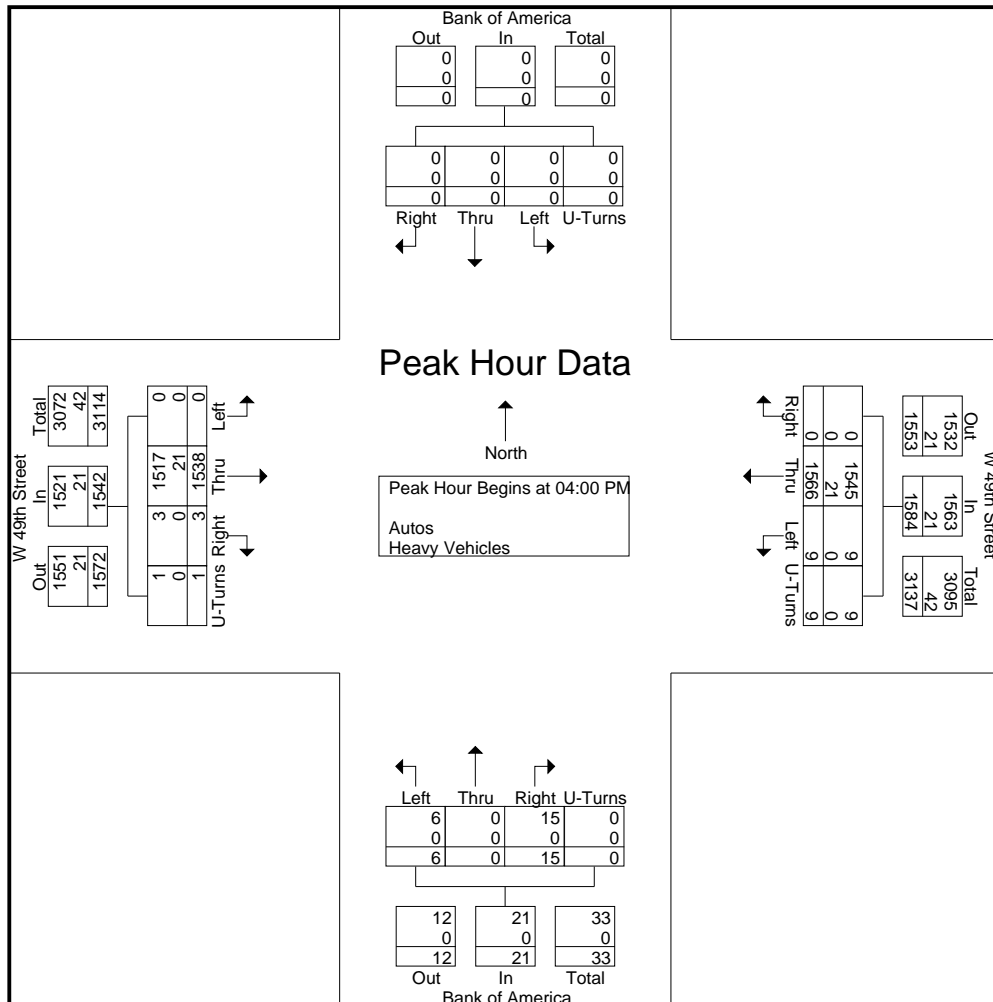
# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: Bank of America and W 49th St  
County: Miami-Dade County

File Name : 7-Bank of America & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 4

Start Time	W 49th Street Eastbound				W 49th Street Westbound				Bank of America Northbound				Bank of America Southbound				Int. Total					
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns		Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:00 PM																						
04:00 PM	0	0	412	1	413	2	1	409	0	412	0	3	0	7	10	0	0	0	0	0	0	835
04:15 PM	0	0	389	0	389	4	2	385	0	391	0	1	0	2	3	0	0	0	0	0	0	783
04:30 PM	1	0	369	0	370	2	3	389	0	394	0	0	0	2	2	0	0	0	0	0	0	766
04:45 PM	0	0	368	2	370	1	3	383	0	387	0	2	0	4	6	0	0	0	0	0	0	763
Total Volume	1	0	1538	3	1542	9	9	1566	0	1584	0	6	0	15	21	0	0	0	0	0	0	3147
% App. Total	0.1	0	99.7	0.2		0.6	0.6	98.9	0		0	28.6	0	71.4		0	0	0	0	0	0	
PHF	.250	.000	.933	.375	.933	.563	.750	.957	.000	.961	.000	.500	.000	.536	.525	.000	.000	.000	.000	.000	.000	.942
Autos	1	0	1517	3	1521	9	9	1545	0	1563	0	6	0	15	21	0	0	0	0	0	0	3105
% Autos	100	0	98.6	100	98.6	100	100	98.7	0	98.7	0	100	0	100	100	0	0	0	0	0	0	98.7
Heavy Vehicles	0	0	21	0	21	0	0	21	0	21	0	0	0	0	0	0	0	0	0	0	0	42
% Heavy Vehicles	0	0	1.4	0	1.4	0	0	1.3	0	1.3	0	0	0	0	0	0	0	0	0	0	0	1.3



# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: Bank of America and W 49th St  
County: Miami-Dade County

File Name : 7-Bank of America & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Heavy Vehicles

Start Time	W 49th Street Eastbound					W 49th Street Westbound					Bank of America Northbound					Bank of America Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
07:00 AM	0	0	6	0	6	0	0	15	0	15	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	8	0	8	0	0	12	0	12	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	10	0	10	0	0	10	0	10	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	9	0	9	0	0	10	0	10	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>33</b>	<b>0</b>	<b>33</b>	<b>0</b>	<b>0</b>	<b>47</b>	<b>0</b>	<b>47</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>80</b>
08:00 AM	0	0	8	0	8	0	0	14	0	14	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	9	0	9	0	0	15	0	15	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	10	0	10	0	0	8	0	8	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	10	0	10	0	0	12	0	12	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>37</b>	<b>0</b>	<b>37</b>	<b>0</b>	<b>0</b>	<b>49</b>	<b>0</b>	<b>49</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>86</b>
*** BREAK ***																					
04:00 PM	0	0	5	0	5	0	0	9	0	9	0	0	0	0	0	0	0	0	0	0	14
04:15 PM	0	0	6	0	6	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	8
04:30 PM	0	0	6	0	6	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	11
04:45 PM	0	0	4	0	4	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	9
<b>Total</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>0</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>0</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>42</b>
05:00 PM	0	0	4	0	4	0	0	7	0	7	0	0	0	0	0	0	0	0	0	0	11
05:15 PM	0	0	5	0	5	0	0	7	0	7	0	0	0	0	0	0	0	0	0	0	12
05:30 PM	0	0	4	0	4	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	8
05:45 PM	0	0	5	0	5	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	9
<b>Total</b>	<b>0</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>0</b>	<b>22</b>	<b>0</b>	<b>22</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>40</b>
<b>Grand Total</b>	<b>0</b>	<b>0</b>	<b>109</b>	<b>0</b>	<b>109</b>	<b>0</b>	<b>0</b>	<b>139</b>	<b>0</b>	<b>139</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>248</b>
Apprch %	0	0	100	0		0	0	100	0		0	0	0	0		0	0	0	0		
Total %	0	0	44	0	44	0	0	56	0	56	0	0	0	0	0	0	0	0	0	0	0

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: Bank of America and W 49th St  
County: Miami-Dade County

File Name : 7-Bank of America & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Peds & Bikes

Start Time	W 49th Street Eastbound				W 49th Street Westbound				Bank of America Northbound				Bank of America Southbound				Int. Total	
	Peds		Bikes	App. Total	Peds		Bikes	App. Total	Peds		Bikes	App. Total	Peds		Bikes	App. Total		
*** BREAK ***																		
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total %																		



# CTS Engineering, Inc

8095 NW 12 Street, Suite 301

Doral, FL, 33126

Client: FDOT District 6  
 Project: TWO 30  
 Location: W 8th Ave and W 49th St  
 County: Miami-Dade County

File Name : 8-W 8th Ave & W 49th St  
 Site Code : 00000000  
 Start Date : 6/2/2022  
 Page No : 1

### Groups Printed- Autos - Heavy Vehicles

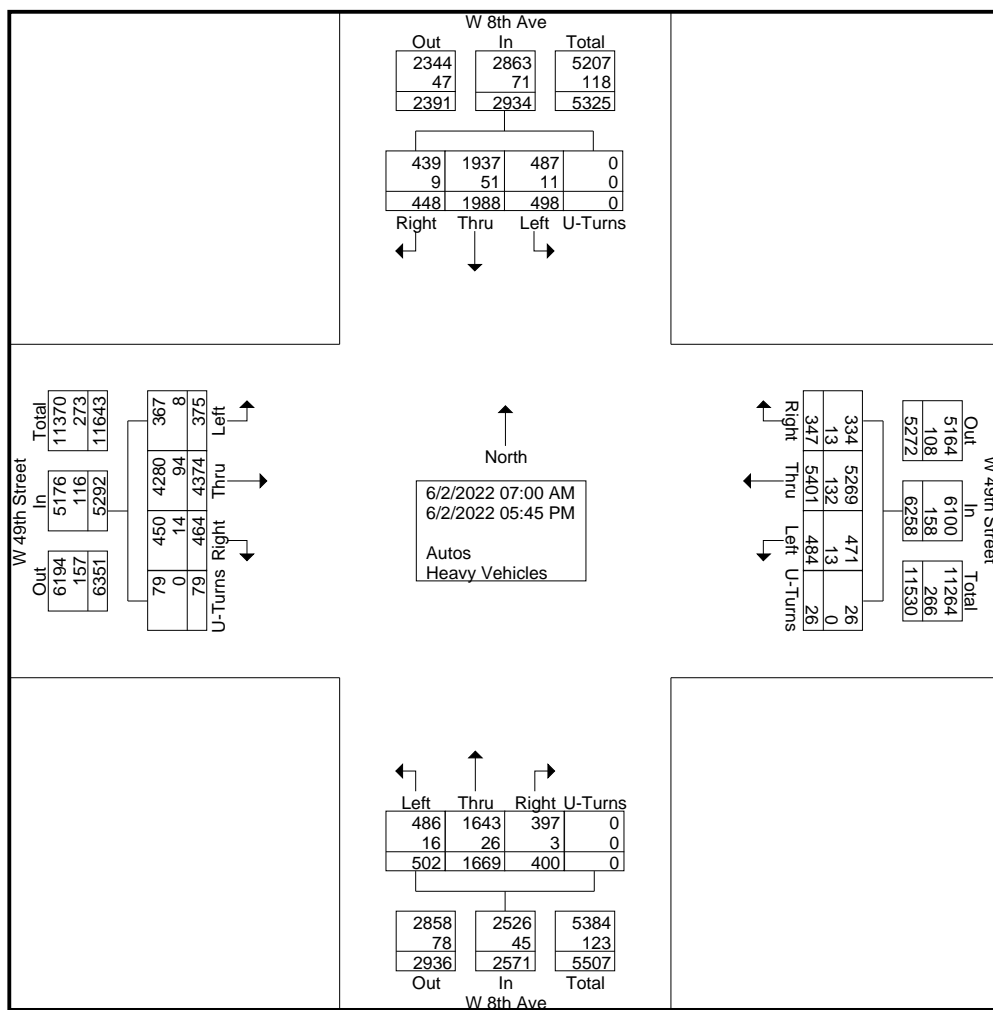
Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 8th Ave Northbound					W 8th Ave Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
07:00 AM	2	5	207	20	234	2	18	357	15	392	0	32	65	18	115	0	25	94	24	143	884
07:15 AM	1	13	196	18	228	0	20	385	12	417	0	26	73	12	111	0	28	136	50	214	970
07:30 AM	2	13	246	31	292	0	29	309	12	350	0	18	104	32	154	0	38	141	35	214	1010
07:45 AM	1	12	232	12	257	0	37	279	15	331	0	22	80	20	122	0	25	152	24	201	911
<b>Total</b>	<b>6</b>	<b>43</b>	<b>881</b>	<b>81</b>	<b>1011</b>	<b>2</b>	<b>104</b>	<b>1330</b>	<b>54</b>	<b>1490</b>	<b>0</b>	<b>98</b>	<b>322</b>	<b>82</b>	<b>502</b>	<b>0</b>	<b>116</b>	<b>523</b>	<b>133</b>	<b>772</b>	<b>3775</b>
08:00 AM	2	22	256	24	304	0	25	292	26	343	0	19	76	27	122	0	24	150	46	220	989
08:15 AM	6	21	240	21	288	2	32	324	19	377	0	32	94	21	147	0	50	142	36	228	1040
08:30 AM	6	21	270	23	320	0	37	267	14	318	0	25	77	23	125	0	29	117	41	187	950
08:45 AM	6	20	275	23	324	0	29	293	28	350	0	22	76	26	124	0	34	122	37	193	991
<b>Total</b>	<b>20</b>	<b>84</b>	<b>1041</b>	<b>91</b>	<b>1236</b>	<b>2</b>	<b>123</b>	<b>1176</b>	<b>87</b>	<b>1388</b>	<b>0</b>	<b>98</b>	<b>323</b>	<b>97</b>	<b>518</b>	<b>0</b>	<b>137</b>	<b>531</b>	<b>160</b>	<b>828</b>	<b>3970</b>
*** BREAK ***																					
04:00 PM	7	30	354	41	432	2	30	373	27	432	0	42	143	31	216	0	30	109	22	161	1241
04:15 PM	7	31	321	40	399	2	37	348	27	414	0	47	124	32	203	0	30	115	18	163	1179
04:30 PM	8	44	274	31	357	0	36	385	18	439	0	27	116	29	172	0	32	125	22	179	1147
04:45 PM	8	30	291	39	368	5	33	382	30	450	0	34	122	22	178	0	34	117	18	169	1165
<b>Total</b>	<b>30</b>	<b>135</b>	<b>1240</b>	<b>151</b>	<b>1556</b>	<b>9</b>	<b>136</b>	<b>1488</b>	<b>102</b>	<b>1735</b>	<b>0</b>	<b>150</b>	<b>505</b>	<b>114</b>	<b>769</b>	<b>0</b>	<b>126</b>	<b>466</b>	<b>80</b>	<b>672</b>	<b>4732</b>
05:00 PM	3	37	328	30	398	4	32	394	26	456	0	39	141	29	209	0	30	133	20	183	1246
05:15 PM	9	24	307	42	382	2	36	341	27	406	0	37	133	18	188	0	27	128	15	170	1146
05:30 PM	7	18	282	43	350	4	28	336	26	394	0	45	120	27	192	0	29	106	20	155	1091
05:45 PM	4	34	295	26	359	3	25	336	25	389	0	35	125	33	193	0	33	101	20	154	1095
<b>Total</b>	<b>23</b>	<b>113</b>	<b>1212</b>	<b>141</b>	<b>1489</b>	<b>13</b>	<b>121</b>	<b>1407</b>	<b>104</b>	<b>1645</b>	<b>0</b>	<b>156</b>	<b>519</b>	<b>107</b>	<b>782</b>	<b>0</b>	<b>119</b>	<b>468</b>	<b>75</b>	<b>662</b>	<b>4578</b>
<b>Grand Total</b>	<b>79</b>	<b>375</b>	<b>4374</b>	<b>464</b>	<b>5292</b>	<b>26</b>	<b>484</b>	<b>5401</b>	<b>347</b>	<b>6258</b>	<b>0</b>	<b>502</b>	<b>1669</b>	<b>400</b>	<b>2571</b>	<b>0</b>	<b>498</b>	<b>1988</b>	<b>448</b>	<b>2934</b>	<b>17055</b>
<b>Apprch %</b>	<b>1.5</b>	<b>7.1</b>	<b>82.7</b>	<b>8.8</b>		<b>0.4</b>	<b>7.7</b>	<b>86.3</b>	<b>5.5</b>		<b>0</b>	<b>19.5</b>	<b>64.9</b>	<b>15.6</b>		<b>0</b>	<b>17</b>	<b>67.8</b>	<b>15.3</b>		
<b>Total %</b>	<b>0.5</b>	<b>2.2</b>	<b>25.6</b>	<b>2.7</b>	<b>31</b>	<b>0.2</b>	<b>2.8</b>	<b>31.7</b>	<b>2</b>	<b>36.7</b>	<b>0</b>	<b>2.9</b>	<b>9.8</b>	<b>2.3</b>	<b>15.1</b>	<b>0</b>	<b>2.9</b>	<b>11.7</b>	<b>2.6</b>	<b>17.2</b>	
<b>Autos</b>	<b>79</b>	<b>367</b>	<b>4280</b>	<b>450</b>	<b>5176</b>	<b>26</b>	<b>471</b>	<b>5269</b>	<b>334</b>	<b>6100</b>	<b>0</b>	<b>486</b>	<b>1643</b>	<b>397</b>	<b>2526</b>	<b>0</b>	<b>487</b>	<b>1937</b>	<b>439</b>	<b>2863</b>	<b>16665</b>
<b>% Autos</b>	<b>100</b>	<b>97.9</b>	<b>97.9</b>	<b>97</b>	<b>97.8</b>	<b>100</b>	<b>97.3</b>	<b>97.6</b>	<b>96.3</b>	<b>97.5</b>	<b>0</b>	<b>96.8</b>	<b>98.4</b>	<b>99.2</b>	<b>98.2</b>	<b>0</b>	<b>97.8</b>	<b>97.4</b>	<b>98</b>	<b>97.6</b>	<b>97.7</b>
<b>Heavy Vehicles</b>	<b>0</b>	<b>8</b>	<b>94</b>	<b>14</b>	<b>116</b>	<b>0</b>	<b>13</b>	<b>132</b>	<b>13</b>	<b>158</b>	<b>0</b>	<b>16</b>	<b>26</b>	<b>3</b>	<b>45</b>	<b>0</b>	<b>11</b>	<b>51</b>	<b>9</b>	<b>71</b>	<b>390</b>
<b>% Heavy Vehicles</b>	<b>0</b>	<b>2.1</b>	<b>2.1</b>	<b>3</b>	<b>2.2</b>	<b>0</b>	<b>2.7</b>	<b>2.4</b>	<b>3.7</b>	<b>2.5</b>	<b>0</b>	<b>3.2</b>	<b>1.6</b>	<b>0.8</b>	<b>1.8</b>	<b>0</b>	<b>2.2</b>	<b>2.6</b>	<b>2</b>	<b>2.4</b>	<b>2.3</b>

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 8th Ave and W 49th St  
County: Miami-Dade County

File Name : 8-W 8th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 2



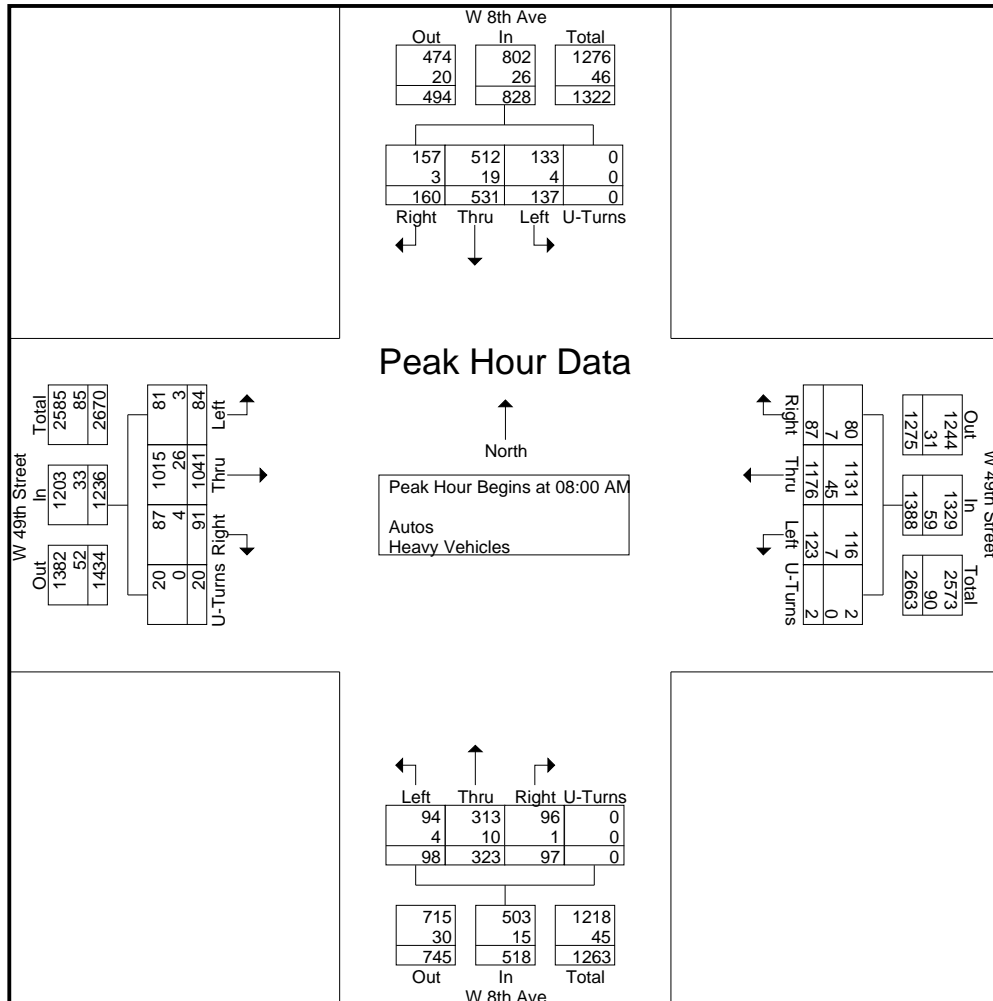
# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 8th Ave and W 49th St  
County: Miami-Dade County

File Name : 8-W 8th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 3

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 8th Ave Northbound					W 8th Ave Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	2	22	256	24	304	0	25	292	26	343	0	19	76	27	122	0	24	150	46	220	989
08:15 AM	6	21	240	21	288	2	32	324	19	377	0	32	94	21	147	0	50	142	36	228	1040
08:30 AM	6	21	270	23	320	0	37	267	14	318	0	25	77	23	125	0	29	117	41	187	950
08:45 AM	6	20	275	23	324	0	29	293	28	350	0	22	76	26	124	0	34	122	37	193	991
Total Volume	20	84	1041	91	1236	2	123	1176	87	1388	0	98	323	97	518	0	137	531	160	828	3970
% App. Total	1.6	6.8	84.2	7.4		0.1	8.9	84.7	6.3		0	18.9	62.4	18.7		0	16.5	64.1	19.3		
PHF	.833	.955	.946	.948	.954	.250	.831	.907	.777	.920	.000	.766	.859	.898	.881	.000	.685	.885	.870	.908	.954
Autos	20	81	1015	87	1203	2	116	1131	80	1329	0	94	313	96	503	0	133	512	157	802	3837
% Autos	100	96.4	97.5	95.6	97.3	100	94.3	96.2	92.0	95.7	0	95.9	96.9	99.0	97.1	0	97.1	96.4	98.1	96.9	96.6
Heavy Vehicles	0	3	26	4	33	0	7	45	7	59	0	4	10	1	15	0	4	19	3	26	133
% Heavy Vehicles	0	3.6	2.5	4.4	2.7	0	5.7	3.8	8.0	4.3	0	4.1	3.1	1.0	2.9	0	2.9	3.6	1.9	3.1	3.4



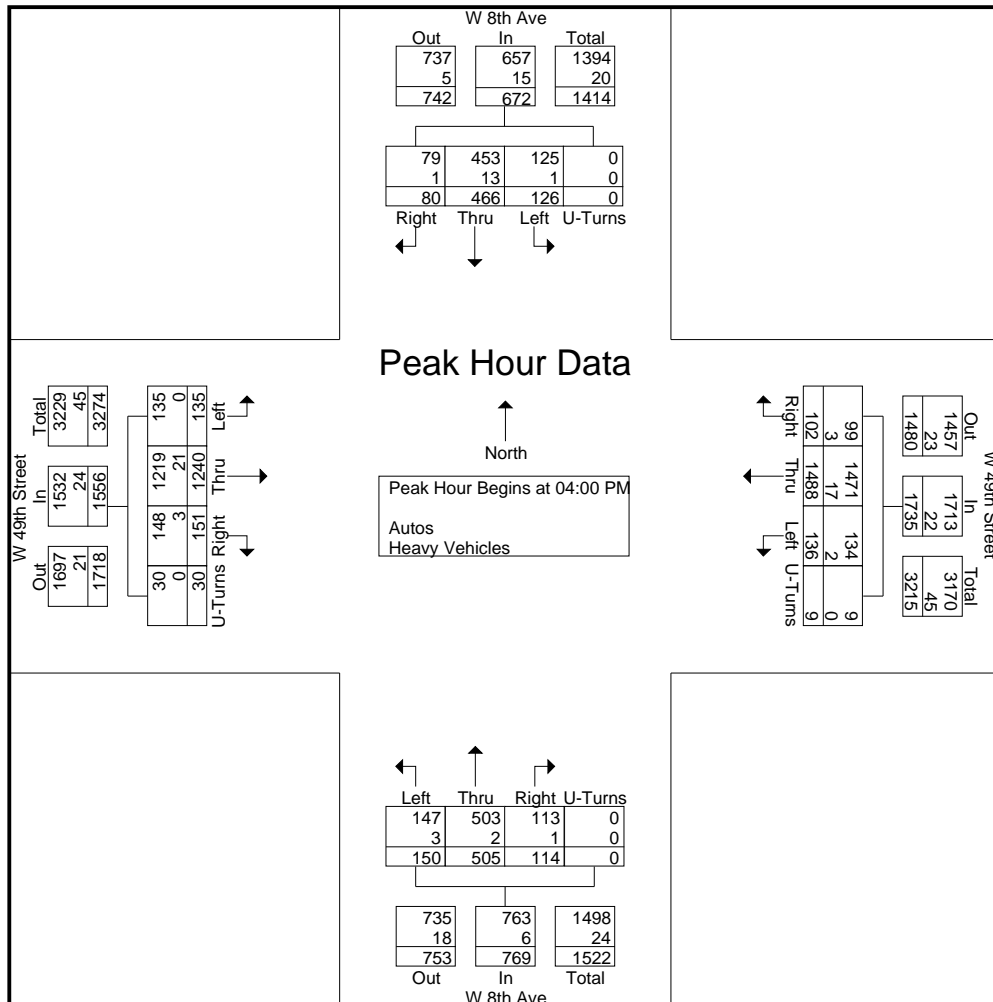
# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 8th Ave and W 49th St  
County: Miami-Dade County

File Name : 8-W 8th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 4

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 8th Ave Northbound					W 8th Ave Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	7	30	354	41	432	2	30	373	27	432	0	42	143	31	216	0	30	109	22	161	1241
04:15 PM	7	31	321	40	399	2	37	348	27	414	0	47	124	32	203	0	30	115	18	163	1179
04:30 PM	8	44	274	31	357	0	36	385	18	439	0	27	116	29	172	0	32	125	22	179	1147
04:45 PM	8	30	291	39	368	5	33	382	30	450	0	34	122	22	178	0	34	117	18	169	1165
Total Volume	30	135	1240	151	1556	9	136	1488	102	1735	0	150	505	114	769	0	126	466	80	672	4732
% App. Total	1.9	8.7	79.7	9.7		0.5	7.8	85.8	5.9		0	19.5	65.7	14.8		0	18.8	69.3	11.9		
PHF	.938	.767	.876	.921	.900	.450	.919	.966	.850	.964	.000	.798	.883	.891	.890	.000	.926	.932	.909	.939	.953
Autos	30	135	1219	148	1532	9	134	1471	99	1713	0	147	503	113	763	0	125	453	79	657	4665
% Autos	100	100	98.3	98.0	98.5	100	98.5	98.9	97.1	98.7	0	98.0	99.6	99.1	99.2	0	99.2	97.2	98.8	97.8	98.6
Heavy Vehicles	0	0	21	3	24	0	2	17	3	22	0	3	2	1	6	0	1	13	1	15	67
% Heavy Vehicles	0	0	1.7	2.0	1.5	0	1.5	1.1	2.9	1.3	0	2.0	0.4	0.9	0.8	0	0.8	2.8	1.3	2.2	1.4



# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 8th Ave and W 49th St  
County: Miami-Dade County

File Name : 8-W 8th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Heavy Vehicles

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 8th Ave Northbound					W 8th Ave Southbound					Int. Total	
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total		
07:00 AM	0	1	6	1	8	0	0	13	1	14	0	2	1	0	3	0	3	3	0	6	6	31
07:15 AM	0	2	7	0	9	0	0	15	0	15	0	1	4	1	6	0	1	2	2	5	5	35
07:30 AM	0	2	9	1	12	0	2	8	0	10	0	1	3	0	4	0	2	5	2	9	9	35
07:45 AM	0	0	9	1	10	0	1	9	2	12	0	1	2	0	3	0	0	4	0	4	4	29
<b>Total</b>	0	5	31	3	39	0	3	45	3	51	0	5	10	1	16	0	6	14	4	24	24	130
08:00 AM	0	1	6	0	7	0	3	12	4	19	0	0	3	0	3	0	0	7	1	8	8	37
08:15 AM	0	2	5	1	8	0	3	10	1	14	0	2	2	1	5	0	2	4	0	6	6	33
08:30 AM	0	0	10	0	10	0	0	7	0	7	0	1	3	0	4	0	1	3	0	4	4	25
08:45 AM	0	0	5	3	8	0	1	16	2	19	0	1	2	0	3	0	1	5	2	8	8	38
<b>Total</b>	0	3	26	4	33	0	7	45	7	59	0	4	10	1	15	0	4	19	3	26	26	133
*** BREAK ***																						
04:00 PM	0	0	3	1	4	0	0	6	1	7	0	2	0	0	2	0	0	1	0	1	1	14
04:15 PM	0	0	7	1	8	0	0	2	1	3	0	0	0	1	1	0	0	3	0	3	3	15
04:30 PM	0	0	5	1	6	0	1	5	0	6	0	1	1	0	2	0	0	7	0	7	7	21
04:45 PM	0	0	6	0	6	0	1	4	1	6	0	0	1	0	1	0	1	2	1	4	4	17
<b>Total</b>	0	0	21	3	24	0	2	17	3	22	0	3	2	1	6	0	1	13	1	15	15	67
05:00 PM	0	0	6	1	7	0	0	11	0	11	0	1	1	0	2	0	0	2	0	2	2	22
05:15 PM	0	0	2	1	3	0	1	8	0	9	0	0	1	0	1	0	0	1	1	2	2	15
05:30 PM	0	0	4	1	5	0	0	4	0	4	0	1	1	0	2	0	0	0	0	0	0	11
05:45 PM	0	0	4	1	5	0	0	2	0	2	0	2	1	0	3	0	0	2	0	2	2	12
<b>Total</b>	0	0	16	4	20	0	1	25	0	26	0	4	4	0	8	0	0	5	1	6	6	60
<b>Grand Total</b>	0	8	94	14	116	0	13	132	13	158	0	16	26	3	45	0	11	51	9	71	71	390
<b>Apprch %</b>	0	6.9	81	12.1		0	8.2	83.5	8.2		0	35.6	57.8	6.7		0	15.5	71.8	12.7			
<b>Total %</b>	0	2.1	24.1	3.6	29.7	0	3.3	33.8	3.3	40.5	0	4.1	6.7	0.8	11.5	0	2.8	13.1	2.3	18.2		

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 8th Ave and W 49th St  
County: Miami-Dade County

File Name : 8-W 8th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Peds & Bikes

Start Time	W 49th Street Eastbound				W 49th Street Westbound				W 8th Ave Northbound				W 8th Ave Southbound				Int. Total				
	Peds		Bikes	App. Total	Peds		Bikes	App. Total	Peds		Bikes	App. Total	Peds		Bikes	App. Total					
*** BREAK ***																					
08:15 AM	0	0	0	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
*** BREAK ***																					
Total	0	0	0	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
*** BREAK ***																					
04:45 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	2
05:00 PM	0	0	0	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	3	0	0	1	4	0	0	0	0	0	0	0	0	0	0	4
*** BREAK ***																					
Total	0	0	0	1	1	4	0	0	1	5	0	0	0	0	0	0	0	0	0	0	6
Grand Total	0	0	0	2	2	5	0	0	2	7	0	0	0	1	1	0	0	0	0	0	10
Apprch %	0	0	0	100		71.4	0	0	28.6		0	0	0	100		0	0	0	0		
Total %	0	0	0	20	20	50	0	0	20	70	0	0	0	10	10	0	0	0	0	0	

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Client: FDOT District 6  
Project: TWO 30  
Location: W 6th Ave and W 49th St  
County: Miami-Dade County

File Name : 9-W 6th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Autos - Heavy Vehicles

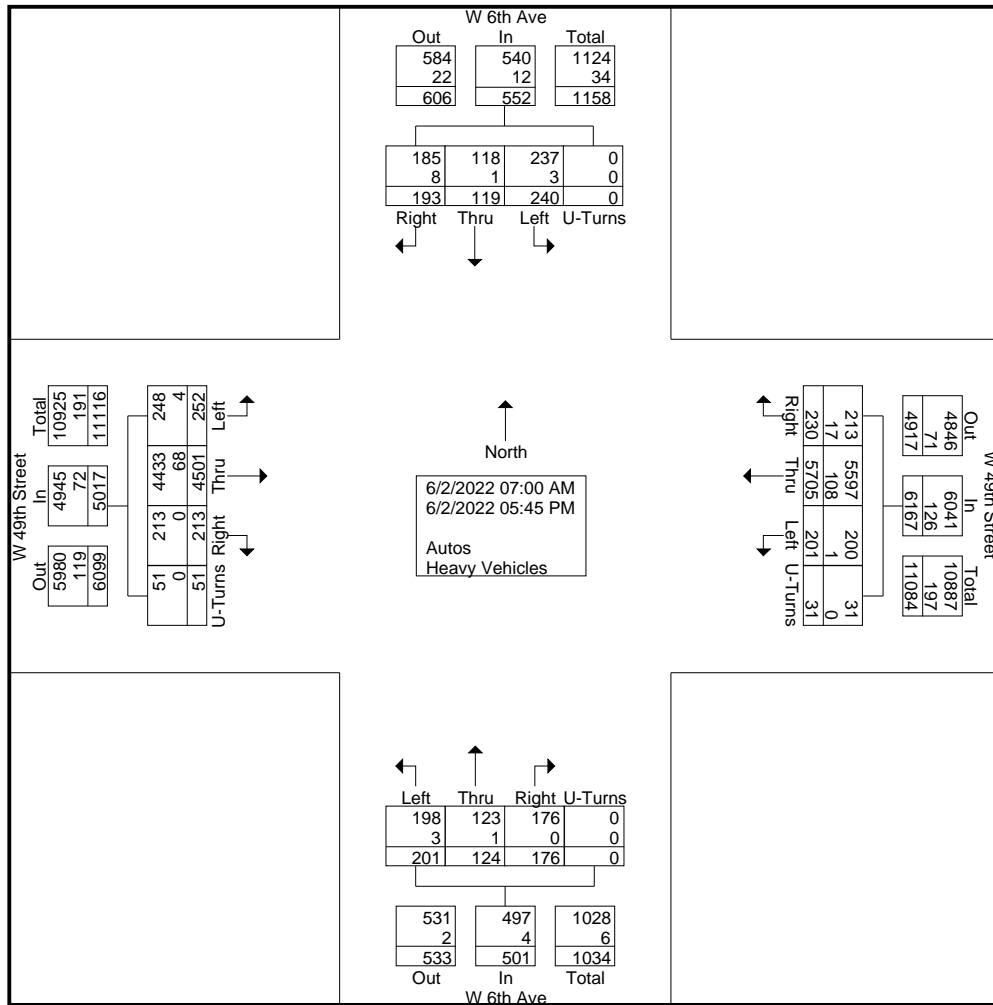
Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 6th Ave Northbound					W 6th Ave Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
07:00 AM	2	3	244	3	252	0	7	383	13	403	0	6	7	3	16	0	12	3	6	21	692
07:15 AM	2	6	227	5	240	0	8	381	9	398	0	5	1	5	11	0	9	1	11	21	670
07:30 AM	3	11	232	8	254	2	7	358	14	381	0	3	3	6	12	0	4	2	15	21	668
07:45 AM	0	14	274	11	299	0	5	311	11	327	0	5	2	1	8	0	14	5	5	24	658
<b>Total</b>	<b>7</b>	<b>34</b>	<b>977</b>	<b>27</b>	<b>1045</b>	<b>2</b>	<b>27</b>	<b>1433</b>	<b>47</b>	<b>1509</b>	<b>0</b>	<b>19</b>	<b>13</b>	<b>15</b>	<b>47</b>	<b>0</b>	<b>39</b>	<b>11</b>	<b>37</b>	<b>87</b>	<b>2688</b>
08:00 AM	2	19	263	7	291	0	7	309	19	335	0	8	5	5	18	0	22	8	11	41	685
08:15 AM	2	18	269	16	305	1	13	350	14	378	0	5	2	6	13	0	21	10	14	45	741
08:30 AM	3	16	267	12	298	2	6	320	16	344	0	7	5	12	24	0	9	4	12	25	691
08:45 AM	1	18	284	28	331	4	12	339	14	369	0	10	3	12	25	0	22	9	11	42	767
<b>Total</b>	<b>8</b>	<b>71</b>	<b>1083</b>	<b>63</b>	<b>1225</b>	<b>7</b>	<b>38</b>	<b>1318</b>	<b>63</b>	<b>1426</b>	<b>0</b>	<b>30</b>	<b>15</b>	<b>35</b>	<b>80</b>	<b>0</b>	<b>74</b>	<b>31</b>	<b>48</b>	<b>153</b>	<b>2884</b>
*** BREAK ***																					
04:00 PM	5	24	320	15	364	5	19	400	18	442	0	23	15	22	60	0	12	7	26	45	911
04:15 PM	6	18	351	11	386	1	12	386	13	412	0	23	13	16	52	0	17	16	27	60	910
04:30 PM	2	17	278	12	309	2	17	394	17	430	0	17	10	21	48	0	20	5	1	26	813
04:45 PM	4	16	280	16	316	5	18	370	13	406	0	18	6	8	32	0	23	12	0	35	789
<b>Total</b>	<b>17</b>	<b>75</b>	<b>1229</b>	<b>54</b>	<b>1375</b>	<b>13</b>	<b>66</b>	<b>1550</b>	<b>61</b>	<b>1690</b>	<b>0</b>	<b>81</b>	<b>44</b>	<b>67</b>	<b>192</b>	<b>0</b>	<b>72</b>	<b>40</b>	<b>54</b>	<b>166</b>	<b>3423</b>
05:00 PM	10	20	314	16	360	3	12	352	13	380	0	27	14	14	55	0	13	4	9	26	821
05:15 PM	5	17	338	16	376	1	21	370	16	408	0	19	9	13	41	0	16	7	13	36	861
05:30 PM	2	16	283	19	320	3	21	343	14	381	0	11	14	14	39	0	12	11	14	37	777
05:45 PM	2	19	277	18	316	2	16	339	16	373	0	14	15	18	47	0	14	15	18	47	783
<b>Total</b>	<b>19</b>	<b>72</b>	<b>1212</b>	<b>69</b>	<b>1372</b>	<b>9</b>	<b>70</b>	<b>1404</b>	<b>59</b>	<b>1542</b>	<b>0</b>	<b>71</b>	<b>52</b>	<b>59</b>	<b>182</b>	<b>0</b>	<b>55</b>	<b>37</b>	<b>54</b>	<b>146</b>	<b>3242</b>
<b>Grand Total</b>	<b>51</b>	<b>252</b>	<b>4501</b>	<b>213</b>	<b>5017</b>	<b>31</b>	<b>201</b>	<b>5705</b>	<b>230</b>	<b>6167</b>	<b>0</b>	<b>201</b>	<b>124</b>	<b>176</b>	<b>501</b>	<b>0</b>	<b>240</b>	<b>119</b>	<b>193</b>	<b>552</b>	<b>12237</b>
<b>Apprch %</b>	<b>1</b>	<b>5</b>	<b>89.7</b>	<b>4.2</b>		<b>0.5</b>	<b>3.3</b>	<b>92.5</b>	<b>3.7</b>		<b>0</b>	<b>40.1</b>	<b>24.8</b>	<b>35.1</b>		<b>0</b>	<b>43.5</b>	<b>21.6</b>	<b>35</b>		
<b>Total %</b>	<b>0.4</b>	<b>2.1</b>	<b>36.8</b>	<b>1.7</b>	<b>41</b>	<b>0.3</b>	<b>1.6</b>	<b>46.6</b>	<b>1.9</b>	<b>50.4</b>	<b>0</b>	<b>1.6</b>	<b>1</b>	<b>1.4</b>	<b>4.1</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>1.6</b>	<b>4.5</b>	
<b>Autos</b>	<b>51</b>	<b>248</b>	<b>4433</b>	<b>213</b>	<b>4945</b>	<b>31</b>	<b>200</b>	<b>5597</b>	<b>213</b>	<b>6041</b>	<b>0</b>	<b>198</b>	<b>123</b>	<b>176</b>	<b>497</b>	<b>0</b>	<b>237</b>	<b>118</b>	<b>185</b>	<b>540</b>	<b>12023</b>
<b>% Autos</b>	<b>100</b>	<b>98.4</b>	<b>98.5</b>	<b>100</b>	<b>98.6</b>	<b>100</b>	<b>99.5</b>	<b>98.1</b>	<b>92.6</b>	<b>98</b>	<b>0</b>	<b>98.5</b>	<b>99.2</b>	<b>100</b>	<b>99.2</b>	<b>0</b>	<b>98.8</b>	<b>99.2</b>	<b>95.9</b>	<b>97.8</b>	<b>98.3</b>
<b>Heavy Vehicles</b>	<b>0</b>	<b>4</b>	<b>68</b>	<b>0</b>	<b>72</b>	<b>0</b>	<b>1</b>	<b>108</b>	<b>17</b>	<b>126</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>8</b>	<b>12</b>	<b>214</b>
<b>% Heavy Vehicles</b>	<b>0</b>	<b>1.6</b>	<b>1.5</b>	<b>0</b>	<b>1.4</b>	<b>0</b>	<b>0.5</b>	<b>1.9</b>	<b>7.4</b>	<b>2</b>	<b>0</b>	<b>1.5</b>	<b>0.8</b>	<b>0</b>	<b>0.8</b>	<b>0</b>	<b>1.2</b>	<b>0.8</b>	<b>4.1</b>	<b>2.2</b>	<b>1.7</b>

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 6th Ave and W 49th St  
County: Miami-Dade County

File Name : 9-W 6th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 2





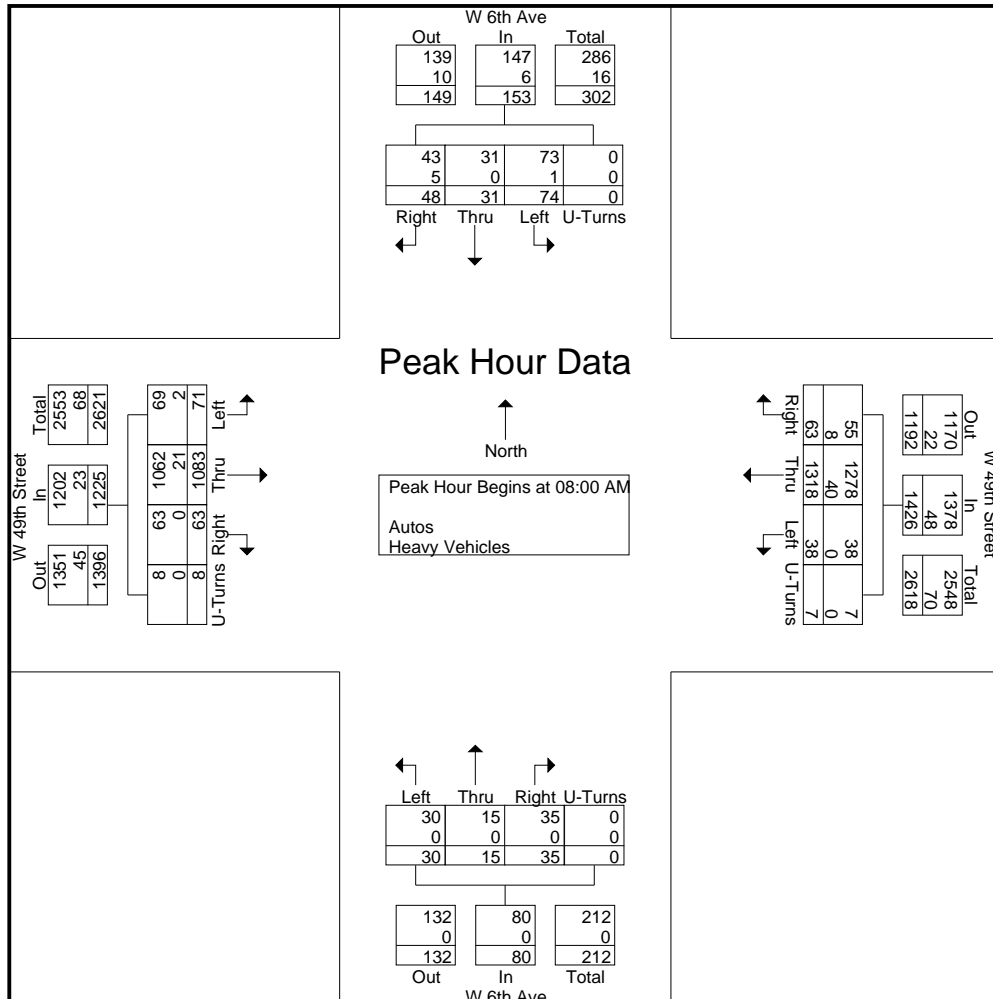
# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 6th Ave and W 49th St  
County: Miami-Dade County

File Name : 9-W 6th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 3

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 6th Ave Northbound					W 6th Ave Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	2	19	263	7	291	0	7	309	19	335	0	8	5	5	18	0	22	8	11	41	685
08:15 AM	2	18	269	16	305	1	13	350	14	378	0	5	2	6	13	0	21	10	14	45	741
08:30 AM	3	16	267	12	298	2	6	320	16	344	0	7	5	12	24	0	9	4	12	25	691
08:45 AM	1	18	284	28	331	4	12	339	14	369	0	10	3	12	25	0	22	9	11	42	767
Total Volume	8	71	1083	63	1225	7	38	1318	63	1426	0	30	15	35	80	0	74	31	48	153	2884
% App. Total	0.7	5.8	88.4	5.1		0.5	2.7	92.4	4.4		0	37.5	18.8	43.8		0	48.4	20.3	31.4		
PHF	.667	.934	.953	.563	.925	.438	.731	.941	.829	.943	.000	.750	.750	.729	.800	.000	.841	.775	.857	.850	.940
Autos	8	69	1062	63	1202	7	38	1278	55	1378	0	30	15	35	80	0	73	31	43	147	2807
% Autos	100	97.2	98.1	100	98.1	100	100	97.0	87.3	96.6	0	100	100	100	100	0	98.6	100	89.6	96.1	97.3
Heavy Vehicles	0	2	21	0	23	0	0	40	8	48	0	0	0	0	0	0	1	0	5	6	77
% Heavy Vehicles	0	2.8	1.9	0	1.9	0	0	3.0	12.7	3.4	0	0	0	0	0	0	1.4	0	10.4	3.9	2.7



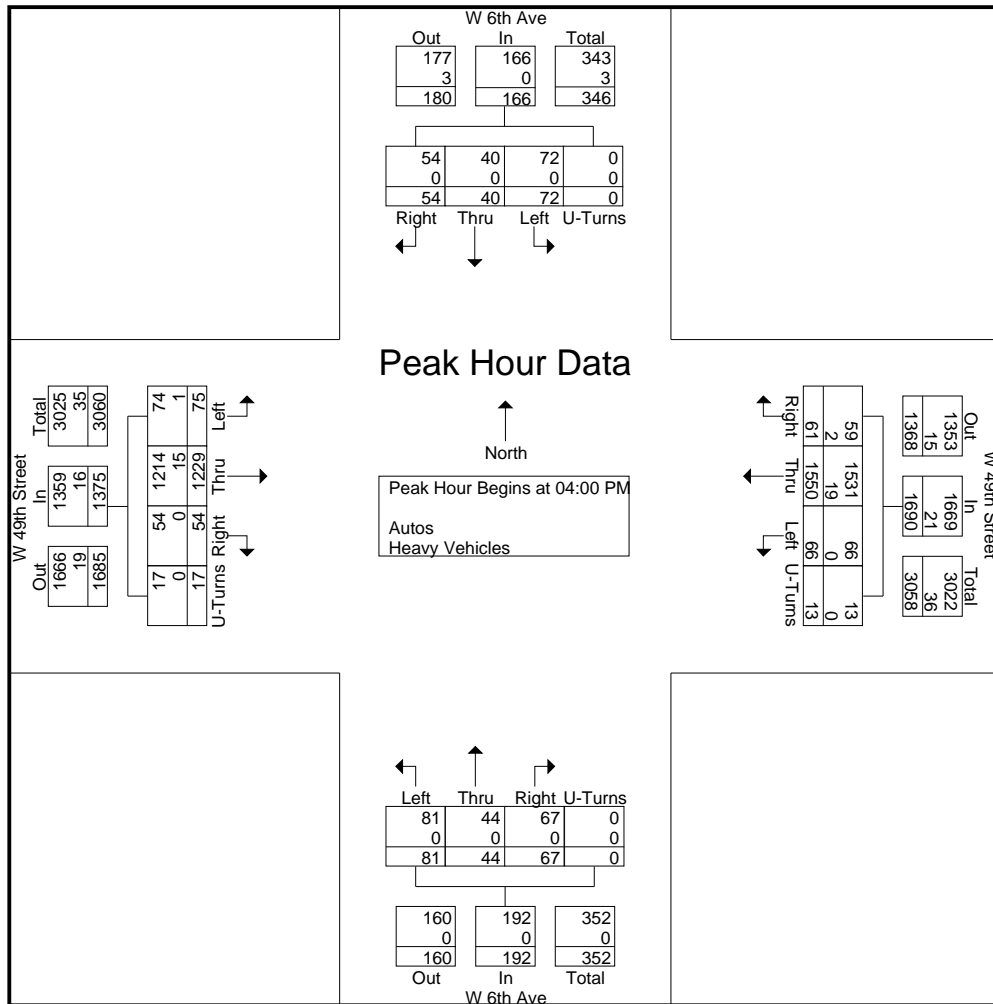
# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 6th Ave and W 49th St  
County: Miami-Dade County

File Name : 9-W 6th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 4

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 6th Ave Northbound					W 6th Ave Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	5	24	320	15	364	5	19	400	18	442	0	23	15	22	60	0	12	7	26	45	911
04:15 PM	6	18	351	11	386	1	12	386	13	412	0	23	13	16	52	0	17	16	27	60	910
04:30 PM	2	17	278	12	309	2	17	394	17	430	0	17	10	21	48	0	20	5	1	26	813
04:45 PM	4	16	280	16	316	5	18	370	13	406	0	18	6	8	32	0	23	12	0	35	789
Total Volume	17	75	1229	54	1375	13	66	1550	61	1690	0	81	44	67	192	0	72	40	54	166	3423
% App. Total	1.2	5.5	89.4	3.9		0.8	3.9	91.7	3.6		0	42.2	22.9	34.9		0	43.4	24.1	32.5		
PHF	.708	.781	.875	.844	.891	.650	.868	.969	.847	.956	.000	.880	.733	.761	.800	.000	.783	.625	.500	.692	.939
Autos	17	74	1214	54	1359	13	66	1531	59	1669	0	81	44	67	192	0	72	40	54	166	3386
% Autos	100	98.7	98.8	100	98.8	100	100	98.8	96.7	98.8	0	100	100	100	100	0	100	100	100	100	98.9
Heavy Vehicles	0	1	15	0	16	0	0	19	2	21	0	0	0	0	0	0	0	0	0	0	37
% Heavy Vehicles	0	1.3	1.2	0	1.2	0	0	1.2	3.3	1.2	0	0	0	0	0	0	0	0	0	0	1.1



# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 6th Ave and W 49th St  
County: Miami-Dade County

File Name : 9-W 6th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Heavy Vehicles

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 6th Ave Northbound					W 6th Ave Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
07:00 AM	0	0	6	0	6	0	0	8	2	10	0	0	1	0	1	0	1	0	0	1	18
07:15 AM	0	0	6	0	6	0	0	13	1	14	0	0	0	0	0	0	1	0	0	1	21
07:30 AM	0	0	5	0	5	0	1	7	3	11	0	1	0	0	1	0	0	0	2	2	19
07:45 AM	0	0	5	0	5	0	0	7	0	7	0	0	0	0	0	0	0	0	1	1	13
<b>Total</b>	0	0	22	0	22	0	1	35	6	42	0	1	1	0	2	0	2	0	3	5	71
08:00 AM	0	1	5	0	6	0	0	11	1	12	0	0	0	0	0	0	1	0	1	2	20
08:15 AM	0	0	4	0	4	0	0	9	2	11	0	0	0	0	0	0	0	0	2	2	17
08:30 AM	0	1	7	0	8	0	0	7	4	11	0	0	0	0	0	0	0	0	1	1	20
08:45 AM	0	0	5	0	5	0	0	13	1	14	0	0	0	0	0	0	0	0	1	1	20
<b>Total</b>	0	2	21	0	23	0	0	40	8	48	0	0	0	0	0	0	1	0	5	6	77
*** BREAK ***																					
04:00 PM	0	0	2	0	2	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	7
04:15 PM	0	0	5	0	5	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	7
04:30 PM	0	0	3	0	3	0	0	4	1	5	0	0	0	0	0	0	0	0	0	0	8
04:45 PM	0	1	5	0	6	0	0	9	0	9	0	0	0	0	0	0	0	0	0	0	15
<b>Total</b>	0	1	15	0	16	0	0	19	2	21	0	0	0	0	0	0	0	0	0	0	37
05:00 PM	0	0	4	0	4	0	0	2	1	3	0	2	0	0	2	0	0	1	0	1	10
05:15 PM	0	0	2	0	2	0	0	8	0	8	0	0	0	0	0	0	0	0	0	0	10
05:30 PM	0	1	0	0	1	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	4
05:45 PM	0	0	4	0	4	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	5
<b>Total</b>	0	1	10	0	11	0	0	14	1	15	0	2	0	0	2	0	0	1	0	1	29
<b>Grand Total</b>	0	4	68	0	72	0	1	108	17	126	0	3	1	0	4	0	3	1	8	12	214
<b>Apprch %</b>	0	5.6	94.4	0		0	0.8	85.7	13.5		0	75	25	0		0	25	8.3	66.7		
<b>Total %</b>	0	1.9	31.8	0	33.6	0	0.5	50.5	7.9	58.9	0	1.4	0.5	0	1.9	0	1.4	0.5	3.7	5.6	

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 6th Ave and W 49th St  
County: Miami-Dade County

File Name : 9-W 6th Ave & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Peds & Bikes

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 6th Ave Northbound					W 6th Ave Southbound					Int. Total
	Peds		Bikes	App. Total		Peds		Bikes	App. Total		Peds		Bikes	App. Total		Peds		Bikes	App. Total		
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
*** BREAK ***																					
07:30 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	1	0	0	0	1	4
07:45 AM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	3
Total	2	0	0	0	2	0	0	0	0	0	3	0	0	0	3	3	0	0	0	3	8
08:00 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	3	0	0	0	3	7
08:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
08:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2
08:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Total	1	0	0	0	1	0	0	0	0	0	6	0	0	0	6	5	0	0	0	5	12
*** BREAK ***																					
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
*** BREAK ***																					
04:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
Total	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
*** BREAK ***																					
05:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	3
Grand Total	3	0	0	0	3	1	0	0	0	1	12	0	0	0	12	9	0	0	0	9	25
Apprch %	100	0	0	0		100	0	0	0		100	0	0	0		100	0	0	0		
Total %	12	0	0	0	12	4	0	0	0	4	48	0	0	0	48	36	0	0	0	36	

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 500 BLK and W 49th St  
County: Miami-Dade County

File Name : 10-W 500 BLK & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Autos - Heavy Vehicles

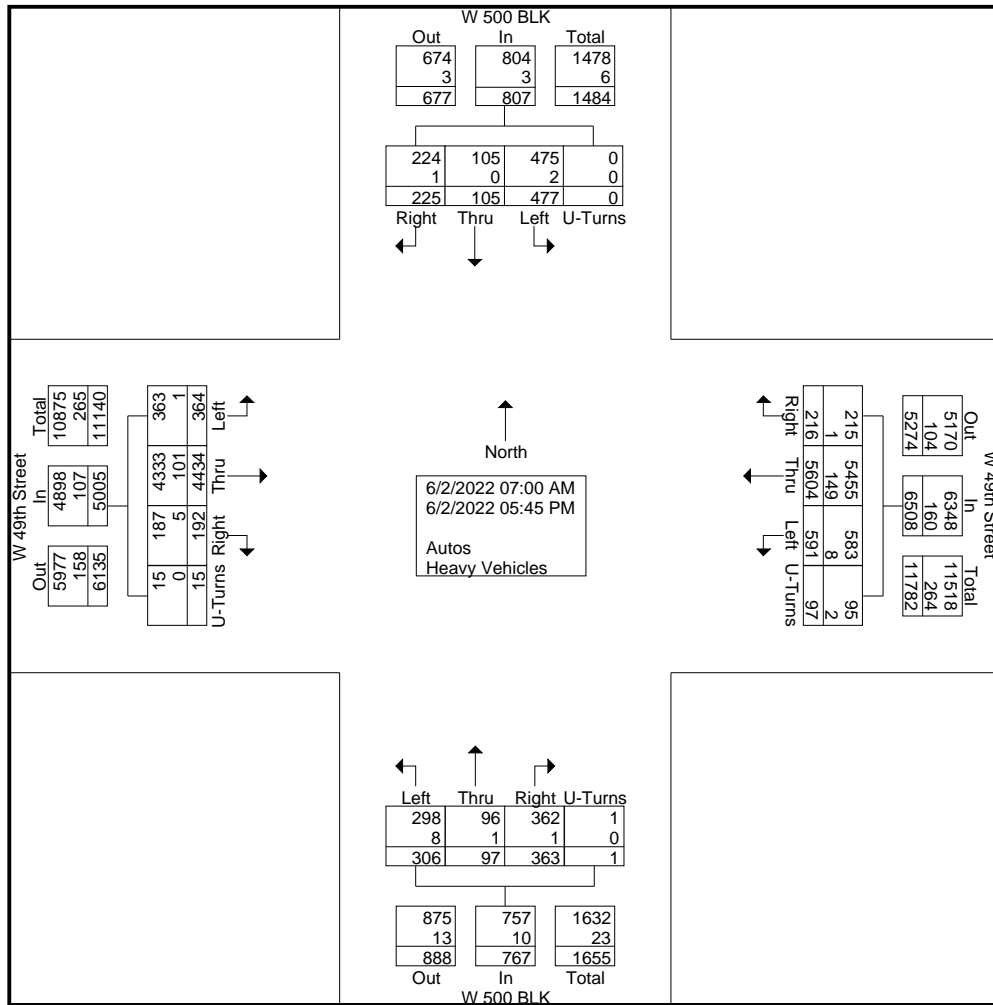
Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 500 BLK Northbound					W 500 BLK Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
07:00 AM	0	4	232	8	244	0	16	394	13	423	0	9	1	10	20	0	17	2	0	19	706
07:15 AM	2	9	224	3	238	4	21	377	13	415	0	8	0	7	15	0	14	1	7	22	690
07:30 AM	0	9	252	10	271	3	16	364	13	396	0	10	0	8	18	0	11	3	2	16	701
07:45 AM	0	13	245	9	267	7	19	323	15	364	0	13	2	10	25	0	12	2	2	16	672
<b>Total</b>	<b>2</b>	<b>35</b>	<b>953</b>	<b>30</b>	<b>1020</b>	<b>14</b>	<b>72</b>	<b>1458</b>	<b>54</b>	<b>1598</b>	<b>0</b>	<b>40</b>	<b>3</b>	<b>35</b>	<b>78</b>	<b>0</b>	<b>54</b>	<b>8</b>	<b>11</b>	<b>73</b>	<b>2769</b>
08:00 AM	1	22	253	15	291	12	36	310	13	371	0	14	4	18	36	0	24	3	3	30	728
08:15 AM	1	26	279	17	323	14	32	375	13	434	0	19	2	16	37	0	25	3	4	32	826
08:30 AM	1	15	255	20	291	6	47	317	18	388	0	14	2	19	35	0	26	2	10	38	752
08:45 AM	0	20	263	18	301	7	41	339	12	399	0	17	12	19	48	0	31	5	12	48	796
<b>Total</b>	<b>3</b>	<b>83</b>	<b>1050</b>	<b>70</b>	<b>1206</b>	<b>39</b>	<b>156</b>	<b>1341</b>	<b>56</b>	<b>1592</b>	<b>0</b>	<b>64</b>	<b>20</b>	<b>72</b>	<b>156</b>	<b>0</b>	<b>106</b>	<b>13</b>	<b>29</b>	<b>148</b>	<b>3102</b>
*** BREAK ***																					
04:00 PM	2	33	311	14	360	4	60	339	13	416	0	26	12	41	79	0	49	7	36	92	947
04:15 PM	0	38	325	15	378	3	32	348	19	402	0	34	8	32	74	0	41	11	21	73	927
04:30 PM	2	33	309	11	355	7	47	364	7	425	0	30	10	29	69	0	37	10	23	70	919
04:45 PM	1	32	268	5	306	4	47	378	13	442	0	23	7	30	60	0	35	14	23	72	880
<b>Total</b>	<b>5</b>	<b>136</b>	<b>1213</b>	<b>45</b>	<b>1399</b>	<b>18</b>	<b>186</b>	<b>1429</b>	<b>52</b>	<b>1685</b>	<b>0</b>	<b>113</b>	<b>37</b>	<b>132</b>	<b>282</b>	<b>0</b>	<b>162</b>	<b>42</b>	<b>103</b>	<b>307</b>	<b>3673</b>
05:00 PM	0	23	325	10	358	6	41	362	16	425	0	21	9	45	75	0	39	7	18	64	922
05:15 PM	3	28	317	12	360	8	41	339	12	400	1	19	14	28	62	0	33	8	31	72	894
05:30 PM	1	28	278	12	319	4	43	343	16	406	0	21	8	29	58	0	43	14	14	71	854
05:45 PM	1	31	298	13	343	8	52	332	10	402	0	28	6	22	56	0	40	13	19	72	873
<b>Total</b>	<b>5</b>	<b>110</b>	<b>1218</b>	<b>47</b>	<b>1380</b>	<b>26</b>	<b>177</b>	<b>1376</b>	<b>54</b>	<b>1633</b>	<b>1</b>	<b>89</b>	<b>37</b>	<b>124</b>	<b>251</b>	<b>0</b>	<b>155</b>	<b>42</b>	<b>82</b>	<b>279</b>	<b>3543</b>
<b>Grand Total</b>	<b>15</b>	<b>364</b>	<b>4434</b>	<b>192</b>	<b>5005</b>	<b>97</b>	<b>591</b>	<b>5604</b>	<b>216</b>	<b>6508</b>	<b>1</b>	<b>306</b>	<b>97</b>	<b>363</b>	<b>767</b>	<b>0</b>	<b>477</b>	<b>105</b>	<b>225</b>	<b>807</b>	<b>13087</b>
<b>Apprch %</b>	<b>0.3</b>	<b>7.3</b>	<b>88.6</b>	<b>3.8</b>		<b>1.5</b>	<b>9.1</b>	<b>86.1</b>	<b>3.3</b>		<b>0.1</b>	<b>39.9</b>	<b>12.6</b>	<b>47.3</b>		<b>0</b>	<b>59.1</b>	<b>13</b>	<b>27.9</b>		
<b>Total %</b>	<b>0.1</b>	<b>2.8</b>	<b>33.9</b>	<b>1.5</b>	<b>38.2</b>	<b>0.7</b>	<b>4.5</b>	<b>42.8</b>	<b>1.7</b>	<b>49.7</b>	<b>0</b>	<b>2.3</b>	<b>0.7</b>	<b>2.8</b>	<b>5.9</b>	<b>0</b>	<b>3.6</b>	<b>0.8</b>	<b>1.7</b>	<b>6.2</b>	
<b>Autos</b>	<b>15</b>	<b>363</b>	<b>4333</b>	<b>187</b>	<b>4898</b>	<b>95</b>	<b>583</b>	<b>5455</b>	<b>215</b>	<b>6348</b>	<b>1</b>	<b>298</b>	<b>96</b>	<b>362</b>	<b>757</b>	<b>0</b>	<b>475</b>	<b>105</b>	<b>224</b>	<b>804</b>	<b>12807</b>
<b>% Autos</b>	<b>100</b>	<b>99.7</b>	<b>97.7</b>	<b>97.4</b>	<b>97.9</b>	<b>97.9</b>	<b>98.6</b>	<b>97.3</b>	<b>99.5</b>	<b>97.5</b>	<b>100</b>	<b>97.4</b>	<b>99</b>	<b>99.7</b>	<b>98.7</b>	<b>0</b>	<b>99.6</b>	<b>100</b>	<b>99.6</b>	<b>99.6</b>	<b>97.9</b>
<b>Heavy Vehicles</b>	<b>0</b>	<b>1</b>	<b>101</b>	<b>5</b>	<b>107</b>	<b>2</b>	<b>8</b>	<b>149</b>	<b>1</b>	<b>160</b>	<b>0</b>	<b>8</b>	<b>1</b>	<b>1</b>	<b>10</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>280</b>
<b>% Heavy Vehicles</b>	<b>0</b>	<b>0.3</b>	<b>2.3</b>	<b>2.6</b>	<b>2.1</b>	<b>2.1</b>	<b>1.4</b>	<b>2.7</b>	<b>0.5</b>	<b>2.5</b>	<b>0</b>	<b>2.6</b>	<b>1</b>	<b>0.3</b>	<b>1.3</b>	<b>0</b>	<b>0.4</b>	<b>0</b>	<b>0.4</b>	<b>0.4</b>	<b>2.1</b>

# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 500 BLK and W 49th St  
County: Miami-Dade County

File Name : 10-W 500 BLK & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 2



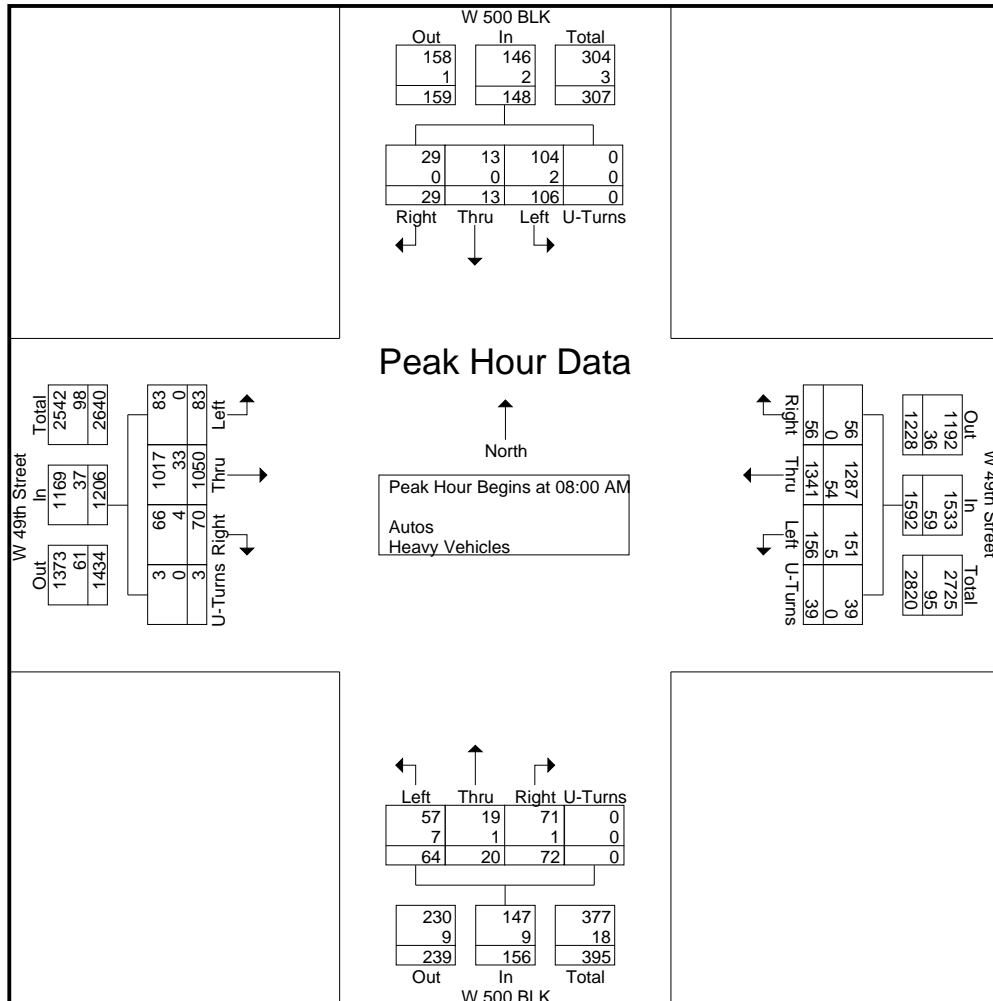
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Doral, FL, 33126

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Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 3

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 500 BLK Northbound					W 500 BLK Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	1	22	253	15	291	12	36	310	13	371	0	14	4	18	36	0	24	3	3	30	728
08:15 AM	1	<b>26</b>	<b>279</b>	17	<b>323</b>	<b>14</b>	32	<b>375</b>	13	<b>434</b>	0	<b>19</b>	2	16	37	0	25	3	4	32	<b>826</b>
08:30 AM	1	15	255	<b>20</b>	291	6	<b>47</b>	317	<b>18</b>	388	0	14	2	<b>19</b>	35	0	26	2	10	38	752
08:45 AM	0	20	263	18	301	7	41	339	12	399	0	17	<b>12</b>	19	<b>48</b>	0	<b>31</b>	<b>5</b>	<b>12</b>	<b>48</b>	796
Total Volume	3	83	1050	70	1206	39	156	1341	56	1592	0	64	20	72	156	0	106	13	29	148	3102
% App. Total	0.2	6.9	87.1	5.8		2.4	9.8	84.2	3.5		0	4.1	12.8	46.2		0	71.6	8.8	19.6		
PHF	.750	.798	.941	.875	.933	.696	.830	.894	.778	.917	.000	.842	.417	.947	.813	.000	.855	.650	.604	.771	.939
Autos	3	83	1017	66	1169	39	151	1287	56	1533	0	57	19	71	147	0	104	13	29	146	2995
% Autos	100	100	96.9	94.3	96.9	100	96.8	96.0	100	96.3	0	89.1	95.0	98.6	94.2	0	98.1	100	100	98.6	96.6
Heavy Vehicles	0	0	33	4	37	0	5	54	0	59	0	7	1	1	9	0	2	0	0	2	107
% Heavy Vehicles	0	0	3.1	5.7	3.1	0	3.2	4.0	0	3.7	0	10.9	5.0	1.4	5.8	0	1.9	0	0	1.4	3.4



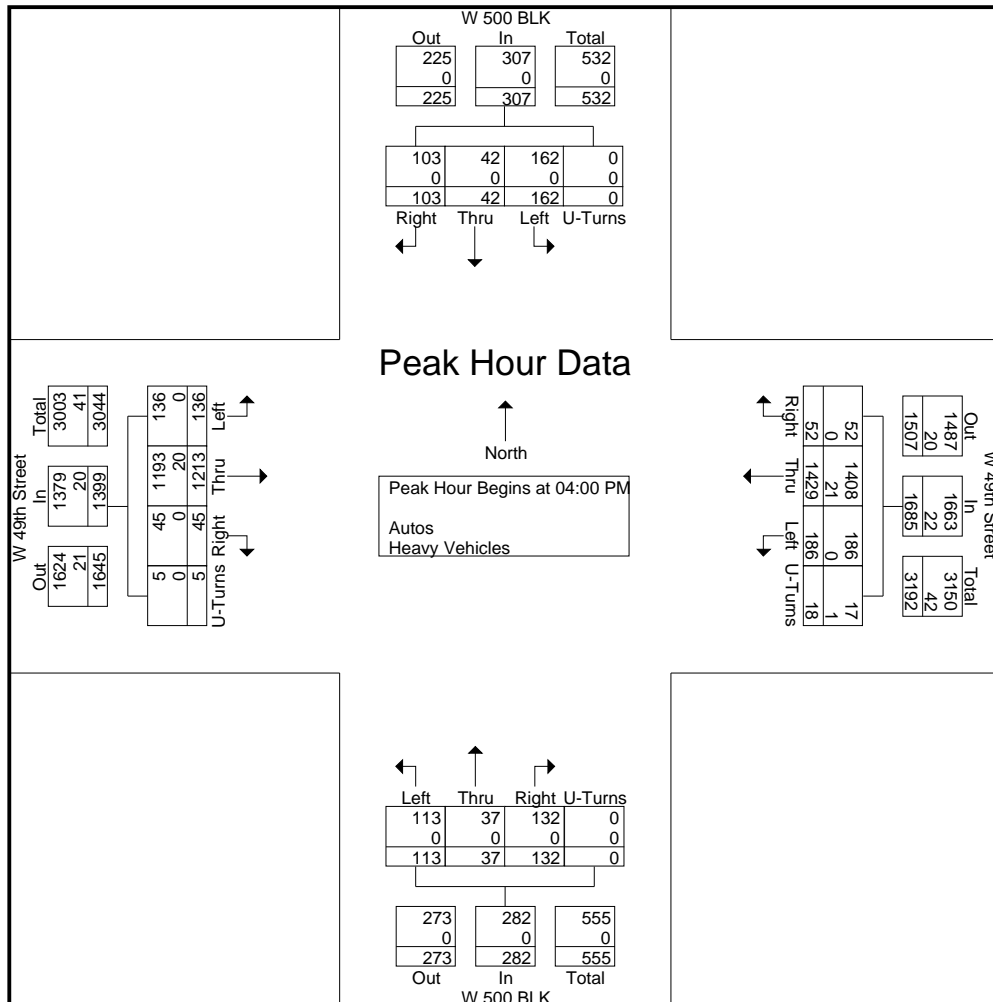
# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: W 500 BLK and W 49th St  
County: Miami-Dade County

File Name : 10-W 500 BLK & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 4

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 500 BLK Northbound					W 500 BLK Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	2	33	311	14	360	4	60	339	13	416	0	26	12	41	79	0	49	7	36	92	947
04:15 PM	0	38	325	15	378	3	32	348	19	402	0	34	8	32	74	0	41	11	21	73	927
04:30 PM	2	33	309	11	355	7	47	364	7	425	0	30	10	29	69	0	37	10	23	70	919
04:45 PM	1	32	268	5	306	4	47	378	13	442	0	23	7	30	60	0	35	14	23	72	880
Total Volume	5	136	1213	45	1399	18	186	1429	52	1685	0	113	37	132	282	0	162	42	103	307	3673
% App. Total	0.4	9.7	86.7	3.2		1.1	11	84.8	3.1		0	40.1	13.1	46.8		0	52.8	13.7	33.6		
PHF	.625	.895	.933	.750	.925	.643	.775	.945	.684	.953	.000	.831	.771	.805	.892	.000	.827	.750	.715	.834	.970
Autos	5	136	1193	45	1379	17	186	1408	52	1663	0	113	37	132	282	0	162	42	103	307	3631
% Autos	100	100	98.4	100	98.6	94.4	100	98.5	100	98.7	0	100	100	100	100	0	100	100	100	100	98.9
Heavy Vehicles	0	0	20	0	20	1	0	21	0	22	0	0	0	0	0	0	0	0	0	0	42
% Heavy Vehicles	0	0	1.6	0	1.4	5.6	0	1.5	0	1.3	0	0	0	0	0	0	0	0	0	0	1.1





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Client: FDOT District 6  
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File Name : 10-W 500 BLK & W 49th St  
 Site Code : 00000000  
 Start Date : 6/2/2022  
 Page No : 1

### Groups Printed- Heavy Vehicles

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 500 BLK Northbound					W 500 BLK Southbound					Int. Total	
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total		
07:00 AM	0	0	10	0	10	0	0	14	0	14	0	0	0	0	0	0	0	0	0	0	0	24
07:15 AM	0	1	8	0	9	0	0	16	0	16	0	0	0	0	0	0	0	0	0	0	0	25
07:30 AM	0	0	10	0	10	1	1	11	0	13	0	0	0	0	0	0	0	0	0	0	0	23
07:45 AM	0	0	8	1	9	0	2	11	1	14	0	1	0	0	1	0	0	0	1	1	1	25
<b>Total</b>	0	1	36	1	38	1	3	52	1	57	0	1	0	0	1	0	0	0	1	1	1	97
08:00 AM	0	0	6	1	7	0	4	15	0	19	0	4	0	1	5	0	0	0	0	0	0	31
08:15 AM	0	0	9	1	10	0	0	12	0	12	0	1	0	0	1	0	1	0	0	1	1	24
08:30 AM	0	0	9	1	10	0	0	9	0	9	0	1	1	0	2	0	0	0	0	0	0	21
08:45 AM	0	0	9	1	10	0	1	18	0	19	0	1	0	0	1	0	1	0	0	1	1	31
<b>Total</b>	0	0	33	4	37	0	5	54	0	59	0	7	1	1	9	0	2	0	0	2	2	107
*** BREAK ***																						
04:00 PM	0	0	5	0	5	0	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0	11
04:15 PM	0	0	5	0	5	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0	10
04:30 PM	0	0	5	0	5	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	9
04:45 PM	0	0	5	0	5	1	0	6	0	7	0	0	0	0	0	0	0	0	0	0	0	12
<b>Total</b>	0	0	20	0	20	1	0	21	0	22	0	0	0	0	0	0	0	0	0	0	0	42
05:00 PM	0	0	6	0	6	0	0	10	0	10	0	0	0	0	0	0	0	0	0	0	0	16
05:15 PM	0	0	1	0	1	0	0	8	0	8	0	0	0	0	0	0	0	0	0	0	0	9
05:30 PM	0	0	1	0	1	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	4
05:45 PM	0	0	4	0	4	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	5
<b>Total</b>	0	0	12	0	12	0	0	22	0	22	0	0	0	0	0	0	0	0	0	0	0	34
<b>Grand Total</b>	0	1	101	5	107	2	8	149	1	160	0	8	1	1	10	0	2	0	1	3	3	280
<b>Apprch %</b>	0	0.9	94.4	4.7		1.2	5	93.1	0.6		0	80	10	10		0	66.7	0	33.3			
<b>Total %</b>	0	0.4	36.1	1.8	38.2	0.7	2.9	53.2	0.4	57.1	0	2.9	0.4	0.4	3.6	0	0.7	0	0.4	1.1		

# CTS Engineering, Inc

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File Name : 10-W 500 BLK & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Peds & Bikes

Start Time	W 49th Street Eastbound					W 49th Street Westbound					W 500 BLK Northbound					W 500 BLK Southbound					Int. Total
	Peds			Bikes	App. Total	Peds			Bikes	App. Total	Peds			Bikes	App. Total	Peds			Bikes	App. Total	
07:00 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
*** BREAK ***																					
07:30 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
Total	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3
*** BREAK ***																					
08:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	2
08:30 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
Total	0	0	0	0	0	2	0	0	0	2	0	0	0	1	1	1	0	0	0	1	4
*** BREAK ***																					
04:30 PM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
Total	2	0	0	0	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3
*** BREAK ***																					
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
*** BREAK ***																					
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
Grand Total	3	0	0	1	4	2	0	0	1	3	0	0	0	2	2	1	0	0	1	2	11
Apprch %	75	0	0	25		66.7	0	0	33.3		0	0	0	100		50	0	0	50		
Total %	27.3	0	0	9.1	36.4	18.2	0	0	9.1	27.3	0	0	0	18.2	18.2	9.1	0	0	9.1	18.2	

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File Name : 11-Red Rd & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Autos - Heavy Vehicles

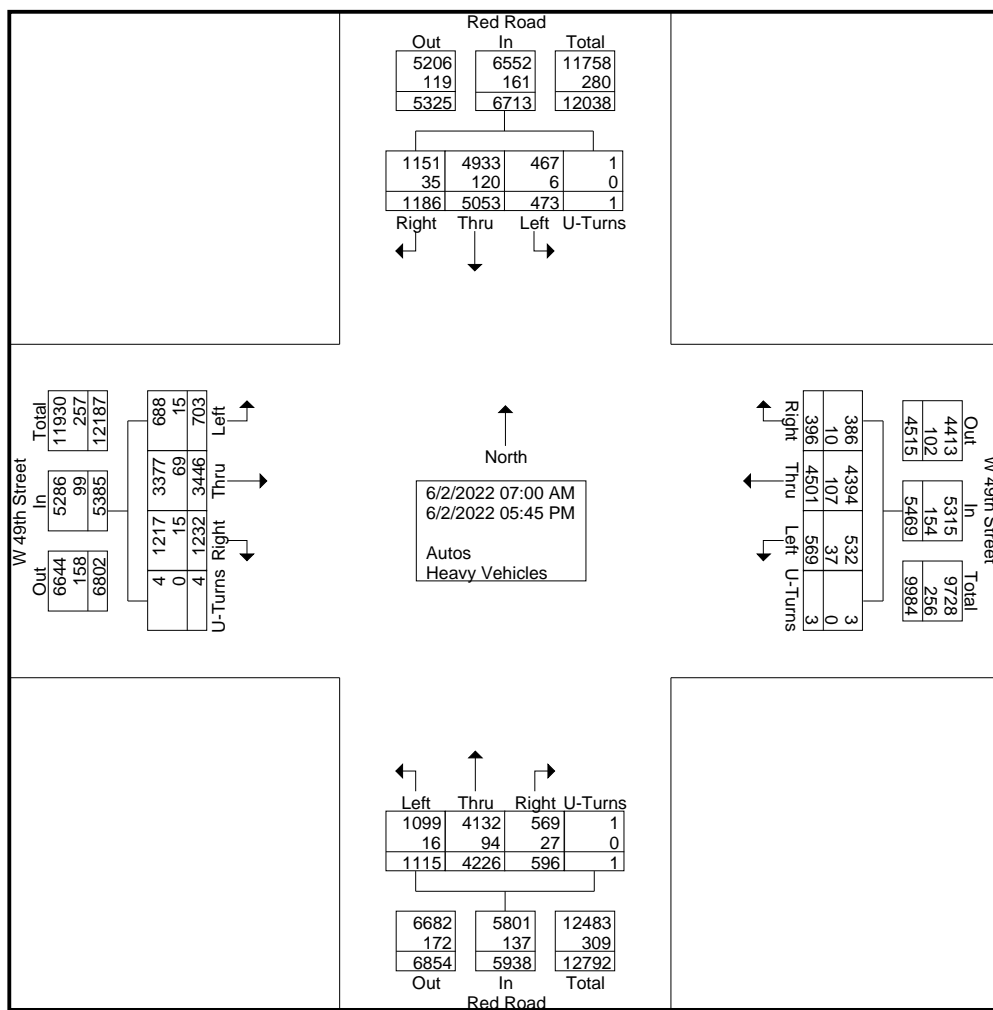
Start Time	W 49th Street Eastbound					W 49th Street Westbound					Red Road Northbound					Red Road Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
07:00 AM	0	30	177	50	257	0	49	281	18	348	0	44	178	30	252	0	34	353	85	472	1329
07:15 AM	0	29	156	51	236	0	32	286	22	340	0	45	228	58	331	0	25	464	86	575	1482
07:30 AM	0	37	168	57	262	0	48	279	26	353	0	51	218	29	298	0	25	362	81	468	1381
07:45 AM	0	30	203	50	283	0	15	257	18	290	0	51	238	65	354	0	41	386	80	507	1434
<b>Total</b>	0	126	704	208	1038	0	144	1103	84	1331	0	191	862	182	1235	0	125	1565	332	2022	5626
08:00 AM	1	38	184	79	302	0	12	225	16	253	0	93	279	45	417	0	32	415	110	557	1529
08:15 AM	0	27	193	70	290	0	8	273	12	293	0	69	202	51	322	0	20	370	83	473	1378
08:30 AM	0	38	227	81	346	0	21	258	13	292	0	69	208	33	310	0	29	359	119	507	1455
08:45 AM	1	39	197	79	316	1	22	263	18	304	0	70	217	50	337	0	46	337	99	482	1439
<b>Total</b>	2	142	801	309	1254	1	63	1019	59	1142	0	301	906	179	1386	0	127	1481	411	2019	5801
*** BREAK ***																					
04:00 PM	0	64	247	94	405	1	46	276	31	354	0	75	327	22	424	0	29	242	62	333	1516
04:15 PM	0	59	267	90	416	0	37	296	36	369	0	86	332	34	452	0	34	247	56	337	1574
04:30 PM	1	58	243	104	406	0	65	336	26	427	0	94	304	37	435	1	24	276	61	362	1630
04:45 PM	0	52	207	71	330	0	37	271	31	339	0	77	293	43	413	0	28	244	46	318	1400
<b>Total</b>	1	233	964	359	1557	1	185	1179	124	1489	0	332	1256	136	1724	1	115	1009	225	1350	6120
05:00 PM	1	48	251	100	400	0	40	321	27	388	0	61	240	33	334	0	33	238	58	329	1451
05:15 PM	0	49	259	85	393	0	52	297	30	379	0	65	300	22	387	0	19	268	60	347	1506
05:30 PM	0	50	236	87	373	1	40	299	42	382	1	77	334	28	440	0	26	229	47	302	1497
05:45 PM	0	55	231	84	370	0	45	283	30	358	0	88	328	16	432	0	28	263	53	344	1504
<b>Total</b>	1	202	977	356	1536	1	177	1200	129	1507	1	291	1202	99	1593	0	106	998	218	1322	5958
<b>Grand Total</b>	4	703	3446	1232	5385	3	569	4501	396	5469	1	1115	4226	596	5938	1	473	5053	1186	6713	23505
<b>Apprch %</b>	0.1	13.1	64	22.9		0.1	10.4	82.3	7.2		0	18.8	71.2	10		0	7	75.3	17.7		
<b>Total %</b>	0	3	14.7	5.2	22.9	0	2.4	19.1	1.7	23.3	0	4.7	18	2.5	25.3	0	2	21.5	5	28.6	
<b>Autos</b>	4	688	3377	1217	5286	3	532	4394	386	5315	1	1099	4132	569	5801	1	467	4933	1151	6552	22954
<b>% Autos</b>	100	97.9	98	98.8	98.2	100	93.5	97.6	97.5	97.2	100	98.6	97.8	95.5	97.7	100	98.7	97.6	97	97.6	97.7
<b>Heavy Vehicles</b>	0	15	69	15	99	0	37	107	10	154	0	16	94	27	137	0	6	120	35	161	551
<b>% Heavy Vehicles</b>	0	2.1	2	1.2	1.8	0	6.5	2.4	2.5	2.8	0	1.4	2.2	4.5	2.3	0	1.3	2.4	3	2.4	2.3

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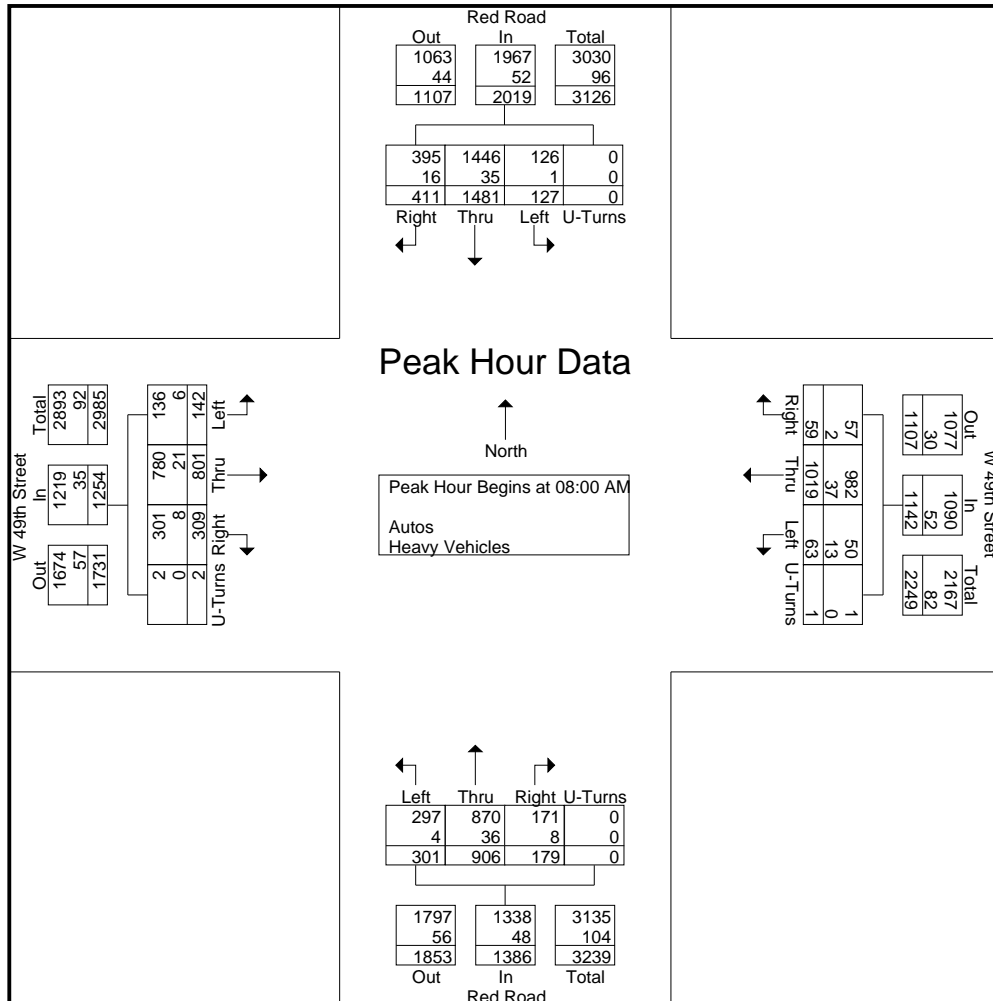
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Location: Red Rd and W 49th St  
County: Miami-Dade County

File Name : 11-Red Rd & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 3

Start Time	W 49th Street Eastbound					W 49th Street Westbound					Red Road Northbound					Red Road Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	1	38	184	79	302	0	12	225	16	253	0	93	279	45	417	0	32	415	110	557	1529
08:15 AM	0	27	193	70	290	0	8	273	12	293	0	69	202	51	322	0	20	370	83	473	1378
08:30 AM	0	38	227	81	346	0	21	258	13	292	0	69	208	33	310	0	29	359	119	507	1455
08:45 AM	1	39	197	79	316	1	22	263	18	304	0	70	217	50	337	0	46	337	99	482	1439
Total Volume	2	142	801	309	1254	1	63	1019	59	1142	0	301	906	179	1386	0	127	1481	411	2019	5801
% App. Total	0.2	11.3	63.9	24.6	0.1	5.5	89.2	5.2		0	21.7	65.4	12.9	0	6.3	73.4	20.4				
PHF	.500	.910	.882	.954	.906	.250	.716	.933	.819	.939	.000	.809	.812	.877	.831	.000	.690	.892	.863	.906	.948
Autos	2	136	780	301	1219	1	50	982	57	1090	0	297	870	171	1338	0	126	1446	395	1967	5614
% Autos	100	95.8	97.4	97.4	97.2	100	79.4	96.4	96.6	95.4	0	98.7	96.0	95.5	96.5	0	99.2	97.6	96.1	97.4	96.8
Heavy Vehicles	0	6	21	8	35	0	13	37	2	52	0	4	36	8	48	0	1	35	16	52	187
% Heavy Vehicles	0	4.2	2.6	2.6	2.8	0	20.6	3.6	3.4	4.6	0	1.3	4.0	4.5	3.5	0	0.8	2.4	3.9	2.6	3.2



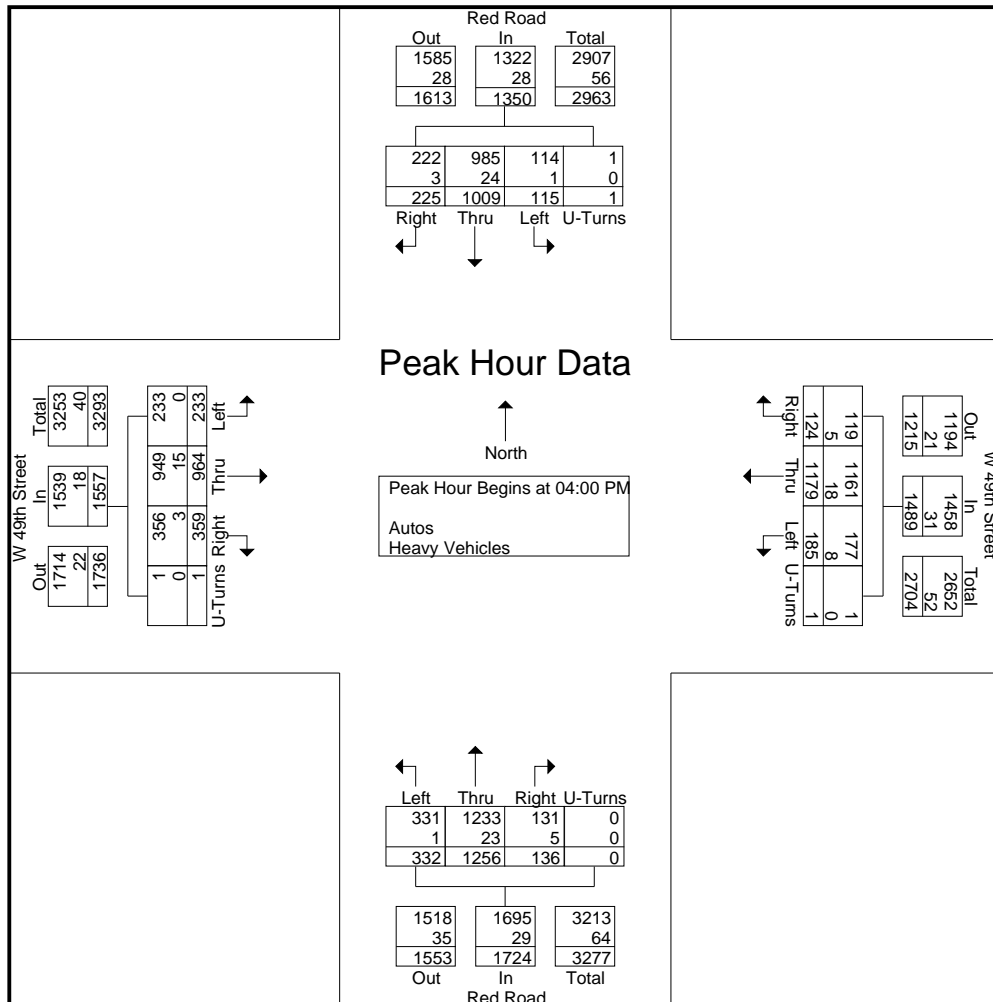
# CTS Engineering, Inc

8095 NW 12 Street, Suite 301  
Doral, FL, 33126

Client: FDOT District 6  
Project: TWO 30  
Location: Red Rd and W 49th St  
County: Miami-Dade County

File Name : 11-Red Rd & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 4

Start Time	W 49th Street Eastbound				W 49th Street Westbound				Red Road Northbound				Red Road Southbound				Int. Total				
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns		Left	Thru	Right	App. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	<b>64</b>	247	94	405	<b>1</b>	46	276	31	354	0	75	327	22	424	0	29	242	<b>62</b>	333	1516
04:15 PM	0	59	<b>267</b>	90	<b>416</b>	0	37	296	<b>36</b>	369	0	86	<b>332</b>	34	<b>452</b>	0	<b>34</b>	247	56	337	1574
04:30 PM	<b>1</b>	58	243	<b>104</b>	406	0	<b>65</b>	<b>336</b>	26	<b>427</b>	0	<b>94</b>	304	37	435	<b>1</b>	24	<b>276</b>	61	<b>362</b>	<b>1630</b>
04:45 PM	0	52	207	71	330	0	37	271	31	339	0	77	293	<b>43</b>	413	0	28	244	46	318	1400
Total Volume	1	233	964	359	1557	1	185	1179	124	1489	0	332	1256	136	1724	1	115	1009	225	1350	6120
% App. Total	0.1	15	61.9	23.1		0.1	12.4	79.2	8.3		0	19.3	72.9	7.9		0.1	8.5	74.7	16.7		
PHF	.250	.910	.903	.863	.936	.250	.712	.877	.861	.872	.000	.883	.946	.791	.954	.250	.846	.914	.907	.932	.939
Autos	1	233	949	356	1539	1	177	1161	119	1458	0	331	1233	131	1695	1	114	985	222	1322	6014
% Autos	100	100	98.4	99.2	98.8	100	95.7	98.5	96.0	97.9	0	99.7	98.2	96.3	98.3	100	99.1	97.6	98.7	97.9	98.3
Heavy Vehicles	0	0	15	3	18	0	8	18	5	31	0	1	23	5	29	0	1	24	3	28	106
% Heavy Vehicles	0	0	1.6	0.8	1.2	0	4.3	1.5	4.0	2.1	0	0.3	1.8	3.7	1.7	0	0.9	2.4	1.3	2.1	1.7



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File Name : 11-Red Rd & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Heavy Vehicles

Start Time	W 49th Street Eastbound					W 49th Street Westbound					Red Road Northbound					Red Road Southbound					Int. Total
	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	U-Turns	Left	Thru	Right	App. Total	
07:00 AM	0	2	7	1	10	0	3	8	1	12	0	3	2	3	8	0	1	9	3	13	43
07:15 AM	0	0	6	0	6	0	1	9	1	11	0	2	4	4	10	0	0	10	4	14	41
07:30 AM	0	3	6	2	11	0	3	7	0	10	0	3	3	3	9	0	0	9	3	12	42
07:45 AM	0	2	6	0	8	0	1	13	0	14	0	2	14	1	17	0	1	9	1	11	50
<b>Total</b>	0	7	25	3	35	0	8	37	2	47	0	10	23	11	44	0	2	37	11	50	176
08:00 AM	0	1	4	2	7	0	3	8	2	13	0	1	4	2	7	0	0	8	6	14	41
08:15 AM	0	2	4	1	7	0	3	7	0	10	0	1	4	6	11	0	0	4	3	7	35
08:30 AM	0	1	8	2	11	0	5	9	0	14	0	0	11	0	11	0	0	9	3	12	48
08:45 AM	0	2	5	3	10	0	2	13	0	15	0	2	17	0	19	0	1	14	4	19	63
<b>Total</b>	0	6	21	8	35	0	13	37	2	52	0	4	36	8	48	0	1	35	16	52	187
*** BREAK ***																					
04:00 PM	0	0	4	1	5	0	4	4	0	8	0	0	5	0	5	0	1	7	1	9	27
04:15 PM	0	0	3	0	3	0	2	3	2	7	0	1	6	1	8	0	0	7	1	8	26
04:30 PM	0	0	5	0	5	0	2	6	2	10	0	0	9	2	11	0	0	3	1	4	30
04:45 PM	0	0	3	2	5	0	0	5	1	6	0	0	3	2	5	0	0	7	0	7	23
<b>Total</b>	0	0	15	3	18	0	8	18	5	31	0	1	23	5	29	0	1	24	3	28	106
05:00 PM	0	1	4	0	5	0	5	5	0	10	0	0	2	0	2	0	0	6	4	10	27
05:15 PM	0	0	2	0	2	0	1	6	0	7	0	0	4	1	5	0	0	3	1	4	18
05:30 PM	0	0	0	0	0	0	1	3	1	5	0	0	5	1	6	0	0	5	0	5	16
05:45 PM	0	1	2	1	4	0	1	1	0	2	0	1	1	1	3	0	2	10	0	12	21
<b>Total</b>	0	2	8	1	11	0	8	15	1	24	0	1	12	3	16	0	2	24	5	31	82
<b>Grand Total</b>	0	15	69	15	99	0	37	107	10	154	0	16	94	27	137	0	6	120	35	161	551
<b>Apprch %</b>	0	15.2	69.7	15.2		0	24	69.5	6.5		0	11.7	68.6	19.7		0	3.7	74.5	21.7		
<b>Total %</b>	0	2.7	12.5	2.7	18	0	6.7	19.4	1.8	27.9	0	2.9	17.1	4.9	24.9	0	1.1	21.8	6.4	29.2	

# CTS Engineering, Inc

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Client: FDOT District 6  
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File Name : 11-Red Rd & W 49th St  
Site Code : 00000000  
Start Date : 6/2/2022  
Page No : 1

### Groups Printed- Peds & Bikes

Start Time	W 49th Street Eastbound					W 49th Street Westbound					Red Road Northbound					Red Road Southbound					Int. Total
	Peds			Bikes	App. Total	Peds			Bikes	App. Total	Peds			Bikes	App. Total	Peds			Bikes	App. Total	
*** BREAK ***																					
07:30 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
Total	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
08:30 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
Total	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
04:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
*** BREAK ***																					
Total	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
*** BREAK ***																					
05:45 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	1	1	0	0	0	2	2	1	0	0	0	1	0	0	0	0	0	4
Apprch %	0	0	0	100		0	0	0	100		100	0	0	0		0	0	0	0		
Total %	0	0	0	25	25	0	0	0	50	50	25	0	0	0	25	0	0	0	0	0	















## Appendix H Synchro Output



Lanes, Volumes, Timings  
1: W 18 Ct/SR 826 & NW 103 St

2022 Existing  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑	↵	↵	↵	↵			
Traffic Volume (vph)	0	1403	355	150	998	944	428	50	56	0	0	0
Future Volume (vph)	0	1403	355	150	998	944	428	50	56	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		300	310		0	0		0
Storage Lanes	0		0	1		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.970				0.850			0.850			
Flt Protected				0.950			0.950	0.962				
Satd. Flow (prot)	0	4838	0	1752	5036	1568	1665	1686	1568	0	0	0
Flt Permitted				0.074			0.950	0.962				
Satd. Flow (perm)	0	4838	0	137	5036	1568	1665	1686	1568	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		68				711			42			
Link Speed (mph)		40			40			30				30
Link Distance (ft)		300			843			492				239
Travel Time (s)		5.1			14.4			11.2				5.4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	1493	378	160	1062	1004	455	53	60	0	0	0
Shared Lane Traffic (%)							44%					
Lane Group Flow (vph)	0	1871	0	160	1062	1004	255	253	60	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			20			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2	1	1	2	1			
Detector Template		Thru		Left	Thru	Right	Left	Thru	Right			
Leading Detector (ft)		100		20	100	20	20	100	20			
Trailing Detector (ft)		0		0	0	0	0	0	0			
Detector 1 Position(ft)		0		0	0	0	0	0	0			
Detector 1 Size(ft)		6		20	6	20	20	6	20			
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0			
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type		NA		pm+pt	NA	Free	Split	NA	pm+ov			
Protected Phases		6		5	2		4	4	5			

Lanes, Volumes, Timings  
1: W 18 Ct/SR 826 & NW 103 St

2022 Existing  
AM Peak Hour

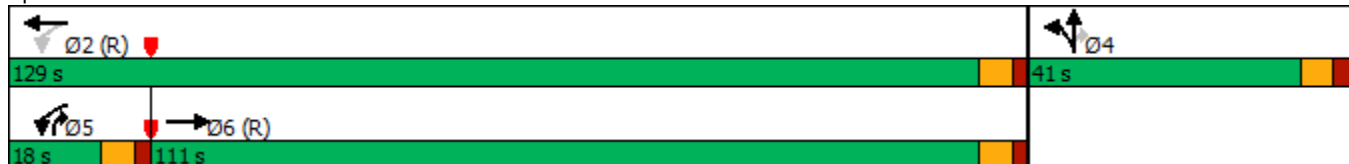


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases				2		Free			4			
Detector Phase		6		5	2		4	4	5			
Switch Phase												
Minimum Initial (s)		7.0		7.0	7.0		7.0	7.0	7.0			
Minimum Split (s)		33.4		13.4	33.4		35.6	35.6	13.4			
Total Split (s)		111.0		18.0	129.0		41.0	41.0	18.0			
Total Split (%)		65.3%		10.6%	75.9%		24.1%	24.1%	10.6%			
Maximum Green (s)		104.6		11.6	122.6		34.4	34.4	11.6			
Yellow Time (s)		4.4		4.4	4.4		4.0	4.0	4.4			
All-Red Time (s)		2.0		2.0	2.0		2.6	2.6	2.0			
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0			
Total Lost Time (s)		6.4		6.4	6.4		6.6	6.6	6.4			
Lead/Lag		Lag		Lead					Lead			
Lead-Lag Optimize?		Yes		Yes					Yes			
Vehicle Extension (s)		1.0		2.5	1.0		3.0	3.0	2.5			
Recall Mode		C-Max		None	C-Max		None	None	None			
Walk Time (s)		7.0			7.0		7.0	7.0				
Flash Dont Walk (s)		20.0			20.0		22.0	22.0				
Pedestrian Calls (#/hr)		0			0		0	0				
Act Effct Green (s)		109.9		126.8	126.8	170.0	30.2	30.2	47.3			
Actuated g/C Ratio		0.65		0.75	0.75	1.00	0.18	0.18	0.28			
v/c Ratio		0.59		0.79	0.28	0.64	0.86	0.85	0.13			
Control Delay		18.1		66.6	4.1	12.2	94.4	91.8	17.2			
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay		18.1		66.6	4.1	12.2	94.4	91.8	17.2			
LOS		B		E	A	B	F	F	B			
Approach Delay		18.1			12.2			85.1				
Approach LOS		B			B			F				

Intersection Summary

Area Type: Other  
 Cycle Length: 170  
 Actuated Cycle Length: 170  
 Offset: 97 (57%), Referenced to phase 2:WBTL and 6:EBT, Start of Green  
 Natural Cycle: 85  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 23.5      Intersection LOS: C  
 Intersection Capacity Utilization 72.7%      ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 1: W 18 Ct/SR 826 & NW 103 St



Queues  
1: W 18 Ct/SR 826 & NW 103 St

2022 Existing  
AM Peak Hour















Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1871	160	1062	1004	255	253	60
v/c Ratio	0.59	0.79	0.28	0.64	0.86	0.85	0.13
Control Delay	18.1	66.6	4.1	12.2	94.4	91.8	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	66.6	4.1	12.2	94.4	91.8	17.2
Queue Length 50th (ft)	435	102	71	428	290	286	14
Queue Length 95th (ft)	486	#218	76	814	#403	397	52
Internal Link Dist (ft)	220		763			412	
Turn Bay Length (ft)		350		300	310		
Base Capacity (vph)	3151	214	3757	1568	336	341	478
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.75	0.28	0.64	0.76	0.74	0.13

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
 1: W 18 Ct/SR 826 & NW 103 St

2022 Existing  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑	↵	↵	↵	↵			
Traffic Volume (vph)	0	1403	355	150	998	944	428	50	56	0	0	0
Future Volume (vph)	0	1403	355	150	998	944	428	50	56	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4		6.4	6.4	4.0	6.6	6.6	6.4			
Lane Util. Factor		0.91		1.00	0.91	1.00	0.95	0.95	1.00			
Frt		0.97		1.00	1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00		0.95	1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)		4836		1752	5036	1568	1665	1686	1568			
Flt Permitted		1.00		0.07	1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)		4836		137	5036	1568	1665	1686	1568			
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1493	378	160	1062	1004	455	53	60	0	0	0
RTOR Reduction (vph)	0	24	0	0	0	0	0	0	32	0	0	0
Lane Group Flow (vph)	0	1847	0	160	1062	1004	255	253	28	0	0	0
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type		NA		pm+pt	NA	Free	Split	NA	pm+ov			
Protected Phases		6		5	2		4	4	5			
Permitted Phases				2		Free			4			
Actuated Green, G (s)		109.8		126.8	126.8	170.0	30.2	30.2	40.8			
Effective Green, g (s)		109.8		126.8	126.8	170.0	30.2	30.2	40.8			
Actuated g/C Ratio		0.65		0.75	0.75	1.00	0.18	0.18	0.24			
Clearance Time (s)		6.4		6.4	6.4		6.6	6.6	6.4			
Vehicle Extension (s)		1.0		2.5	1.0		3.0	3.0	2.5			
Lane Grp Cap (vph)		3123		202	3756	1568	295	299	376			
v/s Ratio Prot		0.38		0.05	0.21		c0.15	0.15	0.00			
v/s Ratio Perm				c0.54		c0.64			0.01			
v/c Ratio		0.59		0.79	0.28	0.64	0.86	0.85	0.07			
Uniform Delay, d1		17.2		27.4	7.0	0.0	67.9	67.7	50.0			
Progression Factor		1.00		2.08	0.54	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.8		16.2	0.2	1.8	22.1	19.3	0.1			
Delay (s)		18.1		73.1	4.0	1.8	90.1	86.9	50.1			
Level of Service		B		E	A	A	F	F	D			
Approach Delay (s)		18.1			7.9			84.4			0.0	
Approach LOS		B			A			F			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			21.3				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			170.0				Sum of lost time (s)				19.4	
Intersection Capacity Utilization			72.7%				ICU Level of Service				C	
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
2: W 17 Ct & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	1256	77	30	1673	3	154	17	19	59	65	92
Future Volume (vph)	55	1256	77	30	1673	3	154	17	19	59	65	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	320		0	250		0	100		60	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	50			50			75			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991							0.850		0.912	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	4943	0	1736	4988	0	1770	1863	1583	1787	1716	0
Flt Permitted	0.086			0.950			0.362			0.746		
Satd. Flow (perm)	157	4943	0	1736	4988	0	674	1863	1583	1403	1716	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8							63		38	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		843			924			414			161	
Travel Time (s)		14.4			15.8			9.4			3.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	58	1322	81	32	1761	3	162	18	20	62	68	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	1403	0	32	1764	0	162	18	20	62	165	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			20			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Prot	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	1	6		5	2		7	4	5	3	8	

Lanes, Volumes, Timings  
2: W 17 Ct & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Permitted Phases	6						4		4		8		
Detector Phase	1	6		5	2		7	4	5	3	8		
Switch Phase													
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0	5.0	5.0	7.0		
Minimum Split (s)	11.5	38.5		11.4	38.5		11.2	36.7	11.4	11.3	36.7		
Total Split (s)	14.0	94.0		14.0	94.0		21.0	47.0	14.0	15.0	41.0		
Total Split (%)	8.2%	55.3%		8.2%	55.3%		12.4%	27.6%	8.2%	8.8%	24.1%		
Maximum Green (s)	7.5	87.5		7.6	87.5		14.8	40.3	7.6	8.7	34.3		
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0	4.4	4.0	4.0		
All-Red Time (s)	2.1	2.1		2.0	2.1		2.2	2.7	2.0	2.3	2.7		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.5	6.5		6.4	6.5		6.2	6.7	6.4	6.3	6.7		
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5	2.0	2.5	2.5		
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None		
Walk Time (s)		7.0			7.0			7.0			7.0		
Flash Dont Walk (s)		25.0			25.0			23.0			23.0		
Pedestrian Calls (#/hr)		1			2			1			1		
Act Effct Green (s)	111.1	105.7		7.7	106.8		35.5	24.6	36.3	29.7	18.7		
Actuated g/C Ratio	0.65	0.62		0.05	0.63		0.21	0.14	0.21	0.17	0.11		
v/c Ratio	0.36	0.46		0.41	0.56		0.69	0.07	0.05	0.22	0.74		
Control Delay	15.2	4.0		124.8	14.1		72.5	60.4	0.3	51.7	74.9		
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total Delay	15.2	4.0		124.8	14.1		72.5	60.4	0.3	51.7	74.9		
LOS	B	A		F	B		E	E	A	D	E		
Approach Delay		4.5			16.0			64.2			68.6		
Approach LOS		A			B			E			E		

Intersection Summary

Area Type: Other  
 Cycle Length: 170  
 Actuated Cycle Length: 170  
 Offset: 128 (75%), Referenced to phase 2:WBT and 6:EBTL, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.74  
 Intersection Signal Delay: 17.3  
 Intersection LOS: B  
 Intersection Capacity Utilization 75.7%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 2: W 17 Ct & NW 103 St



Queues  
2: W 17 Ct & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	58	1403	32	1764	162	18	20	62	165
v/c Ratio	0.36	0.46	0.41	0.56	0.69	0.07	0.05	0.22	0.74
Control Delay	15.2	4.0	124.8	14.1	72.5	60.4	0.3	51.7	74.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.2	4.0	124.8	14.1	72.5	60.4	0.3	51.7	74.9
Queue Length 50th (ft)	2	21	37	611	155	18	0	56	141
Queue Length 95th (ft)	m26	333	m59	511	209	41	0	92	212
Internal Link Dist (ft)		763		844		334			81
Turn Bay Length (ft)	320		250		100		60		
Base Capacity (vph)	174	3075	86	3133	236	441	394	281	376
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.46	0.37	0.56	0.69	0.04	0.05	0.22	0.44

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



HCM Signalized Intersection Capacity Analysis  
2: W 17 Ct & NW 103 St

2022 Existing  
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑↑		↙	↑↑↑		↙	↑	↗	↙	↗	
Traffic Volume (vph)	55	1256	77	30	1673	3	154	17	19	59	65	92
Future Volume (vph)	55	1256	77	30	1673	3	154	17	19	59	65	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.4	6.5		6.2	6.7	6.4	6.3	6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4944		1736	4986		1770	1863	1583	1787	1715	
Flt Permitted	0.09	1.00		0.95	1.00		0.36	1.00	1.00	0.75	1.00	
Satd. Flow (perm)	158	4944		1736	4986		675	1863	1583	1403	1715	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	58	1322	81	32	1761	3	162	18	20	62	68	97
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	16	0	33	0
Lane Group Flow (vph)	58	1400	0	32	1764	0	162	18	4	62	132	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	1%	1%	1%
Turn Type	pm+pt	NA		Prot	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	1	6		5	2		7	4	5	3	8	
Permitted Phases	6						4		4	8		
Actuated Green, G (s)	107.3	101.8		6.7	102.9		37.7	23.2	29.9	33.6	21.2	
Effective Green, g (s)	107.3	101.8		6.7	102.9		37.7	23.2	29.9	33.6	21.2	
Actuated g/C Ratio	0.63	0.60		0.04	0.61		0.22	0.14	0.18	0.20	0.12	
Clearance Time (s)	6.5	6.5		6.4	6.5		6.2	6.7	6.4	6.3	6.7	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5	2.0	2.5	2.5	
Lane Grp Cap (vph)	150	2960		68	3017		243	254	278	305	213	
v/s Ratio Prot	0.01	0.28		c0.02	c0.35		c0.06	0.01	0.00	0.01	0.08	
v/s Ratio Perm	0.23						c0.09		0.00	0.03		
v/c Ratio	0.39	0.47		0.47	0.58		0.67	0.07	0.01	0.20	0.62	
Uniform Delay, d1	15.5	19.1		79.9	20.5		57.0	64.0	57.9	56.7	70.6	
Progression Factor	0.98	0.20		1.43	0.67		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.4		1.6	0.7		6.1	0.1	0.0	0.2	4.5	
Delay (s)	15.8	4.2		115.5	14.5		63.1	64.1	57.9	56.9	75.1	
Level of Service	B	A		F	B		E	E	E	E	E	
Approach Delay (s)		4.6			16.3			62.7			70.1	
Approach LOS		A			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
3: W 16 Ave & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	1138	169	184	1215	61	160	369	79	148	598	139
Future Volume (vph)	117	1138	169	184	1215	61	160	369	79	148	598	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	270		0	370		0	250		0	185		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.981			0.993			0.973			0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	4893	0	1736	4953	0	1736	3377	0	1770	3440	0
Flt Permitted	0.142			0.102			0.100			0.345		
Satd. Flow (perm)	259	4893	0	186	4953	0	183	3377	0	643	3440	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			5			15			16	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		924			866			399			405	
Travel Time (s)		15.8			14.8			9.1			9.2	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%
Adj. Flow (vph)	119	1161	172	188	1240	62	163	377	81	151	610	142
Shared Lane Traffic (%)												
Lane Group Flow (vph)	119	1333	0	188	1302	0	163	458	0	151	752	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	

Lanes, Volumes, Timings  
3: W 16 Ave & NW 103 St

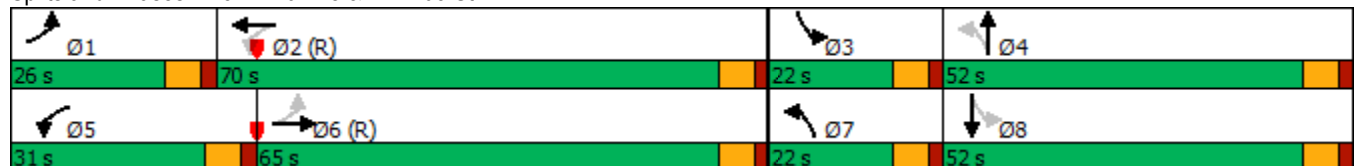
2022 Existing  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	11.4	34.4		11.4	34.4		11.4	37.5		11.4	37.5	
Total Split (s)	26.0	65.0		31.0	70.0		22.0	52.0		22.0	52.0	
Total Split (%)	15.3%	38.2%		18.2%	41.2%		12.9%	30.6%		12.9%	30.6%	
Maximum Green (s)	19.6	58.6		24.6	63.6		15.6	45.5		15.6	45.5	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.1		2.0	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.0	2.5		2.0	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		21.0			21.0			24.0			24.0	
Pedestrian Calls (#/hr)		3			2			0			1	
Act Effct Green (s)	81.9	71.3		93.3	77.5		57.4	42.5		55.2	41.4	
Actuated g/C Ratio	0.48	0.42		0.55	0.46		0.34	0.25		0.32	0.24	
v/c Ratio	0.55	0.65		0.74	0.58		0.83	0.54		0.51	0.88	
Control Delay	44.6	36.7		48.8	33.2		73.7	55.4		42.4	73.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	44.6	36.7		48.8	33.2		73.7	55.4		42.4	73.4	
LOS	D	D		D	C		E	E		D	E	
Approach Delay		37.3			35.2			60.2			68.2	
Approach LOS		D			D			E			E	

Intersection Summary

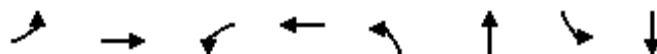
Area Type: Other  
 Cycle Length: 170  
 Actuated Cycle Length: 170  
 Offset: 108 (64%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 95  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 46.1  
 Intersection LOS: D  
 Intersection Capacity Utilization 87.2%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 3: W 16 Ave & NW 103 St



Queues  
3: W 16 Ave & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	119	1333	188	1302	163	458	151	752
v/c Ratio	0.55	0.65	0.74	0.58	0.83	0.54	0.51	0.88
Control Delay	44.6	36.7	48.8	33.2	73.7	55.4	42.4	73.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.6	36.7	48.8	33.2	73.7	55.4	42.4	73.4
Queue Length 50th (ft)	66	236	160	412	124	224	114	416
Queue Length 95th (ft)	167	369	265	345	#242	281	168	490
Internal Link Dist (ft)		844		786		319		325
Turn Bay Length (ft)	270		370		250		185	
Base Capacity (vph)	307	2062	327	2261	205	914	319	932
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.65	0.57	0.58	0.80	0.50	0.47	0.81

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
3: W 16 Ave & NW 103 St

2022 Existing  
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↖↗		↖	↗↖↗		↖	↗↖		↖	↗↖	
Traffic Volume (vph)	117	1138	169	184	1215	61	160	369	79	148	598	139
Future Volume (vph)	117	1138	169	184	1215	61	160	369	79	148	598	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	4891		1736	4952		1736	3379		1770	3439	
Flt Permitted	0.14	1.00		0.10	1.00		0.10	1.00		0.35	1.00	
Satd. Flow (perm)	259	4891		187	4952		183	3379		643	3439	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	119	1161	172	188	1240	62	163	377	81	151	610	142
RTOR Reduction (vph)	0	10	0	0	3	0	0	11	0	0	12	0
Lane Group Flow (vph)	119	1323	0	188	1299	0	163	447	0	151	740	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	81.9	71.3		94.3	77.5		57.3	42.5		55.1	41.4	
Effective Green, g (s)	81.9	71.3		94.3	77.5		57.3	42.5		55.1	41.4	
Actuated g/C Ratio	0.48	0.42		0.55	0.46		0.34	0.25		0.32	0.24	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)	216	2051		256	2257		196	844		299	837	
v/s Ratio Prot	0.03	0.27		c0.07	c0.26		c0.07	0.13		0.04	c0.22	
v/s Ratio Perm	0.23			c0.33			0.21			0.12		
v/c Ratio	0.55	0.64		0.73	0.58		0.83	0.53		0.51	0.88	
Uniform Delay, d1	26.4	39.3		27.5	34.1		44.9	55.1		43.0	62.0	
Progression Factor	1.73	0.87		1.24	0.91		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	1.5		8.4	1.0		23.9	0.5		0.5	10.9	
Delay (s)	47.2	35.5		42.4	32.1		68.9	55.6		43.5	72.9	
Level of Service	D	D		D	C		E	E		D	E	
Approach Delay (s)		36.4			33.4			59.1			68.0	
Approach LOS		D			C			E			E	

Intersection Summary		
HCM 2000 Control Delay	45.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.80	D
Actuated Cycle Length (s)	170.0	Sum of lost time (s)
Intersection Capacity Utilization	87.2%	25.7
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		E

Lanes, Volumes, Timings  
4: W 14 Ln & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	1227	39	55	1464	37	24	8	14	71	14	41
Future Volume (vph)	102	1227	39	55	1464	37	24	8	14	71	14	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	130		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.996				0.850		0.956	
Flt Protected	0.950			0.950				0.964			0.973	
Satd. Flow (prot)	1752	5011	0	1736	4968	0	0	1712	1509	0	1767	0
Flt Permitted	0.131			0.185				0.674			0.808	
Satd. Flow (perm)	242	5011	0	338	4968	0	0	1197	1509	0	1468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			4				63		13	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		866			1763			190			273	
Travel Time (s)		14.8			30.1			4.3			6.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	7%	7%	7%	0%	0%	0%
Adj. Flow (vph)	106	1278	41	57	1525	39	25	8	15	74	15	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	1319	0	57	1564	0	0	33	15	0	132	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	

Lanes, Volumes, Timings  
4: W 14 Ln & NW 103 St

2022 Existing  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			4		4	8		
Detector Phase	1	6		5	2		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	11.4	33.4		11.4	33.4		35.7	35.7	35.7	35.7	35.7	
Total Split (s)	15.0	114.0		15.0	114.0		41.0	41.0	41.0	41.0	41.0	
Total Split (%)	8.8%	67.1%		8.8%	67.1%		24.1%	24.1%	24.1%	24.1%	24.1%	
Maximum Green (s)	8.6	107.6		8.6	107.6		34.3	34.3	34.3	34.3	34.3	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7	2.7	2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4			6.7	6.7		6.7	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5	2.5	2.5	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		20.0			20.0		22.0	22.0	22.0	22.0	22.0	
Pedestrian Calls (#/hr)		5			0		6	6	6	1	1	
Act Effct Green (s)	133.5	127.8		130.3	124.5			19.2	19.2		19.2	
Actuated g/C Ratio	0.79	0.75		0.77	0.73			0.11	0.11		0.11	
v/c Ratio	0.43	0.35		0.19	0.43			0.24	0.07		0.75	
Control Delay	13.0	1.0		6.8	9.1			70.1	0.6		88.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	13.0	1.0		6.8	9.1			70.1	0.6		88.9	
LOS	B	A		A	A			E	A		F	
Approach Delay		1.9			9.0			48.4			88.9	
Approach LOS		A			A			D			F	

Intersection Summary

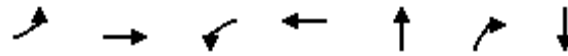
Area Type: Other  
 Cycle Length: 170  
 Actuated Cycle Length: 170  
 Offset: 128 (75%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.75  
 Intersection Signal Delay: 9.7  
 Intersection Capacity Utilization 64.9%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service C

Splits and Phases: 4: W 14 Ln & NW 103 St



Queues  
4: W 14 Ln & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	106	1319	57	1564	33	15	132
v/c Ratio	0.43	0.35	0.19	0.43	0.24	0.07	0.75
Control Delay	13.0	1.0	6.8	9.1	70.1	0.6	88.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	1.0	6.8	9.1	70.1	0.6	88.9
Queue Length 50th (ft)	7	13	5	94	34	0	131
Queue Length 95th (ft)	m57	17	m30	308	68	0	199
Internal Link Dist (ft)		786		1683	110		193
Turn Bay Length (ft)	100		130			50	
Base Capacity (vph)	268	3768	335	3640	241	354	306
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.35	0.17	0.43	0.14	0.04	0.43

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



HCM Signalized Intersection Capacity Analysis  
4: W 14 Ln & NW 103 St

2022 Existing  
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑		↖	↑↑↑			↑	↗		↕	
Traffic Volume (vph)	102	1227	39	55	1464	37	24	8	14	71	14	41
Future Volume (vph)	102	1227	39	55	1464	37	24	8	14	71	14	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4			6.7	6.7		6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.97	
Satd. Flow (prot)	1752	5012		1736	4969			1711	1509		1767	
Flt Permitted	0.13	1.00		0.18	1.00			0.67	1.00		0.81	
Satd. Flow (perm)	242	5012		337	4969			1197	1509		1467	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	106	1278	41	57	1525	39	25	8	15	74	15	43
RTOR Reduction (vph)	0	1	0	0	1	0	0	0	13	0	12	0
Lane Group Flow (vph)	106	1318	0	57	1563	0	0	33	2	0	120	0
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	7%	7%	7%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	133.3	126.6		129.3	124.6			19.2	19.2		19.2	
Effective Green, g (s)	133.3	126.6		129.3	124.6			19.2	19.2		19.2	
Actuated g/C Ratio	0.78	0.74		0.76	0.73			0.11	0.11		0.11	
Clearance Time (s)	6.4	6.4		6.4	6.4			6.7	6.7		6.7	
Vehicle Extension (s)	2.0	1.0		2.0	1.0			2.5	2.5		2.5	
Lane Grp Cap (vph)	249	3732		294	3641			135	170		165	
v/s Ratio Prot	c0.02	0.26		0.01	0.31							
v/s Ratio Perm	c0.32			0.14				0.03	0.00		c0.08	
v/c Ratio	0.43	0.35		0.19	0.43			0.24	0.01		0.73	
Uniform Delay, d1	5.6	7.5		5.2	8.8			68.8	67.0		72.9	
Progression Factor	2.15	0.10		1.41	0.92			1.00	1.00		1.00	
Incremental Delay, d2	0.3	0.2		0.1	0.2			0.7	0.0		14.5	
Delay (s)	12.3	0.9		7.4	8.4			69.5	67.0		87.3	
Level of Service	B	A		A	A			E	E		F	
Approach Delay (s)		1.8			8.4			68.7			87.3	
Approach LOS		A			A			E			F	

Intersection Summary		
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.47	A
Actuated Cycle Length (s)	170.0	Sum of lost time (s)
Intersection Capacity Utilization	64.9%	19.5
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		C

Lanes, Volumes, Timings  
5: W 12 Ave & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	1027	128	140	1169	51	167	423	105	137	694	210
Future Volume (vph)	121	1027	128	140	1169	51	167	423	105	137	694	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	215		0	350		0	300		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			75			25			75		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.983			0.994			0.970			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	4950	0	1736	4958	0	1752	3400	0	1752	3382	0
Flt Permitted	0.090			0.091			0.093			0.323		
Satd. Flow (perm)	166	4950	0	166	4958	0	172	3400	0	596	3382	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			4			22			28	
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		1763			1138			431			442	
Travel Time (s)		30.1			19.4			7.3			7.5	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	130	1104	138	151	1257	55	180	455	113	147	746	226
Shared Lane Traffic (%)												
Lane Group Flow (vph)	130	1242	0	151	1312	0	180	568	0	147	972	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	

Lanes, Volumes, Timings  
5: W 12 Ave & NW 103 St

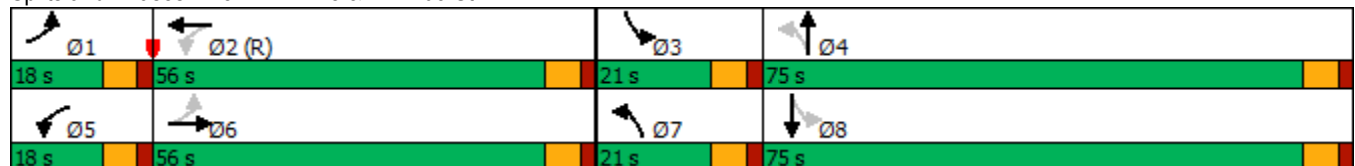
2022 Existing  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	13.4	34.4		13.4	34.4		13.4	37.5		13.4	37.5	
Total Split (s)	18.0	56.0		18.0	56.0		21.0	75.0		21.0	75.0	
Total Split (%)	10.6%	32.9%		10.6%	32.9%		12.4%	44.1%		12.4%	44.1%	
Maximum Green (s)	11.6	49.6		11.6	49.6		14.6	68.5		14.6	68.5	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.1		2.0	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	1.0		3.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		21.0			21.0			24.0			24.0	
Pedestrian Calls (#/hr)		4			5			1			0	
Act Effct Green (s)	70.8	57.3		75.8	59.8		72.0	57.5		70.3	56.7	
Actuated g/C Ratio	0.42	0.34		0.45	0.35		0.42	0.34		0.41	0.33	
v/c Ratio	0.67	0.74		0.68	0.75		0.87	0.49		0.43	0.85	
Control Delay	56.2	32.3		53.4	52.3		74.8	43.6		30.7	58.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	56.2	32.3		53.4	52.3		74.8	43.6		30.7	58.5	
LOS	E	C		D	D		E	D		C	E	
Approach Delay		34.6			52.4			51.1			54.9	
Approach LOS		C			D			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 170  
 Actuated Cycle Length: 170  
 Offset: 3 (2%), Referenced to phase 2:WBTL, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.87  
 Intersection Signal Delay: 47.6  
 Intersection LOS: D  
 Intersection Capacity Utilization 87.0%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 5: W 12 Ave & NW 103 St



Queues  
5: W 12 Ave & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	130	1242	151	1312	180	568	147	972
v/c Ratio	0.67	0.74	0.68	0.75	0.87	0.49	0.43	0.85
Control Delay	56.2	32.3	53.4	52.3	74.8	43.6	30.7	58.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.2	32.3	53.4	52.3	74.8	43.6	30.7	58.5
Queue Length 50th (ft)	50	421	58	564	133	256	96	518
Queue Length 95th (ft)	145	569	#219	614	#258	290	131	559
Internal Link Dist (ft)		1683		1058		351		362
Turn Bay Length (ft)	215		350		300		150	
Base Capacity (vph)	198	1677	221	1747	208	1383	349	1379
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.74	0.68	0.75	0.87	0.41	0.42	0.70

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
5: W 12 Ave & NW 103 St

2022 Existing  
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖		↖	↖↖		↖	↖↖	
Traffic Volume (vph)	121	1027	128	140	1169	51	167	423	105	137	694	210
Future Volume (vph)	121	1027	128	140	1169	51	167	423	105	137	694	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	4952		1736	4956		1752	3400		1752	3383	
Flt Permitted	0.09	1.00		0.09	1.00		0.09	1.00		0.32	1.00	
Satd. Flow (perm)	166	4952		166	4956		172	3400		595	3383	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	130	1104	138	151	1257	55	180	455	113	147	746	226
RTOR Reduction (vph)	0	9	0	0	3	0	0	15	0	0	19	0
Lane Group Flow (vph)	130	1233	0	151	1309	0	180	553	0	147	953	0
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	70.6	57.2		75.8	59.8		72.0	57.6		70.2	56.7	
Effective Green, g (s)	70.6	57.2		75.8	59.8		72.0	57.6		70.2	56.7	
Actuated g/C Ratio	0.42	0.34		0.45	0.35		0.42	0.34		0.41	0.33	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Vehicle Extension (s)	3.0	1.0		3.0	1.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	193	1666		221	1743		206	1152		337	1128	
v/s Ratio Prot	0.05	0.25		c0.06	c0.26		c0.07	0.16		0.03	0.28	
v/s Ratio Perm	0.23			0.24			c0.30			0.15		
v/c Ratio	0.67	0.74		0.68	0.75		0.87	0.48		0.44	0.85	
Uniform Delay, d1	35.8	49.8		34.3	48.5		40.0	44.4		32.8	52.6	
Progression Factor	1.20	0.58		1.14	0.99		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.5	2.9		8.0	2.9		31.0	0.3		0.9	6.0	
Delay (s)	51.5	31.8		46.9	51.0		71.0	44.7		33.7	58.5	
Level of Service	D	C		D	D		E	D		C	E	
Approach Delay (s)		33.7			50.6			51.0			55.3	
Approach LOS		C			D			D			E	

Intersection Summary

HCM 2000 Control Delay	46.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	25.7
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
6: W 10 Ave & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	1071	27	68	1267	45	42	34	70	53	31	64
Future Volume (vph)	62	1071	27	68	1267	45	42	34	70	53	31	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180		0	200		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	55			55			25			65		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.995			0.899			0.899	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	4968	0	1736	4963	0	1736	1642	0	1770	1675	0
Flt Permitted	0.168			0.219			0.574			0.528		
Satd. Flow (perm)	307	4968	0	400	4963	0	1049	1642	0	984	1675	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			6			55			55	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		1138			765			375			318	
Travel Time (s)		19.4			13.0			8.5			7.2	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%
Adj. Flow (vph)	66	1139	29	72	1348	48	45	36	74	56	33	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	1168	0	72	1396	0	45	110	0	56	101	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	

Lanes, Volumes, Timings  
6: W 10 Ave & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	11.4	33.4		11.4	33.4		35.7	35.7		35.7	35.7	
Total Split (s)	13.0	116.0		13.0	116.0		41.0	41.0		41.0	41.0	
Total Split (%)	7.6%	68.2%		7.6%	68.2%		24.1%	24.1%		24.1%	24.1%	
Maximum Green (s)	6.6	109.6		6.6	109.6		34.3	34.3		34.3	34.3	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.7	6.7		6.7	6.7	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5		2.5	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		20.0			20.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		2			0		1	1		3	3	
Act Effct Green (s)	135.6	129.8		135.8	129.9		14.8	14.8		14.8	14.8	
Actuated g/C Ratio	0.80	0.76		0.80	0.76		0.09	0.09		0.09	0.09	
v/c Ratio	0.23	0.31		0.20	0.37		0.49	0.57		0.66	0.52	
Control Delay	5.2	15.8		3.3	4.8		89.2	47.6		105.8	42.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	5.2	15.8		3.3	4.8		89.2	47.6		105.8	42.7	
LOS	A	B		A	A		F	D		F	D	
Approach Delay		15.2			4.8			59.7			65.2	
Approach LOS		B			A			E			E	

Intersection Summary

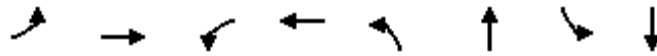
Area Type: Other  
 Cycle Length: 170  
 Actuated Cycle Length: 170  
 Offset: 60 (35%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.66  
 Intersection Signal Delay: 15.0      Intersection LOS: B  
 Intersection Capacity Utilization 55.5%      ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 6: W 10 Ave & NW 103 St



Queues  
6: W 10 Ave & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	66	1168	72	1396	45	110	56	101
v/c Ratio	0.23	0.31	0.20	0.37	0.49	0.57	0.66	0.52
Control Delay	5.2	15.8	3.3	4.8	89.2	47.6	105.8	42.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.2	15.8	3.3	4.8	89.2	47.6	105.8	42.7
Queue Length 50th (ft)	5	392	1	97	49	60	62	50
Queue Length 95th (ft)	m28	471	31	180	88	118	107	105
Internal Link Dist (ft)		1058		685		295		238
Turn Bay Length (ft)	180		200				100	
Base Capacity (vph)	303	3794	375	3793	211	375	198	381
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.31	0.19	0.37	0.21	0.29	0.28	0.27

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



HCM Signalized Intersection Capacity Analysis  
6: W 10 Ave & NW 103 St

2022 Existing  
AM Peak Hour
























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑		↗	↑↑↑		↗	↑		↗	↑	
Traffic Volume (vph)	62	1071	27	68	1267	45	42	34	70	53	31	64
Future Volume (vph)	62	1071	27	68	1267	45	42	34	70	53	31	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.90		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	4969		1736	4962		1736	1643		1770	1675	
Flt Permitted	0.17	1.00		0.22	1.00		0.57	1.00		0.53	1.00	
Satd. Flow (perm)	307	4969		400	4962		1048	1643		984	1675	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	66	1139	29	72	1348	48	45	36	74	56	33	68
RTOR Reduction (vph)	0	1	0	0	1	0	0	50	0	0	50	0
Lane Group Flow (vph)	66	1167	0	72	1395	0	45	60	0	56	51	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	135.6	129.8		135.8	129.9		14.8	14.8		14.8	14.8	
Effective Green, g (s)	135.6	129.8		135.8	129.9		14.8	14.8		14.8	14.8	
Actuated g/C Ratio	0.80	0.76		0.80	0.76		0.09	0.09		0.09	0.09	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	293	3793		365	3791		91	143		85	145	
v/s Ratio Prot	c0.01	0.23		0.01	c0.28			0.04			0.03	
v/s Ratio Perm	0.17			0.15			0.04			c0.06		
v/c Ratio	0.23	0.31		0.20	0.37		0.49	0.42		0.66	0.35	
Uniform Delay, d1	3.9	6.2		3.7	6.6		74.0	73.5		75.2	73.1	
Progression Factor	1.14	2.26		0.62	0.62		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.2		0.1	0.3		3.1	1.4		15.3	1.1	
Delay (s)	4.6	14.2		2.4	4.4		77.1	75.0		90.4	74.1	
Level of Service	A	B		A	A		E	E		F	E	
Approach Delay (s)		13.7			4.3			75.6			79.9	
Approach LOS		B			A			E			E	

Intersection Summary

HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
7: W 900 BIK & NW 103 St

2022 Existing  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (vph)	0	1253	6	30	1341	0	6	0	13	0	0	0
Future Volume (vph)	0	1253	6	30	1341	0	6	0	13	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	135		0	0		0	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	60			60			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999							0.850			
Flt Protected				0.950			0.950					
Satd. Flow (prot)	1845	5031	0	1736	4988	0	1805	0	1615	0	0	0
Flt Permitted				0.950			0.950					
Satd. Flow (perm)	1845	5031	0	1736	4988	0	1805	0	1615	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1							64			
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		765			736			197			199	
Travel Time (s)		13.0			12.5			4.5			4.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1319	6	32	1412	0	6	0	14	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1325	0	32	1412	0	6	0	14	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1		1			
Detector Template	Left	Thru		Left	Thru		Left		Right			
Leading Detector (ft)	20	100		20	100		20		20			
Trailing Detector (ft)	0	0		0	0		0		0			
Detector 1 Position(ft)	0	0		0	0		0		0			
Detector 1 Size(ft)	20	6		20	6		20		20			
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0		0.0			
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0		0.0			
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0		0.0			
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	pm+pt	NA		Prot	NA		Prot		Perm			
Protected Phases	1	6		5	2		4					

Lanes, Volumes, Timings  
7: W 900 Blk & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6						4					
Detector Phase	1	6		5	2		4		4			
Switch Phase												
Minimum Initial (s)	5.0	16.0		7.0	16.0		7.0		7.0			
Minimum Split (s)	11.4	22.5		13.4	22.5		36.7		36.7			
Total Split (s)	14.0	125.0		14.0	125.0		31.0		31.0			
Total Split (%)	8.2%	73.5%		8.2%	73.5%		18.2%		18.2%			
Maximum Green (s)	7.6	118.5		7.6	118.5		24.3		24.3			
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0		4.0			
All-Red Time (s)	2.0	2.1		2.0	2.1		2.7		2.7			
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0		0.0			
Total Lost Time (s)	6.4	6.5		6.4	6.5		6.7		6.7			
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5		2.5			
Recall Mode	None	C-Max		None	C-Max		None		None			
Walk Time (s)							7.0		7.0			
Flash Dont Walk (s)							23.0		23.0			
Pedestrian Calls (#/hr)							0		0			
Act Effct Green (s)	144.6			8.2	157.9		7.0		7.0			
Actuated g/C Ratio	0.85			0.05	0.93		0.04		0.04			
v/c Ratio	0.31			0.39	0.30		0.08		0.11			
Control Delay	0.8			68.0	1.0		80.8		1.8			
Queue Delay	0.0			0.0	0.1		0.0		0.0			
Total Delay	0.8			68.0	1.1		80.8		1.8			
LOS	A			E	A		F		A			
Approach Delay	0.8				2.5			25.5				
Approach LOS	A				A			C				

Intersection Summary

Area Type:	Other
Cycle Length:	170
Actuated Cycle Length:	170
Offset:	40 (24%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.39
Intersection Signal Delay:	1.9
Intersection LOS:	A
Intersection Capacity Utilization:	41.2%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 7: W 900 Blk & NW 103 St



Queues  
7: W 900 Bk & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1325	32	1412	6	14
v/c Ratio	0.31	0.39	0.30	0.08	0.11
Control Delay	0.8	68.0	1.0	80.8	1.8
Queue Delay	0.0	0.0	0.1	0.0	0.0
Total Delay	0.8	68.0	1.1	80.8	1.8
Queue Length 50th (ft)	13	35	31	7	0
Queue Length 95th (ft)	31	m59	88	25	0
Internal Link Dist (ft)	685		656		
Turn Bay Length (ft)		135			
Base Capacity (vph)	4280	86	4632	258	285
Starvation Cap Reductn	0	0	1479	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.31	0.37	0.45	0.02	0.05

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
7: W 900 Bk & NW 103 St

2022 Existing  
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖		↖		↖			
Traffic Volume (vph)	0	1253	6	30	1341	0	6	0	13	0	0	0
Future Volume (vph)	0	1253	6	30	1341	0	6	0	13	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5		6.4	6.5		6.7		6.7			
Lane Util. Factor		0.91		1.00	0.91		1.00		1.00			
Fr <sub>t</sub>		1.00		1.00	1.00		1.00		0.85			
Fl <sub>t</sub> Protected		1.00		0.95	1.00		0.95		1.00			
Satd. Flow (prot)		5033		1736	4988		1805		1615			
Fl <sub>t</sub> Permitted		1.00		0.95	1.00		0.95		1.00			
Satd. Flow (perm)		5033		1736	4988		1805		1615			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1319	6	32	1412	0	6	0	14	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	14	0	0	0
Lane Group Flow (vph)	0	1325	0	32	1412	0	6	0	0	0	0	0
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Prot	NA		Prot		Perm			
Protected Phases	1	6		5	2		4					
Permitted Phases	6								4			
Actuated Green, G (s)		139.4		6.8	152.6		4.2		4.2			
Effective Green, g (s)		139.4		6.8	152.6		4.2		4.2			
Actuated g/C Ratio		0.82		0.04	0.90		0.02		0.02			
Clearance Time (s)		6.5		6.4	6.5		6.7		6.7			
Vehicle Extension (s)		1.0		2.0	1.0		2.5		2.5			
Lane Grp Cap (vph)		4127		69	4477		44		39			
v/s Ratio Prot		0.26		0.02	c0.28		c0.00					
v/s Ratio Perm									0.00			
v/c Ratio		0.32		0.46	0.32		0.14		0.01			
Uniform Delay, d <sub>1</sub>		3.7		79.8	1.2		81.1		80.9			
Progression Factor		0.17		0.74	0.75		1.00		1.00			
Incremental Delay, d <sub>2</sub>		0.2		1.4	0.1		1.0		0.1			
Delay (s)		0.9		60.4	1.1		82.2		80.9			
Level of Service		A		E	A		F		F			
Approach Delay (s)		0.9			2.4			81.3			0.0	
Approach LOS		A			A			F			A	

Intersection Summary

HCM 2000 Control Delay	2.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
8: W 8 Ave & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	1041	91	125	1176	87	98	323	97	137	531	160
Future Volume (vph)	104	1041	91	125	1176	87	98	323	97	137	531	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	135		0	220		0	175		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	55			55			25			110		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.988			0.990			0.965			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	4975	0	1736	4938	0	1752	3382	0	1752	3382	0
Flt Permitted	0.950			0.950			0.106			0.311		
Satd. Flow (perm)	1752	4975	0	1736	4938	0	196	3382	0	574	3382	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			8			22			22	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		736			1271			390			314	
Travel Time (s)		12.5			21.7			8.9			7.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	109	1096	96	132	1238	92	103	340	102	144	559	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	1192	0	132	1330	0	103	442	0	144	727	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	

Lanes, Volumes, Timings  
8: W 8 Ave & NW 103 St

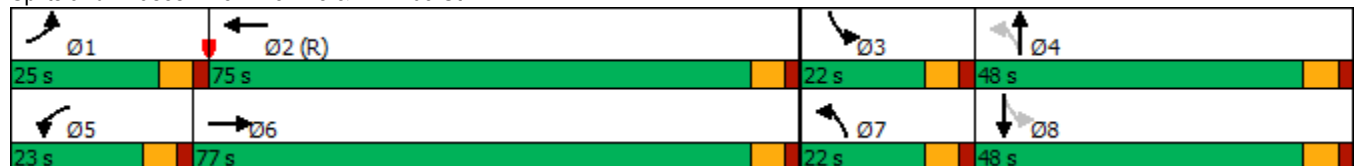
2022 Existing  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases							4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	13.4	34.4		13.4	34.4		11.4	37.5		11.4	37.5	
Total Split (s)	25.0	77.0		23.0	75.0		22.0	48.0		22.0	48.0	
Total Split (%)	14.7%	45.3%		13.5%	44.1%		12.9%	28.2%		12.9%	28.2%	
Maximum Green (s)	18.6	70.6		16.6	68.6		15.6	41.5		15.6	41.5	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.1		2.0	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	1.0		2.0	1.0		2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		21.0			21.0			24.0			24.0	
Pedestrian Calls (#/hr)		1			1			0			0	
Act Effct Green (s)	15.2	77.4		15.6	77.7		49.9	37.7		53.0	39.3	
Actuated g/C Ratio	0.09	0.46		0.09	0.46		0.29	0.22		0.31	0.23	
v/c Ratio	0.70	0.53		0.83	0.59		0.62	0.58		0.53	0.91	
Control Delay	81.5	31.7		144.6	16.6		54.4	58.7		46.5	77.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	81.5	31.7		144.6	16.6		54.4	58.7		46.5	77.8	
LOS	F	C		F	B		D	E		D	E	
Approach Delay		35.9			28.1			57.9			72.6	
Approach LOS		D			C			E			E	

Intersection Summary

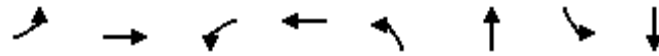
Area Type: Other  
 Cycle Length: 170  
 Actuated Cycle Length: 170  
 Offset: 104 (61%), Referenced to phase 2:WBT, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 43.7      Intersection LOS: D  
 Intersection Capacity Utilization 77.1%      ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 8: W 8 Ave & NW 103 St



Queues  
8: W 8 Ave & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	109	1192	132	1330	103	442	144	727
v/c Ratio	0.70	0.53	0.83	0.59	0.62	0.58	0.53	0.91
Control Delay	81.5	31.7	144.6	16.6	54.4	58.7	46.5	77.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.5	31.7	144.6	16.6	54.4	58.7	46.5	77.8
Queue Length 50th (ft)	87	465	156	232	79	220	114	403
Queue Length 95th (ft)	156	524	#266	116	124	276	168	485
Internal Link Dist (ft)		656		1191		310		234
Turn Bay Length (ft)	135		220		175		150	
Base Capacity (vph)	191	2269	172	2262	204	842	292	848
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.53	0.77	0.59	0.50	0.52	0.49	0.86

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.



HCM Signalized Intersection Capacity Analysis  
8: W 8 Ave & NW 103 St

2022 Existing  
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↖↗		↖	↗↖↗		↖	↗↖		↖	↗↖	
Traffic Volume (vph)	104	1041	91	125	1176	87	98	323	97	137	531	160
Future Volume (vph)	104	1041	91	125	1176	87	98	323	97	137	531	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	4975		1736	4936		1752	3384		1752	3383	
Flt Permitted	0.95	1.00		0.95	1.00		0.11	1.00		0.31	1.00	
Satd. Flow (perm)	1752	4975		1736	4936		195	3384		574	3383	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	109	1096	96	132	1238	92	103	340	102	144	559	168
RTOR Reduction (vph)	0	5	0	0	4	0	0	17	0	0	17	0
Lane Group Flow (vph)	109	1187	0	132	1326	0	103	425	0	144	710	0
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases							4			8		
Actuated Green, G (s)	15.2	77.3		15.6	77.7		49.9	37.8		52.9	39.3	
Effective Green, g (s)	15.2	77.3		15.6	77.7		49.9	37.8		52.9	39.3	
Actuated g/C Ratio	0.09	0.45		0.09	0.46		0.29	0.22		0.31	0.23	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Vehicle Extension (s)	3.0	1.0		2.0	1.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	156	2262		159	2256		168	752		272	782	
v/s Ratio Prot	0.06	0.24		c0.08	c0.27		c0.04	0.13		0.04	c0.21	
v/s Ratio Perm							0.14			0.12		
v/c Ratio	0.70	0.52		0.83	0.59		0.61	0.57		0.53	0.91	
Uniform Delay, d1	75.2	33.2		75.9	34.3		47.6	58.8		44.7	63.6	
Progression Factor	0.80	0.91		1.47	0.44		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.4	0.1		26.6	1.1		4.6	0.6		0.9	13.9	
Delay (s)	72.3	30.2		138.3	16.0		52.2	59.4		45.5	77.5	
Level of Service	E	C		F	B		D	E		D	E	
Approach Delay (s)		33.7			27.1			58.0			72.2	
Approach LOS		C			C			E			E	

Intersection Summary		
HCM 2000 Control Delay	42.6	HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio	0.70	
Actuated Cycle Length (s)	170.0	Sum of lost time (s) 25.7
Intersection Capacity Utilization	77.1%	ICU Level of Service D
Analysis Period (min)	15	
c Critical Lane Group		

Lanes, Volumes, Timings  
9: W 6 Ave & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↗↗		↖	↖↖↖		↖	↖	↖	↖	↖↗	↖↗
Traffic Volume (vph)	79	1083	63	45	1318	63	30	15	35	74	31	48
Future Volume (vph)	79	1083	63	45	1318	63	30	15	35	74	31	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	325		0	180		0	0		0	80		120
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	55			75			25			65		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.992			0.993				0.850		0.909	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5045	0	1752	5001	0	1805	1900	1615	1736	3155	0
Flt Permitted	0.950			0.950			0.700			0.747		
Satd. Flow (perm)	1770	5045	0	1752	5001	0	1330	1900	1615	1365	3155	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			8				37		51	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		1271			617			323			342	
Travel Time (s)		21.7			10.5			7.3			7.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	0%	0%	4%	4%	4%
Adj. Flow (vph)	84	1152	67	48	1402	67	32	16	37	79	33	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	1219	0	48	1469	0	32	16	37	79	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			16			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	1	6		5	2			4	5		8	

Lanes, Volumes, Timings  
9: W 6 Ave & NW 103 St

2022 Existing  
AM Peak Hour

	↖		→		↘		↙		←		↖		↗		↑		↘		↓		↙	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR										
Permitted Phases							4		4	8												
Detector Phase	1	6		5	2		4	4	5	8	8											
Switch Phase																						
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0											
Minimum Split (s)	13.4	33.4		13.4	33.4		31.7	31.7	13.4	31.7	31.7											
Total Split (s)	16.0	115.0		16.0	115.0		39.0	39.0	16.0	39.0	39.0											
Total Split (%)	9.4%	67.6%		9.4%	67.6%		22.9%	22.9%	9.4%	22.9%	22.9%											
Maximum Green (s)	9.6	108.6		9.6	108.6		32.3	32.3	9.6	32.3	32.3											
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0	4.4	4.0	4.0											
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7	2.0	2.7	2.7											
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0											
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.7	6.7	6.4	6.7	6.7											
Lead/Lag	Lead	Lag		Lead	Lag				Lead													
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes													
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5	2.0	2.5	2.5											
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None											
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0											
Flash Dont Walk (s)		20.0			20.0		18.0	18.0		18.0	18.0											
Pedestrian Calls (#/hr)		1			0		6	6		5	5											
Act Effct Green (s)	13.4	128.3		9.4	121.7		15.5	15.5	31.6	15.5	15.5											
Actuated g/C Ratio	0.08	0.75		0.06	0.72		0.09	0.09	0.19	0.09	0.09											
v/c Ratio	0.61	0.32		0.49	0.41		0.26	0.09	0.11	0.64	0.25											
Control Delay	95.3	3.9		127.3	3.2		74.6	68.3	14.3	95.6	31.7											
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0	0.0	0.0	0.0											
Total Delay	95.3	3.9		127.3	3.3		74.6	68.3	14.3	95.6	31.7											
LOS	F	A		F	A		E	E	B	F	C											
Approach Delay		9.8			7.2			47.2			62.7											
Approach LOS		A			A			D			E											

Intersection Summary

Area Type: Other  
 Cycle Length: 170  
 Actuated Cycle Length: 170  
 Offset: 86 (51%), Referenced to phase 2:WBT and 6:EBT, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.64  
 Intersection Signal Delay: 12.4 Intersection LOS: B  
 Intersection Capacity Utilization 59.7% ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 9: W 6 Ave & NW 103 St



Queues  
9: W 6 Ave & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	84	1219	48	1469	32	16	37	79	84
v/c Ratio	0.61	0.32	0.49	0.41	0.26	0.09	0.11	0.64	0.25
Control Delay	95.3	3.9	127.3	3.2	74.6	68.3	14.3	95.6	31.7
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	95.3	3.9	127.3	3.3	74.6	68.3	14.3	95.6	31.7
Queue Length 50th (ft)	94	79	54	84	34	17	0	87	18
Queue Length 95th (ft)	158	98	m106	313	69	40	32	140	45
Internal Link Dist (ft)		1191		537		243			262
Turn Bay Length (ft)	325		180					80	
Base Capacity (vph)	140	3808	107	3581	252	361	340	259	640
Starvation Cap Reductn	0	0	0	681	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.32	0.45	0.51	0.13	0.04	0.11	0.31	0.13

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
9: W 6 Ave & NW 103 St

2022 Existing  
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑		↗	↑↑↑		↗	↑	↗	↗	↑↑	
Traffic Volume (vph)	79	1083	63	45	1318	63	30	15	35	74	31	48
Future Volume (vph)	79	1083	63	45	1318	63	30	15	35	74	31	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.7	6.7	6.4	6.7	6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5043		1752	5001		1805	1900	1615	1736	3155	
Flt Permitted	0.95	1.00		0.95	1.00		0.70	1.00	1.00	0.75	1.00	
Satd. Flow (perm)	1770	5043		1752	5001		1329	1900	1615	1365	3155	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	84	1152	67	48	1402	67	32	16	37	79	33	51
RTOR Reduction (vph)	0	3	0	0	2	0	0	0	32	0	46	0
Lane Group Flow (vph)	84	1216	0	48	1467	0	32	16	5	79	38	0
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	0%	0%	4%	4%	4%
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	1	6		5	2			4		5		8
Permitted Phases							4		4		8	
Actuated Green, G (s)	13.4	127.0		8.0	121.6		15.5	15.5	23.5	15.5	15.5	
Effective Green, g (s)	13.4	127.0		8.0	121.6		15.5	15.5	23.5	15.5	15.5	
Actuated g/C Ratio	0.08	0.75		0.05	0.72		0.09	0.09	0.14	0.09	0.09	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.7	6.7	6.4	6.7	6.7	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5	2.0	2.5	2.5	
Lane Grp Cap (vph)	139	3767		82	3577		121	173	223	124	287	
v/s Ratio Prot	c0.05	c0.24		0.03	c0.29			0.01	0.00		0.01	
v/s Ratio Perm							0.02		0.00	c0.06		
v/c Ratio	0.60	0.32		0.59	0.41		0.26	0.09	0.02	0.64	0.13	
Uniform Delay, d1	75.7	7.2		79.4	9.7		71.9	70.8	63.3	74.5	71.1	
Progression Factor	1.05	0.48		1.44	0.28		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.3	0.2		6.2	0.3		0.9	0.2	0.0	9.0	0.2	
Delay (s)	84.2	3.6		120.5	3.0		72.8	71.0	63.3	83.6	71.2	
Level of Service	F	A		F	A		E	E	E	F	E	
Approach Delay (s)		8.8			6.7			68.3			77.2	
Approach LOS		A			A			E			E	

Intersection Summary

HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
10: W 500 Blk & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	1050	70	195	1341	56	64	20	72	106	13	29
Future Volume (vph)	86	1050	70	195	1341	56	64	20	72	106	13	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		0	270		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			65			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.991			0.994			0.930			0.971	
Flt Protected	0.950			0.950				0.980			0.965	
Satd. Flow (prot)	1752	4991	0	1736	4958	0	0	3104	0	0	3349	0
Flt Permitted	0.950			0.950				0.759			0.684	
Satd. Flow (perm)	1752	4991	0	1736	4958	0	0	2404	0	0	2374	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			7			77			15	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		617			744			255			222	
Travel Time (s)		10.5			12.7			5.8			5.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	6%	6%	6%	1%	1%	1%
Adj. Flow (vph)	91	1117	74	207	1427	60	68	21	77	113	14	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	1191	0	207	1487	0	0	166	0	0	158	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	

Lanes, Volumes, Timings  
10: W 500 Blk & NW 103 St

2022 Existing  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases							4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	11.5	38.5		11.4	38.5		11.2	36.7		11.3	36.7	
Total Split (s)	22.0	102.0		29.0	109.0		20.0	20.0		19.0	19.0	
Total Split (%)	12.9%	60.0%		17.1%	64.1%		11.8%	11.8%		11.2%	11.2%	
Maximum Green (s)	15.5	95.5		22.6	102.5		13.8	13.3		12.7	12.3	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.1	2.1		2.0	2.1		2.2	2.7		2.3	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		0.0
Total Lost Time (s)	6.5	6.5		6.4	6.5			6.7			6.7	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.5	1.0		3.5	1.0		2.0	2.5		2.0	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			23.0			23.0	
Pedestrian Calls (#/hr)		0			2			1			1	
Act Effct Green (s)	14.2	107.9		25.7	119.3			16.8			16.8	
Actuated g/C Ratio	0.08	0.63		0.15	0.70			0.10			0.10	
v/c Ratio	0.62	0.38		0.79	0.43			0.54			0.90dl	
Control Delay	84.7	10.1		109.9	4.8			43.9			77.1	
Queue Delay	0.0	0.1		0.0	0.2			0.0			0.0	
Total Delay	84.7	10.2		109.9	5.0			43.9			77.1	
LOS	F	B		F	A			D			E	
Approach Delay		15.5			17.8			43.9			77.1	
Approach LOS		B			B			D			E	

Intersection Summary

Area Type: Other  
 Cycle Length: 170  
 Actuated Cycle Length: 170  
 Offset: 74 (44%), Referenced to phase 2:WBT and 6:EBT, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 21.1      Intersection LOS: C  
 Intersection Capacity Utilization 61.5%      ICU Level of Service B  
 Analysis Period (min) 15  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 10: W 500 Blk & NW 103 St



Queues  
10: W 500 Blk & NW 103 St

2022 Existing  
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	91	1191	207	1487	166	158
v/c Ratio	0.62	0.38	0.79	0.43	0.54	0.90dl
Control Delay	84.7	10.1	109.9	4.8	43.9	77.1
Queue Delay	0.0	0.1	0.0	0.2	0.0	0.0
Total Delay	84.7	10.2	109.9	5.0	43.9	77.1
Queue Length 50th (ft)	106	109	239	72	50	83
Queue Length 95th (ft)	169	155	m#357	109	85	115
Internal Link Dist (ft)		537		664	175	142
Turn Bay Length (ft)	220		270			
Base Capacity (vph)	167	3171	267	3482	318	255
Starvation Cap Reductn	0	682	0	1035	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.48	0.78	0.61	0.52	0.62

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.



HCM Signalized Intersection Capacity Analysis  
 10: W 500 Blk & NW 103 St

2022 Existing  
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑		↗	↑↑↑			↕			↕	
Traffic Volume (vph)	86	1050	70	195	1341	56	64	20	72	106	13	29
Future Volume (vph)	86	1050	70	195	1341	56	64	20	72	106	13	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.4	6.5			6.7			6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91			0.95			0.95	
Frt	1.00	0.99		1.00	0.99			0.93			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.97	
Satd. Flow (prot)	1752	4989		1736	4957			3105			3349	
Flt Permitted	0.95	1.00		0.95	1.00			0.76			0.68	
Satd. Flow (perm)	1752	4989		1736	4957			2404			2372	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	91	1117	74	207	1427	60	68	21	77	113	14	31
RTOR Reduction (vph)	0	4	0	0	2	0	0	69	0	0	14	0
Lane Group Flow (vph)	91	1187	0	207	1485	0	0	97	0	0	144	0
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	6%	6%	6%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases							4			8		
Actuated Green, G (s)	14.2	107.9		25.7	119.3			16.8			16.8	
Effective Green, g (s)	14.2	107.9		25.7	119.3			16.8			16.8	
Actuated g/C Ratio	0.08	0.63		0.15	0.70			0.10			0.10	
Clearance Time (s)	6.5	6.5		6.4	6.5			6.7			6.7	
Vehicle Extension (s)	3.5	1.0		3.5	1.0			2.5			2.5	
Lane Grp Cap (vph)	146	3166		262	3478			237			234	
v/s Ratio Prot	0.05	0.24		c0.12	c0.30							
v/s Ratio Perm								0.04			c0.06	
v/c Ratio	0.62	0.38		0.79	0.43			0.41			0.90dl	
Uniform Delay, d1	75.3	14.9		69.5	10.8			71.9			73.5	
Progression Factor	0.89	0.62		1.38	0.38			1.00			1.00	
Incremental Delay, d2	8.1	0.3		11.2	0.3			0.8			4.1	
Delay (s)	75.3	9.6		107.4	4.4			72.8			77.6	
Level of Service	E	A		F	A			E			E	
Approach Delay (s)		14.2			17.0			72.8			77.6	
Approach LOS		B			B			E			E	






























Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Lanes, Volumes, Timings  
11: Red Rd & NW 103 St

2022 Existing  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			  		 	  		  	  	
Traffic Volume (vph)	144	801	309	64	1019	59	301	906	179	127	1481	411
Future Volume (vph)	144	801	309	64	1019	59	301	906	179	127	1481	411
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	215		0	400		165	295		190	190		140
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	60			80			100			150		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	3505	1568	1719	4940	1538	3367	4988	1553	3400	5036	1568
Flt Permitted	0.119			0.165			0.950			0.950		
Satd. Flow (perm)	220	3505	1568	299	4940	1538	3367	4988	1553	3400	5036	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			88			73			83			73
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		744			565			546			475	
Travel Time (s)		12.7			9.6			8.3			7.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	3%	3%	3%
Adj. Flow (vph)	152	843	325	67	1073	62	317	954	188	134	1559	433
Shared Lane Traffic (%)												
Lane Group Flow (vph)	152	843	325	67	1073	62	317	954	188	134	1559	433
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1

Lanes, Volumes, Timings  
11: Red Rd & NW 103 St

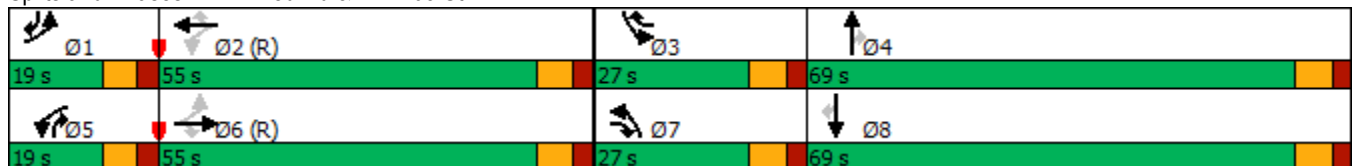
2022 Existing  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6		6	2		2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.1	37.1	14.3	14.1	37.1	14.3	14.3	37.3	14.1	14.3	37.3	14.1
Total Split (s)	19.0	55.0	27.0	19.0	55.0	27.0	27.0	69.0	19.0	27.0	69.0	19.0
Total Split (%)	11.2%	32.4%	15.9%	11.2%	32.4%	15.9%	15.9%	40.6%	11.2%	15.9%	40.6%	11.2%
Maximum Green (s)	11.9	47.9	19.7	11.9	47.9	19.7	19.7	61.7	11.9	19.7	61.7	11.9
Yellow Time (s)	4.4	4.4	4.8	4.4	4.4	4.8	4.8	4.8	4.4	4.8	4.8	4.4
All-Red Time (s)	2.7	2.7	2.5	2.7	2.7	2.5	2.5	2.5	2.7	2.5	2.5	2.7
Lost Time Adjust (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
Total Lost Time (s)	7.1	7.1	7.3	7.1	7.1	7.3	7.3	7.3	7.1	7.3	7.3	7.1
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.5	1.0	2.5	2.5	1.0	2.5	2.5	1.0	2.5	2.5	1.0	2.5
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		23.0			23.0			23.0			23.0	
Pedestrian Calls (#/hr)		0			1			0			0	
Act Effct Green (s)	69.0	56.0	81.9	61.4	52.2	70.9	18.8	64.5	80.9	11.6	57.2	77.5
Actuated g/C Ratio	0.41	0.33	0.48	0.36	0.31	0.42	0.11	0.38	0.48	0.07	0.34	0.46
v/c Ratio	0.74	0.73	0.41	0.36	0.71	0.09	0.85	0.50	0.24	0.58	0.92	0.57
Control Delay	65.8	54.8	35.3	37.0	56.1	4.5	95.0	41.3	14.3	86.6	63.7	30.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.8	54.8	35.3	37.0	56.1	4.5	95.0	41.3	14.3	86.6	63.7	30.7
LOS	E	D	D	D	E	A	F	D	B	F	E	C
Approach Delay		51.3			52.3			49.5			58.4	
Approach LOS		D			D			D			E	

Intersection Summary

Area Type: Other  
 Cycle Length: 170  
 Actuated Cycle Length: 170  
 Offset: 59 (35%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 53.5      Intersection LOS: D  
 Intersection Capacity Utilization 89.2%      ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 11: Red Rd & NW 103 St



Queues  
11: Red Rd & NW 103 St

2022 Existing  
AM Peak Hour




































Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	152	843	325	67	1073	62	317	954	188	134	1559	433
v/c Ratio	0.74	0.73	0.41	0.36	0.71	0.09	0.85	0.50	0.24	0.58	0.92	0.57
Control Delay	65.8	54.8	35.3	37.0	56.1	4.5	95.0	41.3	14.3	86.6	63.7	30.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.8	54.8	35.3	37.0	56.1	4.5	95.0	41.3	14.3	86.6	63.7	30.7
Queue Length 50th (ft)	127	348	205	45	404	0	180	293	64	76	608	283
Queue Length 95th (ft)	#229	472	257	84	462	25	#252	337	114	113	651	396
Internal Link Dist (ft)		664			485			466			395	
Turn Bay Length (ft)	215			400		165	295		190	190		140
Base Capacity (vph)	208	1154	808	212	1517	753	390	1913	806	394	1827	756
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.73	0.40	0.32	0.71	0.08	0.81	0.50	0.23	0.34	0.85	0.57

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.













HCM Signalized Intersection Capacity Analysis  
 11: Red Rd & NW 103 St

2022 Existing  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			  		 	  		 	  	
Traffic Volume (vph)	144	801	309	64	1019	59	301	906	179	127	1481	411
Future Volume (vph)	144	801	309	64	1019	59	301	906	179	127	1481	411
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.1	7.1	7.3	7.1	7.1	7.3	7.3	7.3	7.1	7.3	7.3	7.1
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	3505	1568	1719	4940	1538	3367	4988	1553	3400	5036	1568
Flt Permitted	0.12	1.00	1.00	0.17	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	220	3505	1568	299	4940	1538	3367	4988	1553	3400	5036	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	152	843	325	67	1073	62	317	954	188	134	1559	433
RTOR Reduction (vph)	0	0	49	0	0	39	0	0	47	0	0	43
Lane Group Flow (vph)	152	843	276	67	1073	23	317	954	141	134	1559	390
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	3%	3%	3%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	68.9	55.9	74.7	61.3	52.1	63.7	18.8	64.5	73.7	11.6	57.3	70.3
Effective Green, g (s)	68.9	55.9	74.7	61.3	52.1	63.7	18.8	64.5	73.7	11.6	57.3	70.3
Actuated g/C Ratio	0.41	0.33	0.44	0.36	0.31	0.37	0.11	0.38	0.43	0.07	0.34	0.41
Clearance Time (s)	7.1	7.1	7.3	7.1	7.1	7.3	7.3	7.3	7.1	7.3	7.3	7.1
Vehicle Extension (s)	2.5	1.0	2.5	2.5	1.0	2.5	2.5	1.0	2.5	2.5	1.0	2.5
Lane Grp Cap (vph)	206	1152	688	184	1513	576	372	1892	673	232	1697	648
v/s Ratio Prot	c0.06	0.24	0.04	0.02	0.22	0.00	c0.09	c0.19	0.01	0.04	c0.31	0.05
v/s Ratio Perm	c0.24		0.13	0.11		0.01			0.08			0.20
v/c Ratio	0.74	0.73	0.40	0.36	0.71	0.04	0.85	0.50	0.21	0.58	0.92	0.60
Uniform Delay, d1	36.7	50.4	32.4	38.5	52.2	33.7	74.2	40.5	30.0	76.8	54.1	38.9
Progression Factor	1.40	0.98	1.60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.5	3.9	0.3	0.9	2.8	0.0	16.7	0.1	0.1	2.8	8.2	1.3
Delay (s)	62.8	53.4	52.0	39.4	55.1	33.8	91.0	40.6	30.1	79.7	62.3	40.3
Level of Service	E	D	D	D	E	C	F	D	C	E	E	D
Approach Delay (s)		54.1			53.1			50.2			58.9	
Approach LOS		D			D			D			E	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			54.6				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			170.0				Sum of lost time (s)			28.8		
Intersection Capacity Utilization			89.2%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
1: W 18 Ct/SR 826 & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑	↵	↵	↵	↵			
Traffic Volume (vph)	0	1403	355	150	998	944	428	50	56	0	0	0
Future Volume (vph)	0	1403	355	150	998	944	428	50	56	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		300	310		0	0		0
Storage Lanes	0		0	1		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.970				0.850			0.850			
Flt Protected				0.950			0.950	0.962				
Satd. Flow (prot)	0	4838	0	1752	5036	1568	1665	1686	1568	0	0	0
Flt Permitted				0.053			0.950	0.962				
Satd. Flow (perm)	0	4838	0	98	5036	1568	1665	1686	1568	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48				711			60			
Link Speed (mph)		40			40			30				30
Link Distance (ft)		300			843			492				239
Travel Time (s)		5.1			14.4			11.2				5.4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	1493	378	160	1062	1004	455	53	60	0	0	0
Shared Lane Traffic (%)							44%					
Lane Group Flow (vph)	0	1871	0	160	1062	1004	255	253	60	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			20			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2	1	1	2	1			
Detector Template		Thru		Left	Thru	Right	Left	Thru	Right			
Leading Detector (ft)		100		20	100	20	20	100	20			
Trailing Detector (ft)		0		0	0	0	0	0	0			
Detector 1 Position(ft)		0		0	0	0	0	0	0			
Detector 1 Size(ft)		6		20	6	20	20	6	20			
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0			
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type		NA		pm+pt	NA	Free	Split	NA	pm+ov			
Protected Phases		6		5	2		4	4	5			

Lane Group	Ø10	Ø11
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(ft)		
Detector 2 Size(ft)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	10	11

Lanes, Volumes, Timings  
 1: W 18 Ct/SR 826 & NW 103 St

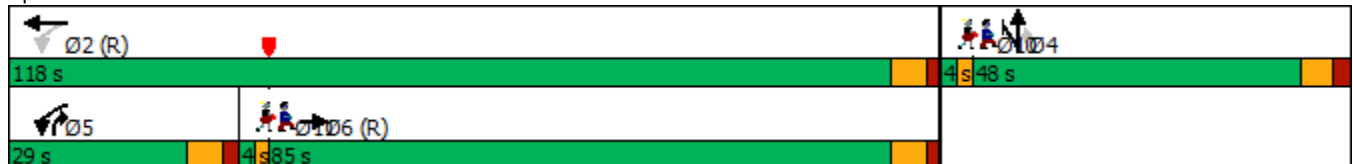
2022 Existing Opt LPI  
 AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases				2		Free			4			
Detector Phase		6		5	2		4	4	5			
Switch Phase												
Minimum Initial (s)		7.0		7.0	7.0		7.0	7.0	7.0			
Minimum Split (s)		33.4		13.4	33.4		35.6	35.6	13.4			
Total Split (s)		85.0		29.0	118.0		48.0	48.0	29.0			
Total Split (%)		50.0%		17.1%	69.4%		28.2%	28.2%	17.1%			
Maximum Green (s)		78.6		22.6	111.6		41.4	41.4	22.6			
Yellow Time (s)		4.4		4.4	4.4		4.0	4.0	4.4			
All-Red Time (s)		2.0		2.0	2.0		2.6	2.6	2.0			
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0			
Total Lost Time (s)		6.4		6.4	6.4		6.6	6.6	6.4			
Lead/Lag				Lead					Lead			
Lead-Lag Optimize?				Yes					Yes			
Vehicle Extension (s)		1.0		2.5	1.0		3.0	3.0	2.5			
Recall Mode		C-Max		None	C-Max		None	None	None			
Walk Time (s)		7.0			7.0		7.0	7.0				
Flash Dont Walk (s)		20.0			20.0		22.0	22.0				
Pedestrian Calls (#/hr)		0			0		0	0				
Act Effct Green (s)		93.0		121.2	121.2	170.0	31.8	31.8	53.4			
Actuated g/C Ratio		0.55		0.71	0.71	1.00	0.19	0.19	0.31			
v/c Ratio		0.70		0.74	0.30	0.64	0.82	0.80	0.11			
Control Delay		31.0		40.3	24.0	13.4	86.6	84.5	7.2			
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay		31.0		40.3	24.0	13.4	86.6	84.5	7.2			
LOS		C		D	C	B	F	F	A			
Approach Delay		31.0			20.4			77.3				
Approach LOS		C			C			E				

Intersection Summary

Area Type: Other  
 Cycle Length: 170  
 Actuated Cycle Length: 170  
 Offset: 97 (57%), Referenced to phase 2:WBTL and 6:EBT, Start of Green  
 Natural Cycle: 95  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.82  
 Intersection Signal Delay: 31.6      Intersection LOS: C  
 Intersection Capacity Utilization 72.7%      ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 1: W 18 Ct/SR 826 & NW 103 St





Lane Group	Ø10	Ø11
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	4.0	4.0
Total Split (s)	4.0	4.0
Total Split (%)	2%	2%
Maximum Green (s)	2.0	2.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		Lag
Lead-Lag Optimize?		Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	Ped	Ped
Walk Time (s)	2.0	2.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	0	0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

Queues  
1: W 18 Ct/SR 826 & NW 103 St













2022 Existing Opt LPI  
AM Peak Hour



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1871	160	1062	1004	255	253	60
v/c Ratio	0.70	0.74	0.30	0.64	0.82	0.80	0.11
Control Delay	31.0	40.3	24.0	13.4	86.6	84.5	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	40.3	24.0	13.4	86.6	84.5	7.2
Queue Length 50th (ft)	544	136	332	399	290	287	0
Queue Length 95th (ft)	708	208	425	486	380	375	31
Internal Link Dist (ft)	220		763			412	
Turn Bay Length (ft)		350		300	310		
Base Capacity (vph)	2668	289	3591	1568	405	410	600
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.55	0.30	0.64	0.63	0.62	0.10
Intersection Summary							


























HCM Signalized Intersection Capacity Analysis  
 1: W 18 Ct/SR 826 & NW 103 St

2022 Existing Opt LPI  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↔	↑↑↑	↔	↔	↑	↔			
Traffic Volume (vph)	0	1403	355	150	998	944	428	50	56	0	0	0
Future Volume (vph)	0	1403	355	150	998	944	428	50	56	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4		6.4	6.4	4.0	6.6	6.6	6.4			
Lane Util. Factor		0.91		1.00	0.91	1.00	0.95	0.95	1.00			
Frt		0.97		1.00	1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00		0.95	1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)		4836		1752	5036	1568	1665	1686	1568			
Flt Permitted		1.00		0.05	1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)		4836		99	5036	1568	1665	1686	1568			
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1493	378	160	1062	1004	455	53	60	0	0	0
RTOR Reduction (vph)	0	22	0	0	0	0	0	0	43	0	0	0
Lane Group Flow (vph)	0	1849	0	160	1062	1004	255	253	17	0	0	0
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type		NA		pm+pt	NA	Free	Split	NA	pm+ov			
Protected Phases		6		5	2		4	4	5			
Permitted Phases				2		Free			4			
Actuated Green, G (s)		93.0		121.2	121.2	170.0	31.8	31.8	46.8			
Effective Green, g (s)		93.0		121.2	121.2	170.0	31.8	31.8	46.8			
Actuated g/C Ratio		0.55		0.71	0.71	1.00	0.19	0.19	0.28			
Clearance Time (s)		6.4		6.4	6.4		6.6	6.6	6.4			
Vehicle Extension (s)		1.0		2.5	1.0		3.0	3.0	2.5			
Lane Grp Cap (vph)		2645		216	3590	1568	311	315	431			
v/s Ratio Prot		0.38		0.07	0.21		c0.15	0.15	0.00			
v/s Ratio Perm				c0.46		c0.64			0.01			
v/c Ratio		0.70		0.74	0.30	0.64	0.82	0.80	0.04			
Uniform Delay, d1		28.2		44.3	8.9	0.0	66.4	66.1	45.1			
Progression Factor		1.00		0.66	2.52	1.00	1.00	1.00	1.00			
Incremental Delay, d2		1.6		10.2	0.2	1.7	15.4	13.7	0.0			
Delay (s)		29.8		39.6	22.6	1.7	81.8	79.8	45.1			
Level of Service		C		D	C	A	F	E	D			
Approach Delay (s)		29.8			14.4			77.0			0.0	
Approach LOS		C			B			E			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			28.2				HCM 2000 Level of Service		C			
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			170.0				Sum of lost time (s)		23.4			
Intersection Capacity Utilization			72.7%				ICU Level of Service		C			
Analysis Period (min)			15									
c	Critical Lane Group											

Lanes, Volumes, Timings  
2: W 17 Ct & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (vph)	55	1256	77	30	1673	3	154	17	19	59	65	92
Future Volume (vph)	55	1256	77	30	1673	3	154	17	19	59	65	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	320		0	250		0	100		60	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	50			50			75			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991							0.850		0.912	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	4943	0	1736	4988	0	1770	1863	1583	1787	1716	0
Flt Permitted	0.071			0.950			0.421			0.684		
Satd. Flow (perm)	130	4943	0	1736	4988	0	784	1863	1583	1287	1716	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7							89			37
Link Speed (mph)		40			40			30				30
Link Distance (ft)		843			924			414				161
Travel Time (s)		14.4			15.8			9.4				3.7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	58	1322	81	32	1761	3	162	18	20	62	68	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	1403	0	32	1764	0	162	18	20	62	165	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			20				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1		2
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20		100
Trailing Detector (ft)	0	0		0	0		0	0	0	0		0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0		0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20		6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	pm+pt	NA		Prot	NA		pm+pt	NA	pm+ov	pm+pt		NA
Protected Phases	1	6		5	2		7	4	5	3		8

Lane Group	Ø9	Ø10	Ø11	Ø12
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type				
Protected Phases	9	10	11	12

Lanes, Volumes, Timings  
2: W 17 Ct & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Permitted Phases	6						4		4		8		
Detector Phase	1	6		5	2		7	4	5	3	8		
Switch Phase													
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0	5.0	5.0	7.0		
Minimum Split (s)	11.5	38.5		11.4	38.5		11.2	36.7	11.4	11.3	36.7		
Total Split (s)	16.0	86.0		16.0	86.0		22.0	48.0	16.0	12.0	38.0		
Total Split (%)	9.4%	50.6%		9.4%	50.6%		12.9%	28.2%	9.4%	7.1%	22.4%		
Maximum Green (s)	9.5	79.5		9.6	79.5		15.8	41.3	9.6	5.7	31.3		
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0	4.4	4.0	4.0		
All-Red Time (s)	2.1	2.1		2.0	2.1		2.2	2.7	2.0	2.3	2.7		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.5	6.5		6.4	6.5		6.2	6.7	6.4	6.3	6.7		
Lead/Lag	Lead			Lead			Lead		Lead		Lead		
Lead-Lag Optimize?	Yes			Yes			Yes		Yes		Yes		
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5	2.0	2.5	2.5		
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None		
Walk Time (s)	7.0			7.0			7.0			2.0			
Flash Dont Walk (s)	25.0			25.0			23.0			23.0			
Pedestrian Calls (#/hr)	1			2			1			1			
Act Effct Green (s)	100.6	93.7		7.7	94.4		34.4	21.6	30.5	23.9	17.8		
Actuated g/C Ratio	0.59	0.55		0.05	0.56		0.20	0.13	0.18	0.14	0.10		
v/c Ratio	0.41	0.51		0.41	0.64		0.66	0.08	0.06	0.31	0.78		
Control Delay	23.6	44.8		90.6	34.0		69.1	59.1	0.3	53.5	80.3		
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total Delay	23.6	44.8		90.6	34.0		69.1	59.1	0.3	53.5	80.3		
LOS	C	D		F	C		E	E	A	D	F		
Approach Delay	43.9			35.0			61.3			73.0			
Approach LOS	D			D			E			E			

Intersection Summary

Area Type: Other  
 Cycle Length: 170  
 Actuated Cycle Length: 170  
 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 42.3  
 Intersection LOS: D  
 Intersection Capacity Utilization 75.7%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 2: W 17 Ct & NW 103 St



Lane Group	Ø9	Ø10	Ø11	Ø12
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0	4.0
Total Split (s)	4.0	4.0	4.0	4.0
Total Split (%)	2%	2%	2%	2%
Maximum Green (s)	2.0	2.0	2.0	2.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Ped	Ped	Ped	Ped
Walk Time (s)	2.0	2.0	2.0	2.0
Flash Dont Walk (s)	0.0	0.0	0.0	0.0
Pedestrian Calls (#/hr)	0	0	0	0
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Intersection Summary				

Queues  
2: W 17 Ct & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	58	1403	32	1764	162	18	20	62	165
v/c Ratio	0.41	0.51	0.41	0.64	0.66	0.08	0.06	0.31	0.78
Control Delay	23.6	44.8	90.6	34.0	69.1	59.1	0.3	53.5	80.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.6	44.8	90.6	34.0	69.1	59.1	0.3	53.5	80.3
Queue Length 50th (ft)	36	594	32	659	148	17	0	53	142
Queue Length 95th (ft)	m40	646	m50	737	208	41	0	91	220
Internal Link Dist (ft)		763		844		334			81
Turn Bay Length (ft)	320		250		100		60		
Base Capacity (vph)	169	2728	100	2770	252	452	376	197	346
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.51	0.32	0.64	0.64	0.04	0.05	0.31	0.48

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



# HCM Signalized Intersection Capacity Analysis

## 2: W 17 Ct & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑		↗	↑↑↑		↗	↑	↗	↗	↗	↗
Traffic Volume (vph)	55	1256	77	30	1673	3	154	17	19	59	65	92
Future Volume (vph)	55	1256	77	30	1673	3	154	17	19	59	65	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.4	6.5		6.2	6.7	6.4	6.3	6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4944		1736	4986		1770	1863	1583	1787	1715	
Flt Permitted	0.07	1.00		0.95	1.00		0.42	1.00	1.00	0.68	1.00	
Satd. Flow (perm)	130	4944		1736	4986		783	1863	1583	1286	1715	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	58	1322	81	32	1761	3	162	18	20	62	68	97
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	17	0	33	0
Lane Group Flow (vph)	58	1400	0	32	1764	0	162	18	3	62	132	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	1%	1%	1%
Turn Type	pm+pt	NA		Prot	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	1	6		5	2		7	4	5	3	8	
Permitted Phases	6						4		4	8		
Actuated Green, G (s)	95.6	89.7		6.7	90.4		34.1	18.8	25.5	26.2	20.5	
Effective Green, g (s)	95.6	89.7		6.7	90.4		34.1	18.8	25.5	26.2	20.5	
Actuated g/C Ratio	0.56	0.53		0.04	0.53		0.20	0.11	0.15	0.15	0.12	
Clearance Time (s)	6.5	6.5		6.4	6.5		6.2	6.7	6.4	6.3	6.7	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5	2.0	2.5	2.5	
Lane Grp Cap (vph)	128	2608		68	2651		245	206	237	214	206	
v/s Ratio Prot	0.02	0.28		c0.02	c0.35		c0.06	0.01	0.00	0.01	c0.08	
v/s Ratio Perm	0.24						0.07		0.00	0.03		
v/c Ratio	0.45	0.54		0.47	0.67		0.66	0.09	0.01	0.29	0.64	
Uniform Delay, d1	22.4	26.5		79.9	28.8		59.9	67.9	61.5	63.0	71.3	
Progression Factor	1.34	1.75		1.00	1.20		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	0.6		1.5	1.1		5.9	0.1	0.0	0.5	5.9	
Delay (s)	30.7	46.8		81.4	35.6		65.9	68.0	61.5	63.6	77.2	
Level of Service	C	D		F	D		E	E	E	E	E	
Approach Delay (s)		46.2			36.4			65.6			73.5	
Approach LOS		D			D			E			E	

### Intersection Summary

HCM 2000 Control Delay	44.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
3: W 16 Ave & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	1138	169	184	1215	61	160	369	79	148	598	139
Future Volume (vph)	117	1138	169	184	1215	61	160	369	79	148	598	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	270		0	370		0	250		0	185		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.981			0.993			0.973			0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	4893	0	1736	4953	0	1736	3377	0	1770	3440	0
Flt Permitted	0.112			0.075			0.094			0.352		
Satd. Flow (perm)	205	4893	0	137	4953	0	172	3377	0	656	3440	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			5			15			16	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		924			866			399			405	
Travel Time (s)		15.8			14.8			9.1			9.2	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%
Adj. Flow (vph)	119	1161	172	188	1240	62	163	377	81	151	610	142
Shared Lane Traffic (%)												
Lane Group Flow (vph)	119	1333	0	188	1302	0	163	458	0	151	752	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	

Lane Group	Ø9	Ø10	Ø11	Ø12
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type				
Protected Phases	9	10	11	12

Lanes, Volumes, Timings  
3: W 16 Ave & NW 103 St

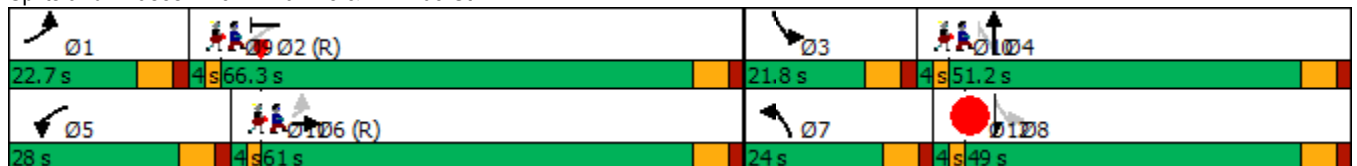
2022 Existing Opt LPI  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	11.4	34.4		11.4	34.4		11.4	37.5		11.4	37.5	
Total Split (s)	22.7	61.0		28.0	66.3		24.0	51.2		21.8	49.0	
Total Split (%)	13.4%	35.9%		16.5%	39.0%		14.1%	30.1%		12.8%	28.8%	
Maximum Green (s)	16.3	54.6		21.6	59.9		17.6	44.7		15.4	42.5	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.1		2.0	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lead/Lag	Lead			Lead			Lead			Lead		
Lead-Lag Optimize?	Yes			Yes			Yes			Yes		
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.0	2.5		2.0	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)	7.0			7.0			7.0			7.0		
Flash Dont Walk (s)	21.0			21.0			24.0			24.0		
Pedestrian Calls (#/hr)	3			2			0			1		
Act Effct Green (s)	70.8	59.7		82.3	65.0		58.3	42.4		53.7	40.3	
Actuated g/C Ratio	0.42	0.35		0.48	0.38		0.34	0.25		0.32	0.24	
v/c Ratio	0.64	0.77		0.82	0.69		0.80	0.54		0.51	0.91	
Control Delay	59.8	90.3		94.2	26.6		69.4	55.6		40.2	77.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	59.8	90.3		94.2	26.6		69.4	55.6		40.2	77.1	
LOS	E	F		F	C		E	E		D	E	
Approach Delay	87.8			35.1			59.2			70.9		
Approach LOS	F			D			E			E		

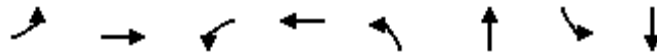
Intersection Summary

Area Type: Other  
 Cycle Length: 170  
 Actuated Cycle Length: 170  
 Offset: 108 (64%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 62.8  
 Intersection LOS: E  
 Intersection Capacity Utilization 87.2%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 3: W 16 Ave & NW 103 St



Lane Group	Ø9	Ø10	Ø11	Ø12
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0	4.0
Total Split (s)	4.0	4.0	4.0	4.0
Total Split (%)	2%	2%	2%	2%
Maximum Green (s)	2.0	2.0	2.0	2.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Ped	Ped	Ped	Ped
Walk Time (s)	2.0	2.0	2.0	2.0
Flash Dont Walk (s)	0.0	0.0	0.0	0.0
Pedestrian Calls (#/hr)	0	0	0	0
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Intersection Summary				



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	119	1333	188	1302	163	458	151	752
v/c Ratio	0.64	0.77	0.82	0.69	0.80	0.54	0.51	0.91
Control Delay	59.8	90.3	94.2	26.6	69.4	55.6	40.2	77.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.8	90.3	94.2	26.6	69.4	55.6	40.2	77.1
Queue Length 50th (ft)	131	569	177	154	123	223	107	417
Queue Length 95th (ft)	202	619	278	305	#227	283	163	502
Internal Link Dist (ft)		844		786		319		325
Turn Bay Length (ft)	270		370		250		185	
Base Capacity (vph)	238	1729	272	1898	222	899	316	872
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.77	0.69	0.69	0.73	0.51	0.48	0.86

**Intersection Summary**

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
3: W 16 Ave & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↖↗		↖	↗↖↗		↖	↗↖		↖	↗↖	
Traffic Volume (vph)	117	1138	169	184	1215	61	160	369	79	148	598	139
Future Volume (vph)	117	1138	169	184	1215	61	160	369	79	148	598	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	4891		1736	4952		1736	3379		1770	3439	
Flt Permitted	0.11	1.00		0.07	1.00		0.09	1.00		0.35	1.00	
Satd. Flow (perm)	205	4891		136	4952		172	3379		657	3439	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	119	1161	172	188	1240	62	163	377	81	151	610	142
RTOR Reduction (vph)	0	11	0	0	3	0	0	11	0	0	12	0
Lane Group Flow (vph)	119	1322	0	188	1299	0	163	447	0	151	740	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	70.8	59.7		82.2	65.0		58.2	42.4		53.7	40.4	
Effective Green, g (s)	70.8	59.7		82.2	65.0		58.2	42.4		53.7	40.4	
Actuated g/C Ratio	0.42	0.35		0.48	0.38		0.34	0.25		0.32	0.24	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)	185	1717		227	1893		204	842		294	817	
v/s Ratio Prot	0.04	0.27		c0.08	0.26		c0.07	0.13		0.04	c0.22	
v/s Ratio Perm	0.23			c0.32			0.20			0.12		
v/c Ratio	0.64	0.77		0.83	0.69		0.80	0.53		0.51	0.91	
Uniform Delay, d1	34.1	49.0		44.9	44.0		44.5	55.2		43.9	62.9	
Progression Factor	1.72	1.76		1.67	0.55		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.0	3.0		18.6	1.8		18.1	0.5		0.6	13.5	
Delay (s)	63.7	89.1		93.4	26.1		62.6	55.7		44.6	76.4	
Level of Service	E	F		F	C		E	E		D	E	
Approach Delay (s)		87.1			34.6			57.5			71.1	
Approach LOS		F			C			E			E	

Intersection Summary

HCM 2000 Control Delay	62.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	29.7
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
4: W 14 Ln & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	1227	39	55	1464	37	24	8	14	71	14	41
Future Volume (vph)	102	1227	39	55	1464	37	24	8	14	71	14	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	130		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.996				0.850		0.956	
Flt Protected	0.950			0.950				0.964			0.973	
Satd. Flow (prot)	1752	5011	0	1736	4968	0	0	1712	1509	0	1767	0
Flt Permitted	0.119			0.176				0.678			0.670	
Satd. Flow (perm)	220	5011	0	322	4968	0	0	1204	1509	0	1217	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			3				101			13
Link Speed (mph)		40			40			30				30
Link Distance (ft)		866			1763			190				273
Travel Time (s)		14.8			30.1			4.3				6.2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	7%	7%	7%	0%	0%	0%
Adj. Flow (vph)	106	1278	41	57	1525	39	25	8	15	74	15	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	1319	0	57	1564	0	0	33	15	0	132	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1		2
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left		Thru
Leading Detector (ft)	20	100		20	100		20	100	20	20		100
Trailing Detector (ft)	0	0		0	0		0	0	0	0		0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0		0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20		6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases	1	6		5	2			4				8



Lane Group	Ø9	Ø10	Ø11	Ø12
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type				
Protected Phases	9	10	11	12

Lanes, Volumes, Timings  
4: W 14 Ln & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			4		4	8		
Detector Phase	1	6		5	2		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	11.4	33.4		11.4	33.4		35.7	35.7	35.7	35.7	35.7	
Total Split (s)	27.0	102.0		17.0	92.0		43.0	43.0	43.0	43.0	43.0	
Total Split (%)	15.9%	60.0%		10.0%	54.1%		25.3%	25.3%	25.3%	25.3%	25.3%	
Maximum Green (s)	20.6	95.6		10.6	85.6		36.3	36.3	36.3	36.3	36.3	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7	2.7	2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4			6.7	6.7		6.7	
Lead/Lag	Lead			Lead								
Lead-Lag Optimize?	Yes			Yes								
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5	2.5	2.5	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		20.0			20.0		22.0	22.0	22.0	22.0	22.0	
Pedestrian Calls (#/hr)		5			0		6	6	6	1	1	
Act Effct Green (s)	123.9	116.1		117.8	112.0			18.5	18.5		19.3	
Actuated g/C Ratio	0.73	0.68		0.69	0.66			0.11	0.11		0.11	
v/c Ratio	0.46	0.39		0.21	0.48			0.25	0.06		0.89	
Control Delay	22.9	3.8		15.1	35.4			70.5	0.4		114.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	22.9	3.8		15.1	35.4			70.5	0.4		114.2	
LOS	C	A		B	D			E	A		F	
Approach Delay		5.2			34.6			48.6			114.2	
Approach LOS		A			C			D			F	

Intersection Summary

Area Type:	Other
Cycle Length:	170
Actuated Cycle Length:	170
Offset:	128 (75%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.89
Intersection Signal Delay:	25.1
Intersection LOS:	C
Intersection Capacity Utilization:	64.9%
ICU Level of Service:	C
Analysis Period (min):	15

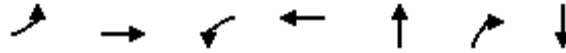
Splits and Phases: 4: W 14 Ln & NW 103 St



Lane Group	Ø9	Ø10	Ø11	Ø12
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0	4.0
Total Split (s)	4.0	4.0	4.0	4.0
Total Split (%)	2%	2%	2%	2%
Maximum Green (s)	2.0	2.0	2.0	2.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag		Lag	
Lead-Lag Optimize?	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Ped	Ped	Ped	Ped
Walk Time (s)	2.0	2.0	2.0	2.0
Flash Dont Walk (s)	0.0	0.0	0.0	0.0
Pedestrian Calls (#/hr)	0	0	0	0
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Intersection Summary				

Queues  
4: W 14 Ln & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	106	1319	57	1564	33	15	132
v/c Ratio	0.46	0.39	0.21	0.48	0.25	0.06	0.89
Control Delay	22.9	3.8	15.1	35.4	70.5	0.4	114.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.9	3.8	15.1	35.4	70.5	0.4	114.2
Queue Length 50th (ft)	29	49	32	475	34	0	134
Queue Length 95th (ft)	m55	56	m47	574	68	0	205
Internal Link Dist (ft)		786		1683	110		193
Turn Bay Length (ft)	100		130			50	
Base Capacity (vph)	358	3424	320	3272	257	401	270
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.39	0.18	0.48	0.13	0.04	0.49

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
4: W 14 Ln & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑↑		↙	↑↑↑			↑	↗		↕	
Traffic Volume (vph)	102	1227	39	55	1464	37	24	8	14	71	14	41
Future Volume (vph)	102	1227	39	55	1464	37	24	8	14	71	14	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4			6.7	6.7		6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.97	
Satd. Flow (prot)	1752	5012		1736	4969			1711	1509		1767	
Flt Permitted	0.12	1.00		0.18	1.00			0.68	1.00		0.67	
Satd. Flow (perm)	220	5012		322	4969			1204	1509		1218	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	106	1278	41	57	1525	39	25	8	15	74	15	43
RTOR Reduction (vph)	0	1	0	0	1	0	0	0	13	0	11	0
Lane Group Flow (vph)	106	1318	0	57	1563	0	0	33	2	0	121	0
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	7%	7%	7%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	121.3	113.5		115.5	110.6			17.1	17.1		20.6	
Effective Green, g (s)	121.3	113.5		115.5	110.6			17.1	17.1		20.6	
Actuated g/C Ratio	0.71	0.67		0.68	0.65			0.10	0.10		0.12	
Clearance Time (s)	6.4	6.4		6.4	6.4			6.7	6.7		6.7	
Vehicle Extension (s)	2.0	1.0		2.0	1.0			2.5	2.5		2.5	
Lane Grp Cap (vph)	227	3346		259	3232			121	151		147	
v/s Ratio Prot	c0.02	0.26		0.01	c0.31							
v/s Ratio Perm	c0.31			0.14				0.03	0.00		c0.10	
v/c Ratio	0.47	0.39		0.22	0.48			0.27	0.01		0.82	
Uniform Delay, d1	10.2	12.7		9.5	15.1			70.7	68.8		72.9	
Progression Factor	3.20	0.28		2.37	2.27			1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.2		0.1	0.3			0.9	0.0		28.7	
Delay (s)	33.1	3.8		22.5	34.6			71.6	68.8		101.6	
Level of Service	C	A		C	C			E	E		F	
Approach Delay (s)		6.0			34.2			70.7			101.6	
Approach LOS		A			C			E			F	

Intersection Summary

HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
5: W 12 Ave & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	1027	128	140	1169	51	167	423	105	137	694	210
Future Volume (vph)	121	1027	128	140	1169	51	167	423	105	137	694	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	215		0	350		0	300		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			75			25			75		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.983			0.994			0.970			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	4950	0	1736	4958	0	1752	3400	0	1752	3382	0
Flt Permitted	0.080			0.076			0.071			0.343		
Satd. Flow (perm)	148	4950	0	139	4958	0	131	3400	0	633	3382	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			4			19			24	
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		1763			1138			431			442	
Travel Time (s)		30.1			19.4			7.3			7.5	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	130	1104	138	151	1257	55	180	455	113	147	746	226
Shared Lane Traffic (%)												
Lane Group Flow (vph)	130	1242	0	151	1312	0	180	568	0	147	972	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	

Lane Group	Ø9	Ø10	Ø11	Ø12
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type				
Protected Phases	9	10	11	12

Lanes, Volumes, Timings  
5: W 12 Ave & NW 103 St

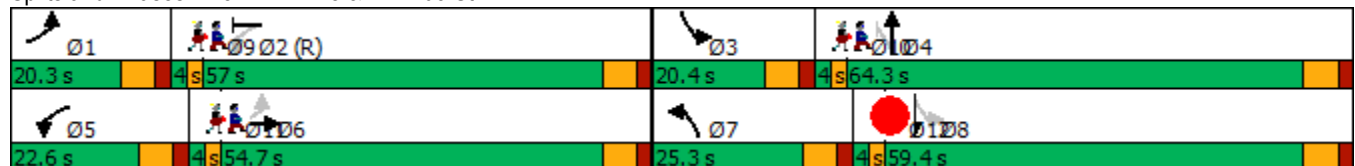
2022 Existing Opt LPI  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	13.4	34.4		13.4	34.4		13.4	37.5		13.4	37.5	
Total Split (s)	20.3	54.7		22.6	57.0		25.3	64.3		20.4	59.4	
Total Split (%)	11.9%	32.2%		13.3%	33.5%		14.9%	37.8%		12.0%	34.9%	
Maximum Green (s)	13.9	48.3		16.2	50.6		18.9	57.8		14.0	52.9	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.1		2.0	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lead/Lag	Lead			Lead			Lead			Lead		
Lead-Lag Optimize?	Yes			Yes			Yes			Yes		
Vehicle Extension (s)	3.0	1.0		3.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		21.0			21.0			24.0			24.0	
Pedestrian Calls (#/hr)		4			5			1			0	
Act Effct Green (s)	62.8	50.3		66.8	52.4		74.3	56.3		64.3	51.5	
Actuated g/C Ratio	0.37	0.30		0.39	0.31		0.44	0.33		0.38	0.30	
v/c Ratio	0.76	0.84		0.80	0.86		0.79	0.50		0.46	0.93	
Control Delay	83.2	35.7		74.3	71.0		68.1	45.4		31.1	71.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	83.2	35.7		74.3	71.0		68.1	45.4		31.1	71.6	
LOS	F	D		E	E		E	D		C	E	
Approach Delay		40.2			71.3			50.9			66.3	
Approach LOS		D			E			D			E	

Intersection Summary

Area Type:	Other
Cycle Length:	170
Actuated Cycle Length:	170
Offset:	3 (2%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle:	110
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.93
Intersection Signal Delay:	57.8
Intersection LOS:	E
Intersection Capacity Utilization	87.0%
ICU Level of Service	E
Analysis Period (min)	15

Splits and Phases: 5: W 12 Ave & NW 103 St





Lane Group	Ø9	Ø10	Ø11	Ø12
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0	4.0
Total Split (s)	4.0	4.0	4.0	4.0
Total Split (%)	2%	2%	2%	2%
Maximum Green (s)	2.0	2.0	2.0	2.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Ped	Ped	Ped	Ped
Walk Time (s)	2.0	2.0	2.0	2.0
Flash Dont Walk (s)	0.0	0.0	0.0	0.0
Pedestrian Calls (#/hr)	0	0	0	0
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Intersection Summary				





























Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	130	1242	151	1312	180	568	147	972
v/c Ratio	0.76	0.84	0.80	0.86	0.79	0.50	0.46	0.93
Control Delay	83.2	35.7	74.3	71.0	68.1	45.4	31.1	71.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.2	35.7	74.3	71.0	68.1	45.4	31.1	71.6
Queue Length 50th (ft)	78	497	118	484	143	255	91	539
Queue Length 95th (ft)	#178	555	#244	615	#257	315	139	#660
Internal Link Dist (ft)		1683		1058		351		362
Turn Bay Length (ft)	215		350		300		150	
Base Capacity (vph)	187	1474	208	1530	238	1168	336	1068
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.84	0.73	0.86	0.76	0.49	0.44	0.91

**Intersection Summary**

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.






















HCM Signalized Intersection Capacity Analysis  
5: W 12 Ave & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (vph)	121	1027	128	140	1169	51	167	423	105	137	694	210
Future Volume (vph)	121	1027	128	140	1169	51	167	423	105	137	694	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	4952		1736	4956		1752	3400		1752	3383	
Flt Permitted	0.08	1.00		0.08	1.00		0.07	1.00		0.34	1.00	
Satd. Flow (perm)	147	4952		140	4956		131	3400		633	3383	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	130	1104	138	151	1257	55	180	455	113	147	746	226
RTOR Reduction (vph)	0	9	0	0	3	0	0	13	0	0	17	0
Lane Group Flow (vph)	130	1233	0	151	1309	0	180	555	0	147	955	0
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	62.8	50.3		66.7	52.3		74.3	56.4		64.1	51.5	
Effective Green, g (s)	62.8	50.3		66.7	52.3		74.3	56.4		64.1	51.5	
Actuated g/C Ratio	0.37	0.30		0.39	0.31		0.44	0.33		0.38	0.30	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Vehicle Extension (s)	3.0	1.0		3.0	1.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	172	1465		190	1524		227	1128		321	1024	
v/s Ratio Prot	0.06	0.25		c0.07	c0.26		c0.08	0.16		0.03	c0.28	
v/s Ratio Perm	0.22			0.24			c0.26			0.14		
v/c Ratio	0.76	0.84		0.79	0.86		0.79	0.49		0.46	0.93	
Uniform Delay, d1	41.4	56.1		42.7	55.4		47.8	45.4		36.5	57.6	
Progression Factor	1.47	0.53		1.11	1.17		1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.2	5.7		19.0	6.2		17.1	0.3		1.0	14.6	
Delay (s)	77.1	35.5		66.6	70.8		64.9	45.7		37.5	72.2	
Level of Service	E	D		E	E		E	D		D	E	
Approach Delay (s)		39.4			70.4			50.3			67.6	
Approach LOS		D			E			D			E	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			57.5				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			170.0				Sum of lost time (s)		29.7			
Intersection Capacity Utilization			87.0%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
6: W 10 Ave & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	1071	27	68	1267	45	42	34	70	53	31	64
Future Volume (vph)	62	1071	27	68	1267	45	42	34	70	53	31	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180		0	200		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	55			55			25			65		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.995			0.899			0.899	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	4968	0	1736	4963	0	1736	1642	0	1770	1675	0
Flt Permitted	0.160			0.211			0.573			0.527		
Satd. Flow (perm)	292	4968	0	385	4963	0	1047	1642	0	982	1675	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			5			56			56	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		1138			765			375			318	
Travel Time (s)		19.4			13.0			8.5			7.2	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%
Adj. Flow (vph)	66	1139	29	72	1348	48	45	36	74	56	33	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	1168	0	72	1396	0	45	110	0	56	101	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	

Lane Group	Ø9	Ø10	Ø11	Ø12
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type				
Protected Phases	9	10	11	12

Lanes, Volumes, Timings  
6: W 10 Ave & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	11.4	33.4		11.4	33.4		35.7	35.7		35.7	35.7	
Total Split (s)	23.0	95.0		22.0	94.0		45.0	45.0		45.0	45.0	
Total Split (%)	13.5%	55.9%		12.9%	55.3%		26.5%	26.5%		26.5%	26.5%	
Maximum Green (s)	16.6	88.6		15.6	87.6		38.3	38.3		38.3	38.3	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.7	6.7		6.7	6.7	
Lead/Lag	Lead			Lead								
Lead-Lag Optimize?	Yes			Yes								
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5		2.5	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		20.0			20.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		2			0		1	1		3	3	
Act Effct Green (s)	124.1	118.2		124.4	118.3		14.7	14.7		14.7	14.7	
Actuated g/C Ratio	0.73	0.70		0.73	0.70		0.09	0.09		0.09	0.09	
v/c Ratio	0.25	0.34		0.22	0.40		0.50	0.57		0.66	0.52	
Control Delay	6.7	4.7		11.0	20.0		89.6	47.0		106.9	42.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.7	4.7		11.0	20.0		89.6	47.0		106.9	42.1	
LOS	A	A		B	B		F	D		F	D	
Approach Delay		4.8			19.5			59.4			65.2	
Approach LOS		A			B			E			E	

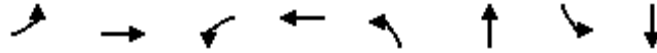
Intersection Summary

Area Type:	Other
Cycle Length:	170
Actuated Cycle Length:	170
Offset:	60 (35%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.66
Intersection Signal Delay:	17.9
Intersection LOS:	B
Intersection Capacity Utilization:	55.5%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 6: W 10 Ave & NW 103 St



Lane Group	Ø9	Ø10	Ø11	Ø12
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0	4.0
Total Split (s)	4.0	4.0	4.0	4.0
Total Split (%)	2%	2%	2%	2%
Maximum Green (s)	2.0	2.0	2.0	2.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag		Lag	
Lead-Lag Optimize?	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Ped	Ped	Ped	Ped
Walk Time (s)	2.0	2.0	2.0	2.0
Flash Dont Walk (s)	0.0	0.0	0.0	0.0
Pedestrian Calls (#/hr)	0	0	0	0
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Intersection Summary				



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	66	1168	72	1396	45	110	56	101
v/c Ratio	0.25	0.34	0.22	0.40	0.50	0.57	0.66	0.52
Control Delay	6.7	4.7	11.0	20.0	89.6	47.0	106.9	42.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	4.7	11.0	20.0	89.6	47.0	106.9	42.1
Queue Length 50th (ft)	1	9	27	264	49	59	62	49
Queue Length 95th (ft)	m16	456	54	432	88	117	107	104
Internal Link Dist (ft)		1058		685		295		238
Turn Bay Length (ft)	180		200				100	
Base Capacity (vph)	372	3455	427	3456	235	413	221	420
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.34	0.17	0.40	0.19	0.27	0.25	0.24

























**Intersection Summary**

m Volume for 95th percentile queue is metered by upstream signal.























HCM Signalized Intersection Capacity Analysis  
6: W 10 Ave & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (vph)	62	1071	27	68	1267	45	42	34	70	53	31	64
Future Volume (vph)	62	1071	27	68	1267	45	42	34	70	53	31	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.90		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	4969		1736	4962		1736	1643		1770	1675	
Flt Permitted	0.16	1.00		0.21	1.00		0.57	1.00		0.53	1.00	
Satd. Flow (perm)	292	4969		386	4962		1046	1643		982	1675	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	66	1139	29	72	1348	48	45	36	74	56	33	68
RTOR Reduction (vph)	0	1	0	0	2	0	0	51	0	0	51	0
Lane Group Flow (vph)	66	1167	0	72	1394	0	45	59	0	56	50	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	124.2	118.3		124.4	118.4		14.7	14.7		14.7	14.7	
Effective Green, g (s)	124.2	118.3		124.4	118.4		14.7	14.7		14.7	14.7	
Actuated g/C Ratio	0.73	0.70		0.73	0.70		0.09	0.09		0.09	0.09	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	263	3457		330	3455		90	142		84	144	
v/s Ratio Prot	c0.01	0.23		0.01	c0.28			0.04			0.03	
v/s Ratio Perm	0.17			0.15			0.04			c0.06		
v/c Ratio	0.25	0.34		0.22	0.40		0.50	0.41		0.67	0.35	
Uniform Delay, d1	7.1	10.3		6.7	10.9		74.1	73.6		75.3	73.1	
Progression Factor	1.07	0.40		1.98	1.66		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.2		0.1	0.3		3.2	1.4		16.5	1.1	
Delay (s)	7.8	4.3		13.4	18.5		77.3	75.0		91.8	74.2	
Level of Service	A	A		B	B		E	E		F	E	
Approach Delay (s)		4.5			18.2			75.7			80.5	
Approach LOS		A			B			E			F	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			18.8			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			170.0			Sum of lost time (s)			23.5			
Intersection Capacity Utilization			55.5%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
7: W 900 BIK & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (vph)	0	1253	6	30	1341	0	6	0	13	0	0	0
Future Volume (vph)	0	1253	6	30	1341	0	6	0	13	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	135		0	0		0	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	60			60			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999							0.850			
Flt Protected				0.950			0.950					
Satd. Flow (prot)	1845	5031	0	1736	4988	0	1805	0	1615	0	0	0
Flt Permitted				0.950			0.950					
Satd. Flow (perm)	1845	5031	0	1736	4988	0	1805	0	1615	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1							64			
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		765			736			197			199	
Travel Time (s)		13.0			12.5			4.5			4.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1319	6	32	1412	0	6	0	14	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1325	0	32	1412	0	6	0	14	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1		1			
Detector Template	Left	Thru		Left	Thru		Left		Right			
Leading Detector (ft)	20	100		20	100		20		20			
Trailing Detector (ft)	0	0		0	0		0		0			
Detector 1 Position(ft)	0	0		0	0		0		0			
Detector 1 Size(ft)	20	6		20	6		20		20			
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0		0.0			
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0		0.0			
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0		0.0			
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	pm+pt	NA		Prot	NA		Prot		Perm			
Protected Phases	1	6		5	2		4					

Lanes, Volumes, Timings  
7: W 900 Blk & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Permitted Phases	6						4						
Detector Phase	1	6		5	2		4		4				
Switch Phase													
Minimum Initial (s)	5.0	16.0		7.0	16.0		7.0		7.0				
Minimum Split (s)	11.4	22.5		13.4	22.5		36.7		36.7				
Total Split (s)	14.0	125.0		14.0	125.0		31.0		31.0				
Total Split (%)	8.2%	73.5%		8.2%	73.5%		18.2%		18.2%				
Maximum Green (s)	7.6	118.5		7.6	118.5		24.3		24.3				
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0		4.0				
All-Red Time (s)	2.0	2.1		2.0	2.1		2.7		2.7				
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0		0.0				
Total Lost Time (s)	6.4	6.5		6.4	6.5		6.7		6.7				
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5		2.5				
Recall Mode	None	C-Max		None	C-Max		None		None				
Walk Time (s)							7.0						
Flash Dont Walk (s)							23.0						
Pedestrian Calls (#/hr)							0						
Act Effct Green (s)	144.6			8.2	157.9		7.0			7.0			
Actuated g/C Ratio	0.85			0.05	0.93		0.04			0.04			
v/c Ratio	0.31			0.39	0.30		0.08			0.11			
Control Delay	1.5			61.2	1.5		80.8			1.8			
Queue Delay	0.0			0.0	0.1		0.0			0.0			
Total Delay	1.5			61.2	1.6		80.8			1.8			
LOS	A			E	A		F			A			
Approach Delay	1.5			2.9			25.5						
Approach LOS	A			A			C						

Intersection Summary

Area Type:	Other
Cycle Length:	170
Actuated Cycle Length:	170
Offset:	40 (24%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.39
Intersection Signal Delay:	2.4
Intersection LOS:	A
Intersection Capacity Utilization:	41.2%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 7: W 900 Blk & NW 103 St























Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1325	32	1412	6	14
v/c Ratio	0.31	0.39	0.30	0.08	0.11
Control Delay	1.5	61.2	1.5	80.8	1.8
Queue Delay	0.0	0.0	0.1	0.0	0.0
Total Delay	1.5	61.2	1.6	80.8	1.8
Queue Length 50th (ft)	49	36	33	7	0
Queue Length 95th (ft)	57	m52	118	25	0
Internal Link Dist (ft)	685		656		
Turn Bay Length (ft)		135			
Base Capacity (vph)	4280	86	4632	258	285
Starvation Cap Reductn	0	0	1524	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.31	0.37	0.45	0.02	0.05

**Intersection Summary**

m Volume for 95th percentile queue is metered by upstream signal.





















HCM Signalized Intersection Capacity Analysis  
7: W 900 Blk & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1253	6	30	1341	0	6	0	13	0	0	0
Future Volume (vph)	0	1253	6	30	1341	0	6	0	13	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5		6.4	6.5		6.7		6.7			
Lane Util. Factor		0.91		1.00	0.91		1.00		1.00			
Fr <sub>t</sub>		1.00		1.00	1.00		1.00		0.85			
Fl <sub>t</sub> Protected		1.00		0.95	1.00		0.95		1.00			
Satd. Flow (prot)		5033		1736	4988		1805		1615			
Fl <sub>t</sub> Permitted		1.00		0.95	1.00		0.95		1.00			
Satd. Flow (perm)		5033		1736	4988		1805		1615			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1319	6	32	1412	0	6	0	14	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	14	0	0	0
Lane Group Flow (vph)	0	1325	0	32	1412	0	6	0	0	0	0	0
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Prot	NA		Prot		Perm			
Protected Phases	1	6		5	2		4					
Permitted Phases	6								4			
Actuated Green, G (s)		139.4		6.8	152.6		4.2		4.2			
Effective Green, g (s)		139.4		6.8	152.6		4.2		4.2			
Actuated g/C Ratio		0.82		0.04	0.90		0.02		0.02			
Clearance Time (s)		6.5		6.4	6.5		6.7		6.7			
Vehicle Extension (s)		1.0		2.0	1.0		2.5		2.5			
Lane Grp Cap (vph)		4127		69	4477		44		39			
v/s Ratio Prot		0.26		0.02	c0.28		c0.00					
v/s Ratio Perm									0.00			
v/c Ratio		0.32		0.46	0.32		0.14		0.01			
Uniform Delay, d <sub>1</sub>		3.7		79.8	1.2		81.1		80.9			
Progression Factor		0.35		0.67	1.20		1.00		1.00			
Incremental Delay, d <sub>2</sub>		0.2		1.3	0.1		1.0		0.1			
Delay (s)		1.5		54.4	1.6		82.2		80.9			
Level of Service		A		D	A		F		F			
Approach Delay (s)		1.5			2.8			81.3			0.0	
Approach LOS		A			A			F			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			2.7			HCM 2000 Level of Service			A			
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			170.0			Sum of lost time (s)			19.6			
Intersection Capacity Utilization			41.2%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
8: W 8 Ave & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	1041	91	125	1176	87	98	323	97	137	531	160
Future Volume (vph)	104	1041	91	125	1176	87	98	323	97	137	531	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	135		0	220		0	175		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	55			55			25			110		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.988			0.990			0.965			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	4975	0	1736	4938	0	1752	3382	0	1752	3382	0
Flt Permitted	0.950			0.950			0.114			0.325		
Satd. Flow (perm)	1752	4975	0	1736	4938	0	210	3382	0	600	3382	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			7			23			23	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		736			1271			390			314	
Travel Time (s)		12.5			21.7			8.9			7.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	109	1096	96	132	1238	92	103	340	102	144	559	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	1192	0	132	1330	0	103	442	0	144	727	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	

Lane Group	Ø9	Ø10	Ø11	Ø12
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type				
Protected Phases	9	10	11	12

Lanes, Volumes, Timings  
8: W 8 Ave & NW 103 St

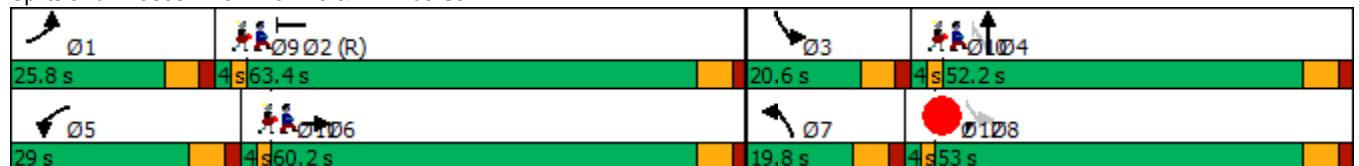
2022 Existing Opt LPI  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases							4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	13.4	34.4		13.4	34.4		11.4	37.5		11.4	37.5	
Total Split (s)	25.8	60.2		29.0	63.4		19.8	52.2		20.6	53.0	
Total Split (%)	15.2%	35.4%		17.1%	37.3%		11.6%	30.7%		12.1%	31.2%	
Maximum Green (s)	19.4	53.8		22.6	57.0		13.4	45.7		14.2	46.5	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.1		2.0	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lead/Lag	Lead			Lead			Lead			Lead		
Lead-Lag Optimize?	Yes			Yes			Yes			Yes		
Vehicle Extension (s)	3.0	1.0		2.0	1.0		2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		21.0			21.0			24.0			24.0	
Pedestrian Calls (#/hr)		1			1			0			0	
Act Effct Green (s)	15.4	63.1		17.0	64.8		50.8	39.4		53.4	40.4	
Actuated g/C Ratio	0.09	0.37		0.10	0.38		0.30	0.23		0.31	0.24	
v/c Ratio	0.69	0.64		0.76	0.70		0.62	0.55		0.52	0.89	
Control Delay	76.8	42.8		135.6	23.6		51.7	56.5		42.5	73.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	76.8	42.8		135.6	23.6		51.7	56.5		42.5	73.6	
LOS	E	D		F	C		D	E		D	E	
Approach Delay		45.6			33.8			55.6			68.5	
Approach LOS		D			C			E			E	

Intersection Summary

Area Type:	Other
Cycle Length:	170
Actuated Cycle Length:	170
Offset:	104 (61%), Referenced to phase 2:WBT, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.89
Intersection Signal Delay:	47.5
Intersection LOS:	D
Intersection Capacity Utilization:	77.1%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 8: W 8 Ave & NW 103 St





Lane Group	Ø9	Ø10	Ø11	Ø12
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0	4.0
Total Split (s)	4.0	4.0	4.0	4.0
Total Split (%)	2%	2%	2%	2%
Maximum Green (s)	2.0	2.0	2.0	2.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Ped	Ped	Ped	Ped
Walk Time (s)	2.0	2.0	2.0	2.0
Flash Dont Walk (s)	0.0	0.0	0.0	0.0
Pedestrian Calls (#/hr)	0	0	0	0
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Intersection Summary				

Queues  
8: W 8 Ave & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour





























Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	109	1192	132	1330	103	442	144	727
v/c Ratio	0.69	0.64	0.76	0.70	0.62	0.55	0.52	0.89
Control Delay	76.8	42.8	135.6	23.6	51.7	56.5	42.5	73.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.8	42.8	135.6	23.6	51.7	56.5	42.5	73.6
Queue Length 50th (ft)	99	465	143	397	75	217	108	403
Queue Length 95th (ft)	152	536	0	546	116	266	157	464
Internal Link Dist (ft)		656		1191		310		234
Turn Bay Length (ft)	135		220		175		150	
Base Capacity (vph)	199	1852	230	1887	186	925	289	941
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.64	0.57	0.70	0.55	0.48	0.50	0.77

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
8: W 8 Ave & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (vph)	104	1041	91	125	1176	87	98	323	97	137	531	160
Future Volume (vph)	104	1041	91	125	1176	87	98	323	97	137	531	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	4975		1736	4936		1752	3384		1752	3383	
Flt Permitted	0.95	1.00		0.95	1.00		0.11	1.00		0.33	1.00	
Satd. Flow (perm)	1752	4975		1736	4936		209	3384		600	3383	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	109	1096	96	132	1238	92	103	340	102	144	559	168
RTOR Reduction (vph)	0	6	0	0	4	0	0	18	0	0	18	0
Lane Group Flow (vph)	109	1186	0	132	1326	0	103	424	0	144	709	0
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases							4			8		
Actuated Green, G (s)	15.4	63.1		17.0	64.8		50.8	39.4		53.3	40.4	
Effective Green, g (s)	15.4	63.1		17.0	64.8		50.8	39.4		53.3	40.4	
Actuated g/C Ratio	0.09	0.37		0.10	0.38		0.30	0.23		0.31	0.24	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Vehicle Extension (s)	3.0	1.0		2.0	1.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	158	1846		173	1881		165	784		275	803	
v/s Ratio Prot	0.06	0.24		c0.08	c0.27		c0.04	0.13		0.04	c0.21	
v/s Ratio Perm							0.14			0.12		
v/c Ratio	0.69	0.64		0.76	0.70		0.62	0.54		0.52	0.88	
Uniform Delay, d1	75.0	44.1		74.5	44.5		47.0	57.4		44.3	62.5	
Progression Factor	0.75	0.91		1.50	0.47		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.5	0.6		15.1	2.1		5.2	0.4		0.8	11.0	
Delay (s)	67.4	40.5		127.2	23.1		52.2	57.8		45.1	73.5	
Level of Service	E	D		F	C		D	E		D	E	
Approach Delay (s)		42.8			32.5			56.7			68.8	
Approach LOS		D			C			E			E	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			46.4			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			170.0			Sum of lost time (s)				29.7		
Intersection Capacity Utilization			77.1%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
9: W 6 Ave & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↖↗		↖	↗↖↗		↖	↗	↗	↖	↗↖	
Traffic Volume (vph)	79	1083	63	45	1318	63	30	15	35	74	31	48
Future Volume (vph)	79	1083	63	45	1318	63	30	15	35	74	31	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	325		0	180		0	0		0	80		120
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	55			75			25			65		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.992			0.993				0.850		0.909	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5045	0	1752	5001	0	1805	1900	1615	1736	3155	0
Flt Permitted	0.950			0.950			0.700			0.614		
Satd. Flow (perm)	1770	5045	0	1752	5001	0	1330	1900	1615	1122	3155	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			6				60		51	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		1271			617			323			342	
Travel Time (s)		21.7			10.5			7.3			7.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	0%	0%	4%	4%	4%
Adj. Flow (vph)	84	1152	67	48	1402	67	32	16	37	79	33	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	1219	0	48	1469	0	32	16	37	79	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			16			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	1	6		5	2			4	5		8	

Lane Group	Ø9	Ø10	Ø11	Ø12
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type				
Protected Phases	9	10	11	12

Lanes, Volumes, Timings  
9: W 6 Ave & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases							4		4	8		
Detector Phase	1	6		5	2		4	4	5	8	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.4	33.4		13.4	33.4		31.7	31.7	13.4	31.7	31.7	
Total Split (s)	30.0	100.0		22.0	92.0		40.0	40.0	22.0	40.0	40.0	
Total Split (%)	17.6%	58.8%		12.9%	54.1%		23.5%	23.5%	12.9%	23.5%	23.5%	
Maximum Green (s)	23.6	93.6		15.6	85.6		33.3	33.3	15.6	33.3	33.3	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0	4.4	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7	2.0	2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.7	6.7	6.4	6.7	6.7	
Lead/Lag	Lead			Lead			Lead					
Lead-Lag Optimize?	Yes			Yes			Yes					
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5	2.0	2.5	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		20.0			20.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		1			0		6	6		5	5	
Act Effct Green (s)	12.5	116.8		9.4	111.0		15.2	15.2	28.6	15.5	15.5	
Actuated g/C Ratio	0.07	0.69		0.06	0.65		0.09	0.09	0.17	0.09	0.09	
v/c Ratio	0.65	0.35		0.49	0.45		0.27	0.09	0.12	0.77	0.25	
Control Delay	84.8	5.7		124.0	5.3		74.8	68.3	4.0	117.2	31.7	
Queue Delay	0.0	0.0		0.0	0.2		0.0	0.0	0.0	0.0	0.0	
Total Delay	84.8	5.7		124.0	5.5		74.8	68.3	4.0	117.2	31.7	
LOS	F	A		F	A		E	E	A	F	C	
Approach Delay		10.8			9.3			42.8			73.1	
Approach LOS		B			A			D			E	

Intersection Summary

Area Type:	Other
Cycle Length:	170
Actuated Cycle Length:	170
Offset:	86 (51%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.77
Intersection Signal Delay:	14.2
Intersection LOS:	B
Intersection Capacity Utilization:	59.7%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 9: W 6 Ave & NW 103 St



Lane Group	Ø9	Ø10	Ø11	Ø12
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0	4.0
Total Split (s)	4.0	4.0	4.0	4.0
Total Split (%)	2%	2%	2%	2%
Maximum Green (s)	2.0	2.0	2.0	2.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag		Lag	
Lead-Lag Optimize?	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Ped	Ped	Ped	Ped
Walk Time (s)	2.0	2.0	2.0	2.0
Flash Dont Walk (s)	0.0	0.0	0.0	0.0
Pedestrian Calls (#/hr)	0	0	0	0
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Intersection Summary				



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	84	1219	48	1469	32	16	37	79	84
v/c Ratio	0.65	0.35	0.49	0.45	0.27	0.09	0.12	0.77	0.25
Control Delay	84.8	5.7	124.0	5.3	74.8	68.3	4.0	117.2	31.7
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay	84.8	5.7	124.0	5.5	74.8	68.3	4.0	117.2	31.7
Queue Length 50th (ft)	98	79	54	154	34	17	0	88	18
Queue Length 95th (ft)	m150	143	106	243	69	40	13	143	45
Internal Link Dist (ft)		1191		537		243			262
Turn Bay Length (ft)	325		180					80	
Base Capacity (vph)	245	3467	160	3268	260	372	378	219	659
Starvation Cap Reductn	0	0	0	780	0	0	0	0	0
Spillback Cap Reductn	0	170	0	0	0	0	2	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.37	0.30	0.59	0.12	0.04	0.10	0.36	0.13

**Intersection Summary**

m Volume for 95th percentile queue is metered by upstream signal.



HCM Signalized Intersection Capacity Analysis  
 9: W 6 Ave & NW 103 St

2022 Existing Opt LPI  
 AM Peak Hour






















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↖↗		↖	↗↖↗		↖	↑	↗	↖	↗↖	
Traffic Volume (vph)	79	1083	63	45	1318	63	30	15	35	74	31	48
Future Volume (vph)	79	1083	63	45	1318	63	30	15	35	74	31	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.7	6.7	6.4	6.7	6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5043		1752	5001		1805	1900	1615	1736	3155	
Flt Permitted	0.95	1.00		0.95	1.00		0.70	1.00	1.00	0.61	1.00	
Satd. Flow (perm)	1770	5043		1752	5001		1329	1900	1615	1121	3155	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	84	1152	67	48	1402	67	32	16	37	79	33	51
RTOR Reduction (vph)	0	3	0	0	2	0	0	0	32	0	46	0
Lane Group Flow (vph)	84	1216	0	48	1467	0	32	16	5	79	38	0
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	0%	0%	4%	4%	4%
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	1	6		5	2			4	5		8	
Permitted Phases							4		4	8		
Actuated Green, G (s)	12.5	114.2		8.0	109.7		13.8	13.8	21.8	16.8	16.8	
Effective Green, g (s)	12.5	114.2		8.0	109.7		13.8	13.8	21.8	16.8	16.8	
Actuated g/C Ratio	0.07	0.67		0.05	0.65		0.08	0.08	0.13	0.10	0.10	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.7	6.7	6.4	6.7	6.7	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5	2.0	2.5	2.5	
Lane Grp Cap (vph)	130	3387		82	3227		107	154	207	110	311	
v/s Ratio Prot	c0.05	c0.24		0.03	c0.29			0.01	0.00		0.01	
v/s Ratio Perm							0.02		0.00	c0.07		
v/c Ratio	0.65	0.36		0.59	0.45		0.30	0.10	0.02	0.72	0.12	
Uniform Delay, d1	76.6	12.1		79.4	15.1		73.5	72.4	64.8	74.3	69.9	
Progression Factor	0.88	0.45		1.40	0.32		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.4	0.2		6.0	0.4		1.1	0.2	0.0	18.7	0.1	
Delay (s)	73.8	5.7		117.4	5.2		74.7	72.6	64.8	93.1	70.0	
Level of Service	E	A		F	A		E	E	E	F	E	
Approach Delay (s)		10.1			8.8			70.0			81.2	
Approach LOS		B			A			E			F	

Intersection Summary		
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.48	B
Actuated Cycle Length (s)	170.0	Sum of lost time (s)
Intersection Capacity Utilization	59.7%	23.5
Analysis Period (min)	15	ICU Level of Service
		B
c Critical Lane Group		

Lanes, Volumes, Timings  
10: W 500 Blk & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	1050	70	195	1341	56	64	20	72	106	13	29
Future Volume (vph)	86	1050	70	195	1341	56	64	20	72	106	13	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		0	270		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			65			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.991			0.994			0.930			0.971	
Flt Protected	0.950			0.950				0.980			0.965	
Satd. Flow (prot)	1752	4991	0	1736	4958	0	0	3104	0	0	3349	0
Flt Permitted	0.950			0.950				0.759			0.684	
Satd. Flow (perm)	1752	4991	0	1736	4958	0	0	2404	0	0	2374	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			5			77			16	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		617			744			255			222	
Travel Time (s)		10.5			12.7			5.8			5.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	6%	6%	6%	1%	1%	1%
Adj. Flow (vph)	91	1117	74	207	1427	60	68	21	77	113	14	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	1191	0	207	1487	0	0	166	0	0	158	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	

Lane Group	Ø9	Ø10	Ø11	Ø12
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type				
Protected Phases	9	10	11	12

Lanes, Volumes, Timings  
10: W 500 Blk & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases							4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	11.5	38.5		11.4	38.5		11.2	36.7		11.3	36.7	
Total Split (s)	26.0	67.7		44.0	85.7		11.2	39.0		11.3	39.1	
Total Split (%)	15.3%	39.8%		25.9%	50.4%		6.6%	22.9%		6.6%	23.0%	
Maximum Green (s)	19.5	61.2		37.6	79.2		5.0	32.3		5.0	32.4	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.1	2.1		2.0	2.1		2.2	2.7		2.3	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	6.5	6.5		6.4	6.5		6.7			6.7		
Lead/Lag	Lead			Lead			Lead			Lead		
Lead-Lag Optimize?	Yes			Yes			Yes			Yes		
Vehicle Extension (s)	3.5	1.0		3.5	1.0		2.0	2.5		2.0	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			23.0			23.0	
Pedestrian Calls (#/hr)		0			2			1			1	
Act Effct Green (s)	14.6	92.2		26.0	103.5			17.2			17.2	
Actuated g/C Ratio	0.09	0.54		0.15	0.61			0.10			0.10	
v/c Ratio	0.61	0.44		0.78	0.49			0.53			0.88dl	
Control Delay	68.3	47.0		89.3	10.4			43.3			75.3	
Queue Delay	0.0	0.1		0.0	0.1			0.0			0.0	
Total Delay	68.3	47.1		89.3	10.5			43.3			75.3	
LOS	E	D		F	B			D			E	
Approach Delay		48.6			20.1			43.3			75.3	
Approach LOS		D			C			D			E	

Intersection Summary

Area Type: Other  
 Cycle Length: 170  
 Actuated Cycle Length: 170  
 Offset: 74 (44%), Referenced to phase 2:WBT and 6:EBT, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 35.0 Intersection LOS: C  
 Intersection Capacity Utilization 61.5% ICU Level of Service B  
 Analysis Period (min) 15  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 10: W 500 Blk & NW 103 St



Lane Group	Ø9	Ø10	Ø11	Ø12
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0	4.0
Total Split (s)	4.0	4.0	4.0	4.0
Total Split (%)	2%	2%	2%	2%
Maximum Green (s)	2.0	2.0	2.0	2.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Ped	Ped	Ped	Ped
Walk Time (s)	2.0	2.0	2.0	2.0
Flash Dont Walk (s)	0.0	0.0	0.0	0.0
Pedestrian Calls (#/hr)	0	0	0	0
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Intersection Summary				



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	91	1191	207	1487	166	158
v/c Ratio	0.61	0.44	0.78	0.49	0.53	0.88dl
Control Delay	68.3	47.0	89.3	10.4	43.3	75.3
Queue Delay	0.0	0.1	0.0	0.1	0.0	0.0
Total Delay	68.3	47.1	89.3	10.5	43.3	75.3
Queue Length 50th (ft)	104	367	240	143	50	82
Queue Length 95th (ft)	167	558	m299	189	85	114
Internal Link Dist (ft)		537		664	175	142
Turn Bay Length (ft)	220		270			
Base Capacity (vph)	201	2711	383	3021	519	465
Starvation Cap Reductn	0	414	0	473	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.52	0.54	0.58	0.32	0.34

**Intersection Summary**

- m Volume for 95th percentile queue is metered by upstream signal.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.

HCM Signalized Intersection Capacity Analysis  
 10: W 500 Blk & NW 103 St

2022 Existing Opt LPI  
 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	1050	70	195	1341	56	64	20	72	106	13	29
Future Volume (vph)	86	1050	70	195	1341	56	64	20	72	106	13	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.4	6.5			6.7			6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91			0.95			0.95	
Frt	1.00	0.99		1.00	0.99			0.93			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.97	
Satd. Flow (prot)	1752	4989		1736	4957			3105			3349	
Flt Permitted	0.95	1.00		0.95	1.00			0.76			0.68	
Satd. Flow (perm)	1752	4989		1736	4957			2405			2373	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	91	1117	74	207	1427	60	68	21	77	113	14	31
RTOR Reduction (vph)	0	3	0	0	2	0	0	69	0	0	14	0
Lane Group Flow (vph)	91	1188	0	207	1485	0	0	97	0	0	144	0
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	6%	6%	6%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases							4			8		
Actuated Green, G (s)	14.6	92.2		26.0	103.5			17.2			17.2	
Effective Green, g (s)	14.6	92.2		26.0	103.5			17.2			17.2	
Actuated g/C Ratio	0.09	0.54		0.15	0.61			0.10			0.10	
Clearance Time (s)	6.5	6.5		6.4	6.5			6.7			6.7	
Vehicle Extension (s)	3.5	1.0		3.5	1.0			2.5			2.5	
Lane Grp Cap (vph)	150	2705		265	3017			243			240	
v/s Ratio Prot	0.05	0.24		c0.12	c0.30							
v/s Ratio Perm								0.04			c0.06	
v/c Ratio	0.61	0.44		0.78	0.49			0.40			0.88dl	
Uniform Delay, d1	74.9	23.4		69.3	18.6			71.6			73.1	
Progression Factor	0.70	1.86		1.11	0.50			1.00			1.00	
Incremental Delay, d2	6.8	0.5		9.3	0.4			0.8			3.3	
Delay (s)	59.4	43.9		86.1	9.7			72.3			76.4	
Level of Service	E	D		F	A			E			E	
Approach Delay (s)		45.0			19.0			72.3			76.4	
Approach LOS		D			B			E			E	



































Intersection Summary			
HCM 2000 Control Delay	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Lanes, Volumes, Timings  
11: Red Rd & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			  		 	  		  	  	
Traffic Volume (vph)	144	801	309	64	1019	59	301	906	179	127	1481	411
Future Volume (vph)	144	801	309	64	1019	59	301	906	179	127	1481	411
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	215		0	400		165	295		190	190		140
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	60			80			100			150		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	3505	1568	1719	4940	1538	3367	4988	1553	3400	5036	1568
Flt Permitted	0.090			0.155			0.950			0.950		
Satd. Flow (perm)	166	3505	1568	280	4940	1538	3367	4988	1553	3400	5036	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			139			124			112			112
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		744			565			546			475	
Travel Time (s)		12.7			9.6			8.3			7.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	3%	3%	3%
Adj. Flow (vph)	152	843	325	67	1073	62	317	954	188	134	1559	433
Shared Lane Traffic (%)												
Lane Group Flow (vph)	152	843	325	67	1073	62	317	954	188	134	1559	433
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1



Lane Group	Ø9	Ø10	Ø11	Ø12
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type				
Protected Phases	9	10	11	12

Lanes, Volumes, Timings  
11: Red Rd & NW 103 St

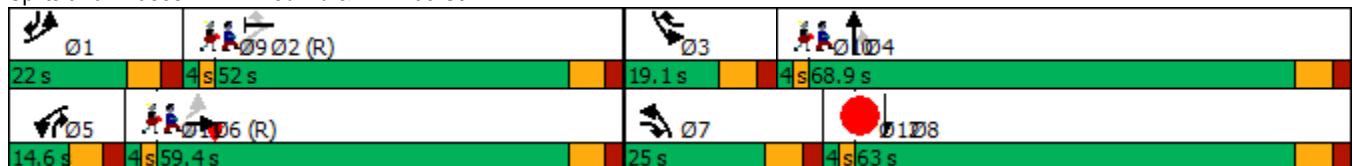
2022 Existing Opt LPI  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6		6	2		2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.1	37.1	14.3	14.1	37.1	14.3	14.3	37.3	14.1	14.3	37.3	14.1
Total Split (s)	22.0	59.4	25.0	14.6	52.0	19.1	25.0	68.9	14.6	19.1	63.0	22.0
Total Split (%)	12.9%	34.9%	14.7%	8.6%	30.6%	11.2%	14.7%	40.5%	8.6%	11.2%	37.1%	12.9%
Maximum Green (s)	14.9	52.3	17.7	7.5	44.9	11.8	17.7	61.6	7.5	11.8	55.7	14.9
Yellow Time (s)	4.4	4.4	4.8	4.4	4.4	4.8	4.8	4.8	4.4	4.8	4.8	4.4
All-Red Time (s)	2.7	2.7	2.5	2.7	2.7	2.5	2.5	2.5	2.7	2.5	2.5	2.7
Lost Time Adjust (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
Total Lost Time (s)	7.1	7.1	7.3	7.1	7.1	7.3	7.3	7.3	7.1	7.3	7.3	7.1
Lead/Lag	Lead		Lead	Lead		Lead	Lead		Lead	Lead		Lead
Lead-Lag Optimize?	Yes		Yes	Yes		Yes	Yes		Yes	Yes		Yes
Vehicle Extension (s)	2.5	1.0	2.5	2.5	1.0	2.5	2.5	1.0	2.5	2.5	1.0	2.5
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		23.0			23.0			23.0			23.0	
Pedestrian Calls (#/hr)		0			1			0			0	
Act Effct Green (s)	66.2	52.6	77.3	53.5	46.1	63.9	17.5	60.7	75.4	10.7	54.8	75.6
Actuated g/C Ratio	0.39	0.31	0.45	0.31	0.27	0.38	0.10	0.36	0.44	0.06	0.32	0.44
v/c Ratio	0.80	0.78	0.41	0.45	0.80	0.09	0.91	0.54	0.25	0.63	0.96	0.57
Control Delay	101.2	37.2	8.5	41.0	63.3	0.3	105.2	44.7	12.3	90.6	71.1	28.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.2	37.2	8.5	41.0	63.3	0.3	105.2	44.7	12.3	90.6	71.1	28.2
LOS	F	D	A	D	E	A	F	D	B	F	E	C
Approach Delay		37.5			58.8			53.6			63.6	
Approach LOS		D			E			D			E	

Intersection Summary

Area Type: Other  
 Cycle Length: 170  
 Actuated Cycle Length: 170  
 Offset: 59 (35%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 125  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.96  
 Intersection Signal Delay: 54.6      Intersection LOS: D  
 Intersection Capacity Utilization 89.2%      ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 11: Red Rd & NW 103 St



Lane Group	Ø9	Ø10	Ø11	Ø12
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0	4.0
Total Split (s)	4.0	4.0	4.0	4.0
Total Split (%)	2%	2%	2%	2%
Maximum Green (s)	2.0	2.0	2.0	2.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Ped	Ped	Ped	Ped
Walk Time (s)	2.0	2.0	2.0	2.0
Flash Dont Walk (s)	0.0	0.0	0.0	0.0
Pedestrian Calls (#/hr)	0	0	0	0
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Intersection Summary				

Queues  
11: Red Rd & NW 103 St

2022 Existing Opt LPI  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	152	843	325	67	1073	62	317	954	188	134	1559	433
v/c Ratio	0.80	0.78	0.41	0.45	0.80	0.09	0.91	0.54	0.25	0.63	0.96	0.57
Control Delay	101.2	37.2	8.5	41.0	63.3	0.3	105.2	44.7	12.3	90.6	71.1	28.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.2	37.2	8.5	41.0	63.3	0.3	105.2	44.7	12.3	90.6	71.1	28.2
Queue Length 50th (ft)	120	116	29	45	415	0	183	307	49	76	621	259
Queue Length 95th (ft)	#246	301	36	80	474	0	#275	354	105	115	#715	373
Internal Link Dist (ft)		664			485			466			395	
Turn Bay Length (ft)	215			400		165	295		190	190		140
Base Capacity (vph)	204	1085	790	151	1340	664	350	1807	751	236	1650	771
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.78	0.41	0.44	0.80	0.09	0.91	0.53	0.25	0.57	0.94	0.56

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.













HCM Signalized Intersection Capacity Analysis  
 11: Red Rd & NW 103 St

2022 Existing Opt LPI  
 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	144	801	309	64	1019	59	301	906	179	127	1481	411	
Future Volume (vph)	144	801	309	64	1019	59	301	906	179	127	1481	411	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	7.1	7.1	7.3	7.1	7.1	7.3	7.3	7.3	7.1	7.3	7.3	7.1	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1752	3505	1568	1719	4940	1538	3367	4988	1553	3400	5036	1568	
Flt Permitted	0.09	1.00	1.00	0.15	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	166	3505	1568	280	4940	1538	3367	4988	1553	3400	5036	1568	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	152	843	325	67	1073	62	317	954	188	134	1559	433	
RTOR Reduction (vph)	0	0	82	0	0	41	0	0	67	0	0	67	
Lane Group Flow (vph)	152	843	243	67	1073	21	317	954	121	134	1559	366	
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	3%	3%	3%	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1	
Permitted Phases	6		6	2		2			4			8	
Actuated Green, G (s)	66.1	52.6	70.1	53.5	46.1	56.8	17.5	60.7	68.1	10.7	54.8	68.3	
Effective Green, g (s)	66.1	52.6	70.1	53.5	46.1	56.8	17.5	60.7	68.1	10.7	54.8	68.3	
Actuated g/C Ratio	0.39	0.31	0.41	0.31	0.27	0.33	0.10	0.36	0.40	0.06	0.32	0.40	
Clearance Time (s)	7.1	7.1	7.3	7.1	7.1	7.3	7.3	7.3	7.1	7.3	7.3	7.1	
Vehicle Extension (s)	2.5	1.0	2.5	2.5	1.0	2.5	2.5	1.0	2.5	2.5	1.0	2.5	
Lane Grp Cap (vph)	190	1084	646	150	1339	513	346	1781	622	214	1623	629	
v/s Ratio Prot	c0.06	0.24	0.04	0.02	0.22	0.00	c0.09	c0.19	0.01	0.04	c0.31	0.05	
v/s Ratio Perm	c0.25		0.12	0.12		0.01			0.07			0.19	
v/c Ratio	0.80	0.78	0.38	0.45	0.80	0.04	0.92	0.54	0.19	0.63	0.96	0.58	
Uniform Delay, d1	39.8	53.4	34.8	43.6	57.7	38.2	75.5	43.4	33.1	77.7	56.5	39.7	
Progression Factor	2.04	0.60	0.41	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	19.1	5.1	0.2	1.5	5.1	0.0	28.0	0.2	0.1	4.9	14.0	1.1	
Delay (s)	100.1	37.0	14.6	45.1	62.8	38.2	103.5	43.6	33.2	82.6	70.5	40.8	
Level of Service	F	D	B	D	E	D	F	D	C	F	E	D	
Approach Delay (s)		38.7			60.6			55.3			65.3		
Approach LOS		D			E			E			E		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			56.2		HCM 2000 Level of Service				E				
HCM 2000 Volume to Capacity ratio			0.88										
Actuated Cycle Length (s)			170.0		Sum of lost time (s)				32.8				
Intersection Capacity Utilization			89.2%		ICU Level of Service				E				
Analysis Period (min)			15										
c Critical Lane Group													

Lanes, Volumes, Timings  
1: W 18 Ct/SR 826 & NW 103 St

2022 Existing  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↙	↑↑↑	↗	↙	↗	↗			
Traffic Volume (vph)	0	1390	354	114	1287	627	537	36	141	0	0	0
Future Volume (vph)	0	1390	354	114	1287	627	537	36	141	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		300	310		0	0		0
Storage Lanes	0		0	1		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.970				0.850			0.850			
Flt Protected				0.950			0.950	0.958				
Satd. Flow (prot)	0	4933	0	1770	5085	1583	1681	1695	1583	0	0	0
Flt Permitted				0.082			0.950	0.958				
Satd. Flow (perm)	0	4933	0	153	5085	1583	1681	1695	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		70				389			45			
Link Speed (mph)		40			40			30				30
Link Distance (ft)		300			843			492				239
Travel Time (s)		5.1			14.4			11.2				5.4
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.25
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Adj. Flow (vph)	0	1433	365	118	1327	646	554	37	145	0	0	0
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	0	1798	0	118	1327	646	294	297	145	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			20			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2	1	1	2	1			
Detector Template		Thru		Left	Thru	Right	Left	Thru	Right			
Leading Detector (ft)		100		20	100	20	20	100	20			
Trailing Detector (ft)		0		0	0	0	0	0	0			
Detector 1 Position(ft)		0		0	0	0	0	0	0			
Detector 1 Size(ft)		6		20	6	20	20	6	20			
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0			
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type		NA		pm+pt	NA	Free	Split	NA	pm+ov			
Protected Phases		6		5	2		4	4	5			

Lanes, Volumes, Timings  
1: W 18 Ct/SR 826 & NW 103 St

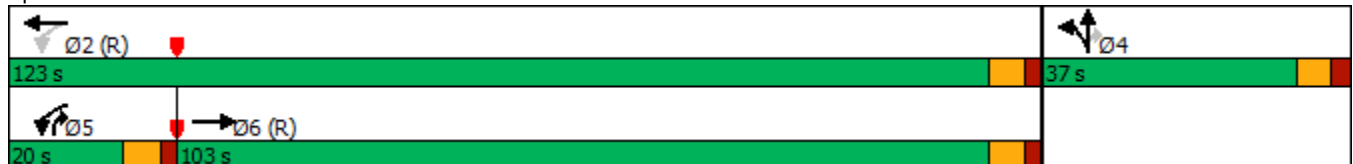
2022 Existing  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases				2		Free			4			
Detector Phase		6		5	2		4	4	5			
Switch Phase												
Minimum Initial (s)		7.0		7.0	7.0		7.0	7.0	7.0			
Minimum Split (s)		33.4		13.4	33.4		35.6	35.6	13.4			
Total Split (s)		103.0		20.0	123.0		37.0	37.0	20.0			
Total Split (%)		64.4%		12.5%	76.9%		23.1%	23.1%	12.5%			
Maximum Green (s)		96.6		13.6	116.6		30.4	30.4	13.6			
Yellow Time (s)		4.4		4.4	4.4		4.0	4.0	4.4			
All-Red Time (s)		2.0		2.0	2.0		2.6	2.6	2.0			
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0			
Total Lost Time (s)		6.4		6.4	6.4		6.6	6.6	6.4			
Lead/Lag		Lag		Lead					Lead			
Lead-Lag Optimize?		Yes		Yes					Yes			
Vehicle Extension (s)		1.0		2.5	1.0		3.0	3.0	2.5			
Recall Mode		C-Max		None	C-Max		None	None	None			
Walk Time (s)		7.0			7.0		7.0	7.0				
Flash Dont Walk (s)		20.0			20.0		22.0	22.0				
Pedestrian Calls (#/hr)		0			2		1	1				
Act Effct Green (s)		102.1		117.3	117.3	160.0	29.7	29.7	45.1			
Actuated g/C Ratio		0.64		0.73	0.73	1.00	0.19	0.19	0.28			
v/c Ratio		0.57		0.59	0.36	0.41	0.95	0.95	0.30			
Control Delay		16.8		18.3	8.0	1.0	102.1	102.1	31.8			
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay		16.8		18.3	8.0	1.0	102.1	102.1	31.8			
LOS		B		B	A	A	F	F	C			
Approach Delay		16.8			6.4			88.2				
Approach LOS		B			A			F				

Intersection Summary

Area Type: Other  
 Cycle Length: 160  
 Actuated Cycle Length: 160  
 Offset: 95 (59%), Referenced to phase 2:WBTL and 6:EBT, Start of Green  
 Natural Cycle: 85  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.95  
 Intersection Signal Delay: 23.5      Intersection LOS: C  
 Intersection Capacity Utilization 73.1%      ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 1: W 18 Ct/SR 826 & NW 103 St



Queues  
1: W 18 Ct/SR 826 & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1798	118	1327	646	294	297	145
v/c Ratio	0.57	0.59	0.36	0.41	0.95	0.95	0.30
Control Delay	16.8	18.3	8.0	1.0	102.1	102.1	31.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.8	18.3	8.0	1.0	102.1	102.1	31.8
Queue Length 50th (ft)	357	39	309	1	322	325	81
Queue Length 95th (ft)	432	m39	m214	m0	#513	#517	140
Internal Link Dist (ft)	220		763			412	
Turn Bay Length (ft)		350		300	310		
Base Capacity (vph)	3173	249	3729	1583	319	322	524
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.47	0.36	0.41	0.92	0.92	0.28

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.













Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



HCM Signalized Intersection Capacity Analysis  
 1: W 18 Ct/SR 826 & NW 103 St

2022 Existing  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑	↑	↑	↑	↑			
Traffic Volume (vph)	0	1390	354	114	1287	627	537	36	141	0	0	0
Future Volume (vph)	0	1390	354	114	1287	627	537	36	141	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4		6.4	6.4	4.0	6.6	6.6	6.4			
Lane Util. Factor		0.91		1.00	0.91	1.00	0.95	0.95	1.00			
Frt		0.97		1.00	1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00		0.95	1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)		4930		1770	5085	1583	1681	1695	1583			
Flt Permitted		1.00		0.08	1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)		4930		152	5085	1583	1681	1695	1583			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.25
Adj. Flow (vph)	0	1433	365	118	1327	646	554	37	145	0	0	0
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	34	0	0	0
Lane Group Flow (vph)	0	1773	0	118	1327	646	294	297	111	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Turn Type		NA		pm+pt	NA	Free	Split	NA	pm+ov			
Protected Phases		6		5	2		4	4	5			
Permitted Phases				2		Free			4			
Actuated Green, G (s)		102.1		117.3	117.3	160.0	29.7	29.7	38.5			
Effective Green, g (s)		102.1		117.3	117.3	160.0	29.7	29.7	38.5			
Actuated g/C Ratio		0.64		0.73	0.73	1.00	0.19	0.19	0.24			
Clearance Time (s)		6.4		6.4	6.4		6.6	6.6	6.4			
Vehicle Extension (s)		1.0		2.5	1.0		3.0	3.0	2.5			
Lane Grp Cap (vph)		3145		200	3727	1583	312	314	380			
v/s Ratio Prot		0.36		0.03	0.26		0.17	c0.18	0.02			
v/s Ratio Perm				c0.40		c0.41			0.05			
v/c Ratio		0.56		0.59	0.36	0.41	0.94	0.95	0.29			
Uniform Delay, d1		16.4		13.6	7.7	0.0	64.3	64.4	49.6			
Progression Factor		1.00		0.94	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.7		2.8	0.2	0.6	35.8	36.3	0.3			
Delay (s)		17.1		15.6	7.9	0.6	100.1	100.7	49.9			
Level of Service		B		B	A	A	F	F	D			
Approach Delay (s)		17.1			6.1			90.5			0.0	
Approach LOS		B			A			F			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			23.8			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			160.0			Sum of lost time (s)			19.4			
Intersection Capacity Utilization			73.1%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
2: W 17 Ct & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↖↗		↖	↗↖↗		↖	↗	↗	↖	↗	↗
Traffic Volume (vph)	184	1215	112	38	1415	29	325	118	57	137	50	66
Future Volume (vph)	184	1215	112	38	1415	29	325	118	57	137	50	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	320		0	250		0	100		60	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	50			50			75			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.997				0.850		0.915	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5019	0	1770	5070	0	1787	1881	1599	1805	1738	0
Flt Permitted	0.086			0.950			0.387			0.676		
Satd. Flow (perm)	160	5019	0	1770	5070	0	728	1881	1599	1284	1738	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			2				67			37
Link Speed (mph)		40			40			30				30
Link Distance (ft)		843			924			414				161
Travel Time (s)		14.4			15.8			9.4				3.7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Adj. Flow (vph)	198	1306	120	41	1522	31	349	127	61	147	54	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	198	1426	0	41	1553	0	349	127	61	147	125	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			20				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1		2
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left		Thru
Leading Detector (ft)	20	100		20	100		20	100	20	20		100
Trailing Detector (ft)	0	0		0	0		0	0	0	0		0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0		0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20		6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	pm+pt	NA		Prot	NA		pm+pt	NA	pm+ov	pm+pt		NA
Protected Phases	1	6		5	2		7	4	5	3		8

Lanes, Volumes, Timings  
2: W 17 Ct & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Permitted Phases	6						4		4		8		
Detector Phase	1	6		5	2		7	4	5	3	8		
Switch Phase													
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0	5.0	5.0	7.0		
Minimum Split (s)	11.5	38.5		11.4	38.5		11.2	36.7	11.4	11.3	36.7		
Total Split (s)	15.0	81.0		15.0	81.0		26.0	38.0	15.0	26.0	38.0		
Total Split (%)	9.4%	50.6%		9.4%	50.6%		16.3%	23.8%	9.4%	16.3%	23.8%		
Maximum Green (s)	8.5	74.5		8.6	74.5		19.8	31.3	8.6	19.7	31.3		
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0	4.4	4.0	4.0		
All-Red Time (s)	2.1	2.1		2.0	2.1		2.2	2.7	2.0	2.3	2.7		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.5	6.5		6.4	6.5		6.2	6.7	6.4	6.3	6.7		
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5	2.0	2.5	2.5		
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None		
Walk Time (s)		7.0			7.0			7.0			7.0		
Flash Dont Walk (s)		25.0			25.0			23.0			23.0		
Pedestrian Calls (#/hr)		4			7			1			0		
Act Effct Green (s)	104.2	91.2		7.9	78.7		39.3	19.6	34.2	31.1	15.3		
Actuated g/C Ratio	0.65	0.57		0.05	0.49		0.25	0.12	0.21	0.19	0.10		
v/c Ratio	0.64	0.50		0.47	0.62		1.13	0.55	0.15	0.49	0.63		
Control Delay	43.5	34.8		90.9	31.4		138.8	74.4	8.5	52.2	60.8		
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total Delay	43.5	34.8		90.9	31.4		138.8	74.4	8.5	52.2	60.8		
LOS	D	C		F	C		F	E	A	D	E		
Approach Delay		35.8			32.9			108.8			56.1		
Approach LOS		D			C			F			E		

Intersection Summary

Area Type: Other  
 Cycle Length: 160  
 Actuated Cycle Length: 160  
 Offset: 45 (28%), Referenced to phase 2:WBT and 6:EBTL, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.13  
 Intersection Signal Delay: 45.8  
 Intersection LOS: D  
 Intersection Capacity Utilization 79.3%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 2: W 17 Ct & NW 103 St



Queues  
2: W 17 Ct & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	198	1426	41	1553	349	127	61	147	125
v/c Ratio	0.64	0.50	0.47	0.62	1.13	0.55	0.15	0.49	0.63
Control Delay	43.5	34.8	90.9	31.4	138.8	74.4	8.5	52.2	60.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	34.8	90.9	31.4	138.8	74.4	8.5	52.2	60.8
Queue Length 50th (ft)	146	384	43	419	~341	129	0	127	91
Queue Length 95th (ft)	#321	520	86	504	#423	186	33	168	148
Internal Link Dist (ft)		763		844		334			81
Turn Bay Length (ft)	320		250		100		60		
Base Capacity (vph)	308	2866	100	2494	309	367	406	348	369
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.50	0.41	0.62	1.13	0.35	0.15	0.42	0.34

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
2: W 17 Ct & NW 103 St

2022 Existing  
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↗↗		↗	↗↗↗		↗	↗	↗	↗	↗	↗
Traffic Volume (vph)	184	1215	112	38	1415	29	325	118	57	137	50	66
Future Volume (vph)	184	1215	112	38	1415	29	325	118	57	137	50	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.4	6.5		6.2	6.7	6.4	6.3	6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5021		1770	5070		1787	1881	1599	1805	1738	
Flt Permitted	0.09	1.00		0.95	1.00		0.39	1.00	1.00	0.68	1.00	
Satd. Flow (perm)	160	5021		1770	5070		728	1881	1599	1284	1738	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	198	1306	120	41	1522	31	349	127	61	147	54	71
RTOR Reduction (vph)	0	6	0	0	1	0	0	0	51	0	33	0
Lane Group Flow (vph)	198	1420	0	41	1552	0	349	127	10	147	92	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	pm+pt	NA		Prot	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	1	6		5	2		7	4	5	3	8	
Permitted Phases	6						4		4	8		
Actuated Green, G (s)	105.5	91.2		7.9	78.7		39.4	19.6	27.5	30.7	15.3	
Effective Green, g (s)	105.5	91.2		7.9	78.7		39.4	19.6	27.5	30.7	15.3	
Actuated g/C Ratio	0.66	0.57		0.05	0.49		0.25	0.12	0.17	0.19	0.10	
Clearance Time (s)	6.5	6.5		6.4	6.5		6.2	6.7	6.4	6.3	6.7	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5	2.0	2.5	2.5	
Lane Grp Cap (vph)	309	2861		87	2493		310	230	274	296	166	
v/s Ratio Prot	c0.08	0.28		0.02	0.31		c0.14	0.07	0.00	0.05	0.05	
v/s Ratio Perm	c0.34						c0.14		0.00	0.05		
v/c Ratio	0.64	0.50		0.47	0.62		1.13	0.55	0.04	0.50	0.55	
Uniform Delay, d1	29.4	20.6		74.0	29.8		57.3	66.1	55.2	56.9	69.1	
Progression Factor	1.53	1.57		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.9	0.5		1.5	1.2		89.5	2.3	0.0	1.0	3.2	
Delay (s)	47.9	32.9		75.5	31.0		146.8	68.4	55.2	57.8	72.2	
Level of Service	D	C		E	C		F	E	E	E	E	
Approach Delay (s)		34.7			32.1			117.9			64.4	
Approach LOS		C			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	46.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
3: W 16 Ave & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	1193	138	226	1283	116	186	606	93	154	525	132
Future Volume (vph)	224	1193	138	226	1283	116	186	606	93	154	525	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	270		0	370		0	250		0	185		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.984			0.988			0.980			0.970	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5004	0	1787	5074	0	1787	3503	0	1787	3467	0
Flt Permitted	0.057			0.070			0.093			0.096		
Satd. Flow (perm)	106	5004	0	132	5074	0	175	3503	0	181	3467	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			9			9			16	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		924			866			399			405	
Travel Time (s)		15.8			14.8			9.1			9.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	249	1326	153	251	1426	129	207	673	103	171	583	147
Shared Lane Traffic (%)												
Lane Group Flow (vph)	249	1479	0	251	1555	0	207	776	0	171	730	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	

Lanes, Volumes, Timings  
3: W 16 Ave & NW 103 St

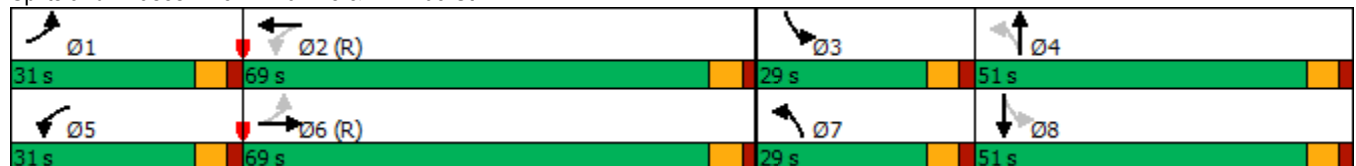
2022 Existing  
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	11.4	34.4		11.4	34.4		11.4	37.5		11.4	37.5	
Total Split (s)	31.0	69.0		31.0	69.0		29.0	51.0		29.0	51.0	
Total Split (%)	17.2%	38.3%		17.2%	38.3%		16.1%	28.3%		16.1%	28.3%	
Maximum Green (s)	24.6	62.6		24.6	62.6		22.6	44.5		22.6	44.5	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.1		2.0	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.0	2.5		2.0	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		21.0			21.0			24.0			24.0	
Pedestrian Calls (#/hr)		14			7			2			0	
Act Effct Green (s)	93.8	70.2		92.8	69.6		62.9	43.6		59.3	41.8	
Actuated g/C Ratio	0.52	0.39		0.52	0.39		0.35	0.24		0.33	0.23	
v/c Ratio	0.91	0.76		0.90	0.79		0.89	0.91		0.80	0.89	
Control Delay	90.3	51.5		106.1	32.0		86.8	80.1		72.7	79.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	90.3	51.5		106.1	32.0		86.8	80.1		72.7	79.4	
LOS	F	D		F	C		F	F		E	E	
Approach Delay		57.1			42.3			81.5			78.1	
Approach LOS		E			D			F			E	

Intersection Summary

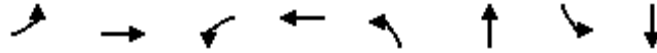
Area Type: Other  
 Cycle Length: 180  
 Actuated Cycle Length: 180  
 Offset: 39 (22%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 60.1  
 Intersection LOS: E  
 Intersection Capacity Utilization 90.2%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 3: W 16 Ave & NW 103 St



Queues  
3: W 16 Ave & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	249	1479	251	1555	207	776	171	730
v/c Ratio	0.91	0.76	0.90	0.79	0.89	0.91	0.80	0.89
Control Delay	90.3	51.5	106.1	32.0	86.8	80.1	72.7	79.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.3	51.5	106.1	32.0	86.8	80.1	72.7	79.4
Queue Length 50th (ft)	241	584	260	212	188	460	144	428
Queue Length 95th (ft)	#419	652	#405	382	#308	#570	227	511
Internal Link Dist (ft)		844		786		319		325
Turn Bay Length (ft)	270		370		250		185	
Base Capacity (vph)	287	1958	300	1968	265	887	266	869
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.76	0.84	0.79	0.78	0.87	0.64	0.84

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.



# HCM Signalized Intersection Capacity Analysis

## 3: W 16 Ave & NW 103 St

2022 Existing  
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↗↗		↗	↗↗↗		↗	↗↗		↗	↗↗	
Traffic Volume (vph)	224	1193	138	226	1283	116	186	606	93	154	525	132
Future Volume (vph)	224	1193	138	226	1283	116	186	606	93	154	525	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.99		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5006		1787	5072		1787	3503		1787	3466	
Flt Permitted	0.06	1.00		0.07	1.00		0.09	1.00		0.10	1.00	
Satd. Flow (perm)	106	5006		131	5072		174	3503		180	3466	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	249	1326	153	251	1426	129	207	673	103	171	583	147
RTOR Reduction (vph)	0	7	0	0	6	0	0	7	0	0	12	0
Lane Group Flow (vph)	249	1472	0	251	1549	0	207	769	0	171	718	0
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	93.9	70.2		92.7	69.6		62.8	43.6		59.2	41.8	
Effective Green, g (s)	93.9	70.2		92.7	69.6		62.8	43.6		59.2	41.8	
Actuated g/C Ratio	0.52	0.39		0.52	0.39		0.35	0.24		0.33	0.23	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)	274	1952		279	1961		232	848		214	804	
v/s Ratio Prot	c0.12	0.29		0.12	0.31		c0.09	c0.22		0.08	0.21	
v/s Ratio Perm	c0.35			0.35			0.21			0.19		
v/c Ratio	0.91	0.75		0.90	0.79		0.89	0.91		0.80	0.89	
Uniform Delay, d1	58.7	47.4		54.3	48.8		52.4	66.2		48.5	66.9	
Progression Factor	1.00	1.00		1.53	0.58		1.00	1.00		1.00	1.00	
Incremental Delay, d2	30.7	2.8		26.4	3.0		31.3	13.2		17.4	12.2	
Delay (s)	89.4	50.2		109.3	31.2		83.7	79.5		65.8	79.1	
Level of Service	F	D		F	C		F	E		E	E	
Approach Delay (s)		55.8			42.1			80.4			76.6	
Approach LOS		E			D			F			E	

### Intersection Summary

HCM 2000 Control Delay	59.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	25.7
Intersection Capacity Utilization	90.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
4: W 14 Ln & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	1363	49	103	1443	58	92	49	87	115	37	70
Future Volume (vph)	92	1363	49	103	1443	58	92	49	87	115	37	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	130		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.994				0.850		0.957	
Flt Protected	0.950			0.950				0.968			0.975	
Satd. Flow (prot)	1770	5060	0	1770	5055	0	0	1821	1599	0	1773	0
Flt Permitted	0.118			0.133				0.646			0.634	
Satd. Flow (perm)	220	5060	0	248	5055	0	0	1215	1599	0	1153	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			5				59			13
Link Speed (mph)		40			40			30				30
Link Distance (ft)		866			1763			190				273
Travel Time (s)		14.8			30.1			4.3				6.2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Adj. Flow (vph)	97	1435	52	108	1519	61	97	52	92	121	39	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	1487	0	108	1580	0	0	149	92	0	234	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1		2
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left		Thru
Leading Detector (ft)	20	100		20	100		20	100	20	20		100
Trailing Detector (ft)	0	0		0	0		0	0	0	0		0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0		0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20		6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases	1	6		5	2			4				8

Lanes, Volumes, Timings  
4: W 14 Ln & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			4		4	8		
Detector Phase	1	6		5	2		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	11.4	33.4		11.4	33.4		35.7	35.7	35.7	35.7	35.7	
Total Split (s)	16.0	109.0		16.0	109.0		55.0	55.0	55.0	55.0	55.0	
Total Split (%)	8.9%	60.6%		8.9%	60.6%		30.6%	30.6%	30.6%	30.6%	30.6%	
Maximum Green (s)	9.6	102.6		9.6	102.6		48.3	48.3	48.3	48.3	48.3	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7	2.7	2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4			6.7	6.7		6.7	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5	2.5	2.5	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		20.0			20.0		22.0	22.0	22.0	22.0	22.0	
Pedestrian Calls (#/hr)		1			0		3	3	3	2	2	
Act Effct Green (s)	123.0	115.6		123.6	115.9			37.2	37.2		37.2	
Actuated g/C Ratio	0.68	0.64		0.69	0.64			0.21	0.21		0.21	
v/c Ratio	0.45	0.46		0.46	0.49			0.60	0.24		0.94	
Control Delay	19.5	4.2		15.3	8.6			73.1	23.4		109.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	19.5	4.2		15.3	8.6			73.1	23.4		109.6	
LOS	B	A		B	A			E	C		F	
Approach Delay		5.1			9.0			54.1			109.6	
Approach LOS		A			A			D			F	

Intersection Summary

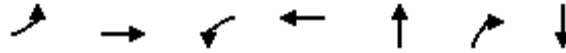
Area Type: Other  
 Cycle Length: 180  
 Actuated Cycle Length: 180  
 Offset: 50 (28%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.94  
 Intersection Signal Delay: 16.6  
 Intersection LOS: B  
 Intersection Capacity Utilization 69.8%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 4: W 14 Ln & NW 103 St



Queues  
4: W 14 Ln & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	97	1487	108	1580	149	92	234
v/c Ratio	0.45	0.46	0.46	0.49	0.60	0.24	0.94
Control Delay	19.5	4.2	15.3	8.6	73.1	23.4	109.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.5	4.2	15.3	8.6	73.1	23.4	109.6
Queue Length 50th (ft)	16	54	20	175	161	32	262
Queue Length 95th (ft)	m38	60	m31	596	228	82	357
Internal Link Dist (ft)		786		1683	110		193
Turn Bay Length (ft)	100		130			50	
Base Capacity (vph)	235	3251	254	3256	326	472	318
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.46	0.43	0.49	0.46	0.19	0.74

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
4: W 14 Ln & NW 103 St

2022 Existing  
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑		↘	↑↑↑			↑	↗		↕	
Traffic Volume (vph)	92	1363	49	103	1443	58	92	49	87	115	37	70
Future Volume (vph)	92	1363	49	103	1443	58	92	49	87	115	37	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4			6.7	6.7		6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	0.99			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.97	
Satd. Flow (prot)	1770	5059		1770	5056			1822	1599		1773	
Flt Permitted	0.12	1.00		0.13	1.00			0.65	1.00		0.63	
Satd. Flow (perm)	221	5059		249	5056			1215	1599		1152	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	97	1435	52	108	1519	61	97	52	92	121	39	74
RTOR Reduction (vph)	0	2	0	0	2	0	0	0	47	0	10	0
Lane Group Flow (vph)	97	1485	0	108	1578	0	0	149	45	0	224	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	123.0	115.6		123.6	115.9			37.2	37.2		37.2	
Effective Green, g (s)	123.0	115.6		123.6	115.9			37.2	37.2		37.2	
Actuated g/C Ratio	0.68	0.64		0.69	0.64			0.21	0.21		0.21	
Clearance Time (s)	6.4	6.4		6.4	6.4			6.7	6.7		6.7	
Vehicle Extension (s)	2.0	1.0		2.0	1.0			2.5	2.5		2.5	
Lane Grp Cap (vph)	214	3249		236	3255			251	330		238	
v/s Ratio Prot	0.02	0.29		c0.02	c0.31							
v/s Ratio Perm	0.29			0.30				0.12	0.03		c0.19	
v/c Ratio	0.45	0.46		0.46	0.48			0.59	0.14		0.94	
Uniform Delay, d1	11.9	16.3		11.5	16.6			64.6	58.3		70.3	
Progression Factor	1.69	0.22		1.29	0.47			1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.3		0.3	0.3			3.1	0.1		41.5	
Delay (s)	20.5	3.9		15.1	8.1			67.7	58.4		111.8	
Level of Service	C	A		B	A			E	E		F	
Approach Delay (s)		4.9			8.5			64.2			111.8	
Approach LOS		A			A			E			F	

Intersection Summary		
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.59	B
Actuated Cycle Length (s)	180.0	Sum of lost time (s)
Intersection Capacity Utilization	69.8%	19.5
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		C

Lanes, Volumes, Timings  
5: W 12 Ave & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	1179	228	183	1388	147	185	615	102	143	590	104
Future Volume (vph)	197	1179	228	183	1388	147	185	615	102	143	590	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	215		0	350		0	300		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			75			25			75		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.976			0.986			0.979			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4963	0	1770	5014	0	1770	3465	0	1787	3496	0
Flt Permitted	0.054			0.083			0.097			0.112		
Satd. Flow (perm)	101	4963	0	155	5014	0	181	3465	0	211	3496	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			11			10			11	
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		1763			1138			431			442	
Travel Time (s)		30.1			19.4			7.3			7.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	207	1241	240	193	1461	155	195	647	107	151	621	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	207	1481	0	193	1616	0	195	754	0	151	730	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	

Lanes, Volumes, Timings  
5: W 12 Ave & NW 103 St

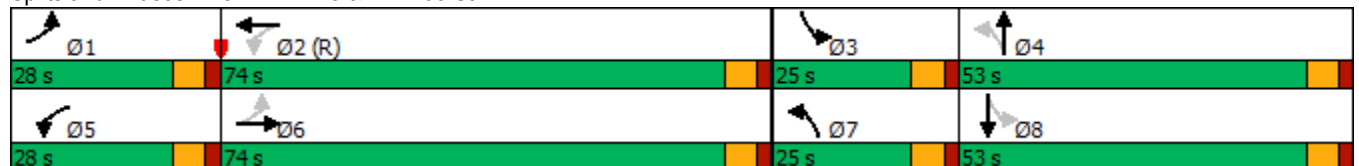
2022 Existing  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	13.4	34.4		13.4	34.4		13.4	37.5		13.4	37.5	
Total Split (s)	28.0	74.0		28.0	74.0		25.0	53.0		25.0	53.0	
Total Split (%)	15.6%	41.1%		15.6%	41.1%		13.9%	29.4%		13.9%	29.4%	
Maximum Green (s)	21.6	67.6		21.6	67.6		18.6	46.5		18.6	46.5	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.1		2.0	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	1.0		3.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		21.0			21.0			24.0			24.0	
Pedestrian Calls (#/hr)		4			12			1			2	
Act Effct Green (s)	95.7	75.6		92.5	74.0		62.6	44.7		58.1	42.4	
Actuated g/C Ratio	0.53	0.42		0.51	0.41		0.35	0.25		0.32	0.24	
v/c Ratio	0.87	0.71		0.79	0.78		0.89	0.87		0.74	0.88	
Control Delay	73.8	74.8		96.4	25.7		85.6	75.4		62.6	77.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	73.8	74.8		96.4	25.7		85.6	75.4		62.6	77.6	
LOS	E	E		F	C		F	E		E	E	
Approach Delay		74.7			33.2			77.5			75.0	
Approach LOS		E			C			E			E	

Intersection Summary

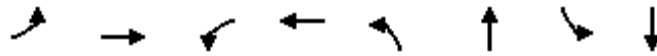
Area Type:	Other
Cycle Length:	180
Actuated Cycle Length:	180
Offset:	2 (1%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle:	110
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.89
Intersection Signal Delay:	61.2
Intersection LOS:	E
Intersection Capacity Utilization:	92.3%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 5: W 12 Ave & NW 103 St



Queues  
5: W 12 Ave & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	207	1481	193	1616	195	754	151	730
v/c Ratio	0.87	0.71	0.79	0.78	0.89	0.87	0.74	0.88
Control Delay	73.8	74.8	96.4	25.7	85.6	75.4	62.6	77.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.8	74.8	96.4	25.7	85.6	75.4	62.6	77.6
Queue Length 50th (ft)	221	643	166	664	171	442	120	432
Queue Length 95th (ft)	#344	711	263	240	#317	526	189	505
Internal Link Dist (ft)		1683		1058		351		362
Turn Bay Length (ft)	215		350		300		150	
Base Capacity (vph)	257	2100	275	2068	227	906	234	911
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.71	0.70	0.78	0.86	0.83	0.65	0.80

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.



HCM Signalized Intersection Capacity Analysis  
5: W 12 Ave & NW 103 St

2022 Existing  
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖		↖	↖↖		↖	↖↖	
Traffic Volume (vph)	197	1179	228	183	1388	147	185	615	102	143	590	104
Future Volume (vph)	197	1179	228	183	1388	147	185	615	102	143	590	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.99		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4962		1770	5012		1770	3464		1787	3494	
Flt Permitted	0.05	1.00		0.08	1.00		0.10	1.00		0.11	1.00	
Satd. Flow (perm)	100	4962		155	5012		180	3464		210	3494	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	207	1241	240	193	1461	155	195	647	107	151	621	109
RTOR Reduction (vph)	0	14	0	0	6	0	0	8	0	0	8	0
Lane Group Flow (vph)	207	1467	0	193	1610	0	195	746	0	151	722	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	95.8	75.7		92.4	74.0		62.5	44.7		57.9	42.4	
Effective Green, g (s)	95.8	75.7		92.4	74.0		62.5	44.7		57.9	42.4	
Actuated g/C Ratio	0.53	0.42		0.51	0.41		0.35	0.25		0.32	0.24	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Vehicle Extension (s)	3.0	1.0		3.0	1.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	239	2086		244	2060		219	860		203	823	
v/s Ratio Prot	c0.10	0.30		0.08	0.32		c0.09	0.22		0.06	0.21	
v/s Ratio Perm	c0.36			0.33			c0.22			0.18		
v/c Ratio	0.87	0.70		0.79	0.78		0.89	0.87		0.74	0.88	
Uniform Delay, d1	56.5	42.9		41.2	46.0		49.8	64.8		48.3	66.3	
Progression Factor	0.85	1.67		1.92	0.48		1.00	1.00		1.00	1.00	
Incremental Delay, d2	24.4	1.8		15.3	2.9		33.0	9.2		13.7	10.4	
Delay (s)	72.6	73.4		94.3	25.2		82.8	74.1		62.0	76.7	
Level of Service	E	E		F	C		F	E		E	E	
Approach Delay (s)		73.3			32.5			75.9			74.2	
Approach LOS		E			C			E			E	

Intersection Summary

HCM 2000 Control Delay	60.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	25.7
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
6: W 10 Ave & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	1187	44	46	1486	54	36	48	97	44	38	44
Future Volume (vph)	92	1187	44	46	1486	54	36	48	97	44	38	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180		0	200		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	55			55			25			65		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.995			0.900				0.920
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	5110	0	1787	5110	0	1787	1693	0	1805	1748	0
Flt Permitted	0.134			0.201			0.647			0.344		
Satd. Flow (perm)	252	5110	0	378	5110	0	1217	1693	0	654	1748	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			5			53			30	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		1138			765			375			318	
Travel Time (s)		19.4			13.0			8.5			7.2	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Adj. Flow (vph)	94	1211	45	47	1516	55	37	49	99	45	39	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	1256	0	47	1571	0	37	148	0	45	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	

Lanes, Volumes, Timings  
6: W 10 Ave & NW 103 St

2022 Existing  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	11.4	33.4		11.4	33.4		35.7	35.7		35.7	35.7	
Total Split (s)	15.0	116.0		15.0	116.0		49.0	49.0		49.0	49.0	
Total Split (%)	8.3%	64.4%		8.3%	64.4%		27.2%	27.2%		27.2%	27.2%	
Maximum Green (s)	8.6	109.6		8.6	109.6		42.3	42.3		42.3	42.3	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.7	6.7		6.7	6.7	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5		2.5	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		20.0			20.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		2			1		1	1		2	2	
Act Effct Green (s)	146.1	140.8		143.2	137.7		16.5	16.5		16.5	16.5	
Actuated g/C Ratio	0.81	0.78		0.80	0.76		0.09	0.09		0.09	0.09	
v/c Ratio	0.36	0.31		0.14	0.40		0.33	0.73		0.76	0.45	
Control Delay	9.5	1.9		1.4	3.2		81.2	69.6		138.5	54.8	
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0		0.0	0.0	
Total Delay	9.5	1.9		1.4	3.3		81.2	69.6		138.5	54.8	
LOS	A	A		A	A		F	E		F	D	
Approach Delay		2.5			3.2			71.9			84.0	
Approach LOS		A			A			E			F	

Intersection Summary

Area Type: Other  
 Cycle Length: 180  
 Actuated Cycle Length: 180  
 Offset: 3 (2%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.76  
 Intersection Signal Delay: 9.9  
 Intersection Capacity Utilization 69.5%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service C

Splits and Phases: 6: W 10 Ave & NW 103 St



Queues  
6: W 10 Ave & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	94	1256	47	1571	37	148	45	84
v/c Ratio	0.36	0.31	0.14	0.40	0.33	0.73	0.76	0.45
Control Delay	9.5	1.9	1.4	3.2	81.2	69.6	138.5	54.8
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	9.5	1.9	1.4	3.3	81.2	69.6	138.5	54.8
Queue Length 50th (ft)	5	48	0	5	42	112	53	61
Queue Length 95th (ft)	m27	61	3	249	79	182	98	114
Internal Link Dist (ft)		1058		685		295		238
Turn Bay Length (ft)	180		200				100	
Base Capacity (vph)	280	3997	374	3909	285	438	153	433
Starvation Cap Reductn	0	0	0	760	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.31	0.13	0.50	0.13	0.34	0.29	0.19

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
6: W 10 Ave & NW 103 St

2022 Existing  
PM Peak Hour

























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖		↖	↖		↖	↖	
Traffic Volume (vph)	92	1187	44	46	1486	54	36	48	97	44	38	44
Future Volume (vph)	92	1187	44	46	1486	54	36	48	97	44	38	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.90		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	5108		1787	5109		1787	1692		1805	1747	
Flt Permitted	0.13	1.00		0.20	1.00		0.65	1.00		0.34	1.00	
Satd. Flow (perm)	252	5108		378	5109		1217	1692		653	1747	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	94	1211	45	47	1516	55	37	49	99	45	39	45
RTOR Reduction (vph)	0	1	0	0	1	0	0	48	0	0	27	0
Lane Group Flow (vph)	94	1255	0	47	1570	0	37	100	0	45	57	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	145.8	139.5		142.2	137.7		16.5	16.5		16.5	16.5	
Effective Green, g (s)	145.8	139.5		142.2	137.7		16.5	16.5		16.5	16.5	
Actuated g/C Ratio	0.81	0.78		0.79	0.76		0.09	0.09		0.09	0.09	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	257	3958		333	3908		111	155		59	160	
v/s Ratio Prot	c0.01	0.25		0.00	c0.31			0.06			0.03	
v/s Ratio Perm	0.28			0.11			0.03			c0.07		
v/c Ratio	0.37	0.32		0.14	0.40		0.33	0.64		0.76	0.35	
Uniform Delay, d1	4.4	6.0		4.2	7.2		76.6	78.9		79.8	76.8	
Progression Factor	1.97	0.27		0.16	0.37		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.1		0.1	0.3		1.3	7.9		42.0	1.0	
Delay (s)	8.9	1.8		0.7	2.9		77.9	86.8		121.8	77.7	
Level of Service	A	A		A	A		E	F		F	E	
Approach Delay (s)		2.3			2.9			85.0			93.1	
Approach LOS		A			A			F			F	

Intersection Summary

HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
7: W 900 BIK & NW 103 St

2022 Existing  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (vph)	1	1538	3	18	1566	0	6	0	15	0	0	0
Future Volume (vph)	1	1538	3	18	1566	0	6	0	15	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	135		0	0		0	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	60			60			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt									0.850			
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1787	5136	0	1787	5136	0	1805	0	1615	0	0	0
Flt Permitted	0.133			0.950			0.950					
Satd. Flow (perm)	250	5136	0	1787	5136	0	1805	0	1615	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									60			
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		765			736			197			199	
Travel Time (s)		13.0			12.5			4.5			4.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	1	1636	3	19	1666	0	6	0	16	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	1639	0	19	1666	0	6	0	16	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1		1			
Detector Template	Left	Thru		Left	Thru		Left		Right			
Leading Detector (ft)	20	100		20	100		20		20			
Trailing Detector (ft)	0	0		0	0		0		0			
Detector 1 Position(ft)	0	0		0	0		0		0			
Detector 1 Size(ft)	20	6		20	6		20		20			
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0		0.0			
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0		0.0			
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0		0.0			
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	pm+pt	NA		Prot	NA		Prot		Perm			
Protected Phases	1	6		5	2		4					

Lanes, Volumes, Timings  
7: W 900 Blk & NW 103 St

2022 Existing  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Permitted Phases	6						4						
Detector Phase	1	6		5	2		4		4				
Switch Phase													
Minimum Initial (s)	5.0	16.0		7.0	16.0		7.0		7.0				
Minimum Split (s)	11.4	22.5		13.4	22.5		36.7		36.7				
Total Split (s)	15.0	134.0		15.0	134.0		31.0		31.0				
Total Split (%)	8.3%	74.4%		8.3%	74.4%		17.2%		17.2%				
Maximum Green (s)	8.6	127.5		8.6	127.5		24.3		24.3				
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0		4.0				
All-Red Time (s)	2.0	2.1		2.0	2.1		2.7		2.7				
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0		0.0				
Total Lost Time (s)	6.4	6.5		6.4	6.5		6.7		6.7				
Lead/Lag	Lead	Lag		Lead	Lag								
Lead-Lag Optimize?	Yes	Yes		Yes	Yes								
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5		2.5				
Recall Mode	None	C-Max		None	C-Max		None		None				
Walk Time (s)							7.0						
Flash Dont Walk (s)							23.0						
Pedestrian Calls (#/hr)							0						
Act Effct Green (s)	159.9	159.4		7.4	165.6		7.0		7.0				
Actuated g/C Ratio	0.89	0.89		0.04	0.92		0.04		0.04				
v/c Ratio	0.00	0.36		0.26	0.35		0.09		0.13				
Control Delay	1.0	1.6		120.0	0.3		86.2		2.3				
Queue Delay	0.0	0.0		0.0	0.1		0.0		0.0				
Total Delay	1.0	1.6		120.0	0.4		86.2		2.3				
LOS	A	A		F	A		F		A				
Approach Delay	1.6				1.8		25.1						
Approach LOS	A				A		C						

Intersection Summary

Area Type: Other  
 Cycle Length: 180  
 Actuated Cycle Length: 180  
 Offset: 146 (81%), Referenced to phase 2:WBT and 6:EBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.36  
 Intersection Signal Delay: 1.9      Intersection LOS: A  
 Intersection Capacity Utilization 46.6%      ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 7: W 900 Blk & NW 103 St



Queues  
7: W 900 Bk & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1	1639	19	1666	6	16
v/c Ratio	0.00	0.36	0.26	0.35	0.09	0.13
Control Delay	1.0	1.6	120.0	0.3	86.2	2.3
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	1.0	1.6	120.0	0.4	86.2	2.3
Queue Length 50th (ft)	0	83	24	5	7	0
Queue Length 95th (ft)	m0	91	m32	11	26	0
Internal Link Dist (ft)		685		656		
Turn Bay Length (ft)	100		135			
Base Capacity (vph)	298	4548	85	4725	243	269
Starvation Cap Reductn	0	787	0	1576	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.44	0.22	0.53	0.02	0.06

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



HCM Signalized Intersection Capacity Analysis  
7: W 900 Blk & NW 103 St

2022 Existing  
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖		↖		↖			
Traffic Volume (vph)	1	1538	3	18	1566	0	6	0	15	0	0	0
Future Volume (vph)	1	1538	3	18	1566	0	6	0	15	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.5		6.4	6.5		6.7		6.7			
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00		1.00			
Frt	1.00	1.00		1.00	1.00		1.00		0.85			
Flt Protected	0.95	1.00		0.95	1.00		0.95		1.00			
Satd. Flow (prot)	1787	5134		1787	5136		1805		1615			
Flt Permitted	0.13	1.00		0.95	1.00		0.95		1.00			
Satd. Flow (perm)	251	5134		1787	5136		1805		1615			
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1	1636	3	19	1666	0	6	0	16	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	16	0	0	0
Lane Group Flow (vph)	1	1639	0	19	1666	0	6	0	0	0	0	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Prot	NA		Prot		Perm			
Protected Phases	1	6		5	2		4					
Permitted Phases	6								4			
Actuated Green, G (s)	152.6	151.6		4.6	155.2		4.2		4.2			
Effective Green, g (s)	152.6	151.6		4.6	155.2		4.2		4.2			
Actuated g/C Ratio	0.85	0.84		0.03	0.86		0.02		0.02			
Clearance Time (s)	6.4	6.5		6.4	6.5		6.7		6.7			
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5		2.5			
Lane Grp Cap (vph)	221	4323		45	4428		42		37			
v/s Ratio Prot	0.00	0.32		c0.01	c0.32		c0.00					
v/s Ratio Perm	0.00								0.00			
v/c Ratio	0.00	0.38		0.42	0.38		0.14		0.01			
Uniform Delay, d1	2.1	3.3		86.4	2.5		86.1		85.9			
Progression Factor	0.57	0.43		1.36	0.08		1.00		1.00			
Incremental Delay, d2	0.0	0.2		1.5	0.2		1.1		0.1			
Delay (s)	1.2	1.7		119.4	0.4		87.3		85.9			
Level of Service	A	A		F	A		F		F			
Approach Delay (s)		1.7			1.7			86.3			0.0	
Approach LOS		A			A			F			A	

Intersection Summary

HCM 2000 Control Delay	2.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
8: W 8 Ave & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	1240	151	145	1488	102	150	505	114	126	466	80
Future Volume (vph)	165	1240	151	145	1488	102	150	505	114	126	466	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	135		0	220		0	175		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	55			55			25			110		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.984			0.990			0.972			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5004	0	1787	5084	0	1787	3474	0	1770	3461	0
Flt Permitted	0.950			0.950			0.157			0.112		
Satd. Flow (perm)	1770	5004	0	1787	5084	0	295	3474	0	209	3461	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			7			14			10	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		736			1271			390			314	
Travel Time (s)		12.5			21.7			8.9			7.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Adj. Flow (vph)	174	1305	159	153	1566	107	158	532	120	133	491	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	174	1464	0	153	1673	0	158	652	0	133	575	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	

Lanes, Volumes, Timings  
8: W 8 Ave & NW 103 St

2022 Existing  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases							4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	13.4	34.4		13.4	34.4		11.4	37.5		11.4	37.5	
Total Split (s)	40.0	87.0		27.0	74.0		21.0	45.0		21.0	45.0	
Total Split (%)	22.2%	48.3%		15.0%	41.1%		11.7%	25.0%		11.7%	25.0%	
Maximum Green (s)	33.6	80.6		20.6	67.6		14.6	38.5		14.6	38.5	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.1		2.0	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	1.0		2.0	1.0		2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		21.0			21.0			24.0			24.0	
Pedestrian Calls (#/hr)		0			1			1			0	
Act Effct Green (s)	23.0	86.3		18.4	81.7		50.4	36.4		49.1	35.7	
Actuated g/C Ratio	0.13	0.48		0.10	0.45		0.28	0.20		0.27	0.20	
v/c Ratio	0.77	0.61		0.84	0.72		0.80	0.91		0.77	0.83	
Control Delay	88.2	49.5		125.2	26.5		74.9	86.5		74.8	78.7	
Queue Delay	0.0	0.1		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	88.2	49.6		125.2	26.5		74.9	86.5		74.8	78.7	
LOS	F	D		F	C		E	F		E	E	
Approach Delay		53.7			34.7			84.2			78.0	
Approach LOS		D			C			F			E	

Intersection Summary

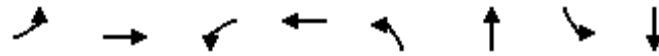
Area Type: Other  
 Cycle Length: 180  
 Actuated Cycle Length: 180  
 Offset: 136 (76%), Referenced to phase 2:WBT, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 55.2      Intersection LOS: E  
 Intersection Capacity Utilization 86.2%      ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 8: W 8 Ave & NW 103 St



Queues  
8: W 8 Ave & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	174	1464	153	1673	158	652	133	575
v/c Ratio	0.77	0.61	0.84	0.72	0.80	0.91	0.77	0.83
Control Delay	88.2	49.5	125.2	26.5	74.9	86.5	74.8	78.7
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.2	49.6	125.2	26.5	74.9	86.5	74.8	78.7
Queue Length 50th (ft)	218	449	191	374	138	387	114	335
Queue Length 95th (ft)	304	632	#295	495	#217	#471	#193	410
Internal Link Dist (ft)		656		1191		310		234
Turn Bay Length (ft)	135		220		175		150	
Base Capacity (vph)	330	2406	204	2310	204	755	185	748
Starvation Cap Reductn	0	192	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.66	0.75	0.72	0.77	0.86	0.72	0.77

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
8: W 8 Ave & NW 103 St

2022 Existing  
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↗↗		↗	↗↗↗		↗	↗↗		↗	↗↗	
Traffic Volume (vph)	165	1240	151	145	1488	102	150	505	114	126	466	80
Future Volume (vph)	165	1240	151	145	1488	102	150	505	114	126	466	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.99		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5002		1787	5086		1787	3476		1770	3462	
Flt Permitted	0.95	1.00		0.95	1.00		0.16	1.00		0.11	1.00	
Satd. Flow (perm)	1770	5002		1787	5086		296	3476		208	3462	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	174	1305	159	153	1566	107	158	532	120	133	491	84
RTOR Reduction (vph)	0	8	0	0	4	0	0	11	0	0	8	0
Lane Group Flow (vph)	174	1456	0	153	1669	0	158	641	0	133	567	0
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases							4			8		
Actuated Green, G (s)	23.0	86.2		18.4	81.6		50.3	36.4		49.1	35.8	
Effective Green, g (s)	23.0	86.2		18.4	81.6		50.3	36.4		49.1	35.8	
Actuated g/C Ratio	0.13	0.48		0.10	0.45		0.28	0.20		0.27	0.20	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Vehicle Extension (s)	3.0	1.0		2.0	1.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	226	2395		182	2305		197	702		172	688	
v/s Ratio Prot	c0.10	c0.29		0.09	c0.33		c0.06	c0.18		0.06	0.16	
v/s Ratio Perm							0.16			0.15		
v/c Ratio	0.77	0.61		0.84	0.72		0.80	0.91		0.77	0.82	
Uniform Delay, d1	75.9	34.5		79.4	40.0		53.1	70.2		53.8	69.1	
Progression Factor	0.89	1.38		1.18	0.59		1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.9	0.3		25.1	1.8		19.4	16.0		17.6	7.6	
Delay (s)	81.4	47.8		118.8	25.6		72.6	86.2		71.5	76.6	
Level of Service	F	D		F	C		E	F		E	E	
Approach Delay (s)		51.3			33.4			83.6			75.7	
Approach LOS		D			C			F			E	

Intersection Summary

HCM 2000 Control Delay	53.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	25.7
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
9: W 6 Ave & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↗↗		↖	↖↖↖		↖	↖	↖	↖	↖↗	↖↗
Traffic Volume (vph)	92	1229	54	79	1550	61	81	44	67	72	40	54
Future Volume (vph)	92	1229	54	79	1550	61	81	44	67	72	40	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	325		0	180		0	0		0	80		120
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	55			75			25			65		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.994			0.994				0.850		0.914	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	5105	0	1787	5105	0	1805	1900	1615	1805	3300	0
Flt Permitted	0.950			0.950			0.689			0.726		
Satd. Flow (perm)	1787	5105	0	1787	5105	0	1309	1900	1615	1379	3300	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			7				71		57	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		1271			617			323			342	
Travel Time (s)		21.7			10.5			7.3			7.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	98	1307	57	84	1649	65	86	47	71	77	43	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	1364	0	84	1714	0	86	47	71	77	100	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			16			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	1	6		5	2			4	5		8	

Lanes, Volumes, Timings  
9: W 6 Ave & NW 103 St

2022 Existing  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases							4		4	8		
Detector Phase	1	6		5	2		4	4	5	8	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.4	33.4		13.4	33.4		31.7	31.7	13.4	31.7	31.7	
Total Split (s)	19.0	126.0		19.0	126.0		35.0	35.0	19.0	35.0	35.0	
Total Split (%)	10.6%	70.0%		10.6%	70.0%		19.4%	19.4%	10.6%	19.4%	19.4%	
Maximum Green (s)	12.6	119.6		12.6	119.6		28.3	28.3	12.6	28.3	28.3	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0	4.4	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7	2.0	2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.7	6.7	6.4	6.7	6.7	
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5	2.0	2.5	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		20.0			20.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		0			1		0	0		1	1	
Act Effct Green (s)	14.1	131.0		12.6	129.5		16.9	16.9	36.2	16.9	16.9	
Actuated g/C Ratio	0.08	0.73		0.07	0.72		0.09	0.09	0.20	0.09	0.09	
v/c Ratio	0.71	0.37		0.67	0.47		0.70	0.26	0.19	0.60	0.28	
Control Delay	114.3	3.4		126.5	4.3		106.5	77.2	10.9	95.7	34.8	
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0	0.0	0.0	0.0	
Total Delay	114.3	3.4		126.5	4.4		106.5	77.2	10.9	95.7	34.8	
LOS	F	A		F	A		F	E	B	F	C	
Approach Delay		10.8			10.1			66.5			61.3	
Approach LOS		B			B			E			E	

Intersection Summary

Area Type: Other  
 Cycle Length: 180  
 Actuated Cycle Length: 180  
 Offset: 120 (67%), Referenced to phase 2:WBT and 6:EBT, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 16.0 Intersection LOS: B  
 Intersection Capacity Utilization 64.5% ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 9: W 6 Ave & NW 103 St



Queues  
9: W 6 Ave & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	98	1364	84	1714	86	47	71	77	100
v/c Ratio	0.71	0.37	0.67	0.47	0.70	0.26	0.19	0.60	0.28
Control Delay	114.3	3.4	126.5	4.3	106.5	77.2	10.9	95.7	34.8
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	114.3	3.4	126.5	4.4	106.5	77.2	10.9	95.7	34.8
Queue Length 50th (ft)	118	68	105	72	101	53	0	89	25
Queue Length 95th (ft)	m185	85	m164	90	161	94	44	146	56
Internal Link Dist (ft)		1191		537		243			262
Turn Bay Length (ft)	325		180					80	
Base Capacity (vph)	146	3717	138	3675	205	298	392	216	566
Starvation Cap Reductn	0	0	0	457	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.37	0.61	0.53	0.42	0.16	0.18	0.36	0.18

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



HCM Signalized Intersection Capacity Analysis  
 9: W 6 Ave & NW 103 St

2022 Existing  
 PM Peak Hour






















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖		↖	↑	↗	↖	↖↖	
Traffic Volume (vph)	92	1229	54	79	1550	61	81	44	67	72	40	54
Future Volume (vph)	92	1229	54	79	1550	61	81	44	67	72	40	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.7	6.7	6.4	6.7	6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	5103		1787	5106		1805	1900	1615	1805	3301	
Flt Permitted	0.95	1.00		0.95	1.00		0.69	1.00	1.00	0.73	1.00	
Satd. Flow (perm)	1787	5103		1787	5106		1309	1900	1615	1380	3301	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	98	1307	57	84	1649	65	86	47	71	77	43	57
RTOR Reduction (vph)	0	2	0	0	2	0	0	0	59	0	52	0
Lane Group Flow (vph)	98	1362	0	84	1712	0	86	47	12	77	48	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	1	6		5	2			4	5		8	
Permitted Phases							4		4	8		
Actuated Green, G (s)	14.1	131.0		12.6	129.5		16.9	16.9	29.5	16.9	16.9	
Effective Green, g (s)	14.1	131.0		12.6	129.5		16.9	16.9	29.5	16.9	16.9	
Actuated g/C Ratio	0.08	0.73		0.07	0.72		0.09	0.09	0.16	0.09	0.09	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.7	6.7	6.4	6.7	6.7	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5	2.0	2.5	2.5	
Lane Grp Cap (vph)	139	3713		125	3673		122	178	264	129	309	
v/s Ratio Prot	c0.05	0.27		0.05	c0.34			0.02	0.00		0.01	
v/s Ratio Perm							c0.07		0.00	0.06		
v/c Ratio	0.71	0.37		0.67	0.47		0.70	0.26	0.04	0.60	0.16	
Uniform Delay, d1	80.9	9.1		81.7	10.7		79.1	75.8	63.4	78.3	75.0	
Progression Factor	1.16	0.32		1.28	0.35		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.7	0.2		9.5	0.4		15.8	0.6	0.0	6.1	0.2	
Delay (s)	103.8	3.2		113.7	4.1		94.9	76.4	63.4	84.4	75.2	
Level of Service	F	A		F	A		F	E	E	F	E	
Approach Delay (s)		9.9			9.2			79.7			79.2	
Approach LOS		A			A			E			E	

Intersection Summary		
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.51	B
Actuated Cycle Length (s)	180.0	Sum of lost time (s)
Intersection Capacity Utilization	64.5%	19.5
Analysis Period (min)	15	ICU Level of Service
		C
c Critical Lane Group		

Lanes, Volumes, Timings  
10: W 500 Blk & NW 103 St

2022 Existing  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	1213	45	204	1429	52	113	37	132	162	42	103
Future Volume (vph)	141	1213	45	204	1429	52	113	37	132	162	42	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		0	270		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			65			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.995			0.995			0.930			0.950	
Flt Protected	0.950			0.950				0.980			0.974	
Satd. Flow (prot)	1787	5110	0	1787	5110	0	0	3290	0	0	3340	0
Flt Permitted	0.950			0.950				0.606			0.604	
Satd. Flow (perm)	1787	5110	0	1787	5110	0	0	2035	0	0	2071	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			4			115			45	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		617			744			255			222	
Travel Time (s)		10.5			12.7			5.8			5.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	145	1251	46	210	1473	54	116	38	136	167	43	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	145	1297	0	210	1527	0	0	290	0	0	316	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	

Lanes, Volumes, Timings  
10: W 500 Blk & NW 103 St

2022 Existing  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases							4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	11.5	38.5		11.4	38.5		11.2	36.7		11.3	36.7	
Total Split (s)	29.0	96.0		32.0	99.0		24.0	28.0		24.0	28.0	
Total Split (%)	16.1%	53.3%		17.8%	55.0%		13.3%	15.6%		13.3%	15.6%	
Maximum Green (s)	22.5	89.5		25.6	92.5		17.8	21.3		17.7	21.3	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.1	2.1		2.0	2.1		2.2	2.7		2.3	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		0.0
Total Lost Time (s)	6.5	6.5		6.4	6.5			6.7			6.7	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.5	1.0		3.5	1.0		2.0	2.5		2.0	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			23.0			23.0	
Pedestrian Calls (#/hr)		2			1			0			0	
Act Effct Green (s)	20.3	107.4		27.4	114.5			25.5			25.5	
Actuated g/C Ratio	0.11	0.60		0.15	0.64			0.14			0.14	
v/c Ratio	0.72	0.43		0.77	0.47			0.75			1.14dl	
Control Delay	98.8	14.5		118.4	5.2			56.1			103.7	
Queue Delay	0.0	0.1		0.0	0.2			0.0			0.0	
Total Delay	98.8	14.7		118.4	5.4			56.1			103.7	
LOS	F	B		F	A			E			F	
Approach Delay		23.1			19.0			56.1			103.7	
Approach LOS		C			B			E			F	

Intersection Summary

Area Type: Other  
 Cycle Length: 180  
 Actuated Cycle Length: 180  
 Offset: 128 (71%), Referenced to phase 2:WBT and 6:EBT, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.95  
 Intersection Signal Delay: 30.5      Intersection LOS: C  
 Intersection Capacity Utilization 76.3%      ICU Level of Service D  
 Analysis Period (min) 15  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 10: W 500 Blk & NW 103 St



Queues  
10: W 500 Blk & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	145	1297	210	1527	290	316
v/c Ratio	0.72	0.43	0.77	0.47	0.75	1.14dl
Control Delay	98.8	14.5	118.4	5.2	56.1	103.7
Queue Delay	0.0	0.1	0.0	0.2	0.0	0.0
Total Delay	98.8	14.7	118.4	5.4	56.1	103.7
Queue Length 50th (ft)	179	147	260	68	107	172
Queue Length 95th (ft)	262	200	m346	84	160	227
Internal Link Dist (ft)		537		664	175	142
Turn Bay Length (ft)	220		270			
Base Capacity (vph)	233	3051	287	3252	394	340
Starvation Cap Reductn	0	578	0	681	0	0
Spillback Cap Reductn	0	85	0	0	1	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.52	0.73	0.59	0.74	0.93

Intersection Summary

- m Volume for 95th percentile queue is metered by upstream signal.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.

HCM Signalized Intersection Capacity Analysis  
 10: W 500 Blk & NW 103 St

2022 Existing  
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↖↗		↖	↗↖↗			↖↗			↖↗	
Traffic Volume (vph)	141	1213	45	204	1429	52	113	37	132	162	42	103
Future Volume (vph)	141	1213	45	204	1429	52	113	37	132	162	42	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.4	6.5			6.7			6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91			0.95			0.95	
Frt	1.00	0.99		1.00	0.99			0.93			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.97	
Satd. Flow (prot)	1787	5108		1787	5108			3290			3340	
Flt Permitted	0.95	1.00		0.95	1.00			0.61			0.60	
Satd. Flow (perm)	1787	5108		1787	5108			2034			2072	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	145	1251	46	210	1473	54	116	38	136	167	43	106
RTOR Reduction (vph)	0	2	0	0	1	0	0	99	0	0	39	0
Lane Group Flow (vph)	145	1295	0	210	1526	0	0	191	0	0	277	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases							4			8		
Actuated Green, G (s)	20.3	107.5		27.4	114.5			25.5			25.5	
Effective Green, g (s)	20.3	107.5		27.4	114.5			25.5			25.5	
Actuated g/C Ratio	0.11	0.60		0.15	0.64			0.14			0.14	
Clearance Time (s)	6.5	6.5		6.4	6.5			6.7			6.7	
Vehicle Extension (s)	3.5	1.0		3.5	1.0			2.5			2.5	
Lane Grp Cap (vph)	201	3050		272	3249			288			293	
v/s Ratio Prot	0.08	0.25		c0.12	c0.30							
v/s Ratio Perm								0.09			c0.13	
v/c Ratio	0.72	0.42		0.77	0.47			0.66			1.14dl	
Uniform Delay, d1	77.1	19.6		73.3	17.0			73.2			76.6	
Progression Factor	1.04	0.68		1.43	0.27			1.00			1.00	
Incremental Delay, d2	11.8	0.4		10.1	0.4			5.1			38.1	
Delay (s)	92.2	13.7		114.8	4.9			78.3			114.7	
Level of Service	F	B		F	A			E			F	
Approach Delay (s)		21.6			18.2			78.3			114.7	
Approach LOS		C			B			E			F	

































Intersection Summary			
HCM 2000 Control Delay	32.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Lanes, Volumes, Timings  
11: Red Rd & NW 103 St

2022 Existing  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			  		 	  		  	  	
Traffic Volume (vph)	234	964	359	186	1179	124	332	1256	136	116	1009	225
Future Volume (vph)	234	964	359	186	1179	124	332	1256	136	116	1009	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	215		0	400		165	295		190	190		140
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	60			80			100			150		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	1770	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.108			0.131			0.950			0.950		
Satd. Flow (perm)	203	3574	1599	244	5085	1583	3433	5085	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			87			69			69			69
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		744			565			546			475	
Travel Time (s)		12.7			9.6			8.3			7.2	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	249	1026	382	198	1254	132	353	1336	145	123	1073	239
Shared Lane Traffic (%)												
Lane Group Flow (vph)	249	1026	382	198	1254	132	353	1336	145	123	1073	239
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1

Lanes, Volumes, Timings  
11: Red Rd & NW 103 St

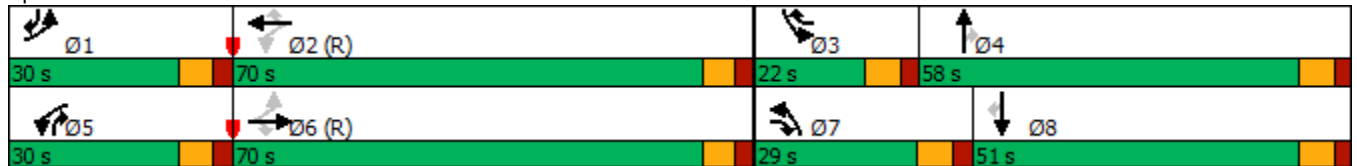
2022 Existing  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6		6	2		2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.1	37.1	14.3	14.1	37.1	14.3	14.3	37.3	14.1	14.3	37.3	14.1
Total Split (s)	30.0	70.0	29.0	30.0	70.0	22.0	29.0	58.0	30.0	22.0	51.0	30.0
Total Split (%)	16.7%	38.9%	16.1%	16.7%	38.9%	12.2%	16.1%	32.2%	16.7%	12.2%	28.3%	16.7%
Maximum Green (s)	22.9	62.9	21.7	22.9	62.9	14.7	21.7	50.7	22.9	14.7	43.7	22.9
Yellow Time (s)	4.4	4.4	4.8	4.4	4.4	4.8	4.8	4.8	4.4	4.8	4.8	4.4
All-Red Time (s)	2.7	2.7	2.5	2.7	2.7	2.5	2.5	2.5	2.7	2.5	2.5	2.7
Lost Time Adjust (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
Total Lost Time (s)	7.1	7.1	7.3	7.1	7.1	7.3	7.3	7.3	7.1	7.3	7.3	7.1
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.5	1.0	2.5	2.5	1.0	2.5	2.5	1.0	2.5	2.5	1.0	2.5
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		23.0			23.0			23.0			23.0	
Pedestrian Calls (#/hr)		0			0			1			0	
Act Effct Green (s)	92.6	71.3	99.4	85.9	68.0	86.4	21.0	50.6	75.8	11.3	40.9	69.5
Actuated g/C Ratio	0.51	0.40	0.55	0.48	0.38	0.48	0.12	0.28	0.42	0.06	0.23	0.39
v/c Ratio	0.86	0.72	0.41	0.74	0.65	0.17	0.88	0.93	0.21	0.57	0.93	0.37
Control Delay	77.9	60.6	16.2	44.9	49.2	13.7	101.1	75.2	16.4	92.1	81.9	28.3
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.9	60.8	16.2	44.9	49.2	13.7	101.1	75.2	16.4	92.1	81.9	28.3
LOS	E	E	B	D	D	B	F	E	B	F	F	C
Approach Delay		53.1			45.7			75.6			73.8	
Approach LOS		D			D			E			E	

Intersection Summary

Area Type: Other  
 Cycle Length: 180  
 Actuated Cycle Length: 180  
 Offset: 110 (61%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.93  
 Intersection Signal Delay: 62.2  
 Intersection LOS: E  
 Intersection Capacity Utilization 91.1%  
 ICU Level of Service F  
 Analysis Period (min) 15

Splits and Phases: 11: Red Rd & NW 103 St



Queues  
11: Red Rd & NW 103 St

2022 Existing  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	249	1026	382	198	1254	132	353	1336	145	123	1073	239
v/c Ratio	0.86	0.72	0.41	0.74	0.65	0.17	0.88	0.93	0.21	0.57	0.93	0.37
Control Delay	77.9	60.6	16.2	44.9	49.2	13.7	101.1	75.2	16.4	92.1	81.9	28.3
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.9	60.8	16.2	44.9	49.2	13.7	101.1	75.2	16.4	92.1	81.9	28.3
Queue Length 50th (ft)	235	621	117	123	470	42	214	560	53	74	456	136
Queue Length 95th (ft)	m#377	m702	m183	211	526	86	#296	#638	103	111	510	213
Internal Link Dist (ft)		664			485			466			395	
Turn Bay Length (ft)	215			400		165	295		190	190		140
Base Capacity (vph)	309	1416	928	317	1920	824	413	1458	748	280	1234	669
Starvation Cap Reductn	0	58	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.76	0.41	0.62	0.65	0.16	0.85	0.92	0.19	0.44	0.87	0.36

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.















HCM Signalized Intersection Capacity Analysis  
 11: Red Rd & NW 103 St

2022 Existing  
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	234	964	359	186	1179	124	332	1256	136	116	1009	225		
Future Volume (vph)	234	964	359	186	1179	124	332	1256	136	116	1009	225		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)	7.1	7.1	7.3	7.1	7.1	7.3	7.3	7.3	7.1	7.3	7.3	7.1		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		
Satd. Flow (prot)	1787	3574	1599	1770	5085	1583	3433	5085	1583	3433	5085	1583		
Flt Permitted	0.11	1.00	1.00	0.13	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		
Satd. Flow (perm)	204	3574	1599	244	5085	1583	3433	5085	1583	3433	5085	1583		
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94		
Adj. Flow (vph)	249	1026	382	198	1254	132	353	1336	145	123	1073	239		
RTOR Reduction (vph)	0	0	42	0	0	39	0	0	43	0	0	45		
Lane Group Flow (vph)	249	1026	340	198	1254	93	353	1336	102	123	1073	194		
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%		
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov		
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1		
Permitted Phases	6		6	2		2			4			8		
Actuated Green, G (s)	92.7	71.4	92.4	85.9	68.0	79.3	21.0	50.6	68.5	11.3	40.9	62.2		
Effective Green, g (s)	92.7	71.4	92.4	85.9	68.0	79.3	21.0	50.6	68.5	11.3	40.9	62.2		
Actuated g/C Ratio	0.52	0.40	0.51	0.48	0.38	0.44	0.12	0.28	0.38	0.06	0.23	0.35		
Clearance Time (s)	7.1	7.1	7.3	7.1	7.1	7.3	7.3	7.3	7.1	7.3	7.3	7.1		
Vehicle Extension (s)	2.5	1.0	2.5	2.5	1.0	2.5	2.5	1.0	2.5	2.5	1.0	2.5		
Lane Grp Cap (vph)	292	1417	820	268	1921	697	400	1429	602	215	1155	547		
v/s Ratio Prot	c0.10	0.29	0.05	0.07	0.25	0.01	c0.10	c0.26	0.02	0.04	0.21	0.04		
v/s Ratio Perm	c0.34		0.16	0.28		0.05			0.05			0.08		
v/c Ratio	0.85	0.72	0.41	0.74	0.65	0.13	0.88	0.93	0.17	0.57	0.93	0.35		
Uniform Delay, d1	40.2	46.0	27.1	33.5	46.3	29.9	78.3	63.1	36.9	82.0	68.1	43.9		
Progression Factor	1.47	1.20	0.79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	18.7	2.9	0.2	9.6	1.7	0.1	19.8	11.4	0.1	3.0	12.5	0.3		
Delay (s)	78.0	58.3	21.7	43.1	48.0	30.0	98.1	74.5	37.0	85.0	80.7	44.2		
Level of Service	E	E	C	D	D	C	F	E	D	F	F	D		
Approach Delay (s)		52.8			45.9			76.1			75.0			
Approach LOS		D			D			E			E			
<b>Intersection Summary</b>														
HCM 2000 Control Delay			62.6									HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio			0.93											
Actuated Cycle Length (s)			180.0								28.8			
Intersection Capacity Utilization			91.1%										ICU Level of Service	F
Analysis Period (min)			15											
c Critical Lane Group														

Lanes, Volumes, Timings  
1: W 18 Ct/SR 826 & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑	↵	↵	↵	↵			
Traffic Volume (vph)	0	1390	354	114	1287	627	537	36	141	0	0	0
Future Volume (vph)	0	1390	354	114	1287	627	537	36	141	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		300	310		0	0		0
Storage Lanes	0		0	1		1	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.970				0.850			0.850			
Flt Protected				0.950			0.950	0.958				
Satd. Flow (prot)	0	4933	0	1770	5085	1583	1681	1695	1583	0	0	0
Flt Permitted				0.057			0.950	0.958				
Satd. Flow (perm)	0	4933	0	106	5085	1583	1681	1695	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		51				389			71			
Link Speed (mph)		40			40			30				30
Link Distance (ft)		300			843			492				239
Travel Time (s)		5.1			14.4			11.2				5.4
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.25
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Adj. Flow (vph)	0	1433	365	118	1327	646	554	37	145	0	0	0
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	0	1798	0	118	1327	646	294	297	145	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			20			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2	1	1	2	1			
Detector Template		Thru		Left	Thru	Right	Left	Thru	Right			
Leading Detector (ft)		100		20	100	20	20	100	20			
Trailing Detector (ft)		0		0	0	0	0	0	0			
Detector 1 Position(ft)		0		0	0	0	0	0	0			
Detector 1 Size(ft)		6		20	6	20	20	6	20			
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0			
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type		NA		pm+pt	NA	Free	Split	NA	pm+ov			
Protected Phases		6		5	2		4	4	5			

Lane Group	Ø10	Ø11
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(ft)		
Detector 2 Size(ft)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	10	11

Lanes, Volumes, Timings  
1: W 18 Ct/SR 826 & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour

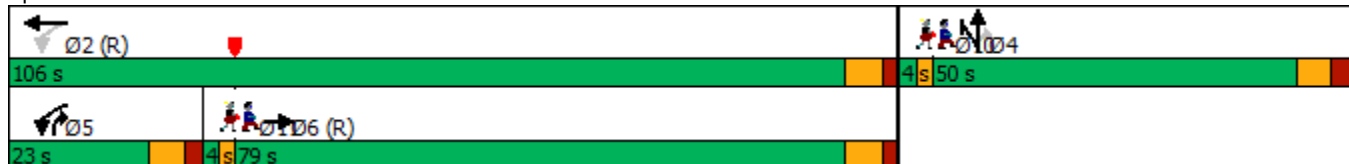


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases				2		Free			4			
Detector Phase		6		5	2		4	4	5			
Switch Phase												
Minimum Initial (s)		7.0		7.0	7.0		7.0	7.0	7.0			
Minimum Split (s)		33.4		13.4	33.4		35.6	35.6	13.4			
Total Split (s)		79.0		23.0	106.0		50.0	50.0	23.0			
Total Split (%)		49.4%		14.4%	66.3%		31.3%	31.3%	14.4%			
Maximum Green (s)		72.6		16.6	99.6		43.4	43.4	16.6			
Yellow Time (s)		4.4		4.4	4.4		4.0	4.0	4.4			
All-Red Time (s)		2.0		2.0	2.0		2.6	2.6	2.0			
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0			
Total Lost Time (s)		6.4		6.4	6.4		6.6	6.6	6.4			
Lead/Lag				Lead					Lead			
Lead-Lag Optimize?				Yes					Yes			
Vehicle Extension (s)		1.0		2.5	1.0		3.0	3.0	2.5			
Recall Mode		C-Max		None	C-Max		None	None	None			
Walk Time (s)		7.0			7.0		7.0	7.0				
Flash Dont Walk (s)		20.0			20.0		22.0	22.0				
Pedestrian Calls (#/hr)		0			2		1	1				
Act Effct Green (s)		84.8		108.9	108.9	160.0	34.1	34.1	51.6			
Actuated g/C Ratio		0.53		0.68	0.68	1.00	0.21	0.21	0.32			
v/c Ratio		0.68		0.63	0.38	0.41	0.82	0.82	0.26			
Control Delay		29.9		35.4	27.6	1.3	78.1	78.1	18.8			
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay		29.9		35.4	27.6	1.3	78.1	78.1	18.8			
LOS		C		D	C	A	E	E	B			
Approach Delay		29.9			19.9			66.4				
Approach LOS		C			B			E				

Intersection Summary

Area Type:	Other
Cycle Length:	160
Actuated Cycle Length:	160
Offset:	95 (59%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle:	95
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.82
Intersection Signal Delay:	31.2
Intersection LOS:	C
Intersection Capacity Utilization:	73.1%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 1: W 18 Ct/SR 826 & NW 103 St



Lane Group	Ø10	Ø11
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	4.0	4.0
Total Split (s)	4.0	4.0
Total Split (%)	3%	3%
Maximum Green (s)	2.0	2.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		Lag
Lead-Lag Optimize?		Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	Ped	Ped
Walk Time (s)	2.0	2.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	0	0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		















Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1798	118	1327	646	294	297	145
v/c Ratio	0.68	0.63	0.38	0.41	0.82	0.82	0.26
Control Delay	29.9	35.4	27.6	1.3	78.1	78.1	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	35.4	27.6	1.3	78.1	78.1	18.8
Queue Length 50th (ft)	484	89	379	2	311	315	55
Queue Length 95th (ft)	630	m133	m519	m11	404	407	98
Internal Link Dist (ft)	220		763			412	
Turn Bay Length (ft)		350		300	310		
Base Capacity (vph)	2637	244	3461	1583	455	459	612
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.48	0.38	0.41	0.65	0.65	0.24

**Intersection Summary**

m Volume for 95th percentile queue is metered by upstream signal.

























HCM Signalized Intersection Capacity Analysis  
 1: W 18 Ct/SR 826 & NW 103 St

2022 Existing Opt LPI  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑	↑	↑	↑	↑			
Traffic Volume (vph)	0	1390	354	114	1287	627	537	36	141	0	0	0
Future Volume (vph)	0	1390	354	114	1287	627	537	36	141	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4		6.4	6.4	4.0	6.6	6.6	6.4			
Lane Util. Factor		0.91		1.00	0.91	1.00	0.95	0.95	1.00			
Frt		0.97		1.00	1.00	0.85	1.00	1.00	0.85			
Flt Protected		1.00		0.95	1.00	1.00	0.95	0.96	1.00			
Satd. Flow (prot)		4930		1770	5085	1583	1681	1695	1583			
Flt Permitted		1.00		0.06	1.00	1.00	0.95	0.96	1.00			
Satd. Flow (perm)		4930		107	5085	1583	1681	1695	1583			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.25
Adj. Flow (vph)	0	1433	365	118	1327	646	554	37	145	0	0	0
RTOR Reduction (vph)	0	24	0	0	0	0	0	0	51	0	0	0
Lane Group Flow (vph)	0	1774	0	118	1327	646	294	297	94	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Turn Type		NA		pm+pt	NA	Free	Split	NA	pm+ov			
Protected Phases		6		5	2		4	4	5			
Permitted Phases				2		Free			4			
Actuated Green, G (s)		84.7		108.9	108.9	160.0	34.1	34.1	45.1			
Effective Green, g (s)		84.7		108.9	108.9	160.0	34.1	34.1	45.1			
Actuated g/C Ratio		0.53		0.68	0.68	1.00	0.21	0.21	0.28			
Clearance Time (s)		6.4		6.4	6.4		6.6	6.6	6.4			
Vehicle Extension (s)		1.0		2.5	1.0		3.0	3.0	2.5			
Lane Grp Cap (vph)		2609		187	3460	1583	358	361	446			
v/s Ratio Prot		c0.36		0.04	0.26		0.17	c0.18	0.01			
v/s Ratio Perm				c0.39		c0.41			0.04			
v/c Ratio		0.68		0.63	0.38	0.41	0.82	0.82	0.21			
Uniform Delay, d1		27.7		28.7	11.0	0.0	60.0	60.1	43.9			
Progression Factor		1.00		1.07	2.33	1.00	1.00	1.00	1.00			
Incremental Delay, d2		1.5		4.1	0.2	0.5	14.0	14.0	0.2			
Delay (s)		29.1		34.8	26.0	0.5	74.0	74.1	44.0			
Level of Service		C		C	C	A	E	E	D			
Approach Delay (s)		29.1			18.6			68.1			0.0	
Approach LOS		C			B			E			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			30.6									C
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			160.0						23.4			
Intersection Capacity Utilization			73.1%									D
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
2: W 17 Ct & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (vph)	184	1215	112	38	1415	29	325	118	57	137	50	66
Future Volume (vph)	184	1215	112	38	1415	29	325	118	57	137	50	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	320		0	250		0	100		60	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	50			50			75			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.997				0.850		0.915	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5019	0	1770	5070	0	1787	1881	1599	1805	1738	0
Flt Permitted	0.063			0.950			0.261			0.676		
Satd. Flow (perm)	117	5019	0	1770	5070	0	491	1881	1599	1284	1738	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			2				108			36
Link Speed (mph)		40			40			30				30
Link Distance (ft)		843			924			414				161
Travel Time (s)		14.4			15.8			9.4				3.7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Adj. Flow (vph)	198	1306	120	41	1522	31	349	127	61	147	54	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	198	1426	0	41	1553	0	349	127	61	147	125	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			20				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1		2
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left		Thru
Leading Detector (ft)	20	100		20	100		20	100	20	20		100
Trailing Detector (ft)	0	0		0	0		0	0	0	0		0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0		0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20		6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	pm+pt	NA		Prot	NA		pm+pt	NA	pm+ov	pm+pt		NA
Protected Phases	1	6		5	2		7	4	5	3		8



Lane Group	Ø9	Ø10	Ø11	Ø12
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type				
Protected Phases	9	10	11	12

Lanes, Volumes, Timings  
2: W 17 Ct & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour

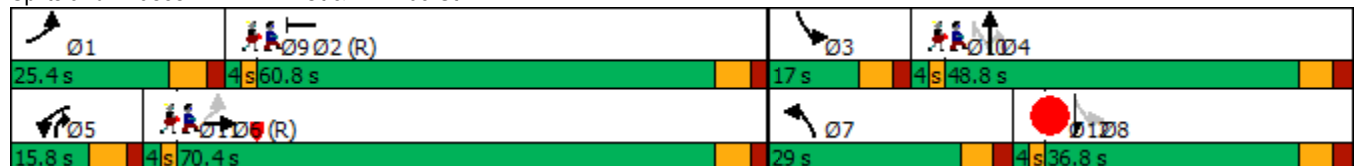


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Permitted Phases	6						4		4		8		
Detector Phase	1	6		5	2		7	4	5	3	8		
Switch Phase													
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0	5.0	5.0	7.0		
Minimum Split (s)	11.5	38.5		11.4	38.5		11.2	36.7	11.4	11.3	36.7		
Total Split (s)	25.4	70.4		15.8	60.8		29.0	48.8	15.8	17.0	36.8		
Total Split (%)	15.9%	44.0%		9.9%	38.0%		18.1%	30.5%	9.9%	10.6%	23.0%		
Maximum Green (s)	18.9	63.9		9.4	54.3		22.8	42.1	9.4	10.7	30.1		
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0	4.4	4.0	4.0		
All-Red Time (s)	2.1	2.1		2.0	2.1		2.2	2.7	2.0	2.3	2.7		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.5	6.5		6.4	6.5		6.2	6.7	6.4	6.3	6.7		
Lead/Lag	Lead			Lead			Lead		Lead		Lead		
Lead-Lag Optimize?	Yes			Yes			Yes		Yes		Yes		
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5	2.0	2.5	2.5		
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None		
Walk Time (s)	7.0			7.0			7.0		7.0		7.0		
Flash Dont Walk (s)	25.0			25.0			23.0		23.0		23.0		
Pedestrian Calls (#/hr)	4			7			1		0		0		
Act Effct Green (s)	96.8	78.5		8.2	68.2		46.8	25.3	40.1	24.2	13.3		
Actuated g/C Ratio	0.60	0.49		0.05	0.43		0.29	0.16	0.25	0.15	0.08		
v/c Ratio	0.76	0.58		0.46	0.72		1.06	0.43	0.13	0.64	0.71		
Control Delay	44.6	27.9		88.7	41.7		115.1	64.5	0.5	60.1	71.0		
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total Delay	44.6	27.9		88.7	41.7		115.1	64.5	0.5	60.1	71.0		
LOS	D	C		F	D		F	E	A	E	E		
Approach Delay	29.9			42.9			90.1		65.1				
Approach LOS	C			D			F		E				

Intersection Summary

Area Type: Other  
 Cycle Length: 160  
 Actuated Cycle Length: 160  
 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.06  
 Intersection Signal Delay: 45.5  
 Intersection LOS: D  
 Intersection Capacity Utilization 79.3%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 2: W 17 Ct & NW 103 St



Lane Group	Ø9	Ø10	Ø11	Ø12
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0	4.0
Total Split (s)	4.0	4.0	4.0	4.0
Total Split (%)	3%	3%	3%	3%
Maximum Green (s)	2.0	2.0	2.0	2.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Ped	Ped	Ped	Ped
Walk Time (s)	2.0	2.0	2.0	2.0
Flash Dont Walk (s)	0.0	0.0	0.0	0.0
Pedestrian Calls (#/hr)	0	0	0	0
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Intersection Summary				



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	198	1426	41	1553	349	127	61	147	125
v/c Ratio	0.76	0.58	0.46	0.72	1.06	0.43	0.13	0.64	0.71
Control Delay	44.6	27.9	88.7	41.7	115.1	64.5	0.5	60.1	71.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.6	27.9	88.7	41.7	115.1	64.5	0.5	60.1	71.0
Queue Length 50th (ft)	101	500	43	489	~351	122	0	119	92
Queue Length 95th (ft)	184	591	85	629	#486	184	1	174	161
Internal Link Dist (ft)		763		844		334			81
Turn Bay Length (ft)	320		250		100		60		
Base Capacity (vph)	286	2466	108	2160	328	494	497	230	356
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.58	0.38	0.72	1.06	0.26	0.12	0.64	0.35

**Intersection Summary**

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
2: W 17 Ct & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖		↖	↖	↖	↖	↖	↖
Traffic Volume (vph)	184	1215	112	38	1415	29	325	118	57	137	50	66
Future Volume (vph)	184	1215	112	38	1415	29	325	118	57	137	50	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.4	6.5		6.2	6.7	6.4	6.3	6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5021		1770	5070		1787	1881	1599	1805	1738	
Flt Permitted	0.06	1.00		0.95	1.00		0.26	1.00	1.00	0.68	1.00	
Satd. Flow (perm)	117	5021		1770	5070		490	1881	1599	1284	1738	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	198	1306	120	41	1522	31	349	127	61	147	54	71
RTOR Reduction (vph)	0	6	0	0	1	0	0	0	48	0	33	0
Lane Group Flow (vph)	198	1420	0	41	1552	0	349	127	13	147	92	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	pm+pt	NA		Prot	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	1	6		5	2		7	4	5	3	8	
Permitted Phases	6						4		4	8		
Actuated Green, G (s)	96.8	78.4		8.2	68.1		46.3	25.3	33.5	23.9	13.3	
Effective Green, g (s)	96.8	78.4		8.2	68.1		46.3	25.3	33.5	23.9	13.3	
Actuated g/C Ratio	0.60	0.49		0.05	0.43		0.29	0.16	0.21	0.15	0.08	
Clearance Time (s)	6.5	6.5		6.4	6.5		6.2	6.7	6.4	6.3	6.7	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5	2.0	2.5	2.5	
Lane Grp Cap (vph)	260	2460		90	2157		326	297	334	226	144	
v/s Ratio Prot	c0.09	0.28		0.02	0.31		c0.15	0.07	0.00	0.04	0.05	
v/s Ratio Perm	c0.37						c0.16		0.01	0.05		
v/c Ratio	0.76	0.58		0.46	0.72		1.07	0.43	0.04	0.65	0.64	
Uniform Delay, d1	43.3	29.0		73.7	38.0		51.7	60.8	50.4	63.1	71.0	
Progression Factor	0.80	0.91		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.9	0.8		1.3	2.1		69.8	0.7	0.0	5.9	7.9	
Delay (s)	43.4	27.2		75.1	40.1		121.6	61.5	50.4	68.9	78.9	
Level of Service	D	C		E	D		F	E	D	E	E	
Approach Delay (s)		29.1			41.0			99.3			73.5	
Approach LOS		C			D			F			E	

Intersection Summary		
HCM 2000 Control Delay	46.2	HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio	0.92	
Actuated Cycle Length (s)	160.0	Sum of lost time (s) 30.0
Intersection Capacity Utilization	79.3%	ICU Level of Service D
Analysis Period (min)	15	
c Critical Lane Group		

Lanes, Volumes, Timings  
3: W 16 Ave & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	1193	138	226	1283	116	186	606	93	154	525	132
Future Volume (vph)	224	1193	138	226	1283	116	186	606	93	154	525	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	270		0	370		0	250		0	185		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.984			0.988			0.980			0.970	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5004	0	1787	5074	0	1787	3503	0	1787	3467	0
Flt Permitted	0.065			0.065			0.092			0.101		
Satd. Flow (perm)	121	5004	0	122	5074	0	173	3503	0	190	3467	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			9			9			16	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		924			866			399			405	
Travel Time (s)		15.8			14.8			9.1			9.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	249	1326	153	251	1426	129	207	673	103	171	583	147
Shared Lane Traffic (%)												
Lane Group Flow (vph)	249	1479	0	251	1555	0	207	776	0	171	730	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	

Lane Group	Ø9	Ø10	Ø11	Ø12
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type				
Protected Phases	9	10	11	12

Lanes, Volumes, Timings  
3: W 16 Ave & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour

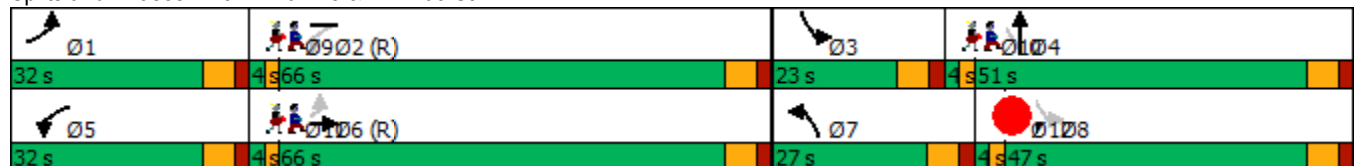


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	11.4	34.4		11.4	34.4		11.4	37.5		11.4	37.5	
Total Split (s)	32.0	66.0		32.0	66.0		27.0	51.0		23.0	47.0	
Total Split (%)	17.8%	36.7%		17.8%	36.7%		15.0%	28.3%		12.8%	26.1%	
Maximum Green (s)	25.6	59.6		25.6	59.6		20.6	44.5		16.6	40.5	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.1		2.0	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lead/Lag	Lead			Lead			Lead			Lead		
Lead-Lag Optimize?	Yes			Yes			Yes			Yes		
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.0	2.5		2.0	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		21.0			21.0			24.0			24.0	
Pedestrian Calls (#/hr)		14			7			2			0	
Act Effct Green (s)	85.4	62.0		85.1	61.8		62.5	43.3		55.3	39.7	
Actuated g/C Ratio	0.47	0.34		0.47	0.34		0.35	0.24		0.31	0.22	
v/c Ratio	0.92	0.85		0.92	0.89		0.90	0.91		0.88	0.94	
Control Delay	91.9	60.7		116.2	38.3		87.6	81.2		86.4	87.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	91.9	60.7		116.2	38.3		87.6	81.2		86.4	87.5	
LOS	F	E		F	D		F	F		F	F	
Approach Delay		65.2			49.1			82.6			87.3	
Approach LOS		E			D			F			F	

Intersection Summary

Area Type:	Other
Cycle Length:	180
Actuated Cycle Length:	180
Offset:	39 (22%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.94
Intersection Signal Delay:	66.7
Intersection LOS:	E
Intersection Capacity Utilization	90.2%
ICU Level of Service	E
Analysis Period (min)	15

Splits and Phases: 3: W 16 Ave & NW 103 St





Lane Group	Ø9	Ø10	Ø11	Ø12
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0	4.0
Total Split (s)	4.0	4.0	4.0	4.0
Total Split (%)	2%	2%	2%	2%
Maximum Green (s)	2.0	2.0	2.0	2.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Ped	Ped	Ped	Ped
Walk Time (s)	2.0	2.0	2.0	2.0
Flash Dont Walk (s)	0.0	0.0	0.0	0.0
Pedestrian Calls (#/hr)	0	0	0	0
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Intersection Summary				



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	249	1479	251	1555	207	776	171	730
v/c Ratio	0.92	0.85	0.92	0.89	0.90	0.91	0.88	0.94
Control Delay	91.9	60.7	116.2	38.3	87.6	81.2	86.4	87.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	91.9	60.7	116.2	38.3	87.6	81.2	86.4	87.5
Queue Length 50th (ft)	240	605	263	415	189	466	147	440
Queue Length 95th (ft)	#399	670	#410	425	#334	#570	#280	#558
Internal Link Dist (ft)		844		786		319		325
Turn Bay Length (ft)	270		370		250		185	
Base Capacity (vph)	293	1730	296	1748	246	872	206	792
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.85	0.85	0.89	0.84	0.89	0.83	0.92

**Intersection Summary**

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
 3: W 16 Ave & NW 103 St

2022 Existing Opt LPI  
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↖↗		↖	↗↖↗		↖	↗↖		↖	↗↖	
Traffic Volume (vph)	224	1193	138	226	1283	116	186	606	93	154	525	132
Future Volume (vph)	224	1193	138	226	1283	116	186	606	93	154	525	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.99		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5006		1787	5072		1787	3503		1787	3466	
Flt Permitted	0.06	1.00		0.06	1.00		0.09	1.00		0.10	1.00	
Satd. Flow (perm)	120	5006		122	5072		173	3503		190	3466	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	249	1326	153	251	1426	129	207	673	103	171	583	147
RTOR Reduction (vph)	0	8	0	0	6	0	0	7	0	0	12	0
Lane Group Flow (vph)	249	1471	0	251	1549	0	207	769	0	171	718	0
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	85.5	62.0		85.1	61.8		62.5	43.4		55.2	39.7	
Effective Green, g (s)	85.5	62.0		85.1	61.8		62.5	43.4		55.2	39.7	
Actuated g/C Ratio	0.48	0.34		0.47	0.34		0.35	0.24		0.31	0.22	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)	272	1724		273	1741		231	844		195	764	
v/s Ratio Prot	c0.12	0.29		0.12	0.31		c0.09	c0.22		0.08	0.21	
v/s Ratio Perm	0.31			c0.32			0.22			0.19		
v/c Ratio	0.92	0.85		0.92	0.89		0.90	0.91		0.88	0.94	
Uniform Delay, d1	58.5	54.8		58.2	55.9		53.0	66.4		51.0	69.0	
Progression Factor	1.00	1.00		1.50	0.56		1.00	1.00		1.00	1.00	
Incremental Delay, d2	32.4	5.6		30.1	6.5		32.0	13.9		31.9	19.0	
Delay (s)	90.9	60.4		117.7	37.9		85.0	80.3		83.0	88.0	
Level of Service	F	E		F	D		F	F		F	F	
Approach Delay (s)		64.8			49.0			81.3			87.1	
Approach LOS		E			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	66.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	29.7
Intersection Capacity Utilization	90.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
4: W 14 Ln & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	1363	49	103	1443	58	92	49	87	115	37	70
Future Volume (vph)	92	1363	49	103	1443	58	92	49	87	115	37	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	130		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.994				0.850		0.957	
Flt Protected	0.950			0.950				0.968			0.975	
Satd. Flow (prot)	1770	5060	0	1770	5055	0	0	1821	1599	0	1773	0
Flt Permitted	0.105			0.122				0.646			0.633	
Satd. Flow (perm)	196	5060	0	227	5055	0	0	1215	1599	0	1151	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			4				84			13
Link Speed (mph)		40			40			30				30
Link Distance (ft)		866			1763			190				273
Travel Time (s)		14.8			30.1			4.3				6.2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Adj. Flow (vph)	97	1435	52	108	1519	61	97	52	92	121	39	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	1487	0	108	1580	0	0	149	92	0	234	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1		2
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left		Thru
Leading Detector (ft)	20	100		20	100		20	100	20	20		100
Trailing Detector (ft)	0	0		0	0		0	0	0	0		0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0		0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20		6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases	1	6		5	2			4				8

Lane Group	Ø9	Ø10	Ø11	Ø12
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type				
Protected Phases	9	10	11	12

Lanes, Volumes, Timings  
4: W 14 Ln & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	11.4	33.4		11.4	33.4		35.7	35.7		35.7	35.7	
Total Split (s)	24.0	85.0		25.0	86.0		62.0	62.0		62.0	62.0	
Total Split (%)	13.3%	47.2%		13.9%	47.8%		34.4%	34.4%		34.4%	34.4%	
Maximum Green (s)	17.6	78.6		18.6	79.6		55.3	55.3		55.3	55.3	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4			6.7		6.7	6.7	
Lead/Lag	Lead			Lead								
Lead-Lag Optimize?	Yes			Yes								
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5		2.5	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		20.0			20.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		1			0		3	3		3	2	
Act Effct Green (s)	112.2	103.3		111.8	103.1			37.0		37.0	37.0	
Actuated g/C Ratio	0.62	0.57		0.62	0.57			0.21		0.21	0.21	
v/c Ratio	0.49	0.51		0.50	0.55			0.60		0.23	0.95	
Control Delay	29.5	6.2		25.1	7.5			73.4		12.8	111.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	29.5	6.2		25.1	7.5			73.4		12.8	111.5	
LOS	C	A		C	A			E		B	F	
Approach Delay		7.6			8.6			50.2			111.5	
Approach LOS		A			A			D			F	

Intersection Summary

Area Type: Other  
 Cycle Length: 180  
 Actuated Cycle Length: 180  
 Offset: 50 (28%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.95  
 Intersection Signal Delay: 17.3      Intersection LOS: B  
 Intersection Capacity Utilization 69.8%      ICU Level of Service C  
 Analysis Period (min) 15

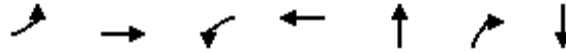
Splits and Phases: 4: W 14 Ln & NW 103 St



Lane Group	Ø9	Ø10	Ø11	Ø12
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0	4.0
Total Split (s)	4.0	4.0	4.0	4.0
Total Split (%)	2%	2%	2%	2%
Maximum Green (s)	2.0	2.0	2.0	2.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag		Lag	
Lead-Lag Optimize?	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Ped	Ped	Ped	Ped
Walk Time (s)	2.0	2.0	2.0	2.0
Flash Dont Walk (s)	0.0	0.0	0.0	0.0
Pedestrian Calls (#/hr)	0	0	0	0
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Intersection Summary				

Queues  
4: W 14 Ln & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	97	1487	108	1580	149	92	234
v/c Ratio	0.49	0.51	0.50	0.55	0.60	0.23	0.95
Control Delay	29.5	6.2	25.1	7.5	73.4	12.8	111.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	6.2	25.1	7.5	73.4	12.8	111.5
Queue Length 50th (ft)	24	80	0	62	162	8	263
Queue Length 95th (ft)	m40	93	m42	472	226	57	354
Internal Link Dist (ft)		786		1683	110		193
Turn Bay Length (ft)	100		130			50	
Base Capacity (vph)	285	2906	313	2897	373	549	362
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.51	0.35	0.55	0.40	0.17	0.65

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



HCM Signalized Intersection Capacity Analysis  
4: W 14 Ln & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑		↘	↑↑↑			↑	↗		↕	
Traffic Volume (vph)	92	1363	49	103	1443	58	92	49	87	115	37	70
Future Volume (vph)	92	1363	49	103	1443	58	92	49	87	115	37	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4			6.7	6.7		6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	0.99			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.97	
Satd. Flow (prot)	1770	5059		1770	5056			1822	1599		1773	
Flt Permitted	0.11	1.00		0.12	1.00			0.65	1.00		0.63	
Satd. Flow (perm)	196	5059		227	5056			1215	1599		1151	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	97	1435	52	108	1519	61	97	52	92	121	39	74
RTOR Reduction (vph)	0	2	0	0	2	0	0	0	67	0	10	0
Lane Group Flow (vph)	97	1485	0	108	1578	0	0	149	25	0	224	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	112.2	103.3		111.8	103.1			37.0	37.0		37.0	
Effective Green, g (s)	112.2	103.3		111.8	103.1			37.0	37.0		37.0	
Actuated g/C Ratio	0.62	0.57		0.62	0.57			0.21	0.21		0.21	
Clearance Time (s)	6.4	6.4		6.4	6.4			6.7	6.7		6.7	
Vehicle Extension (s)	2.0	1.0		2.0	1.0			2.5	2.5		2.5	
Lane Grp Cap (vph)	199	2903		215	2895			249	328		236	
v/s Ratio Prot	0.02	0.29		c0.02	c0.31							
v/s Ratio Perm	0.28			0.29				0.12	0.02		c0.19	
v/c Ratio	0.49	0.51		0.50	0.55			0.60	0.08		0.95	
Uniform Delay, d1	17.4	23.1		16.8	23.9			64.8	57.7		70.5	
Progression Factor	2.21	0.24		1.85	0.28			1.00	1.00		1.00	
Incremental Delay, d2	0.3	0.3		0.3	0.3			3.2	0.1		43.7	
Delay (s)	38.9	5.9		31.4	7.0			68.0	57.8		114.3	
Level of Service	D	A		C	A			E	E		F	
Approach Delay (s)		7.9			8.6			64.1			114.3	
Approach LOS		A			A			E			F	

Intersection Summary

HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
5: W 12 Ave & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	1179	228	183	1388	147	185	615	102	143	590	104
Future Volume (vph)	197	1179	228	183	1388	147	185	615	102	143	590	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	215		0	350		0	300		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			75			25			75		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.976			0.986			0.979			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4963	0	1770	5014	0	1770	3465	0	1787	3496	0
Flt Permitted	0.060			0.062			0.092			0.106		
Satd. Flow (perm)	112	4963	0	115	5014	0	171	3465	0	199	3496	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			11			10			10	
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		1763			1138			431			442	
Travel Time (s)		30.1			19.4			7.3			7.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	207	1241	240	193	1461	155	195	647	107	151	621	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	207	1481	0	193	1616	0	195	754	0	151	730	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	

Lane Group	Ø9	Ø10	Ø11	Ø12
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type				
Protected Phases	9	10	11	12

Lanes, Volumes, Timings  
5: W 12 Ave & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour

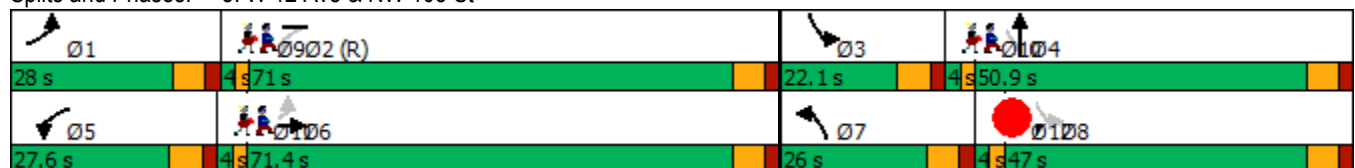


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	13.4	34.4		13.4	34.4		13.4	37.5		13.4	37.5	
Total Split (s)	28.0	71.4		27.6	71.0		26.0	50.9		22.1	47.0	
Total Split (%)	15.6%	39.7%		15.3%	39.4%		14.4%	28.3%		12.3%	26.1%	
Maximum Green (s)	21.6	65.0		21.2	64.6		19.6	44.4		15.7	40.5	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.1		2.0	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lead/Lag	Lead			Lead			Lead			Lead		
Lead-Lag Optimize?	Yes			Yes			Yes			Yes		
Vehicle Extension (s)	3.0	1.0		3.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		None	C-Max		None	None		None	None	
Walk Time (s)	7.0			7.0			7.0			7.0		
Flash Dont Walk (s)	21.0			21.0			24.0			24.0		
Pedestrian Calls (#/hr)	4			12			1			2		
Act Effct Green (s)	86.8	67.0		85.1	66.3		62.2	43.6		54.3	39.7	
Actuated g/C Ratio	0.48	0.37		0.47	0.37		0.35	0.24		0.30	0.22	
v/c Ratio	0.88	0.79		0.85	0.87		0.87	0.89		0.81	0.94	
Control Delay	76.1	81.3		113.6	29.2		83.7	78.5		74.5	87.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	76.1	81.3		113.6	29.2		83.7	78.5		74.5	87.5	
LOS	E	F		F	C		F	E		E	F	
Approach Delay	80.7			38.2			79.6			85.2		
Approach LOS	F			D			E			F		

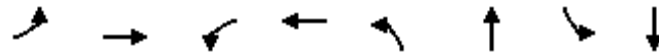
Intersection Summary

Area Type:	Other
Cycle Length:	180
Actuated Cycle Length:	180
Offset:	2 (1%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle:	130
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.94
Intersection Signal Delay:	66.8
Intersection LOS:	E
Intersection Capacity Utilization:	92.3%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 5: W 12 Ave & NW 103 St



Lane Group	Ø9	Ø10	Ø11	Ø12
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0	4.0
Total Split (s)	4.0	4.0	4.0	4.0
Total Split (%)	2%	2%	2%	2%
Maximum Green (s)	2.0	2.0	2.0	2.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Ped	Ped	Ped	Ped
Walk Time (s)	2.0	2.0	2.0	2.0
Flash Dont Walk (s)	0.0	0.0	0.0	0.0
Pedestrian Calls (#/hr)	0	0	0	0
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Intersection Summary				



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	207	1481	193	1616	195	754	151	730
v/c Ratio	0.88	0.79	0.85	0.87	0.87	0.89	0.81	0.94
Control Delay	76.1	81.3	113.6	29.2	83.7	78.5	74.5	87.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.1	81.3	113.6	29.2	83.7	78.5	74.5	87.5
Queue Length 50th (ft)	222	596	181	509	176	450	120	443
Queue Length 95th (ft)	#336	717	#300	417	#316	535	#230	#560
Internal Link Dist (ft)		1683		1058		351		362
Turn Bay Length (ft)	215		350		300		150	
Base Capacity (vph)	253	1863	250	1853	234	862	199	794
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.79	0.77	0.87	0.83	0.87	0.76	0.92

**Intersection Summary**

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
5: W 12 Ave & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	1179	228	183	1388	147	185	615	102	143	590	104
Future Volume (vph)	197	1179	228	183	1388	147	185	615	102	143	590	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.99		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4962		1770	5012		1770	3464		1787	3494	
Flt Permitted	0.06	1.00		0.06	1.00		0.09	1.00		0.11	1.00	
Satd. Flow (perm)	111	4962		115	5012		171	3464		199	3494	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	207	1241	240	193	1461	155	195	647	107	151	621	109
RTOR Reduction (vph)	0	16	0	0	7	0	0	8	0	0	8	0
Lane Group Flow (vph)	207	1465	0	193	1609	0	195	746	0	151	722	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	86.8	67.0		85.1	66.3		62.1	43.6		54.3	39.8	
Effective Green, g (s)	86.8	67.0		85.1	66.3		62.1	43.6		54.3	39.8	
Actuated g/C Ratio	0.48	0.37		0.47	0.37		0.35	0.24		0.30	0.22	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Vehicle Extension (s)	3.0	1.0		3.0	1.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	236	1846		227	1846		223	839		187	772	
v/s Ratio Prot	c0.10	0.30		0.09	0.32		c0.09	c0.22		0.06	0.21	
v/s Ratio Perm	c0.33			0.31			0.21			0.18		
v/c Ratio	0.88	0.79		0.85	0.87		0.87	0.89		0.81	0.94	
Uniform Delay, d1	56.6	50.3		53.8	52.9		51.8	65.9		50.8	68.8	
Progression Factor	0.85	1.56		1.66	0.44		1.00	1.00		1.00	1.00	
Incremental Delay, d2	26.0	3.2		23.8	5.7		29.3	11.4		21.9	18.4	
Delay (s)	74.1	81.6		113.3	29.0		81.1	77.2		72.7	87.2	
Level of Service	E	F		F	C		F	E		E	F	
Approach Delay (s)		80.7			38.0			78.0			84.7	
Approach LOS		F			D			E			F	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			66.4	HCM 2000 Level of Service				E				
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			180.0	Sum of lost time (s)				29.7				
Intersection Capacity Utilization			92.3%	ICU Level of Service				F				
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
6: W 10 Ave & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↖↗		↖	↗↖↗		↖	↗		↖	↗	
Traffic Volume (vph)	92	1187	44	46	1486	54	36	48	97	44	38	44
Future Volume (vph)	92	1187	44	46	1486	54	36	48	97	44	38	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180		0	200		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	55			55			25			65		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.995			0.900				0.920
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	5110	0	1787	5110	0	1787	1693	0	1805	1748	0
Flt Permitted	0.125			0.194			0.647			0.346		
Satd. Flow (perm)	235	5110	0	365	5110	0	1217	1693	0	657	1748	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			4			52			30	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		1138			765			375			318	
Travel Time (s)		19.4			13.0			8.5			7.2	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Adj. Flow (vph)	94	1211	45	47	1516	55	37	49	99	45	39	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	1256	0	47	1571	0	37	148	0	45	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	



Lane Group	Ø9	Ø10	Ø11	Ø12
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type				
Protected Phases	9	10	11	12

Lanes, Volumes, Timings  
6: W 10 Ave & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour

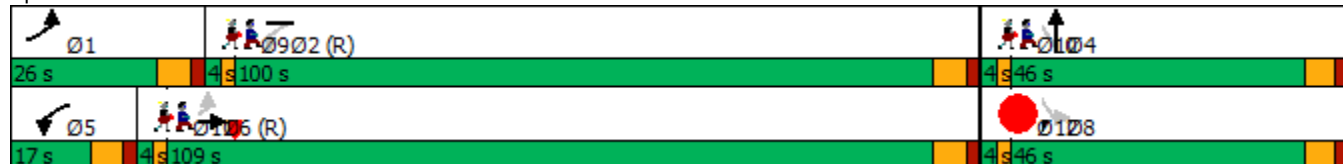


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	11.4	33.4		11.4	33.4		35.7	35.7		35.7	35.7	
Total Split (s)	26.0	109.0		17.0	100.0		46.0	46.0		46.0	46.0	
Total Split (%)	14.4%	60.6%		9.4%	55.6%		25.6%	25.6%		25.6%	25.6%	
Maximum Green (s)	19.6	102.6		10.6	93.6		39.3	39.3		39.3	39.3	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.7	6.7		6.7	6.7	
Lead/Lag	Lead			Lead								
Lead-Lag Optimize?	Yes			Yes								
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5		2.5	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		20.0			20.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		2			1		1	1		2	2	
Act Effct Green (s)	135.9	129.1		131.1	125.6		16.6	16.6		16.6	16.6	
Actuated g/C Ratio	0.76	0.72		0.73	0.70		0.09	0.09		0.09	0.09	
v/c Ratio	0.40	0.34		0.15	0.44		0.33	0.73		0.75	0.45	
Control Delay	13.8	4.0		1.9	2.3		81.0	70.1		136.7	54.6	
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0		0.0	0.0	
Total Delay	13.8	4.0		1.9	2.4		81.0	70.1		136.7	54.6	
LOS	B	A		A	A		F	E		F	D	
Approach Delay		4.6			2.3			72.3			83.3	
Approach LOS		A			A			E			F	

Intersection Summary

Area Type: Other  
 Cycle Length: 180  
 Actuated Cycle Length: 180  
 Offset: 3 (2%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.75  
 Intersection Signal Delay: 10.4  
 Intersection LOS: B  
 Intersection Capacity Utilization 69.5%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 6: W 10 Ave & NW 103 St



Lane Group	Ø9	Ø10	Ø11	Ø12
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0	4.0
Total Split (s)	4.0	4.0	4.0	4.0
Total Split (%)	2%	2%	2%	2%
Maximum Green (s)	2.0	2.0	2.0	2.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag		Lag	
Lead-Lag Optimize?	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Ped	Ped	Ped	Ped
Walk Time (s)	2.0	2.0	2.0	2.0
Flash Dont Walk (s)	0.0	0.0	0.0	0.0
Pedestrian Calls (#/hr)	0	0	0	0
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Intersection Summary				



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	94	1256	47	1571	37	148	45	84
v/c Ratio	0.40	0.34	0.15	0.44	0.33	0.73	0.75	0.45
Control Delay	13.8	4.0	1.9	2.3	81.0	70.1	136.7	54.6
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	13.8	4.0	1.9	2.4	81.0	70.1	136.7	54.6
Queue Length 50th (ft)	8	67	1	25	42	114	53	61
Queue Length 95th (ft)	m21	96	2	106	79	183	98	114
Internal Link Dist (ft)		1058		685		295		238
Turn Bay Length (ft)	180		200				100	
Base Capacity (vph)	359	3665	359	3565	265	410	143	405
Starvation Cap Reductn	0	0	0	536	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.34	0.13	0.52	0.14	0.36	0.31	0.21

**Intersection Summary**

m Volume for 95th percentile queue is metered by upstream signal.



















HCM Signalized Intersection Capacity Analysis  
6: W 10 Ave & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	1187	44	46	1486	54	36	48	97	44	38	44
Future Volume (vph)	92	1187	44	46	1486	54	36	48	97	44	38	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.90		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	5108		1787	5109		1787	1692		1805	1747	
Flt Permitted	0.13	1.00		0.19	1.00		0.65	1.00		0.35	1.00	
Satd. Flow (perm)	236	5108		366	5109		1218	1692		657	1747	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	94	1211	45	47	1516	55	37	49	99	45	39	45
RTOR Reduction (vph)	0	1	0	0	1	0	0	47	0	0	27	0
Lane Group Flow (vph)	94	1255	0	47	1570	0	37	101	0	45	57	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	134.6	127.8		130.2	125.6		16.6	16.6		16.6	16.6	
Effective Green, g (s)	134.6	127.8		130.2	125.6		16.6	16.6		16.6	16.6	
Actuated g/C Ratio	0.75	0.71		0.72	0.70		0.09	0.09		0.09	0.09	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	235	3626		301	3564		112	156		60	161	
v/s Ratio Prot	c0.02	0.25		0.00	c0.31			0.06			0.03	
v/s Ratio Perm	0.28			0.11			0.03			c0.07		
v/c Ratio	0.40	0.35		0.16	0.44		0.33	0.65		0.75	0.35	
Uniform Delay, d1	7.9	10.0		7.3	11.9		76.5	78.9		79.7	76.7	
Progression Factor	2.24	0.36		0.17	0.15		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.2		0.1	0.4		1.3	7.9		38.8	1.0	
Delay (s)	18.0	3.8		1.3	2.1		77.8	86.7		118.5	77.6	
Level of Service	B	A		A	A		E	F		F	E	
Approach Delay (s)		4.7			2.1			84.9			91.9	
Approach LOS		A			A			F			F	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			11.4	HCM 2000 Level of Service				B				
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			180.0	Sum of lost time (s)				23.5				
Intersection Capacity Utilization			69.5%	ICU Level of Service				C				
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
7: W 900 BIK & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1538	3	18	1566	0	6	0	15	0	0	0
Future Volume (vph)	1	1538	3	18	1566	0	6	0	15	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	135		0	0		0	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	60			60			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt									0.850			
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1787	5136	0	1787	5136	0	1805	0	1615	0	0	0
Flt Permitted	0.133			0.950			0.950					
Satd. Flow (perm)	250	5136	0	1787	5136	0	1805	0	1615	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									60			
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		765			736			197			199	
Travel Time (s)		13.0			12.5			4.5			4.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	1	1636	3	19	1666	0	6	0	16	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	1639	0	19	1666	0	6	0	16	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1		1			
Detector Template	Left	Thru		Left	Thru		Left		Right			
Leading Detector (ft)	20	100		20	100		20		20			
Trailing Detector (ft)	0	0		0	0		0		0			
Detector 1 Position(ft)	0	0		0	0		0		0			
Detector 1 Size(ft)	20	6		20	6		20		20			
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0		0.0			
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0		0.0			
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0		0.0			
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	pm+pt	NA		Prot	NA		Prot		Perm			
Protected Phases	1	6		5	2		4					

Lanes, Volumes, Timings  
7: W 900 Blk & NW 103 St

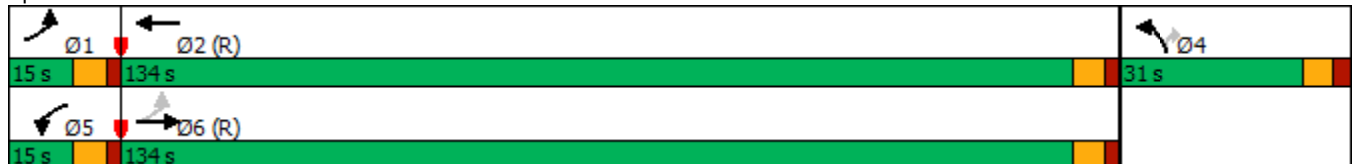
2022 Existing Opt LPI  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Permitted Phases	6						4						
Detector Phase	1	6		5	2		4		4				
Switch Phase													
Minimum Initial (s)	5.0	16.0		7.0	16.0		7.0		7.0				
Minimum Split (s)	11.4	22.5		13.4	22.5		36.7		36.7				
Total Split (s)	15.0	134.0		15.0	134.0		31.0		31.0				
Total Split (%)	8.3%	74.4%		8.3%	74.4%		17.2%		17.2%				
Maximum Green (s)	8.6	127.5		8.6	127.5		24.3		24.3				
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0		4.0				
All-Red Time (s)	2.0	2.1		2.0	2.1		2.7		2.7				
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0		0.0				
Total Lost Time (s)	6.4	6.5		6.4	6.5		6.7		6.7				
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5		2.5				
Recall Mode	None	C-Max		None	C-Max		None		None				
Walk Time (s)							7.0						
Flash Dont Walk (s)							23.0						
Pedestrian Calls (#/hr)							0						
Act Effct Green (s)	159.9	159.4		7.4	165.6		7.0		7.0				
Actuated g/C Ratio	0.89	0.89		0.04	0.92		0.04		0.04				
v/c Ratio	0.00	0.36		0.26	0.35		0.09		0.13				
Control Delay	1.0	1.8		111.7	0.4		86.2		2.3				
Queue Delay	0.0	0.0		0.0	0.1		0.0		0.0				
Total Delay	1.0	1.8		111.7	0.5		86.2		2.3				
LOS	A	A		F	A		F		A				
Approach Delay	1.8				1.8		25.1						
Approach LOS	A				A		C						

Intersection Summary

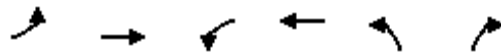
Area Type: Other  
 Cycle Length: 180  
 Actuated Cycle Length: 180  
 Offset: 146 (81%), Referenced to phase 2:WBT and 6:EBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.36  
 Intersection Signal Delay: 2.0      Intersection LOS: A  
 Intersection Capacity Utilization 46.6%      ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 7: W 900 Blk & NW 103 St



Queues  
7: W 900 Bk & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1	1639	19	1666	6	16
v/c Ratio	0.00	0.36	0.26	0.35	0.09	0.13
Control Delay	1.0	1.8	111.7	0.4	86.2	2.3
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	1.0	1.8	111.7	0.5	86.2	2.3
Queue Length 50th (ft)	0	75	24	11	7	0
Queue Length 95th (ft)	m0	83	m28	19	26	0
Internal Link Dist (ft)		685		656		
Turn Bay Length (ft)	100		135			
Base Capacity (vph)	298	4548	85	4725	243	269
Starvation Cap Reductn	0	634	0	1589	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.42	0.22	0.53	0.02	0.06

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.























HCM Signalized Intersection Capacity Analysis  
7: W 900 Bk & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1538	3	18	1566	0	6	0	15	0	0	0
Future Volume (vph)	1	1538	3	18	1566	0	6	0	15	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.5		6.4	6.5		6.7		6.7			
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00		1.00			
Frt	1.00	1.00		1.00	1.00		1.00		0.85			
Flt Protected	0.95	1.00		0.95	1.00		0.95		1.00			
Satd. Flow (prot)	1787	5134		1787	5136		1805		1615			
Flt Permitted	0.13	1.00		0.95	1.00		0.95		1.00			
Satd. Flow (perm)	251	5134		1787	5136		1805		1615			
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1	1636	3	19	1666	0	6	0	16	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	16	0	0	0
Lane Group Flow (vph)	1	1639	0	19	1666	0	6	0	0	0	0	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Prot	NA		Prot		Perm			
Protected Phases	1	6		5	2		4					
Permitted Phases	6								4			
Actuated Green, G (s)	152.6	151.6		4.6	155.2		4.2		4.2			
Effective Green, g (s)	152.6	151.6		4.6	155.2		4.2		4.2			
Actuated g/C Ratio	0.85	0.84		0.03	0.86		0.02		0.02			
Clearance Time (s)	6.4	6.5		6.4	6.5		6.7		6.7			
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5		2.5			
Lane Grp Cap (vph)	221	4323		45	4428		42		37			
v/s Ratio Prot	0.00	0.32		c0.01	c0.32		c0.00					
v/s Ratio Perm	0.00								0.00			
v/c Ratio	0.00	0.38		0.42	0.38		0.14		0.01			
Uniform Delay, d1	2.1	3.3		86.4	2.5		86.1		85.9			
Progression Factor	0.81	0.50		1.28	0.15		1.00		1.00			
Incremental Delay, d2	0.0	0.2		1.3	0.1		1.1		0.1			
Delay (s)	1.7	1.9		111.6	0.5		87.3		85.9			
Level of Service	A	A		F	A		F		F			
Approach Delay (s)		1.9			1.8		86.3				0.0	
Approach LOS		A			A		F				A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			2.4				HCM 2000 Level of Service		A			
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			180.0				Sum of lost time (s)		19.6			
Intersection Capacity Utilization			46.6%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
8: W 8 Ave & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	1240	151	145	1488	102	150	505	114	126	466	80
Future Volume (vph)	165	1240	151	145	1488	102	150	505	114	126	466	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	135		0	220		0	175		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	55			55			25			110		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.984			0.990			0.972			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5004	0	1787	5084	0	1787	3474	0	1770	3461	0
Flt Permitted	0.950			0.950			0.142			0.115		
Satd. Flow (perm)	1770	5004	0	1787	5084	0	267	3474	0	214	3461	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			7			14			10	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		736			1271			390			314	
Travel Time (s)		12.5			21.7			8.9			7.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Adj. Flow (vph)	174	1305	159	153	1566	107	158	532	120	133	491	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	174	1464	0	153	1673	0	158	652	0	133	575	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	

Lane Group	Ø9	Ø10	Ø11	Ø12
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type				
Protected Phases	9	10	11	12

Lanes, Volumes, Timings  
8: W 8 Ave & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases							4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	13.4	34.4		13.4	34.4		11.4	37.5		11.4	37.5	
Total Split (s)	31.0	76.0		29.0	74.0		23.0	46.0		21.0	44.0	
Total Split (%)	17.2%	42.2%		16.1%	41.1%		12.8%	25.6%		11.7%	24.4%	
Maximum Green (s)	24.6	69.6		22.6	67.6		16.6	39.5		14.6	37.5	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.1		2.0	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lead/Lag	Lead			Lead			Lead			Lead		
Lead-Lag Optimize?	Yes			Yes			Yes			Yes		
Vehicle Extension (s)	3.0	1.0		2.0	1.0		2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		21.0			21.0			24.0			24.0	
Pedestrian Calls (#/hr)		0			1			1			0	
Act Effct Green (s)	21.6	74.4		18.9	71.9		51.5	36.7		47.9	34.8	
Actuated g/C Ratio	0.12	0.41		0.10	0.40		0.29	0.20		0.27	0.19	
v/c Ratio	0.82	0.71		0.82	0.82		0.79	0.91		0.79	0.85	
Control Delay	94.5	57.3		138.5	29.3		70.0	85.4		75.0	81.3	
Queue Delay	0.0	0.2		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	94.5	57.5		138.5	29.3		70.0	85.4		75.0	81.3	
LOS	F	E		F	C		E	F		E	F	
Approach Delay		61.4			38.5			82.4			80.1	
Approach LOS		E			D			F			F	

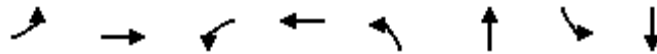
Intersection Summary

Area Type:	Other
Cycle Length:	180
Actuated Cycle Length:	180
Offset:	136 (76%), Referenced to phase 2:WBT, Start of Green
Natural Cycle:	125
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.91
Intersection Signal Delay:	59.1
Intersection LOS:	E
Intersection Capacity Utilization:	86.2%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 8: W 8 Ave & NW 103 St



Lane Group	Ø9	Ø10	Ø11	Ø12
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0	4.0
Total Split (s)	4.0	4.0	4.0	4.0
Total Split (%)	2%	2%	2%	2%
Maximum Green (s)	2.0	2.0	2.0	2.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Ped	Ped	Ped	Ped
Walk Time (s)	2.0	2.0	2.0	2.0
Flash Dont Walk (s)	0.0	0.0	0.0	0.0
Pedestrian Calls (#/hr)	0	0	0	0
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Intersection Summary				





























Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	174	1464	153	1673	158	652	133	575
v/c Ratio	0.82	0.71	0.82	0.82	0.79	0.91	0.79	0.85
Control Delay	94.5	57.3	138.5	29.3	70.0	85.4	75.0	81.3
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.5	57.5	138.5	29.3	70.0	85.4	75.0	81.3
Queue Length 50th (ft)	218	570	190	426	133	388	110	340
Queue Length 95th (ft)	#307	612	275	534	#199	465	#193	412
Internal Link Dist (ft)		656		1191		310		234
Turn Bay Length (ft)	135		220		175		150	
Base Capacity (vph)	241	2075	224	2033	219	773	185	728
Starvation Cap Reductn	0	106	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.74	0.68	0.82	0.72	0.84	0.72	0.79

**Intersection Summary**

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
8: W 8 Ave & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (vph)	165	1240	151	145	1488	102	150	505	114	126	466	80
Future Volume (vph)	165	1240	151	145	1488	102	150	505	114	126	466	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.99		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5002		1787	5086		1787	3476		1770	3462	
Flt Permitted	0.95	1.00		0.95	1.00		0.14	1.00		0.11	1.00	
Satd. Flow (perm)	1770	5002		1787	5086		267	3476		214	3462	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	174	1305	159	153	1566	107	158	532	120	133	491	84
RTOR Reduction (vph)	0	8	0	0	4	0	0	11	0	0	8	0
Lane Group Flow (vph)	174	1456	0	153	1669	0	158	641	0	133	567	0
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases							4			8		
Actuated Green, G (s)	21.6	74.3		18.9	71.8		51.4	36.7		47.8	34.8	
Effective Green, g (s)	21.6	74.3		18.9	71.8		51.4	36.7		47.8	34.8	
Actuated g/C Ratio	0.12	0.41		0.10	0.40		0.29	0.20		0.27	0.19	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.4	6.5		6.4	6.5	
Vehicle Extension (s)	3.0	1.0		2.0	1.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	212	2064		187	2028		200	708		169	669	
v/s Ratio Prot	c0.10	0.29		0.09	c0.33		c0.06	c0.18		0.06	0.16	
v/s Ratio Perm							0.16			0.15		
v/c Ratio	0.82	0.71		0.82	0.82		0.79	0.91		0.79	0.85	
Uniform Delay, d1	77.3	43.8		78.9	48.4		52.5	70.0		54.6	70.0	
Progression Factor	0.87	1.25		1.40	0.52		1.00	1.00		1.00	1.00	
Incremental Delay, d2	20.9	0.9		20.3	3.5		17.7	14.8		19.6	9.4	
Delay (s)	87.8	55.5		130.7	28.9		70.2	84.7		74.2	79.4	
Level of Service	F	E		F	C		E	F		E	E	
Approach Delay (s)		58.9			37.4			81.9			78.4	
Approach LOS		E			D			F			E	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			57.5				HCM 2000 Level of Service				E	
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			180.0				Sum of lost time (s)			29.7		
Intersection Capacity Utilization			86.2%				ICU Level of Service			E		
Analysis Period (min)			15									
c	Critical Lane Group											

Lanes, Volumes, Timings  
9: W 6 Ave & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	1229	54	79	1550	61	81	44	67	72	40	54
Future Volume (vph)	92	1229	54	79	1550	61	81	44	67	72	40	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	325		0	180		0	0		0	80		120
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	55			75			25			65		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.994			0.994				0.850		0.914	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	5105	0	1787	5105	0	1805	1900	1615	1805	3300	0
Flt Permitted	0.950			0.950			0.689			0.726		
Satd. Flow (perm)	1787	5105	0	1787	5105	0	1309	1900	1615	1379	3300	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			5				65		57	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		1271			617			323			342	
Travel Time (s)		21.7			10.5			7.3			7.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	98	1307	57	84	1649	65	86	47	71	77	43	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	1364	0	84	1714	0	86	47	71	77	100	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			16			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	1	6		5	2			4	5		8	



Lane Group	Ø9	Ø10	Ø11	Ø12
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type				
Protected Phases	9	10	11	12

Lanes, Volumes, Timings  
9: W 6 Ave & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases							4		4	8		
Detector Phase	1	6		5	2		4	4	5	8	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.4	33.4		13.4	33.4		31.7	31.7	13.4	31.7	31.7	
Total Split (s)	31.0	105.0		28.0	102.0		39.0	39.0	28.0	39.0	39.0	
Total Split (%)	17.2%	58.3%		15.6%	56.7%		21.7%	21.7%	15.6%	21.7%	21.7%	
Maximum Green (s)	24.6	98.6		21.6	95.6		32.3	32.3	21.6	32.3	32.3	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0	4.4	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7	2.0	2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.7	6.7	6.4	6.7	6.7	
Lead/Lag	Lead			Lead			Lead					
Lead-Lag Optimize?	Yes			Yes			Yes					
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5	2.0	2.5	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		20.0			20.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		0			1		0	0		1	1	
Act Effct Green (s)	14.2	119.3		12.8	117.9		16.9	16.9	36.4	16.9	16.9	
Actuated g/C Ratio	0.08	0.66		0.07	0.66		0.09	0.09	0.20	0.09	0.09	
v/c Ratio	0.70	0.40		0.66	0.51		0.70	0.26	0.19	0.60	0.28	
Control Delay	94.4	5.2		114.0	6.3		106.5	77.2	13.5	95.7	34.8	
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0	0.0	0.0	0.0	
Total Delay	94.4	5.2		114.0	6.3		106.5	77.2	13.5	95.7	34.8	
LOS	F	A		F	A		F	E	B	F	C	
Approach Delay		11.2			11.4			67.4			61.3	
Approach LOS		B			B			E			E	

Intersection Summary

Area Type:	Other
Cycle Length:	180
Actuated Cycle Length:	180
Offset:	120 (67%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	16.9
Intersection LOS:	B
Intersection Capacity Utilization:	64.5%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 9: W 6 Ave & NW 103 St



Lane Group	Ø9	Ø10	Ø11	Ø12
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0	4.0
Total Split (s)	4.0	4.0	4.0	4.0
Total Split (%)	2%	2%	2%	2%
Maximum Green (s)	2.0	2.0	2.0	2.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag		Lag	
Lead-Lag Optimize?	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Ped	Ped	Ped	Ped
Walk Time (s)	2.0	2.0	2.0	2.0
Flash Dont Walk (s)	0.0	0.0	0.0	0.0
Pedestrian Calls (#/hr)	0	0	0	0
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Intersection Summary				



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	98	1364	84	1714	86	47	71	77	100
v/c Ratio	0.70	0.40	0.66	0.51	0.70	0.26	0.19	0.60	0.28
Control Delay	94.4	5.2	114.0	6.3	106.5	77.2	13.5	95.7	34.8
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	94.4	5.2	114.0	6.3	106.5	77.2	13.5	95.7	34.8
Queue Length 50th (ft)	120	82	105	95	101	53	6	89	25
Queue Length 95th (ft)	m166	135	m168	111	161	94	49	146	56
Internal Link Dist (ft)		1191		537		243			262
Turn Bay Length (ft)	325		180					80	
Base Capacity (vph)	244	3385	214	3344	234	340	454	247	638
Starvation Cap Reductn	0	0	0	354	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.40	0.39	0.57	0.37	0.14	0.16	0.31	0.16

**Intersection Summary**

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
 9: W 6 Ave & NW 103 St

2022 Existing Opt LPI  
 PM Peak Hour






















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↗↗		↗	↗↗↗		↗	↑	↗	↗	↗↗	
Traffic Volume (vph)	92	1229	54	79	1550	61	81	44	67	72	40	54
Future Volume (vph)	92	1229	54	79	1550	61	81	44	67	72	40	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.7	6.7	6.4	6.7	6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	5103		1787	5106		1805	1900	1615	1805	3301	
Flt Permitted	0.95	1.00		0.95	1.00		0.69	1.00	1.00	0.73	1.00	
Satd. Flow (perm)	1787	5103		1787	5106		1309	1900	1615	1380	3301	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	98	1307	57	84	1649	65	86	47	71	77	43	57
RTOR Reduction (vph)	0	2	0	0	2	0	0	0	54	0	52	0
Lane Group Flow (vph)	98	1362	0	84	1712	0	86	47	17	77	48	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	1	6		5	2			4		5		8
Permitted Phases							4		4		8	
Actuated Green, G (s)	14.2	119.3		12.8	117.9		16.9	16.9	29.7	16.9	16.9	
Effective Green, g (s)	14.2	119.3		12.8	117.9		16.9	16.9	29.7	16.9	16.9	
Actuated g/C Ratio	0.08	0.66		0.07	0.66		0.09	0.09	0.16	0.09	0.09	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.7	6.7	6.4	6.7	6.7	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5	2.0	2.5	2.5	
Lane Grp Cap (vph)	140	3382		127	3344		122	178	266	129	309	
v/s Ratio Prot	c0.05	0.27		0.05	c0.34			0.02	0.00		0.01	
v/s Ratio Perm							c0.07		0.01	0.06		
v/c Ratio	0.70	0.40		0.66	0.51		0.70	0.26	0.06	0.60	0.16	
Uniform Delay, d1	80.8	14.0		81.5	16.1		79.1	75.8	63.4	78.3	75.0	
Progression Factor	0.96	0.33		1.15	0.33		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.1	0.2		8.3	0.5		15.8	0.6	0.0	6.1	0.2	
Delay (s)	85.7	4.9		102.1	5.9		94.9	76.4	63.4	84.4	75.2	
Level of Service	F	A		F	A		F	E	E	F	E	
Approach Delay (s)		10.3			10.4			79.7			79.2	
Approach LOS		B			B			E			E	

Intersection Summary		
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.52	B
Actuated Cycle Length (s)	180.0	Sum of lost time (s)
Intersection Capacity Utilization	64.5%	23.5
Analysis Period (min)	15	ICU Level of Service
		C
c Critical Lane Group		

Lanes, Volumes, Timings  
10: W 500 Blk & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	1213	45	204	1429	52	113	37	132	162	42	103
Future Volume (vph)	141	1213	45	204	1429	52	113	37	132	162	42	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		0	270		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			65			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.995			0.995			0.930			0.950	
Flt Protected	0.950			0.950				0.980			0.974	
Satd. Flow (prot)	1787	5110	0	1787	5110	0	0	3290	0	0	3340	0
Flt Permitted	0.950			0.950				0.613			0.609	
Satd. Flow (perm)	1787	5110	0	1787	5110	0	0	2058	0	0	2089	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			4			116			45	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		617			744			255			222	
Travel Time (s)		10.5			12.7			5.8			5.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	145	1251	46	210	1473	54	116	38	136	167	43	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	145	1297	0	210	1527	0	0	290	0	0	316	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	

Lane Group	Ø9	Ø10	Ø11	Ø12
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type				
Protected Phases	9	10	11	12

Lanes, Volumes, Timings  
10: W 500 Blk & NW 103 St

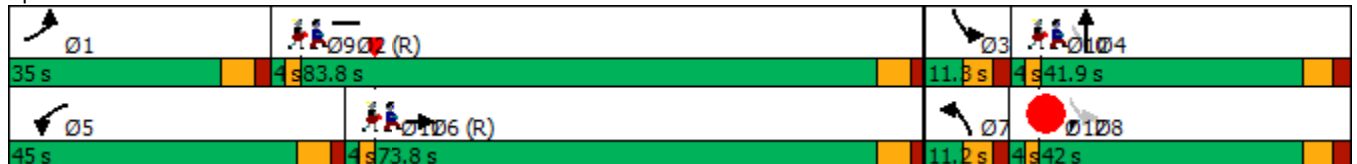
2022 Existing Opt LPI  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases							4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	11.5	38.5		11.4	38.5		11.2	36.7		11.3	36.7	
Total Split (s)	35.0	73.8		45.0	83.8		11.2	41.9		11.3	42.0	
Total Split (%)	19.4%	41.0%		25.0%	46.6%		6.2%	23.3%		6.3%	23.3%	
Maximum Green (s)	28.5	67.3		38.6	77.3		5.0	35.2		5.0	35.3	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.1	2.1		2.0	2.1		2.2	2.7		2.3	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	6.5	6.5		6.4	6.5			6.7			6.7	
Lead/Lag	Lead			Lead			Lead			Lead		
Lead-Lag Optimize?	Yes			Yes			Yes			Yes		
Vehicle Extension (s)	3.5	1.0		3.5	1.0		2.0	2.5		2.0	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			23.0			23.0	
Pedestrian Calls (#/hr)		2			1			0			0	
Act Effct Green (s)	20.3	91.5		26.9	97.9			27.1			27.1	
Actuated g/C Ratio	0.11	0.51		0.15	0.54			0.15			0.15	
v/c Ratio	0.72	0.50		0.79	0.55			0.71			1.06dl	
Control Delay	94.6	28.7		110.5	9.2			52.3			91.7	
Queue Delay	0.0	0.1		0.0	0.2			0.0			0.0	
Total Delay	94.6	28.8		110.5	9.4			52.3			91.7	
LOS	F	C		F	A			D			F	
Approach Delay		35.4			21.7			52.3			91.7	
Approach LOS		D			C			D			F	

Intersection Summary

Area Type: Other  
 Cycle Length: 180  
 Actuated Cycle Length: 180  
 Offset: 128 (71%), Referenced to phase 2:WBT and 6:EBT, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.90  
 Intersection Signal Delay: 35.1 Intersection LOS: D  
 Intersection Capacity Utilization 76.3% ICU Level of Service D  
 Analysis Period (min) 15  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 10: W 500 Blk & NW 103 St





Lane Group	Ø9	Ø10	Ø11	Ø12
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0	4.0
Total Split (s)	4.0	4.0	4.0	4.0
Total Split (%)	2%	2%	2%	2%
Maximum Green (s)	2.0	2.0	2.0	2.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Ped	Ped	Ped	Ped
Walk Time (s)	2.0	2.0	2.0	2.0
Flash Dont Walk (s)	0.0	0.0	0.0	0.0
Pedestrian Calls (#/hr)	0	0	0	0
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Intersection Summary				



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	145	1297	210	1527	290	316
v/c Ratio	0.72	0.50	0.79	0.55	0.71	1.06dl
Control Delay	94.6	28.7	110.5	9.2	52.3	91.7
Queue Delay	0.0	0.1	0.0	0.2	0.0	0.0
Total Delay	94.6	28.8	110.5	9.4	52.3	91.7
Queue Length 50th (ft)	181	329	261	95	105	170
Queue Length 95th (ft)	263	404	m327	136	156	222
Internal Link Dist (ft)		537		664	175	142
Turn Bay Length (ft)	220		270			
Base Capacity (vph)	282	2598	383	2781	495	445
Starvation Cap Reductn	0	338	0	445	0	0
Spillback Cap Reductn	0	22	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.57	0.55	0.65	0.59	0.71

**Intersection Summary**

- m Volume for 95th percentile queue is metered by upstream signal.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.

HCM Signalized Intersection Capacity Analysis  
 10: W 500 Blk & NW 103 St

2022 Existing Opt LPI  
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	1213	45	204	1429	52	113	37	132	162	42	103
Future Volume (vph)	141	1213	45	204	1429	52	113	37	132	162	42	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.4	6.5			6.7			6.7	
Lane Util. Factor	1.00	0.91		1.00	0.91			0.95			0.95	
Frt	1.00	0.99		1.00	0.99			0.93			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.97	
Satd. Flow (prot)	1787	5108		1787	5108			3290			3340	
Flt Permitted	0.95	1.00		0.95	1.00			0.61			0.61	
Satd. Flow (perm)	1787	5108		1787	5108			2057			2090	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	145	1251	46	210	1473	54	116	38	136	167	43	106
RTOR Reduction (vph)	0	1	0	0	2	0	0	99	0	0	38	0
Lane Group Flow (vph)	145	1296	0	210	1525	0	0	191	0	0	278	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases							4			8		
Actuated Green, G (s)	20.3	91.4		26.9	97.9			27.1			27.1	
Effective Green, g (s)	20.3	91.4		26.9	97.9			27.1			27.1	
Actuated g/C Ratio	0.11	0.51		0.15	0.54			0.15			0.15	
Clearance Time (s)	6.5	6.5		6.4	6.5			6.7			6.7	
Vehicle Extension (s)	3.5	1.0		3.5	1.0			2.5			2.5	
Lane Grp Cap (vph)	201	2593		267	2778			309			314	
v/s Ratio Prot	0.08	0.25		c0.12	c0.30							
v/s Ratio Perm								0.09			c0.13	
v/c Ratio	0.72	0.50		0.79	0.55			0.62			1.06dl	
Uniform Delay, d1	77.1	29.2		73.8	26.7			71.6			74.9	
Progression Factor	0.99	0.91		1.32	0.31			1.00			1.00	
Incremental Delay, d2	11.7	0.6		9.8	0.5			3.1			24.1	
Delay (s)	88.3	27.3		107.0	8.8			74.8			99.0	
Level of Service	F	C		F	A			E			F	
Approach Delay (s)		33.4			20.7			74.8			99.0	
Approach LOS		C			C			E			F	

Intersection Summary			
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Lanes, Volumes, Timings  
11: Red Rd & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	234	964	359	186	1179	124	332	1256	136	116	1009	225
Future Volume (vph)	234	964	359	186	1179	124	332	1256	136	116	1009	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	215		0	400		165	295		190	190		140
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	60			80			100			150		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3574	1599	1770	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.069			0.085			0.950			0.950		
Satd. Flow (perm)	130	3574	1599	158	5085	1583	3433	5085	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			118			162			105			162
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		744			565			546			475	
Travel Time (s)		12.7			9.6			8.3			7.2	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	249	1026	382	198	1254	132	353	1336	145	123	1073	239
Shared Lane Traffic (%)												
Lane Group Flow (vph)	249	1026	382	198	1254	132	353	1336	145	123	1073	239
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1

Lane Group	Ø9	Ø10	Ø11	Ø12
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Enter Blocked Intersection				
Lane Alignment				
Median Width(ft)				
Link Offset(ft)				
Crosswalk Width(ft)				
Two way Left Turn Lane				
Headway Factor				
Turning Speed (mph)				
Number of Detectors				
Detector Template				
Leading Detector (ft)				
Trailing Detector (ft)				
Detector 1 Position(ft)				
Detector 1 Size(ft)				
Detector 1 Type				
Detector 1 Channel				
Detector 1 Extend (s)				
Detector 1 Queue (s)				
Detector 1 Delay (s)				
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type				
Protected Phases	9	10	11	12

Lanes, Volumes, Timings  
11: Red Rd & NW 103 St

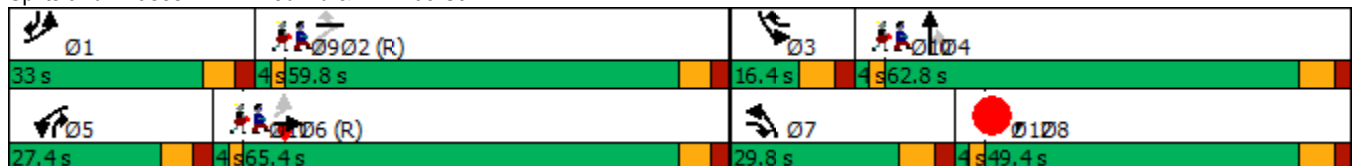
2022 Existing Opt LPI  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6		6	2		2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.1	37.1	14.3	14.1	37.1	14.3	14.3	37.3	14.1	14.3	37.3	14.1
Total Split (s)	33.0	65.4	29.8	27.4	59.8	16.4	29.8	62.8	27.4	16.4	49.4	33.0
Total Split (%)	18.3%	36.3%	16.6%	15.2%	33.2%	9.1%	16.6%	34.9%	15.2%	9.1%	27.4%	18.3%
Maximum Green (s)	25.9	58.3	22.5	20.3	52.7	9.1	22.5	55.5	20.3	9.1	42.1	25.9
Yellow Time (s)	4.4	4.4	4.8	4.4	4.4	4.8	4.8	4.8	4.4	4.8	4.8	4.4
All-Red Time (s)	2.7	2.7	2.5	2.7	2.7	2.5	2.5	2.5	2.7	2.5	2.5	2.7
Lost Time Adjust (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
Total Lost Time (s)	7.1	7.1	7.3	7.1	7.1	7.3	7.3	7.3	7.1	7.3	7.3	7.1
Lead/Lag	Lead		Lead	Lead		Lead	Lead		Lead	Lead		Lead
Lead-Lag Optimize?	Yes		Yes	Yes		Yes	Yes		Yes	Yes		Yes
Vehicle Extension (s)	2.5	1.0	2.5	2.5	1.0	2.5	2.5	1.0	2.5	2.5	1.0	2.5
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		23.0			23.0			23.0			23.0	
Pedestrian Calls (#/hr)		0			0			1			0	
Act Effct Green (s)	84.4	60.8	89.3	73.7	55.5	71.5	21.4	53.6	79.2	8.9	40.4	71.3
Actuated g/C Ratio	0.47	0.34	0.50	0.41	0.31	0.40	0.12	0.30	0.44	0.05	0.22	0.40
v/c Ratio	0.90	0.85	0.45	0.87	0.80	0.18	0.87	0.88	0.19	0.72	0.94	0.33
Control Delay	101.1	64.4	18.0	81.8	62.4	2.5	98.4	68.0	9.3	107.5	83.9	12.4
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.1	64.6	18.0	81.8	62.4	2.5	98.4	68.0	9.3	107.5	83.9	12.4
LOS	F	E	B	F	E	A	F	E	A	F	F	B
Approach Delay		59.3			59.9			69.2			74.0	
Approach LOS		E			E			E			E	

Intersection Summary

Area Type: Other  
 Cycle Length: 180  
 Actuated Cycle Length: 180  
 Offset: 110 (61%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green  
 Natural Cycle: 125  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.94  
 Intersection Signal Delay: 65.5  
 Intersection LOS: E  
 Intersection Capacity Utilization 91.1%  
 ICU Level of Service F  
 Analysis Period (min) 15

Splits and Phases: 11: Red Rd & NW 103 St



Lane Group	Ø9	Ø10	Ø11	Ø12
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0	4.0
Total Split (s)	4.0	4.0	4.0	4.0
Total Split (%)	2%	2%	2%	2%
Maximum Green (s)	2.0	2.0	2.0	2.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Ped	Ped	Ped	Ped
Walk Time (s)	2.0	2.0	2.0	2.0
Flash Dont Walk (s)	0.0	0.0	0.0	0.0
Pedestrian Calls (#/hr)	0	0	0	0
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Intersection Summary				

Queues  
11: Red Rd & NW 103 St

2022 Existing Opt LPI  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	249	1026	382	198	1254	132	353	1336	145	123	1073	239
v/c Ratio	0.90	0.85	0.45	0.87	0.80	0.18	0.87	0.88	0.19	0.72	0.94	0.33
Control Delay	101.1	64.4	18.0	81.8	62.4	2.5	98.4	68.0	9.3	107.5	83.9	12.4
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.1	64.6	18.0	81.8	62.4	2.5	98.4	68.0	9.3	107.5	83.9	12.4
Queue Length 50th (ft)	264	668	121	173	513	0	213	546	26	75	456	55
Queue Length 95th (ft)	#392	418	148	#307	575	25	#286	608	72	#123	517	126
Internal Link Dist (ft)		664			485			466			395	
Turn Bay Length (ft)	215			400		165	295		190	190		140
Base Capacity (vph)	301	1207	861	248	1566	727	429	1567	771	173	1189	743
Starvation Cap Reductn	0	13	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.86	0.44	0.80	0.80	0.18	0.82	0.85	0.19	0.71	0.90	0.32

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.



HCM Signalized Intersection Capacity Analysis  
 11: Red Rd & NW 103 St

2022 Existing Opt LPI  
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	234	964	359	186	1179	124	332	1256	136	116	1009	225
Future Volume (vph)	234	964	359	186	1179	124	332	1256	136	116	1009	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.1	7.1	7.3	7.1	7.1	7.3	7.3	7.3	7.1	7.3	7.3	7.1
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	3574	1599	1770	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.07	1.00	1.00	0.08	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	130	3574	1599	158	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	249	1026	382	198	1254	132	353	1336	145	123	1073	239
RTOR Reduction (vph)	0	0	64	0	0	85	0	0	63	0	0	104
Lane Group Flow (vph)	249	1026	318	198	1254	47	353	1336	82	123	1073	135
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	84.4	60.8	82.2	73.8	55.5	64.4	21.4	53.6	71.9	8.9	40.4	64.0
Effective Green, g (s)	84.4	60.8	82.2	73.8	55.5	64.4	21.4	53.6	71.9	8.9	40.4	64.0
Actuated g/C Ratio	0.47	0.34	0.46	0.41	0.31	0.36	0.12	0.30	0.40	0.05	0.22	0.36
Clearance Time (s)	7.1	7.1	7.3	7.1	7.1	7.3	7.3	7.3	7.1	7.3	7.3	7.1
Vehicle Extension (s)	2.5	1.0	2.5	2.5	1.0	2.5	2.5	1.0	2.5	2.5	1.0	2.5
Lane Grp Cap (vph)	278	1207	730	228	1567	566	408	1514	632	169	1141	562
v/s Ratio Prot	c0.12	0.29	0.05	0.09	0.25	0.00	c0.10	c0.26	0.01	0.04	c0.21	0.03
v/s Ratio Perm	c0.30		0.15	0.27		0.03			0.04			0.05
v/c Ratio	0.90	0.85	0.44	0.87	0.80	0.08	0.87	0.88	0.13	0.73	0.94	0.24
Uniform Delay, d1	56.4	55.4	33.2	49.3	57.2	38.3	77.9	60.2	34.2	84.4	68.6	40.9
Progression Factor	1.35	1.03	0.83	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	25.9	6.8	0.3	27.4	4.4	0.0	17.0	6.3	0.1	13.6	14.4	0.2
Delay (s)	102.3	63.6	27.8	76.7	61.5	38.3	94.9	66.5	34.3	98.0	83.1	41.0
Level of Service	F	E	C	E	E	D	F	E	C	F	F	D
Approach Delay (s)		61.1			61.5			69.4			77.3	
Approach LOS		E			E			E			E	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			67.1			HCM 2000 Level of Service					E	
HCM 2000 Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)					32.8	
Intersection Capacity Utilization			91.1%			ICU Level of Service					F	
Analysis Period (min)			15									
c Critical Lane Group												

# Appendix I

## Benefit/Cost Analysis Supporting Documentation



Project #: SAFETY PROJECT

County: Miami-Dade

SR #: 932

Location: SR-932(W 49th Street) at W 13 Lane

C.E. Date: 6/27/2022

Estimated No. of Parcels: 2

**PHASE**

4B	\$	43,000
41	\$	10,000
42	\$	-
43	\$	78,200
45	\$	-
46	\$	-
Total	\$	131,200

Comments: THE RIGHT OF WAY ESTIMATE FOR THIS PROJECT IS BASED ON PRESENT DAY COSTS. THIS CE IS FOR TWO FEE SIMPLE PARCELS REQUIRED FOR A SAFETY PROJECT ALONG SR-932/W 49th STREET AT W 13th LN. PARCEL SIZES RANGE BETWEEN 25 AND 50 SQUARE FEET AS OUTLINED IN DRAWING AND LOCATIONS PROVIDED BY THE CONSULTANT.

**SR 932/NW 103 Street from SR 826 to West 4 Avenue - Crash Reduction Factors**

<b>No.</b>	<b>PROPOSED IMPROVEMENTS</b>	<b>CRF</b>	<b>NO. OF CRASHES</b>	<b>CRASHES TO BE REDUCED</b>
1	Lighting	0.32	382	122.24
2	Leading Pedestrian Interval	0.13	14	1.82
3	Upgrade crosswalk markings to high-visibility style	0.19	14	2.66
4	Mid-block pedestrian signal	0.52	3	1.56

**SR 932/NW 103 Street  
From SR 826 to West 4 Avenue  
Preliminary Cost Estimate**

Pay Item	Description	Unit	Unit Cost	Quantity	Improvement Cost
Blank-out Signs/Leading Pedestrian Interval/Omitting permissive phase during a pedestrian actuation					
635 2 11	PULL & SPLICE BOX, F&I, 13" x 24" COVER SIZE	EA	\$867.55	22	\$19,086.10
646 1 11	ALUMINUM SIGNALS POLE, PEDESTAL	EA	\$1,655.47	22	\$36,420.34
700 11 191	ELECTRONIC DISPLAY SIGN, FURNISH & INSTALL GROUND MOUNT- AC POWERED, BLANK OUT SIGN, UP TO 12 SF	EA	\$8,363.00	22	\$183,986.00
671 2 40	TRAFFIC CONTROLLER, MODIFY	EA	\$5,606.80	10	\$56,068.00
Mid-Block Crosswalk with Signal (see detailed pay items in next page)					\$218,877.78
Curbed bulb out and Pavement Markings					
520 1 10	CONCRETE CURB & GUTTER, TYPE F	LF	\$25.94	100	\$2,594.00
522 2	CONCRETE SIDEWALK AND DRIVEWAYS, 6" THICK	SY	\$58.13	85	\$4,941.05
527 2	DETECTABLE WARNINGS	SF	\$35.90	36	\$1,292.40
665 1 11	PEDESTRIAN DETECTOR, FURNISH & INSTALL, STANDARD	EA	\$327.16	3	\$981.48
570 1 2	PERFORMANCE TURF, SOD	SY	\$2.48	115	\$285.20
0711 17 1	THERMOPLASTIC, REMOVE EXISTING THERMOPLASTIC PAVEMENT MARKINGS- SURFACE TO REMAIN	SF	\$1.56	1,160	\$1,809.60
0711 14123	THERMOPLASTIC, PREFORMED, WHITE, SOLID, 12" FOR CROSSWALK	LF	\$11.83	440	\$5,205.20
0711 14125	THERMOPLASTIC, PREFORMED, WHITE, SOLID, 24" FOR CROSSWALK	LF	\$15.72	800	\$12,576.00
Lighting					
630 2 12	CONDUIT, FURNISH & INSTALL, DIRECTIONAL BORE	LF	\$29.36	3,412.00	\$100,176.32
635 2 11	PULL & SPLICE BOX, F&I, 13" x 24" COVER SIZE	EA	\$972.78	36.00	\$35,020.08
715 1 12	LIGHTING CONDUCTORS, F&I, INSULATED, NO.8 - 6	LF	\$2.85	11,532.00	\$32,866.20
715 11 211	LUMINAIRE, F&I- REPLACE EXISTING LUMINAIRE ON EXISTING POLE/ARM, ROADWAY, COBRA HEAD	EA	\$1,648.47	91.00	\$150,010.77
715 61 111	LIGHT POLE COMPLETE, F&I, STANDARD POLE STANDARD FOUNDATION, 30' MOUNTING HEIGHT, 8' ARM LENGTH	EA	\$8,323.27	10.00	\$83,232.70
715 62 111	LIGHT POLE COMPLETE, F&I, STANDARD POLE SPECIAL FOUNDATION, 30' MOUNTING HEIGHT, 8' ARM LENGTH	EA	\$7,800.00	4.00	\$31,200.00
715 69 000	LIGHT POLE COMPLETE, REMOVE POLE AND FOUNDATION	EA	\$895.86	6.00	\$5,375.16
715 500 11	POLE CABLE DISTRIBUTION SYSTEM, FURNISH AND INSTALL ALTERNATE SYSTEM, CONVENTIONAL	EA	\$1,936.13	14.00	\$27,105.82
Speed Feedback Signs					
0700 11232	GROUND MOUNT SOLAR POWER, SPEED FEEDBACK,	AS	10,614.78	4	\$42,459.12
Passive Pedestrian Detection					
0665 1 15	PEDESTRIAN DETECTOR, F&I, RETROFIT PASSIVE TO EXISTING DETECTOR	EA	\$9,023.70	8.00	\$72,189.60
Miscellaneous					
-	Right-of-Way	SF	\$1,749.33	75	\$131,200.00
<b>Sub-Total</b>					<b>\$1,254,959</b>
				Maintenance of Traffic	10% \$125,496
				Mobilization	8% \$100,397
				Contingency	20% \$250,992
				Preliminary Engineering (PE)	32% \$401,587
				Construction Engineering and Inspection (CEI)	18% \$225,893
<b>Total Improvements Cost</b>					<b>\$2,359,323</b>

**SR 932/NW 103 Street  
From SR 826 to West 4 Avenue  
Preliminary Cost Estimate (Mid-Block Crosswalk with Signal)**

PAY ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
110-4-10	REMOVAL OF EXISTING CONCRETE	20	SY	\$28.16	\$563.20
327-70-1	MILLING EXIST. ASPH. PAVT., 1" AVG. DEPTH	1041.33	SY	\$2.29	\$2,384.65
337-7-82	ASPHALT CONCRETE FRICTION COURSE, TRAFFIC C, FC-9.5, PG 76-22	57.2	TN	\$162.31	\$9,284.13
520-1-10	CONCRETE CURB & GUTTER, TYPE F	80	LF	\$25.94	\$2,075.20
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4" THICK	20	SY	\$44.27	\$885.40
522-2	CONCRETE SIDEWALK AND DRIVEWAYS, 6" THICK	55	SY	\$58.13	\$3,197.15
527-2	DETECTABLE WARNINGS	48	SF	\$35.90	\$1,723.20
570-1-2	PERFORMANCE TURF, SOD	5	SY	\$2.48	\$12.40
710-11-101	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID, 6"	0.09	GM	\$863.96	\$78.54
710-11-123	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR CROSSWALK AND ROUNDABOUT, 12"	180	LF	\$0.46	\$82.80
710-11-125	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR STOP LINE OR CROSSWALK, 24"	222	LF	\$0.88	\$195.36
710-11-201	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, SOLID, 6"	0.09	GM	\$916.95	\$83.36
700-1-11	SINGLE POST SIGN, F&I GROUND MOUNT, UP TO 12 SF	4	AS	\$362.03	\$1,448.12
706-1-3	RAISED PAVEMENT MARKER, TYPE B	12	EA	\$3.08	\$36.96
711-11-123	THERMOPLASTIC, STANDARD, WHITE, SOLID, 12" FOR CROSSWALK AND ROUNDABOUT	180	LF	\$1.80	\$324.00
711-11-125	THERMOPLASTIC, STANDARD, WHITE, SOLID, 24" FOR STOP LINE AND CROSSWALK	222	LF	\$3.64	\$808.08
711-16-101	THERMOPLASTIC, STANDARD-OTHER SURFACES, WHITE, SOLID, 6"	0.09	GM	\$4,195.84	\$381.44
711-16-201	THERMOPLASTIC, STANDARD-OTHER SURFACES, YELLOW, SOLID, 6"	0.09	GM	\$4,275.77	\$388.71
630-2-12	CONDUIT, FURNISH & INSTALL, DIRECTIONAL BORE	640	LF	\$22.37	\$14,316.80
632-7-1	SIGNAL CABLE - NEW OR RECONSTRUCTED INTERSECTION, FURNISH & INSTALL	1	PI	\$8,040.54	\$8,040.54
635-2-11	PULL & SPLICE BOX, F&I, 13" X 24" COVER SIZE	1	EA	\$867.55	\$867.55
639-1-122	ELECTRICAL POWER SERVICE, F&I, UNDERGROUND, METER PURCHASED BY CONTRACTOR	1	AS	\$3,857.65	\$3,857.65
639-3-11	ELECTRICAL SERVICE DISCONNECT, F&I, POLE MOUNT	1	EA	\$1,651.28	\$1,651.28
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	2	EA	\$1,655.47	\$3,310.94
649-21-3	STEEL MAST ARM ASSEMBLY, FURNISH & INSTALL, SINGLE ARM 40'	2	EA	\$47,829.47	\$95,658.94
653-1-11	PEDESTRIAN SIGNAL , FURNISH & INSTALL LED COUNTDOWN, 1 WAY	2	AS	\$982.57	\$1,965.14
650-1-14	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL ALUMINUM, 3 SECTION, 1 WAY	4	AS	\$1,161.26	\$4,645.04
665-1-11	PEDESTRIAN DETECTOR, FURNISH & INSTALL, STANDARD	4	EA	\$327.16	\$1,308.64
670-5-140	TRAFFIC CONTROLLER ASSEMBLY, FURNISH & INSTALL MODEL 2070	1	AS	\$33,753.98	\$33,753.98
700-3-201	SIGN PANEL, FURNISH & INSTALL OVERHEAD MOUNT, UP TO 12 SF	2	EA	\$773.14	\$1,546.28
700-5-21	INTERNALLY ILLUMINATED SIGN, FURNISH & INSTALL OVERHEAD MOUNT, UP TO 12 SF	2	EA	\$3,008.03	\$6,016.06
715-1-12	LIGHTING CONDUCTORS, F&I, INSULATED, No. 8-6	1600	LF	\$2.50	\$4,000.00
715-61-321	LIGHT POLE COMPLETE, F&I, STANDARD POLE STANDARD FOUNDATION, 40' MOUNTING HEIGHT, 10' ARM LENGTH	2	EA	\$5,443.70	\$10,887.40
715-11-211	LUMINAIRE, F&I - REPLACE EXISTING LUMINAIRE ON EXISTING POLE/ARM, ROADWAY, COBRA HEAD	1	EA	\$1,389.50	\$1,389.50
715-500-1	POLE CABLE DISTRIBUTION SYSTEM, CONVENTIONAL	2	EA	\$854.67	\$1,709.34
<b>SUBTOTAL PAY ITEMS</b>					<b>\$218,877.78</b>

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION  
SAFETY OFFICE ANNUAL BENEFIT COST ANALYSIS

1	SUBMITTED BY	CTS	WPA NO.	N/A	SAFETY PRIORITY
2	DATE SUBMITTED	1-Jun-22	ENVIRONMENTAL STUDY		
3	PROJECT NO.	TWO 30	SKID (I.D.) N/A		
4	ALTERNATIVE NO.		SN	NA	SPEED 40
6	DISTRICT	6	COUNTY	MDC	SECTION 87038000 STATE ROAD SR 932 U.S. ROAD N/A
7	BEGINNING MILE POST	1.156	ENDING MILE POST	3.15	LENGTH 1.994 miles NODE -
8	DESCRIPTION OF LOCATION/FACILITY TYPE 6-lane divided urban principal arterial				

9 CAUSE OF CRASH PROBLEMS (LIST AND DISCUSS)

10 PROPOSED IMPROVEMENTS (LIST AND DISCUSS)  
Lighting; Leading Pedestrian Interval; upgrade to high emphasis crosswalk; Mid-block pedestrian signal

		2017	2018	2019	2020	2021	AVG.	CRASH INFORMATION FOR FACILITY	
11	NO. OF CRASHES	853	823	733	87	12.0	501.6	COST/CRASH	\$ 123,598
12	NO. CRASHES POTENTIALLY REDUCED	43.6	42.1	37.5	4.4	0.6	25.7	CRASH CLEANUP	\$ 100
								INTEREST RATE	4%

TYPE OF CRASH	NUMBER OF CRASHES (5-year)	CRASHES TO BE REDUCED
Rear End	981	0.00
Head On	3	0.00
Angle	551	0.00
Left Turn	145	0.00
Right Turn	50	0.00
Sideswipe	500	0.00
Backed Into	6	0.00
Parked Car	0	0.00
Pedestrian	30	3.92
Pedalcycle	13	2.12
Fixed Object	25	0.00
Ran into Water	0	0.00
Overtaken	0	0.00
Other	204	0.00
Total Crashes	2508	128.28
Crashes Per Year	501.60	25.66
Wet/Slippery	221	0.00
Night Time	558	122.24

ANNUAL COST OF IMPROVEMENTS				
TYPE	COST	LIFE	CRF	ANNUAL COST
A. R-O-W	\$ 131,200	0	0.0000	\$ -
B. P.E.C.E.I.	\$ 627,479	15	0.0899	\$ 56,436.19
C. LIGHTING	\$ 464,987	15	0.0899	\$ 41,821.45
D. ROADWAY	\$ 144,334	15	0.0899	\$ 12,981.53
E. SIGNALS	\$ 514,438	15	0.0899	\$ 46,269.14
F. MOT/MOB/CON	\$ 476,884	15	0.0899	\$ 42,891.51
G. SUBTOTAL	\$ 2,359,323			\$ 200,399.82
H. CHANGE IN MAINTENANCE				\$ -
I. CRASH CLEANUP				\$ (2,565.60)
J. TOTAL				\$ 197,834.22

BENEFITS			
A. CRASH REDUCTION	25.66 crash @	\$ 123,598	\$ 3,171,030.29
B. DELAY SAVINGS	veh-hrs @		\$ -
<b>SUB TOTAL ANNUAL BENEFIT</b>			<b>\$ 3,171,030.29</b>
C. OTHER BENEFIT	0	\$ -	\$ -
<b>D. TOTAL ANNUAL BENEFIT</b>			<b>\$ 3,171,030.29</b>

17	<b>NET BENEFIT/COST</b>	\$ 3,171,030.29	\$ 197,834.22	<b>16.0</b>
	<b>SAFETY BENEFIT/COST</b>	\$ 3,171,030.29	\$ 197,834.22	<b>16.0</b>

PREPARED BY CTS APPROVED BY DATE 07/01/2022

**COMMENTS/CRASH REDUCTION METHOD:**  
CRFs obtained from the FDOT approved "Pedestrian/Bicycle Countermeasures List", and FDOT CRFs.

**HIGH CRASH LISTINGS:**  
MP 1.125, MP 1.132, MP 1.173, MP 1.189, MP 1.314, MP 1.345, MP 1.474, MP 1.650, MP 2.149, MP 2.650, MP 3.124, MP 3.150, and MP 3.169 were identified as high crash spots for 2017-2019. MP 1.017 to MP 1.917 and MP 2.617 to MP 3.392 were identified as high crash segments for 2017-2019.





## **Appendix J**

# **Photometric Analysis**



**FINAL  
TECHNICAL MEMORANDUM  
for  
SR 932/NE 103<sup>rd</sup> Street from SR 826 to West 4<sup>th</sup> Avenue  
Hialeah, Miami-Dade County, Florida  
Lighting Study**

Prepared For:



**Florida Department of Transportation**

Contract No. C9V59

TWO # 32

Prepared By:

A&P Consulting Transportation Engineers, Corp.

(Subconsultant to CTS Engineering, Inc.)

8935 NW 35<sup>th</sup> Lane, Suite 200

Doral, Florida 33172

July 2022



## TECHNICAL MEMORANDUM

Date: July 5<sup>th</sup>, 2022

To: Misleidys Leon, Project Manager, FDOT D6

From: Sheng Yang, P.E., CTS President, CTS Engineering  
Eric D. Lindstrom, P.E., PMP, Project Manager, APCTE  
Javier Rodriguez, Traffic Engineering Analyst, APCTE  
David Sigler, E.I, Electrical Project Engineer, APCTE  
Yohaimis Moriyon, Electrical Project Engineer, APCTE

Subject: SR 932/NW 103<sup>rd</sup> Street from SR 826 to West 4<sup>th</sup> Avenue (Section 87038000, MP 1.156 to 3.124) – Lighting Study (Contract No. C9V59 TWO # 32)

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### 1 INTRODUCTION

The Florida Department of Transportation (FDOT), District Six, Traffic Operations Office has retained A&P Consulting Transportation Engineers, Corp. (APCTE), sub-consultant to CTS Engineering, Inc., to perform a lighting evaluation for the segment of SR 932/NW 103<sup>rd</sup> Street from SR 826 to West 4<sup>th</sup> Avenue in the City of Hialeah, Miami-Dade County, Florida. A location map of the study segment is provided in **Figure 1**.

### 2 STUDY APPROACH

This study follows the guidelines from the Florida Design Manual (FDM) 2022 Section 231 – Lighting. The study approach includes the following tasks:

- Coordination with FDOT to obtain as-built plans, right-of-way maps, etc.
- Lighting analysis of existing and proposed lighting conditions using AGi32 lighting software and evaluation based on FDOT standards
- Development of preliminary cost estimate for lighting improvements

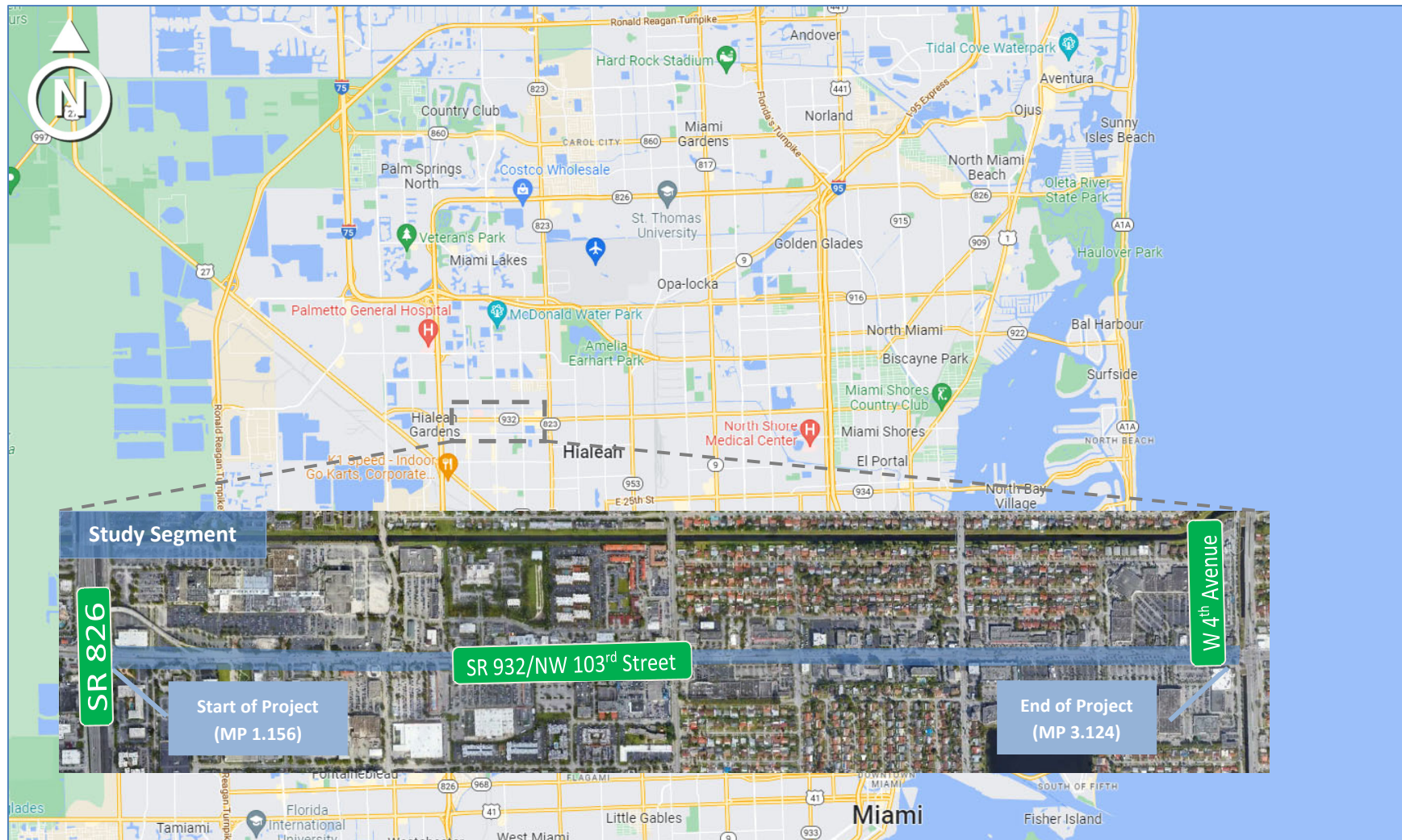


Figure 1. Location Map

### 3 EXISTING CONDITIONS

Within the study limits, SR 932/NW 103<sup>rd</sup> Street is a six lane, raised median divided, east-west, roadway classified as an “Urban Principal Arterial Other” on the State Highway System with a posted speed limit of 40 MPH. Additional roadway characteristics are included in the State Line Diagram (SLD) for SR 932/NW 103<sup>rd</sup> Street provided in **Appendix A**.

The land uses along the study segment are mostly commercial (mall, restaurants, fast food restaurants, banks, retail stores, supermarkets, shopping centers, etc.) with some institutional, office, transient residential (hotel) and high-density multifamily residential (apartment building) uses.

The existing street lighting system along the study segment consists of HPS luminaires along both sides of SR 932/NW 103<sup>rd</sup> Street with some LED luminaires sporadically.

### 4 FIELD REVIEWS

A field review was conducted by a qualified traffic engineer during nighttime conditions on Tuesday, June 21<sup>st</sup>, 2022, from 8:00 PM - 9:45 PM. The field review focused on documenting existing lighting conditions along the study segment. A summary is provided below:

- The existing street lighting system was mostly functional along the study segment with some exceptions
- A total of 17 poles were non-functional throughout both sides of the road



Photo 1 – Existing Street Lighting System (mostly HPS and sporadic LED)



Photo 2 – Non-functioning luminaires east of W 20<sup>th</sup> Ave (south side of SR 932/NW 103<sup>rd</sup> Street); this includes luminaire not pictured to the west



Photo 3 – Non-functioning luminaire east of W 18<sup>th</sup> Ct (south side of SR 932/NW 103<sup>rd</sup> Street)



Photo 4 – Non-functioning luminaire east of Ludlam Rd (south side of SR 932/NW 103<sup>rd</sup> Street)



Photo 5 – Non-functioning luminaire west of W 10<sup>th</sup> Ave (south side of SR 932/NW 103<sup>rd</sup> Street)



Photo 6 – Non-functioning luminaire east of W 900 Block (south side of SR 932/NW 103<sup>rd</sup> Street)



Photo 7 – Non-functioning luminaire east of W 6<sup>th</sup> Ave (south side of SR 932/NW 103<sup>rd</sup> Street)





Photo 8 – Non-functioning luminaire east of W 4<sup>th</sup> Ave (south side of SR 932/NW 103<sup>rd</sup> Street)



Photo 9 – Non-functioning luminaire west of W 900 Block (north side of SR 932/NW 103<sup>rd</sup> Street)



Photo 10 – Non-functioning luminaire east of W 16<sup>th</sup> Ave (north side of SR 932/NW 103<sup>rd</sup> Street)



Photo 11 – Non-functioning luminaires east of W 18<sup>th</sup> Ct (north side of SR 932/NW 103<sup>rd</sup> Street)



Photo 12 – Non-functioning luminaire east of W 20<sup>th</sup> Ave (north side of SR 932/NW 103<sup>rd</sup> Street)



Photo 13 – Non-functioning luminaire east of W 20<sup>th</sup> Ave (north side of SR 932/NW 103<sup>rd</sup> Street)

## 5 EVALUATION OF EXISTING ILLUMINANCE LEVELS

A photometric analysis of the existing street lighting system along the study segment was performed using AGi32 Professional Software to develop baseline conditions and evaluate potential lighting improvements. The photometric analysis was performed based on the lighting design criteria for roadway segments and signalized intersections obtained from the 2022 FDOT Design Manual's (FDM) Section 231. **Table 1** shows the lighting design criteria for corridors (roadway segments) and signalized intersections from FDM Table 231.2.1.

**Table 1. Florida Design Manual (FDM) Lighting Criteria**

Roadway Classification	Illumination Level Average Foot Candle		Illumination Uniformity Ratios		Veiling Luminance Ratio
	Horizontal (H.F.C)	Vertical (V.F.C)	Avg./Min.	Max./Min.	$L_{V(MAX)}/L_{AVG}$
<b>Corridor Lighting</b>					
Major Arterials	1.5	N/A	4:1 or Less	10:1 or Less	0.3:1 or Less
<b>Signalized Intersection Lighting</b>					
Lighting Retrofit	1.5 Std.	1.5 Std.	4:1 or Less	10:1 or Less	0.3:1 or Less
	1.0 Min.	1.0 Min.			

The mounting height of the lighting poles was also part of the analysis. **Table 2** shows the minimum FDOT required mounting heights per conventional lighting based on maximum candela values per FDM Table 231.2.2.

**Table 2. FDM Minimum Heights based on Maximum Candela**

Minimum Mounting Height (ft.)	Maximum Candela of Luminaire		
	Long Distribution	Medium Distribution	Short Distribution
20 or less	5,000	10,000	15,000
25	10,000	15,000	20,000
30	15,000	20,000	25,000
35	20,000	25,000	30,000
40	25,000	30,000	35,000
45	30,000	35,000	40,000
50	35,000	40,000	45,000

**Tables 3 and 4** summarize the results of the photometric analysis of existing street lighting system for roadway segments and signalized intersections within the study segment. A complete photometric analysis along with a sketch is provided in **Appendix B**. It should be noted that it was assumed that the non-functioning luminaires observed during the field review were working since maintenance could be performed in the short term.

**Table 3. Photometric Analysis of Existing Conditions – Corridor**

Segment	Travel Direction	Existing Lighting			Veiling Ratio
		Illumination Level Average Foot Candle	Illumination Uniformity Ratios		
		Avg. (Fc)	Avg./Min. (Fc)	Max./Min. (Fc)	
W 20th Ave to W 18th Ct	Eastbound	1.62	4.05	10.00	0.38
	Westbound	1.53	5.10	13.00	0.34
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>No/No</b>	<b>Yes/No</b>	<b>No/No</b>
W 18th Ct to W 17th Ct	Eastbound	2.07	20.70	123.00	0.51
	Westbound	1.88	9.40	38.00	0.91
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>No/No</b>	<b>No/No</b>	<b>No/No</b>
W 17th Ct to W 16th Ave	Eastbound	2.08	10.40	42.50	0.73
	Westbound	1.95	19.50	88.00	0.59
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>No/No</b>	<b>No/No</b>	<b>No/No</b>
W 16th Ave to W 14th Ln	Eastbound	2.00	20.00	85.00	0.55
	Westbound	1.94	19.40	84.00	0.96
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>No/No</b>	<b>No/No</b>	<b>No/No</b>
W 14th Ln to Ludlam Rd	Eastbound	1.13	N.A	N.A	3.83
	Westbound	1.28	12.80	82.00	1.29
<b>Meets Criteria?</b>		<b>No/No</b>	<b>No/No</b>	<b>No/No</b>	<b>No/No</b>
Ludlam Rd to W 10th Ave	Eastbound	2.25	2.81	5.13	0.85
	Westbound	2.10	3.00	6.14	0.94
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>No/No</b>
W 10th Ave to W 900 Blk	Eastbound	1.70	4.25	10.75	0.65
	Westbound	1.92	3.20	6.83	0.66
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>No/Yes</b>	<b>No/Yes</b>	<b>No/No</b>
W 900 Blk to W 8th Ave	Eastbound	2.31	3.30	7.14	0.63
	Westbound	2.09	6.97	17.00	1.06
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>Yes/No</b>	<b>Yes/No</b>	<b>No/No</b>
W 8th Ave to W 6th Ave	Eastbound	1.61	8.05	38.50	0.68
	Westbound	1.66	8.30	41.00	2.58
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>No/No</b>	<b>No/No</b>	<b>No/No</b>
W 6th Ave to W 500 Blk	Eastbound	2.24	7.47	24.67	0.91
	Westbound	2.26	5.65	20.25	1.79
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>No/No</b>	<b>No/No</b>	<b>No/No</b>
W 500 Blk to W 4th Ave	Eastbound	2.28	7.60	25.67	0.82
	Westbound	1.96	9.80	38.50	2.58
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>No/No</b>	<b>No/No</b>	<b>No/No</b>

**Table 4. Photometric Analysis of Existing Conditions – Signalized Intersections**

Signalized Intersection	Travel Direction	Existing Lighting		
		Illumination Level Average Foot Candle	Illumination Uniformity Ratios	
		Avg. (Fc)	Avg./Min. (Fc)	Max./Min. (Fc)
W 18th Ct	H.F.C	2.11	5.28	11.25
	V.F.C (NB)	0.00	N.A	N.A
	V.F.C (WB)	0.62	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/No/No</b>	<b>No</b>	<b>No</b>
W 17th Ct	H.F.C	1.57	15.70	76.00
	V.F.C (NB)	0.00	N.A	N.A
	V.F.C (WB)	3.16	N.A	N.A
	V.F.C (EB)	3.56	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/No/Yes/Yes</b>	<b>No</b>	<b>No</b>
W 16th Ave	H.F.C	2.74	6.85	18.75
	V.F.C (NB)	1.42	N.A	N.A
	V.F.C (SB)	2.40	N.A	N.A
	V.F.C (WB)	0.37	N.A	N.A
	V.F.C (EB)	0.86	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/Yes/Yes/No/No</b>	<b>No</b>	<b>No</b>
W 14th Ln	H.F.C	1.03	10.30	74.00
	V.F.C (NB)	0.00	N.A	N.A
	V.F.C (SB)	0.00	N.A	N.A
	V.F.C (WB)	0.12	N.A	N.A
	V.F.C (EB)	0.30	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/No/No/No/No</b>	<b>No</b>	<b>No</b>
Ludlam Rd	H.F.C	1.62	4.05	8.00
	V.F.C (NB)	2.29	N.A	N.A
	V.F.C (SB)	0.46	N.A	N.A
	V.F.C (WB)	1.96	N.A	N.A
	V.F.C (EB)	0.76	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/Yes/No/Yes/No</b>	<b>No</b>	<b>Yes</b>
W 10th Ave	H.F.C	2.19	3.65	7.67
	V.F.C (NB)	1.33	N.A	N.A
	V.F.C (SB)	0.00	N.A	N.A
	V.F.C (WB)	1.49	N.A	N.A
	V.F.C (EB)	1.15	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/Yes/No/Yes/Yes</b>	<b>Yes</b>	<b>Yes</b>
W 900 Blk	H.F.C	1.42	4.73	13.67
	V.F.C (EB)	0.57	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/No</b>	<b>No</b>	<b>No</b>
W 8th Ave	H.F.C	2.73	3.90	12.00
	V.F.C (NB)	0.67	N.A	N.A
	V.F.C (SB)	2.13	N.A	N.A
	V.F.C (WB)	4.62	N.A	N.A
	V.F.C (EB)	3.10	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/No/Yes/Yes/Yes</b>	<b>Yes</b>	<b>No</b>
W 6th Ave	H.F.C	1.92	9.60	43.00
	V.F.C (NB)	0.00	N.A	N.A
	V.F.C (SB)	0.00	N.A	N.A
	V.F.C (WB)	1.16	N.A	N.A
	V.F.C (EB)	0.47	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/No/No/Yes/No</b>	<b>No</b>	<b>No</b>
W 500 Blk	H.F.C	2.24	7.47	27.00
	V.F.C (NB)	0.00	N.A	N.A
	V.F.C (SB)	0.00	N.A	N.A
	V.F.C (WB)	4.43	N.A	N.A
	V.F.C (EB)	2.76	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/No/No/Yes/Yes</b>	<b>No</b>	<b>No</b>

Based on the results of the photometric analysis, the existing street lighting system does not meet the required FDOT illumination levels for roadway corridors or signalized intersections.

## 6 PHOTOMETRIC ANALYSIS OF PROPOSED IMPROVEMENTS

Proposed lighting improvements were developed using AGi32 Professional Software. A summary of the proposed improvements is described below:

- Install (14) new 30-foot lighting poles with LED luminaires of 175 watts
- Retrofit (91) existing luminaires on existing 30-to-45-foot light poles
- Remove (6) existing light poles; five (5) 30-foot poles and one (1) 45-foot pole

The results of the photometric analysis for the proposed lighting design are summarized for roadway segments and signalized intersections in **Tables 5** and **6**, respectively. A summary of the description of the proposed lighting conditions with the maximum candela is also provided in **Table 7**. The complete photometric analysis with sketch is provided in **Appendix C**.

**Table 5. Photometric Analysis of Proposed Conditions – Corridor**

Segment	Travel Direction	Proposed Lighting			
		Illumination Level Average Foot Candle	Illumination Uniformity Ratios		Veiling Ratio
		Avg. (Fc)	Avg./Min. (Fc)	Max./Min. (Fc)	
W 20th Ave to W 18th Ct	Eastbound	1.10	2.80	5.00	0.3
	Westbound	1.10	3.80	6.70	0.2
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>
W 18th Ct to W 17th Ct	Eastbound	1.60	3.10	8.20	0.3
	Westbound	1.70	3.30	7.80	0.3
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>
W 17th Ct to W 16th Ave	Eastbound	1.60	4.00	10.00	0.3
	Westbound	1.60	4.00	10.00	0.3
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>
W 16th Ave to W 14th Ln	Eastbound	1.70	3.50	8.40	0.3
	Westbound	1.80	3.60	8.00	0.1
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>
W 14th Ln to Ludlam Rd	Eastbound	1.60	4.00	10.00	0.3
	Westbound	1.60	4.00	10.00	0.20
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>
Ludlam Rd to W 10th Ave	Eastbound	1.50	2.10	3.60	0.3
	Westbound	1.50	2.10	3.40	0.3
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>
W 10th Ave to W 900 Blk	Eastbound	1.40	2.00	3.30	0.2
	Westbound	1.50	2.10	3.60	0.3
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>
W 900 Blk to W 8th Ave	Eastbound	1.40	2.10	3.10	0.3
	Westbound	1.40	2.00	3.30	0.3
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>
W 8th Ave to W 6th Ave	Eastbound	2.20	3.60	7.20	0.3
	Westbound	2.10	3.50	7.20	0.1
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>
W 6th Ave to W 500 Blk	Eastbound	2.10	3.50	6.70	0.3
	Westbound	2.10	3.40	7.00	0.3
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>
W 500 Blk to W 4th Ave	Eastbound	1.90	3.80	8.00	0.2
	Westbound	2.10	3.40	7.00	0.2
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>	<b>Yes/Yes</b>

**Table 6. Photometric Analysis of Proposed Conditions – Signalized Intersections**

Signalized Intersection	Travel Direction	Proposed Lighting		
		Illumination Level Average Foot Candle		Illumination Uniformity Ratios
		Avg. (Fc)	Avg./Min. (Fc)	Max./Min. (Fc)
W 18th Ct	H.F.C	2.10	2.30	4.00
	V.F.C (NB)	2.10	N.A	N.A
	V.F.C (WB)	1.10	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/Yes/Yes</b>	<b>Yes</b>	<b>Yes</b>
W 17th Ct	H.F.C	1.80	3.50	8.20
	V.F.C (NB)	1.20	N.A	N.A
	V.F.C (WB)	2.30	N.A	N.A
	V.F.C (EB)	2.30	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/Yes/Yes/Yes</b>	<b>Yes</b>	<b>Yes</b>
W 16th Ave	H.F.C	2.20	3.70	7.20
	V.F.C (NB)	1.40	N.A	N.A
	V.F.C (SB)	2.40	N.A	N.A
	V.F.C (WB)	1.00	N.A	N.A
	V.F.C (EB)	2.60	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/Yes/Yes/Yes/Yes</b>	<b>Yes</b>	<b>Yes</b>
W 14th Ln	H.F.C	1.20	3.00	6.80
	V.F.C (NB)	0.00	N.A	N.A
	V.F.C (SB)	1.80	N.A	N.A
	V.F.C (WB)	1.00	N.A	N.A
	V.F.C (EB)	2.80	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/No/Yes/Yes/Yes</b>	<b>Yes</b>	<b>Yes</b>
Ludlam Rd	H.F.C	1.40	2.80	6.80
	V.F.C (NB)	2.30	N.A	N.A
	V.F.C (SB)	1.00	N.A	N.A
	V.F.C (WB)	1.50	N.A	N.A
	V.F.C (EB)	1.00	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/Yes/Yes/Yes/Yes</b>	<b>Yes</b>	<b>Yes</b>
W 10th Ave	H.F.C	2.40	2	3.30
	V.F.C (NB)	1.30	N.A	N.A
	V.F.C (SB)	2.60	N.A	N.A
	V.F.C (WB)	1.20	N.A	N.A
	V.F.C (EB)	1.20	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/Yes/Yes/Yes/Yes</b>	<b>Yes</b>	<b>Yes</b>
W 900 Blk	H.F.C	1.10	1.80	3.20
	V.F.C (EB)	1.00	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/Yes</b>	<b>Yes</b>	<b>Yes</b>
W 8th Ave	H.F.C	2.40	2.70	4.90
	V.F.C (NB)	1.00	N.A	N.A
	V.F.C (SB)	2.20	N.A	N.A
	V.F.C (WB)	3.00	N.A	N.A
	V.F.C (EB)	1.30	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/Yes/Yes/Yes/Yes</b>	<b>Yes</b>	<b>Yes</b>
W 6th Ave	H.F.C	2.00	4.00	8.40
	V.F.C (NB)	0.00	N.A	N.A
	V.F.C (SB)	2.60	N.A	N.A
	V.F.C (WB)	1.00	N.A	N.A
	V.F.C (EB)	1.00	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/No/Yes/Yes/Yes</b>	<b>Yes</b>	<b>Yes</b>
W 500 Blk	H.F.C	1.90	3.8	8.40
	V.F.C (NB)	0.00	N.A	N.A
	V.F.C (SB)	0.00	N.A	N.A
	V.F.C (WB)	2.80	N.A	N.A
	V.F.C (EB)	2.10	N.A	N.A
<b>Meets Criteria?</b>		<b>Yes/No/No/Yes/Yes</b>	<b>Yes</b>	<b>Yes</b>



**Table 7. Summary of Proposed Maximum Candela**

Mounting Height	Luminaire Type	Max Candela	Distribution
30	ATB2_P605_R2_3K	16481.72 (20000)	Medium
45	ATB2_P605_R2_3K	16481.72 (35000)	Medium

The results of the photometric analysis indicate that the proposed lighting improvements fulfill the current FDOT lighting design requirements for roadway corridors and signalized intersections.

## 7 COST ESTIMATE

A preliminary construction cost estimate of the proposed lighting improvements of the conceptual design was developed. Pay items and historical costs were obtained from the Basis of Estimates (BOE) Manual. **Table 8** shows the preliminary construction cost estimate. A detailed preliminary construction cost estimate is provided in **Appendix D**.

**Table 8. Summary of Cost Estimate**

Description	Cost
Lighting	\$464,987.05
<b>SUBTOTAL</b>	<b>\$464,987.05</b>
Maintenance of Traffic (10%)	\$46,498.71
Mobilization (8%)	\$37,198.96
<b>GRAND TOTAL</b>	<b>\$548,684.72</b>
Design (30%)	\$164,605.72
CEI (20%)	\$109,736.94
Contingency (5%)	\$27,434.24
<b>COST ESTIMATE</b>	<b>\$850,461.31</b>

## 8 PROGRAMMED PROJECTS

A review of the FDOT five-year work program was performed to identify programmed projects within or adjacent to the study segment. Based on the review, the following projects were identified:

- FM 434768-3: SR 932/NW 103 ST/W 49 ST FROM WEST 3 AVENUE TO EAST 10 AVENUE
  - ✓ Work Mix: Resurfacing
  - ✓ Letting Date: 1/26/2022
  - ✓ FDOT PM: Elsa Riverol
  
- FM 443980-1: SR 932/NW 103 ST FROM NW 80 CT. TO NW 77 AVE
  - ✓ Work Mix: Traffic Ops Improvement
  - ✓ Letting Date: 5/29/2024
  - ✓ FDOT PM: Paola Martinez

- FM 445993-1: SR 932/NW 103 ST/W 49 ST FROM WEST OF NW 82 AVE TO EAST OF W 6 AVE
  - ✓ Work Mix: Resurfacing
  - ✓ Letting Date: 5/29/2024
  - ✓ FDOT PM: Jose Barrera
  
- FM 445993-1: SR 932/NW 103 ST/W 49 ST FROM WEST 24 AVENUE TO WEST 20 AVENUE
  - ✓ Work Mix: Resurfacing
  - ✓ Letting Date: 7/30/2026
  - ✓ FDOT PM: Judy Solaun

## 9 SUMMARY OF FINDINGS AND RECOMMENDATIONS

The photometric analysis of the existing lighting system for the study segment of SR 932/NW 103<sup>rd</sup> Street from SR 826 to West 4<sup>th</sup> Avenue showed that the existing lighting system does not meet required FDOT lighting criteria per FDM 231. Based on the results, the following lighting improvements are proposed:

- Install (14) new 30-foot lighting poles with LED luminaires of 175 watts
- Retrofit (91) existing luminaires on existing 30-to-45-foot light poles
- Remove (6) existing light poles; five (5) 30-foot poles and one (1) 45-foot pole

The proposed lighting improvements are estimated at a cost of \$850,461.31 and are recommended for implementation. In the short term, maintenance is recommended for the 17 non-functioning luminaires shown in the field review section of this report.

Eric D. Lindstrom, State of Florida, Professional Engineer, License No. 72898.

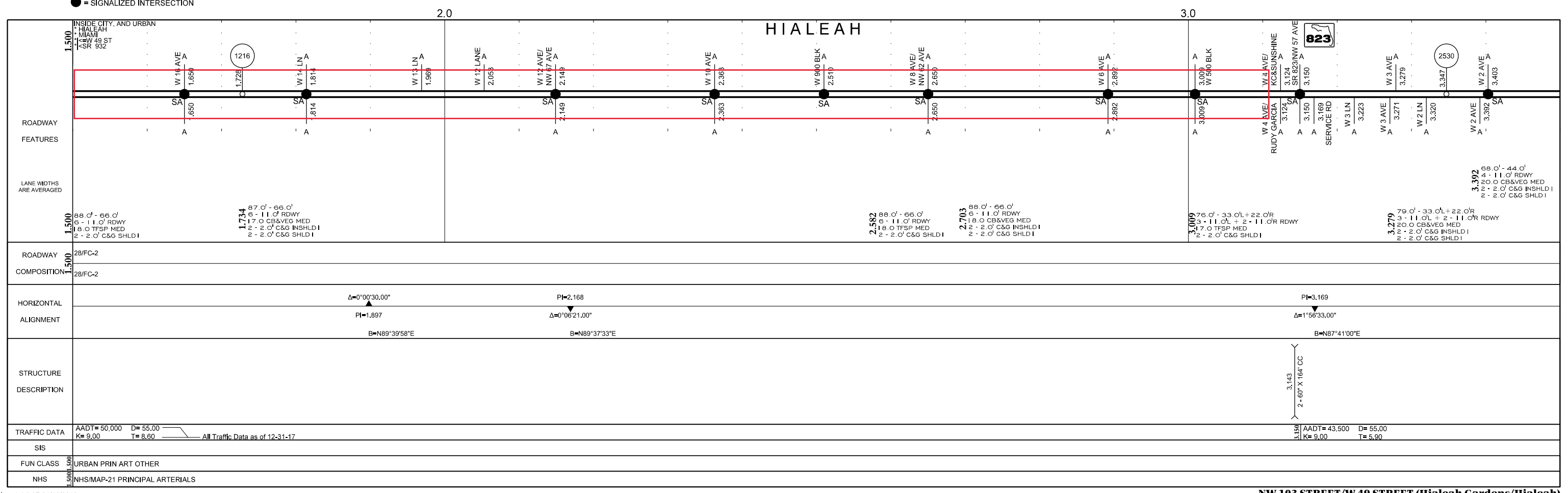
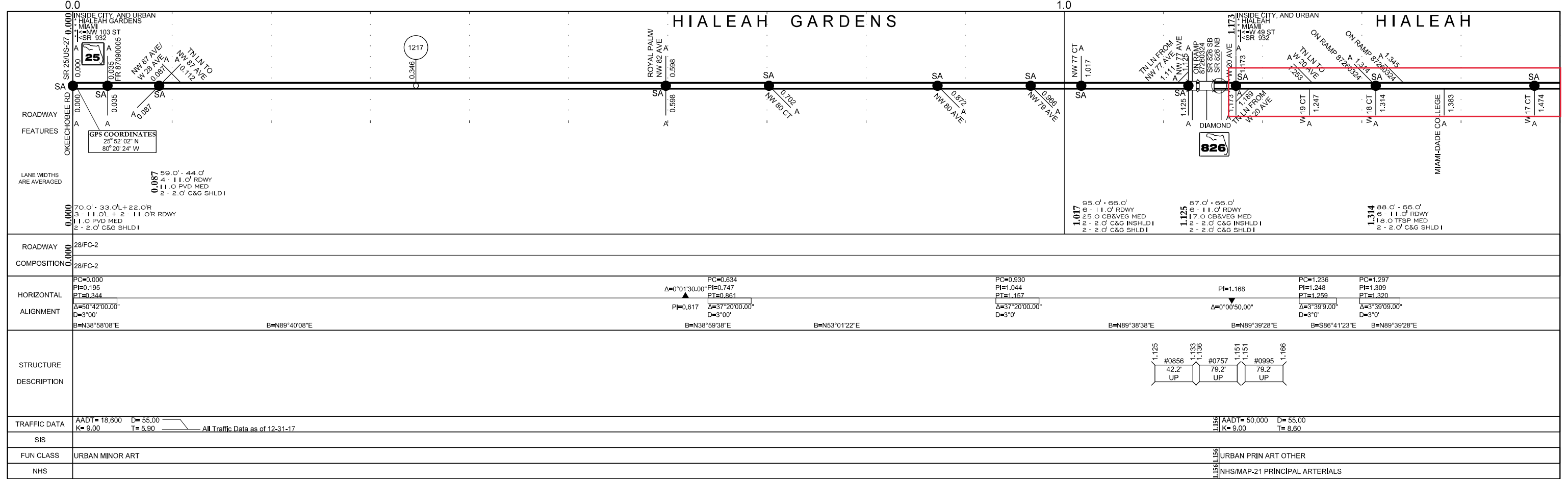
This item has been digitally signed and sealed by Eric D. Lindstrom, P.E. on the date indicated here.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

# APPENDIX A

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## Straight Line Diagram (SLD)



## APPENDIX B

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Existing Lighting Conditions Sketch  
Photometric Analysis

SR 932/NW 103rd STREET FROM SR 826 TO WEST 4th AVENUE

EXISTING CONDITIONS

LEGEND:

- (S) SEGMENTS
- (V) VEILING LUMINANCE RATIO
- (CV) CROSSWALK VERTICAL
- (I) INTERSECTION HORIZONTAL

Symbol	Qty	Label	Lum. Watts	Arrangement	LLF	Description
	20	GE453244 (8')	200	SINGLE	0.800	EXISTING LIGHT POLE 30'
	2	GE453244 (8')	200	SINGLE	0.800	EXISTING LIGHT POLE 45'
	1	GE453244 (10')	200	SINGLE	0.800	EXISTING LIGHT POLE 30'
	4	ATBL_D XXXXX R4_3K (10')	209	SINGLE	1.000	EXISTING LIGHT POLE 30'
	1	GE454201 (8')	250	SINGLE	0.800	EXISTING LIGHT POLE 30'
	1	GE454266 (4')	400	SINGLE	0.800	EXISTING LIGHT POLE 45'
	2	GE454266 (6')	400	SINGLE	0.800	EXISTING LIGHT POLE 30'
	34	GE454266 (8')	400	SINGLE	0.800	EXISTING LIGHT POLE 30'
	30	GE454266 (8')	400	SINGLE	0.800	EXISTING LIGHT POLE 45'
	11	GE454266 (12')	400	SINGLE	0.800	EXISTING LIGHT POLE 45'

LIGHTING DESIGN CRITERIA  
RETROFIT SIGNALIZED INTERSECTION

ILLUMINATION LEVEL AVERAGE INITIAL HORIZONTAL (H.F.C.):

1.5 F.C. STD  
1.0 F.C. MIN

UNIFORMITY RATIOS

AVG/MIN 4:1 OR LESS  
MAX/MIN 10:1 OR LESS

ILLUMINATION LEVEL AVERAGE INITIAL VERTICAL (V.F.C.):

1.5 F.C. STD  
1.0 F.C. MIN

VEILING ILLUMINANCE RATIO: 0.3:1 OR LESS

WIND SPEED: 160MPH

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	LVRatio
(CV) NW 103RD ST & LUDLAM RD EB THRU	Illuminance	Fc	0.76	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & LUDLAM RD NB THRU	Illuminance	Fc	2.29	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & LUDLAM RD SB THRU	Illuminance	Fc	0.46	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & LUDLAM RD WB THRU	Illuminance	Fc	1.96	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 10TH AVE EB THRU	Illuminance	Fc	1.15	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 10TH AVE NB THRU	Illuminance	Fc	1.33	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 10TH AVE SB THRU	Illuminance	Fc	0.00	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 10TH AVE WB THRU	Illuminance	Fc	1.49	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 14TH LN EB THRU	Illuminance	Fc	0.30	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 14TH LN NB THRU	Illuminance	Fc	0.00	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 14TH LN SB THRU	Illuminance	Fc	0.00	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 14TH LN WB THRU	Illuminance	Fc	0.12	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 16TH CT EB THRU	Illuminance	Fc	0.86	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 16TH CT NB THRU	Illuminance	Fc	1.42	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 16TH CT SB THRU	Illuminance	Fc	2.40	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 16TH CT WB THRU	Illuminance	Fc	0.37	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 17 CT EB THRU	Illuminance	Fc	3.56	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 17 CT NB THRU	Illuminance	Fc	0.00	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 17 CT WB THRU	Illuminance	Fc	3.16	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 18 CT NB THRU	Illuminance	Fc	0.00	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 18 CT WB THRU	Illuminance	Fc	0.62	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 500 BLK EB	Illuminance	Fc	2.76	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 500 BLK NB	Illuminance	Fc	0.00	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 500 BLK SB	Illuminance	Fc	0.00	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 500 BLK WB	Illuminance	Fc	4.43	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 6TH AVE EB	Illuminance	Fc	0.47	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 6TH AVE NB	Illuminance	Fc	0.00	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 6TH AVE SB	Illuminance	Fc	0.00	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 6TH AVE WB	Illuminance	Fc	1.16	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 8TH AVE EB	Illuminance	Fc	3.10	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 8TH AVE NB	Illuminance	Fc	0.67	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 8TH AVE SB	Illuminance	Fc	2.13	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 8TH AVE WB	Illuminance	Fc	4.62	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 900 BLK EB	Illuminance	Fc	0.57	N.A.	N.A.	N.A.	N.A.	N.A.
(I) NW 103RD ST & LUDLAM RD INT	Illuminance	Fc	1.62	3.2	0.4	4.05	8.00	N.A.
(I) NW 103RD ST & W 10TH AVE INT	Illuminance	Fc	2.19	4.6	0.6	3.65	7.67	N.A.
(I) NW 103RD ST & W 14TH LN INT	Illuminance	Fc	1.03	7.4	0.1	10.30	74.00	N.A.
(I) NW 103RD ST & W 16TH CT INT	Illuminance	Fc	2.74	7.5	0.4	6.85	18.75	N.A.

REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			CALCULATION SUMMARY & LUMINAIRE SCHEDULE	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
						SR 932	MIAMI-DADE		

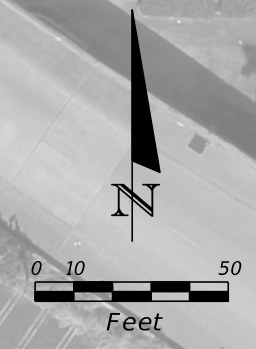
SR 932/NW 103rd STREET FROM SR 826 TO WEST 4th AVENUE

EXISTING CONDITIONS

Calculation Summary								
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	LVRatio
(I) NW 103RD ST & W 17 CT INT	Illuminance	Fc	1.57	7.6	0.1	15.70	76.00	N.A.
(I) NW 103RD ST & W 18 CT INT	Illuminance	Fc	2.11	4.5	0.4	5.28	11.25	N.A.
(I) NW 103RD ST & W 500 BLK INT	Illuminance	Fc	2.24	8.1	0.3	7.47	27.00	N.A.
(I) NW 103RD ST & W 6TH AVE INT	Illuminance	Fc	1.92	8.6	0.2	9.60	43.00	N.A.
(I) NW 103RD ST & W 8TH AVE INT	Illuminance	Fc	2.73	8.4	0.7	3.90	12.00	N.A.
(I) NW 103RD ST & W 900 BLK INT	Illuminance	Fc	1.42	4.1	0.3	4.73	13.67	N.A.
(S) W 14TH LN TO LUDLAM RD EB	Illuminance	Fc	1.13	8.3	0.0	N.A.	N.A.	N.A.
(S) W 14TH LN TO LUDLAM RD WB	Illuminance	Fc	1.28	8.2	0.1	12.80	82.00	N.A.
(S) W 17 CT TO W 16TH AVE EB	Illuminance	Fc	2.08	8.5	0.2	10.40	42.50	N.A.
(S) W 17 CT TO W 16TH AVE WB	Illuminance	Fc	1.95	8.8	0.1	19.50	88.00	N.A.
(S) W 18 CT TO W 17 CT EB	Illuminance	Fc	2.07	12.3	0.1	20.70	123.00	N.A.
(S) W 18 CT TO W 17 CT WB	Illuminance	Fc	1.88	7.6	0.2	9.40	38.00	N.A.
(S) W 20TH AVE TO W 18 CT EB	Illuminance	Fc	1.62	4.0	0.4	4.05	10.00	N.A.
(S) W 20TH AVE TO W 18 CT WB	Illuminance	Fc	1.53	3.9	0.3	5.10	13.00	N.A.
(S) W 6TH AVE TO W 500 BLK EB	Illuminance	Fc	2.24	7.4	0.3	7.47	24.67	N.A.
(S) W 6TH AVE TO W 500 BLK WB	Illuminance	Fc	2.26	8.1	0.4	5.65	20.25	N.A.
(S) LUDLAM RD TO W 10TH AVE EB	Illuminance	Fc	2.25	4.1	0.8	2.81	5.13	N.A.
(S) LUDLAM RD TO W 10TH AVE WB	Illuminance	Fc	2.10	4.3	0.7	3.00	6.14	N.A.
(S) W 10TH AVE TO W 900 BLK EB	Illuminance	Fc	1.70	4.3	0.4	4.25	10.75	N.A.
(S) W 10TH AVE TO W 900 BLK WB	Illuminance	Fc	1.92	4.1	0.6	3.20	6.83	N.A.
(S) W 16TH AVE TO W 14TH LN EB	Illuminance	Fc	2.00	8.5	0.1	20.00	85.00	N.A.
(S) W 16TH AVE TO W 14TH LN WB	Illuminance	Fc	1.94	8.4	0.1	19.40	84.00	N.A.
(S) W 500 BLK TO W 4TH AVE EB	Illuminance	Fc	2.28	7.7	0.3	7.60	25.67	N.A.
(S) W 500 BLK TO W 4TH AVE WB	Illuminance	Fc	1.96	7.7	0.2	9.80	38.50	N.A.
(S) W 8TH AVE TO W 6TH AVE EB	Illuminance	Fc	1.61	7.7	0.2	8.05	38.50	N.A.
(S) W 8TH AVE TO W 6TH AVE WB	Illuminance	Fc	1.66	8.2	0.2	8.30	41.00	N.A.
(S) W 900 BLK TO W 8TH AVE EB	Illuminance	Fc	2.31	5.0	0.7	3.30	7.14	N.A.
(S) W 900 BLK TO W 8TH AVE WB	Illuminance	Fc	2.09	5.1	0.3	6.97	17.00	N.A.
(V) W 14TH LN TO LUDLAM RD EB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	3.83
(V) W 14TH LN TO LUDLAM RD WB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	1.29
(V) W 17 CT TO W 16TH AVE EB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.73
(V) W 17 CT TO W 16TH AVE WB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.59
(V) W 18 CT TO W 17 CT EB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.51
(V) W 18 CT TO W 17 CT WB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.91
(V) W 20TH AVE TO W 18 CT EB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.38
(V) W 20TH AVE TO W 18 CT WB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.34
(V) W 6TH AVE TO W 500 BLK EB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.91
(V) W 6TH AVE TO W 500 BLK WB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	1.79
(V) LUDLAM RD TO W 10TH AVE EB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.85
(V) LUDLAM RD TO W 10TH AVE WB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.94
(V) W 10TH AVE TO W 900 BLK EB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.65
(V) W 10TH AVE TO W 900 BLK WB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.66
(V) W 16TH AVE TO W 14TH LN EB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.55
(V) W 16TH AVE TO W 14TH LN WB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.96
(V) W 500 BLK TO W 4TH AVE EB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.82
(V) W 500 BLK TO W 4TH AVE WB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	2.58
(V) W 8TH AVE TO W 6TH AVE EB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.68
(V) W 8TH AVE TO W 6TH AVE WB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	2.58
(V) W 900 BLK TO W 8TH AVE EB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.63
(V) W 900 BLK TO W 8TH AVE WB_Veil_Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	1.06

REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			CALCULATION SUMMARY & LUMINAIRE SCHEDULE	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 932	MIAMI-DADE			L-2





W 20TH AVE

W 19TH CT

NW 103RD ST

NW 103RD ST

MATCH LINE 01



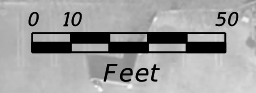
REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

EDUARDO L. MARTINEZ, PE.  
 PE LICENSE No. 52023  
 A&P CONSULTING TRANSPORTATION  
 ENGINEERS CORP.  
 8935 N.W. 35TH LANE, SUITE 200  
 DORAL, FL 33172

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 932	MIAMI-DADE	

**EXISTING CONDITIONS**

SHEET NO.  
L-3



MATCH LINE 01

MATCH LINE 02



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

EDUARDO L. MARTINEZ, PE.  
 PE LICENSE No. 52023  
 A&P CONSULTING TRANSPORTATION  
 ENGINEERS CORP.  
 8935 N.W. 35TH LANE, SUITE 200  
 DORAL, FL 33172

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 932	MIAMI-DADE	

**EXISTING CONDITIONS**

SHEET NO.  
L-4



MATCH LINE 02

MATCH LINE 03

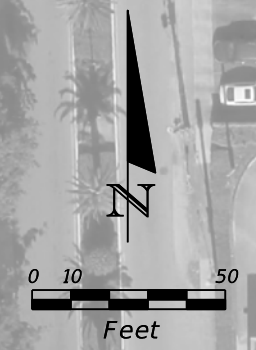
REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<b>EXISTING CONDITIONS</b>	SHEET NO.  L-5
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 932	MIAMI-DADE			



MATCH LINE 03

MATCH LINE 04

REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<b>EXISTING CONDITIONS</b>	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
						SR 932	MIAMI-DADE		



MATCH LINE 04

MATCH LINE 05



REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<i>EXISTING CONDITIONS</i>	SHEET NO.  L-7
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 932	MIAMI-DADE			



MATCH LINE 05

MATCH LINE 06



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

EDUARDO L. MARTINEZ, PE.  
 PE LICENSE No. 52023  
 A&P CONSULTING TRANSPORTATION  
 ENGINEERS CORP.  
 8935 N.W. 35TH LANE, SUITE 200  
 DORAL, FL 33172

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 932	MIAMI-DADE	

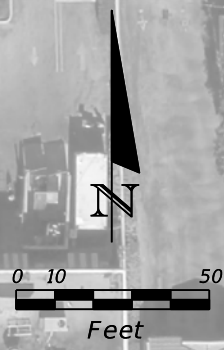
**EXISTING CONDITIONS**

SHEET NO.  
L-8



MATCH LINE 06

MATCH LINE 07



REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<i>EXISTING CONDITIONS</i>	SHEET NO.  L-9
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 932	MIAMI-DADE			



MATCH LINE 07

MATCH LINE 08

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

EDUARDO L. MARTINEZ, PE.  
 PE LICENSE No. 52023  
 A&P CONSULTING TRANSPORTATION  
 ENGINEERS CORP.  
 8935 N.W. 35TH LANE, SUITE 200  
 DORAL, FL 33172

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 932	MIAMI-DADE	

**EXISTING CONDITIONS**

SHEET NO.  
L-10



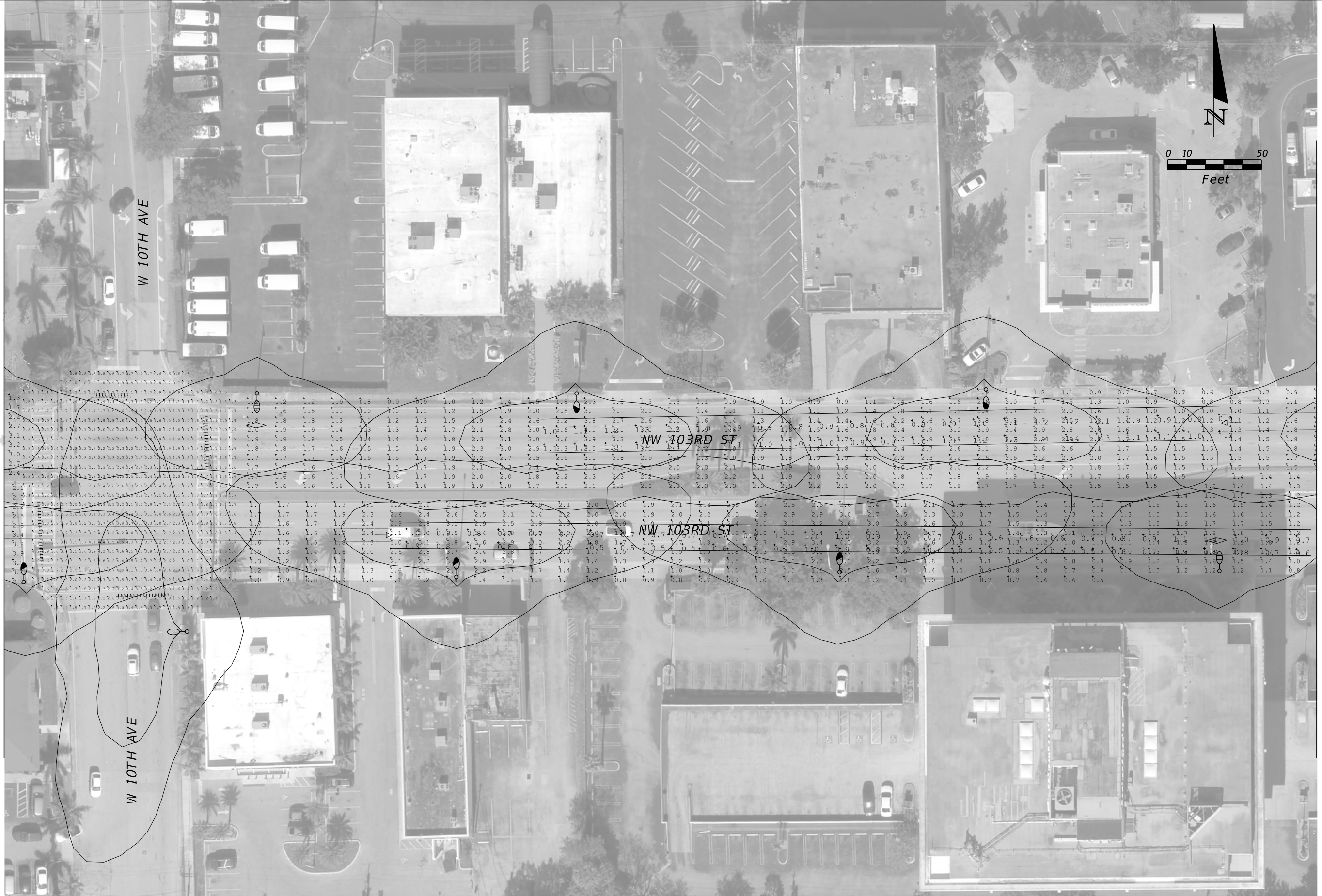


MATCH LINE 08

MATCH LINE 09



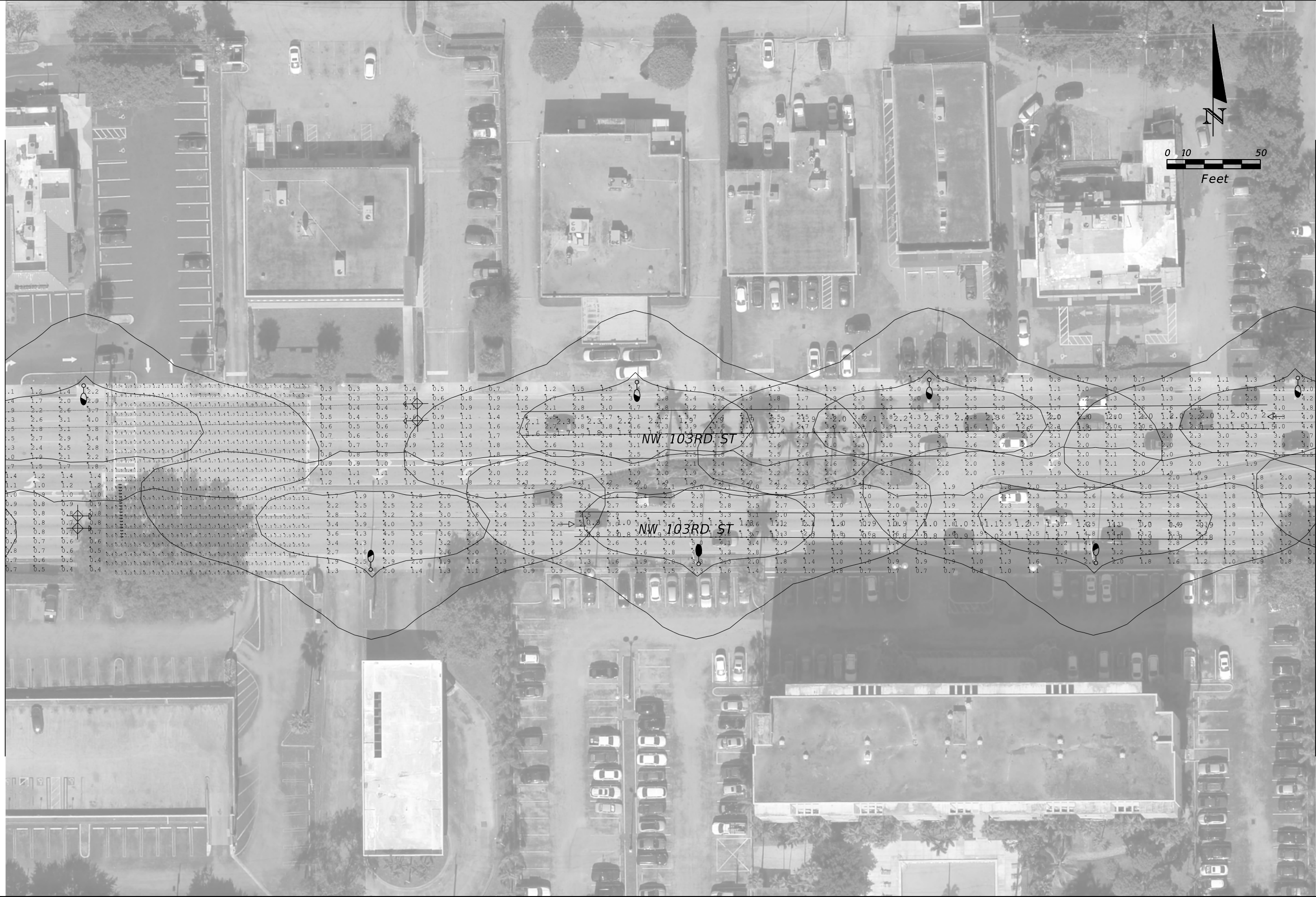
REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<i>EXISTING CONDITIONS</i>	SHEET NO.  L-11
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 932	MIAMI-DADE			



MATCH LINE 09

MATCH LINE 10

REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<b>EXISTING CONDITIONS</b>	SHEET NO.  L-12
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 932	MIAMI-DADE			



MATCH LINE 10

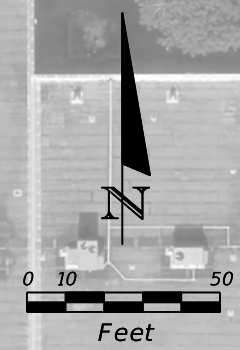
MATCH LINE 11

REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<b>EXISTING CONDITIONS</b>	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
						SR 932	MIAMI-DADE		



MATCH LINE 11

MATCH LINE 12



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

EDUARDO L. MARTINEZ, PE.  
 PE LICENSE No. 52023  
 A&P CONSULTING TRANSPORTATION  
 ENGINEERS CORP.  
 8935 N.W. 35TH LANE, SUITE 200  
 DORAL, FL 33172

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 932	MIAMI-DADE	

**EXISTING CONDITIONS**

SHEET NO.  
L-14



MATCH LINE 12

MATCH LINE 13

W 8TH AVE

NW 103RD ST

NW 103RD ST



REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<i>EXISTING CONDITIONS</i>	SHEET NO.  L-15
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 932	MIAMI-DADE			



MATCH LINE 13

MATCH LINE 14

W 6TH AVE

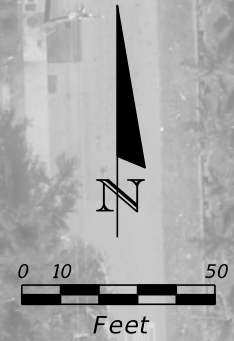
W 6TH AVE

NW 103RD ST

NW 103RD ST



REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<b>EXISTING CONDITIONS</b>	SHEET NO.  L-16
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 932	MIAMI-DADE			



MATCH LINE 14



REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<i>EXISTING CONDITIONS</i>	SHEET NO.  L-17
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 932	MIAMI-DADE			

# APPENDIX C

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Proposed Lighting Conditions Sketch  
Photometric Analysis



PROPOSED CONDITIONS

Symbol	Qty	Label	Lum. Watts	Arrangement	LLF	Description
	14	ATB2_P605_R2_3K_8	295	SINGLE	1.000	NEW LIGHT POLE 30'
	50	ATB2_P605_R2_3K_8	295	SINGLE	1.000	EXISTING LIGHT POLE 30' (RETROFIT LUMINAIRE)
	24	ATB2_P605_R2_3K_8	295	SINGLE	1.000	EXISTING LIGHT POLE 45' (RETROFIT LUMINAIRE)
	5	ATB2_P605_R2_3K_10	295	SINGLE	1.000	EXISTING LIGHT POLE 30' (RETROFIT LUMINAIRE)
	1	ATB2_P605_R2_3K_4	295	SINGLE	1.000	EXISTING LIGHT POLE 45' (RETROFIT LUMINAIRE)
	2	ATB2_P605_R2_3K_6	295	SINGLE	1.000	EXISTING LIGHT POLE 30' (RETROFIT LUMINAIRE)
	9	ATB2_P605_R2_3K_12	295	SINGLE	1.000	EXISTING LIGHT POLE 45' (RETROFIT LUMINAIRE)
	2	GE454266_12	295	SINGLE	0.800	EXISTING LIGHT POLE 45' (EXISTING LUMINAIRE)
	7	GE454266_8	295	SINGLE	0.800	EXISTING LIGHT POLE 45' (EXISTING LUMINAIRE)

Label	Mounting Height (ft)	Candela Of Luminaire Medium Distribution
ATB2_P605_R2_3K	30	16481.72 (20000)
ATB2_P605_R2_3K	45	16481.72 (35000)

LEGEND:

- (S) SEGMENTS
- (V) VEILING LUMINANCE RATIO
- (CV) CROSSWALK VERTICAL
- (I) INTERSECTION HORIZONTAL
- EXISTING LIGHT POLE TO BE REMOVED

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	LVRatio
(CV) NW 103RD ST & LUDLAM RD EB THRU	Illuminance	Fc	1.0	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & LUDLAM RD NB THRU	Illuminance	Fc	2.3	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & LUDLAM RD SB THRU	Illuminance	Fc	1.0	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & LUDLAM RD WB THRU	Illuminance	Fc	1.5	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 10TH AVE EB THRU	Illuminance	Fc	1.2	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 10TH AVE NB THRU	Illuminance	Fc	1.3	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 10TH AVE SB THRU	Illuminance	Fc	2.6	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 10TH AVE WB THRU	Illuminance	Fc	1.2	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 14TH LN EB THRU	Illuminance	Fc	2.8	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 14TH LN NB THRU	Illuminance	Fc	0.0	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 14TH LN SB THRU	Illuminance	Fc	1.8	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 14TH LN WB THRU	Illuminance	Fc	1.0	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 16TH CT EB THRU	Illuminance	Fc	2.6	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 16TH CT NB THRU	Illuminance	Fc	1.4	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 16TH CT SB THRU	Illuminance	Fc	2.4	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 16TH CT WB THRU	Illuminance	Fc	1.0	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 17 CT EB THRU	Illuminance	Fc	2.3	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 17 CT NB THRU	Illuminance	Fc	1.2	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 17 CT WB THRU	Illuminance	Fc	2.3	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 18 CT NB THRU	Illuminance	Fc	2.1	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 18 CT WB THRU	Illuminance	Fc	1.1	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 500 BLK EB THRU	Illuminance	Fc	2.1	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 500 BLK NB THRU	Illuminance	Fc	0.0	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 500 BLK SB THRU	Illuminance	Fc	0.0	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 500 BLK WB THRU	Illuminance	Fc	2.8	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 6TH AVE EB THRU	Illuminance	Fc	1.0	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 6TH AVE NB THRU	Illuminance	Fc	0.0	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 6TH AVE SB THRU	Illuminance	Fc	2.6	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 6TH AVE WB THRU	Illuminance	Fc	1.0	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 8TH AVE EB THRU	Illuminance	Fc	1.3	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 8TH AVE NB THRU	Illuminance	Fc	1.0	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 8TH AVE SB THRU	Illuminance	Fc	2.2	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 8TH AVE WB THRU	Illuminance	Fc	3.0	N.A.	N.A.	N.A.	N.A.	N.A.
(CV) NW 103RD ST & W 900 BLK EB THRU	Illuminance	Fc	1.0	N.A.	N.A.	N.A.	N.A.	N.A.
(I) NW 103RD ST & LUDLAM RD INT	Illuminance	Fc	1.4	3.4	0.5	2.8	6.8	N.A.
(I) NW 103RD ST & W 10TH AVE INT	Illuminance	Fc	2.4	4.0	1.2	2.0	3.3	N.A.
(I) NW 103RD ST & W 14TH LN INT	Illuminance	Fc	1.2	2.7	0.4	3.0	6.8	N.A.
(I) NW 103RD ST & W 16TH CT INT	Illuminance	Fc	2.2	4.3	0.6	3.7	7.2	N.A.
(I) NW 103RD ST & W 17 CT INT	Illuminance	Fc	1.8	4.1	0.5	3.5	8.2	N.A.

LIGHTING DESIGN CRITERIA  
RETROFIT SIGNALIZED INTERSECTION

ILLUMINATION LEVEL AVERAGE INITIAL HORIZONTAL (H.F.C.):

1.5 F.C. STD  
1.0 F.C. MIN

UNIFORMITY RATIOS

AVG/MIN 4:1 OR LESS  
MAX/MIN 10:1 OR LESS

ILLUMINATION LEVEL AVERAGE INITIAL VERTICAL (V.F.C.):

1.5 F.C. STD  
1.0 F.C. MIN

VEILING ILLUMINANCE RATIO: 0.3:1 OR LESS

WIND SPEED: 160MPH

REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			CALCULATION SUMMARY & LUMINAIRE SCHEDULE	SHEET NO.  L-1
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 932	MIAMI-DADE			

SR 932/NW 103rd STREET FROM SR 826 TO WEST 4th AVENUE

PROPOSED CONDITIONS

Calculation Summary								
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	LVRatio
(I) NW 103RD ST & W 18 CT INT	Illuminance	Fc	2.1	3.6	0.9	2.3	4.0	N.A.
(I) NW 103RD ST & W 500 BLK INT	Illuminance	Fc	1.9	4.2	0.5	3.8	8.4	N.A.
(I) NW 103RD ST & W 6TH AVE INT	Illuminance	Fc	2.0	4.2	0.5	4.0	8.4	N.A.
(I) NW 103RD ST & W 8TH AVE INT	Illuminance	Fc	2.4	4.4	0.9	2.7	4.9	N.A.
(I) NW 103RD ST & W 900 BLK INT	Illuminance	Fc	1.1	1.9	0.6	1.8	3.2	N.A.
(S) W 14TH LN TO LUDLAM RD EB	Illuminance	Fc	1.6	4.0	0.4	4.0	10.0	N.A.
(S) W 14TH LN TO LUDLAM RD WB	Illuminance	Fc	1.6	4.0	0.4	4.0	10.0	N.A.
(S) W 17 CT TO W 16TH AVE EB	Illuminance	Fc	1.6	4.0	0.4	4.0	10.0	N.A.
(S) W 17 CT TO W 16TH AVE WB	Illuminance	Fc	1.6	4.0	0.4	4.0	10.0	N.A.
(S) W 18 CT TO W 17 CT EB	Illuminance	Fc	1.6	4.1	0.5	3.1	8.2	N.A.
(S) W 18 CT TO W 17 CT WB	Illuminance	Fc	1.7	3.9	0.5	3.3	7.8	N.A.
(S) W 20TH AVE TO W 18 CT EB	Illuminance	Fc	1.1	2.0	0.4	2.8	5.0	N.A.
(S) W 20TH AVE TO W 18 CT WB	Illuminance	Fc	1.1	2.0	0.3	3.8	6.7	N.A.
(S) W 6TH AVE TO W 500 BLK EB	Illuminance	Fc	2.1	4.0	0.6	3.5	6.7	N.A.
(S) W 6TH AVE TO W 500 BLK WB	Illuminance	Fc	2.1	4.2	0.6	3.4	7.0	N.A.
(S) LUDLAM RD TO W 10TH AVE EB	Illuminance	Fc	1.5	2.5	0.7	2.1	3.6	N.A.
(S) LUDLAM RD TO W 10TH AVE WB	Illuminance	Fc	1.5	2.4	0.7	2.1	3.4	N.A.
(S) W 10TH AVE TO W 900 BLK EB	Illuminance	Fc	1.4	2.3	0.7	2.0	3.3	N.A.
(S) W 10TH AVE TO W 900 BLK WB	Illuminance	Fc	1.5	2.5	0.7	2.1	3.6	N.A.
(S) W 16TH AVE TO W 14TH LN EB	Illuminance	Fc	1.7	4.2	0.5	3.5	8.4	N.A.
(S) W 16TH AVE TO W 14TH LN WB	Illuminance	Fc	1.8	4.0	0.5	3.6	8.0	N.A.
(S) W 500 BLK TO W 4TH AVE EB	Illuminance	Fc	1.9	4.0	0.5	3.8	8.0	N.A.
(S) W 500 BLK TO W 4TH AVE WB	Illuminance	Fc	2.1	4.2	0.6	3.4	7.0	N.A.
(S) W 8TH AVE TO W 6TH AVE EB	Illuminance	Fc	2.2	4.3	0.6	3.6	7.2	N.A.
(S) W 8TH AVE TO W 6TH AVE WB	Illuminance	Fc	2.1	4.3	0.6	3.5	7.2	N.A.
(S) W 900 BLK TO W 8 TH AVE EB	Illuminance	Fc	1.4	2.2	0.7	2.1	3.1	N.A.
(S) W 900 BLK TO W 8 TH AVE WB	Illuminance	Fc	1.4	2.3	0.7	2.0	3.3	N.A.
(V) W 14TH LN TO LUDLAM RD EB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.3
(V) W 14TH LN TO LUDLAM RD WB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.2
(V) W 17 CT TO W 16TH AVE EB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.3
(V) W 17 CT TO W 16TH AVE WB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.3
(V) W 18 CT TO W 17 CT EB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.3
(V) W 18 CT TO W 17 CT WB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.3
(V) W 20TH AVE TO W 18 CT EB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.3
(V) W 20TH AVE TO W 18 CT WB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.2
(V) W 6TH AVE TO W 500 BLK EB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.3
(V) W 6TH AVE TO W 500 BLK WB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.3
(V) LUDLAM RD TO W 10TH AVE EB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.3
(V) LUDLAM RD TO W 10TH AVE WB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.3
(V) W 10TH AVE TO W 900 BLK EB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.2
(V) W 10TH AVE TO W 900 BLK WB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.3
(V) W 16TH AVE TO W 14TH LN EB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.3
(V) W 16TH AVE TO W 14TH LN WB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.1
(V) W 500 BLK TO W 4TH AVE EB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.2
(V) W 500 BLK TO W 4TH AVE WB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.2
(V) W 8TH AVE TO W 6TH AVE EB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.3
(V) W 8TH AVE TO W 6TH AVE WB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.1
(V) W 900 BLK TO W 8 TH AVE EB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.3
(V) W 900 BLK TO W 8 TH AVE WB Veil Lum	Veiling Luminance	Cd/Sq.m	N.A.	N.A.	N.A.	N.A.	N.A.	0.3

REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			CALCULATION SUMMARY & LUMINAIRE SCHEDULE	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 932	MIAMI-DADE			L-2



MATCH LINE 01

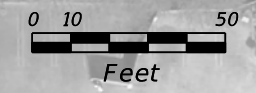
REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

EDUARDO L. MARTINEZ, PE.  
 PE LICENSE No. 52023  
 A&P CONSULTING TRANSPORTATION  
 ENGINEERS CORP.  
 8935 N.W. 35TH LANE, SUITE 200  
 DORAL, FL 33172

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 932	MIAMI-DADE	

**PROPOSED CONDITIONS**

SHEET NO.  
L-3



MATCH LINE 01

MATCH LINE 02



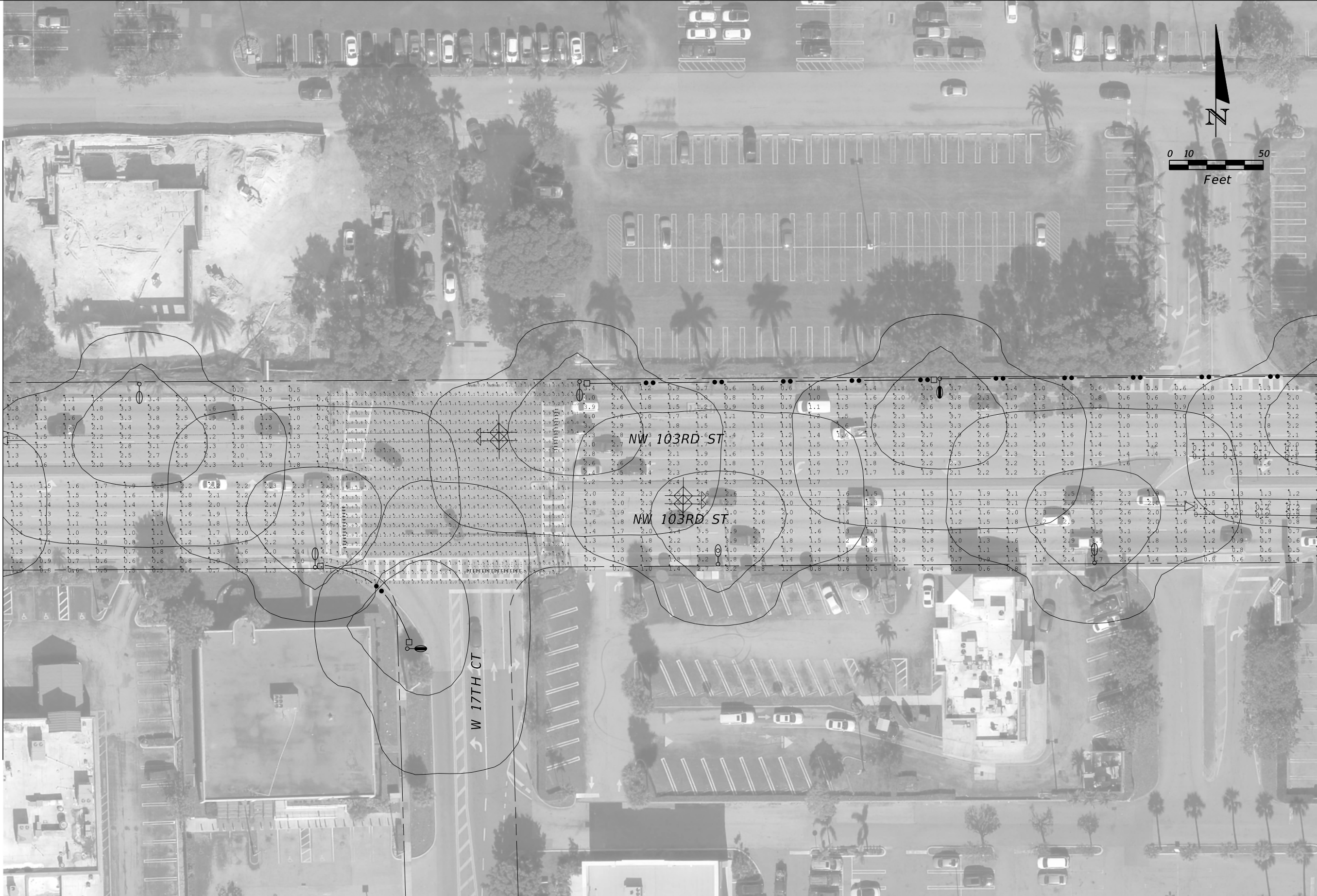
REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

EDUARDO L. MARTINEZ, PE.  
 PE LICENSE No. 52023  
 A&P CONSULTING TRANSPORTATION  
 ENGINEERS CORP.  
 8935 N.W. 35TH LANE, SUITE 200  
 DORAL, FL 33172

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 932	MIAMI-DADE	

**PROPOSED CONDITIONS**

SHEET NO.  
L-4



MATCH LINE 02

MATCH LINE 03

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

EDUARDO L. MARTINEZ, PE.  
 PE LICENSE No. 52023  
 A&P CONSULTING TRANSPORTATION  
 ENGINEERS CORP.  
 8935 N.W. 35TH LANE, SUITE 200  
 DORAL, FL 33172

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 932	MIAMI-DADE	

**PROPOSED CONDITIONS**

SHEET NO.  
L-5



MATCH LINE 03

MATCH LINE 04



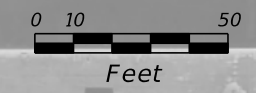
REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

EDUARDO L. MARTINEZ, PE.  
 PE LICENSE No. 52023  
 A&P CONSULTING TRANSPORTATION  
 ENGINEERS CORP.  
 8935 N.W. 35TH LANE, SUITE 200  
 DORAL, FL 33172

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 932	MIAMI-DADE	

**PROPOSED CONDITIONS**

SHEET NO.  
L-6



MATCH LINE 04

MATCH LINE 05



REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.  L-7
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
					SR 932	MIAMI-DADE		

**PROPOSED CONDITIONS**



MATCH LINE 05

MATCH LINE 06

DATE		DESCRIPTION		DATE	DESCRIPTION
REVISIONS					
EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172					
ROAD NO.		COUNTY		FINANCIAL PROJECT ID	
SR 932		MIAMI-DADE		DEPARTMENT OF TRANSPORTATION <b>PROPOSED CONDITIONS</b>	
SHEET NO.					L-8



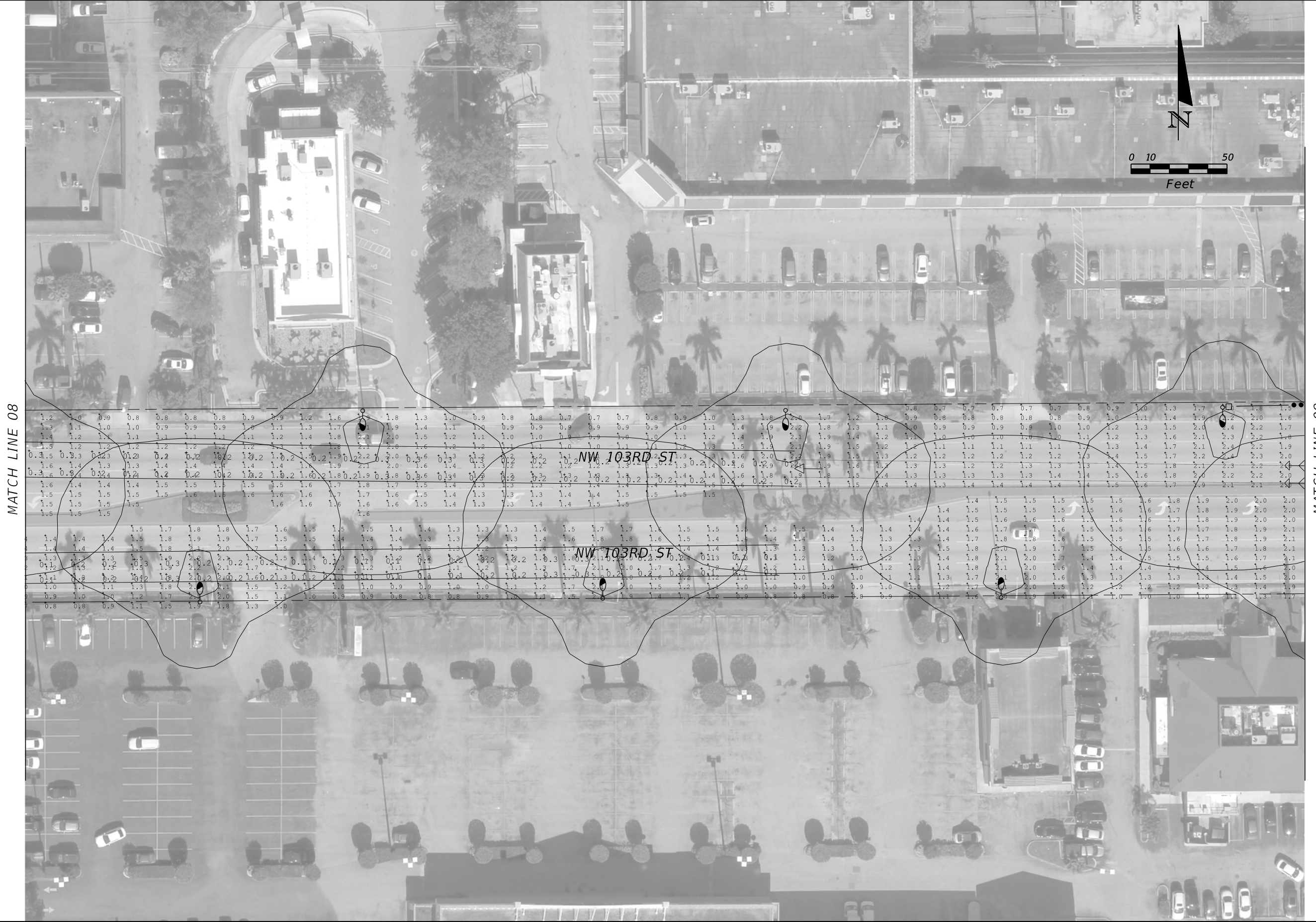


MATCH LINE 06

MATCH LINE 07

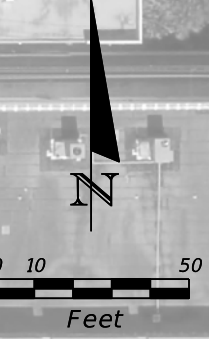
REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<i>PROPOSED CONDITIONS</i>	SHEET NO.  L-9
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 932	MIAMI-DADE			





MATCH LINE 08

MATCH LINE 09



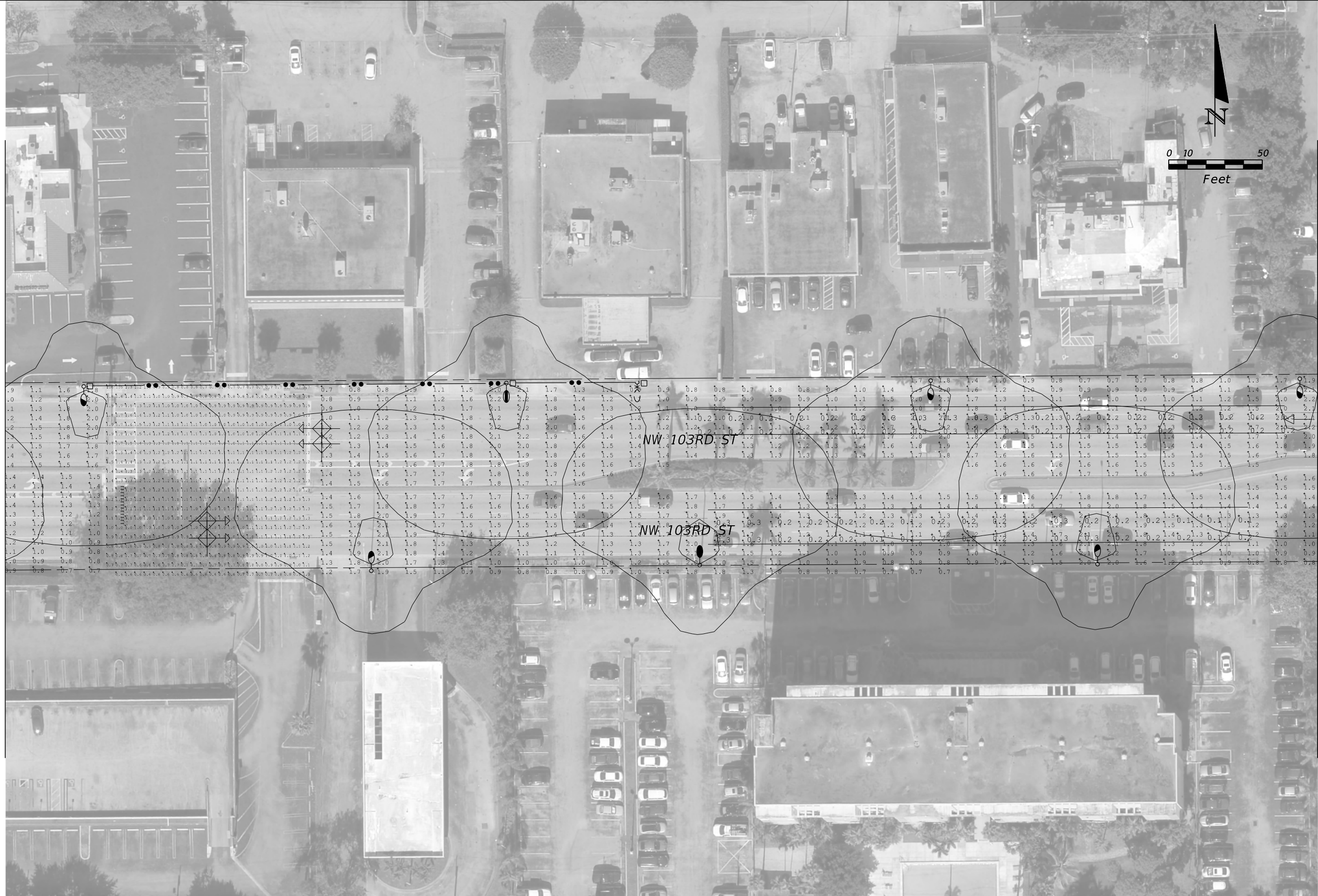
REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PROPOSED CONDITIONS	SHEET NO.  L-11
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 932	MIAMI-DADE			



MATCH LINE 09

MATCH LINE 10

REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<i>PROPOSED CONDITIONS</i>	SHEET NO.  L-12
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 932	MIAMI-DADE			



MATCH LINE 10

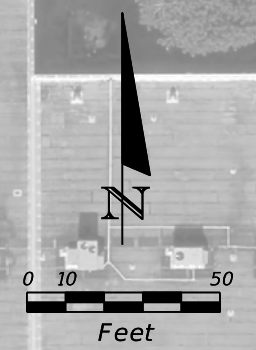
MATCH LINE 11

NW 103RD ST

NW 103RD ST



REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<b>PROPOSED CONDITIONS</b>	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
						SR 932	MIAMI-DADE		



MATCH LINE 11

MATCH LINE 12



REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<b>PROPOSED CONDITIONS</b>	SHEET NO.  L-14
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 932	MIAMI-DADE			



MATCH LINE 12

MATCH LINE 13

REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<i>PROPOSED CONDITIONS</i>	SHEET NO.  L-15
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 932	MIAMI-DADE			



MATCH LINE 13

MATCH LINE 14



W 6TH AVE

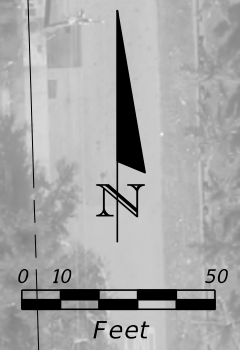
W 6TH AVE

NW 103RD ST

NW 103RD ST

REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<b>PROPOSED CONDITIONS</b>	SHEET NO.  L-16
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 932	MIAMI-DADE			





MATCH LINE 14



REVISIONS				EDUARDO L. MARTINEZ, PE. PE LICENSE No. 52023 A&P CONSULTING TRANSPORTATION ENGINEERS CORP. 8935 N.W. 35TH LANE, SUITE 200 DORAL, FL 33172	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<i>PROPOSED CONDITIONS</i>	SHEET NO.  L-17
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 932	MIAMI-DADE			

# APPENDIX D

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## Preliminary Cost Estimate

SR 932/NW 103rd STREET FROM SR 826 TO WEST 4th AVENUE

Pay Items No.	Description	Units	Unit Prices	Quantity	Total
630-2-12	CONDUIT, FURNISH & INSTALL, DIRECTIONAL BORE	LF	\$29.36	3412	\$100,176.32
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24" COVER SIZE	EA	\$972.78	36	\$35,020.08
715-1-12	LIGHTING CONDUCTORS, F&I, INSULATED, NO.8 - 6	LF	\$2.85	11532	\$32,866.20
715-11-211	LUMINAIRE, F&I- REPLACE EXISTING LUMINAIRE ON EXISTING POLE/ARM, ROADWAY, COBRA HEAD	EA	\$1,648.47	91	\$150,010.77
715-61-111	LIGHT POLE COMPLETE, F&I, STANDARD POLE STANDARD FOUNDATION, 30' MOUNTING HEIGHT, 8' ARM LENGTH	EA	\$8,323.27	10	\$83,232.70
715-62-111	LIGHT POLE COMPLETE, F&I, STANDARD POLE SPECIAL FOUNDATION, 30' MOUNTING HEIGHT, 8' ARM LENGTH	EA	\$7,800.00	4	\$31,200.00
715-69-000	LIGHT POLE COMPLETE, REMOVE POLE AND FOUNDATION	EA	\$895.86	6	\$5,375.16
715-500-11	POLE CABLE DISTRIBUTION SYSTEM, FURNISH AND INSTALL ALTERNATE SYSTEM, CONVENTIONAL	EA	\$1,936.13	14	\$27,105.82
<b>Subtotal</b>					<b>\$464,987.05</b>
	MOT			10%	\$46,498.71
	Mobilization			8%	\$37,198.96
<b>Grand Total</b>					<b>\$548,684.72</b>
	Design (PE)			30%	\$164,605.42
	CEI			20%	\$109,736.94
	Contingency			5%	\$27,434.24
<b>Cost Estimate</b>					<b>\$850,461.31</b>
<b>Total Cost Estimate for Lighting Recommendations</b>					<b>\$850,462.00</b>

Unit Prices taken from FDOT Item Average Cost, Statewide, From 2021/05/01 to 2022/04/30

## **Appendix K ERC Comments**



# Submittal Report

Financial Project: 434664-1-32-01      Submittal Type: SAFETY REPORT  
 Submittal Phase: OTHER      Submittal Staff Type: CONSULTANT  
 Received Date: 6/24/2022      Response Due Date: 7/1/2022  
 Grace Period: 0      District: SIXTH  
 Status: OPEN      Create Date: 6/24/2022  
 Create User Id: RD652YR      Last Update: 6/24/2022  
    Last Update User Id: RD652YR

## Description:

434664-1: Ped/Bike Safety Study for SR 932/NW 103 St/W 49 St from SR 826 to NW 57 Ave/W 4 Ave  
 Group: PRELIMINARY ENGINEERING Phase Review Type: Safety Study  
 Status: Submitted  
 Phase Initiation Date: 6/24/2022  
 Comments Due Date: 6/30/2022 Days Allowed for Review: 7  
 Review Meeting: 7/1/2022 8:00 PM to 8:15 PM @ No Meeting Required  
 Field Meeting:  
 Plans Format: Electronic  
 Comments: Please have Phani Allu from CTS as the PM for responses.  
 pallu@ctseinc.com  
 Direct: 954-637-1611

## Threads:

Name	Assignment	Due Date	Status	Comments
ALEJANDRO ALMAGUER	REVIEWER	6/30/2022	ACTIVE	0
Name	Assignment	Due Date	Status	Comments
Alejandro Gomez	LEAD REVIEWER	6/30/2022	ACTIVE	0
Name	Assignment	Due Date	Status	Comments
Alejandro Uribe	REVIEWER	6/30/2022	ACTIVE	0
Name	Assignment	Due Date	Status	Comments
Alina Fernandez	LEAD REVIEWER	6/30/2022	ACTIVE	0
Name	Assignment	Due Date	Status	Comments
Ana Calleja	LEAD REVIEWER	6/30/2022	ACTIVE	0
Name	Assignment	Due Date	Status	Comments
Ana Sandoval	REVIEWER	6/30/2022	ACTIVE	6

No	Status	Current Holder	Reference	Categories
32	COMMENT AGREED WITH		Page 3 - Table 1	TRANSIT
Created By	Created On	Version	Delegate For	
Ana Sandoval	6/30/2022	1		
	Based on Google Earth images, there appears to be a bus stop with a bench in the eastbound direction (west approach) at the SR 826 W intersection. Please verify and update table as needed.			
Phani Allu	6/30/2022	1		

Will verify and update the report.

No	Status	Current Holder	Reference	Categories
33	RESPONSE ACCEPTED		Page 5 - Truck Traffic	TRAFFIC ANALYSIS
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	Ana Sandoval	6/30/2022	1	
	Is there a known reason for the significant difference between the truck percentages in the EB and WB directions? If so, please include in the report.			
	Phani Allu	6/30/2022	1	
	These numbers were reported from the PTMS data. The split could be because of the various big box retail stores and malls on the north side of the road for which trucks route themselves to access WB right-in, right-out eventually accessing SR 826.			
	Ana Sandoval	7/1/2022	1	
	Response Accepted & Comment Closed			

No	Status	Current Holder	Reference	Categories
34	COMMENT AGREED WITH		Page 10 - Context Classification Table	OTHER
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	Ana Sandoval	6/30/2022	1	
	Please consider changing the column title "C4" to "Desirable Design Guidance for Context Class 4"			
	Phani Allu	6/30/2022	1	
	Will update per comment.			

No	Status	Current Holder	Reference	Categories
35	COMMENT AGREED WITH		Page 14	BICYCLE/PEDESTRIAN
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	Ana Sandoval	6/30/2022	1	
	Bicycle and Pedestrian Generators/Attractors - Consider adding Mater Academy Charter Middle/High School as a generator/attractor. The school is located just west of the study limits but significant pedestrian activity was noted in the field review as originating from the school.			
	Phani Allu	6/30/2022	1	
	Will update the report per comment.			

No	Status	Current Holder	Reference	Categories
36	COMMENT AGREED WITH		Page 35 - Speed figure	OTHER
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	Ana Sandoval	6/30/2022	1	
	Text in the figure is not legible. Please consider including a higher resolution graphic.			
	Phani Allu	6/30/2022	1	
	Will include higher resolution graphic.			

No	Status	Current Holder	Reference	Categories
37	COMMENT AGREED WITH		Appendix A	OTHER
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	Ana Sandoval	6/30/2022	1	
	Please add more descriptive figure names. The first set of figures 1-8 include crash information and the second set of figures 1-8 include existing conditions. Please consider separating figures into different appendices or renumbering/renaming the figures to avoid confusion.			
	Phani Allu	6/30/2022	1	
	Will include separator tabs.			

Name	Assignment	Due Date	Status	Comments
Antonette Adams	LEAD REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Arturo Gomez	REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
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Barbara J Culhane	LEAD REVIEWER	6/30/2022	ACTIVE	0
Name	Assignment	Due Date	Status	Comments
Barbara Russell	REVIEWER	6/30/2022	ACTIVE	0*
Name	Assignment	Due Date	Status	Comments
Carlos Benitez	REVIEWER	6/30/2022	ACTIVE	0
Name	Assignment	Due Date	Status	Comments
CARLOS CEJAS	REVIEWER	6/30/2022	ACTIVE	14
No	Status	Current Holder	Reference	Categories
15	RESPONSE ACCEPTED		Page 2	TRANSIT
Created By	Created On	Version	Delegate For	
CARLOS CEJAS	6/30/2022	1		
	1. Page 2- Context Classification: Please indicate the context classification(s) of the study segment in this section of the document.			
Phani Allu	6/30/2022	1		
	Context class information is provided on Page 10 of the report.			
CARLOS CEJAS	7/1/2022	1		
	Agreed: However, it would be very useful to also provide in the section where other similar information is summarized.			
No	Status	Current Holder	Reference	Categories
16	RESPONSE ACCEPTED		Page 4	TRANSIT
Created By	Created On	Version	Delegate For	
CARLOS CEJAS	6/30/2022	1		
	Page 4 – Truck Traffic: Please investigate and explain the significant difference in truck traffic between the eastbound and westbound directions			
Phani Allu	6/30/2022	1		
	These numbers were reported from the PTMS data. The split could be because of the various big box retail stores and malls on the north side of the road for which trucks route themselves to access WB right-in, right-out eventually accessing SR 826.			
CARLOS CEJAS	7/1/2022	1		
	Agreed: Please clarify and explain within the document not to the reviewer.			
No	Status	Current Holder	Reference	Categories
17	RESPONSE ACCEPTED		Figure 3	TRANSIT
Created By	Created On	Version	Delegate For	
CARLOS CEJAS	6/30/2022	1		
	Figure 3: Please illustrate a summary of the passenger boardings and alightings at the bus stops in this figure. This will visually illustrate passenger activity on the aerial. Please provide a summary of the pedestrian and cyclist crashes on the same or a similar graphic.			
Phani Allu	6/30/2022	1		
	Summary of transit stop activity is summarized in Table 2 on Page 6. A condition sketch showing the transit facilities is also included.			
CARLOS CEJAS	7/1/2022	1		
	Agree: Understood. However, the intent is to summarize all relevant and important information on a single graphic for simplified understanding.			
No	Status	Current Holder	Reference	Categories
18	COMMENT AGREED WITH		Page 14	TRANSIT
Created By	Created On	Version	Delegate For	
CARLOS CEJAS	6/30/2022	1		
	Page 14 – Pedestrian/Bicycle Generators/Attractors: Should not the school to the west be listed as a major generator. Please add accordingly.			
Phani Allu	6/30/2022	1		
	Will include school as a major generator; however, this is outside of the study limits.			

No	Status	Current Holder	Reference	Categories
19	COMMENT AGREED WITH		Access Management	TRANSIT
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	CARLOS CEJAS	6/30/2022	1	
	Access Management: Please address in the document access conditions and proposed modifications/improvements within the study limits to include signal spacing, street connection spacing, driveway locations and spacing, driveway widths, driveway corner clearance, etc. as these affect pedestrian and cyclist safety.			
	Phani Allu	6/30/2022	1	
	Modifications or changes to access conditions are not anticipated from this study. The study was limited to include pedestrian bicycle characteristics as shown on the existing conditions sketch. We will verify with the Department to see if additional data is needed.			
	CARLOS CEJAS	7/1/2022	1	
	Disagree: A basic assessment of access conditions is being requested since it is fundamental to understanding pedestrian and cyclist conflicts and safety. Potential changes or improvements to access need to be fully assessed in relation to pedestrians and cyclists.			
	Phani Allu	7/4/2022	1	
	As noted earlier, such detailed review of access conditions is beyond the scope of this study effort. We will verify with the Department and update, if needed.			

No	Status	Current Holder	Reference	Categories
20	RESPONSE ACCEPTED		Sight Distances	TRANSIT
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	CARLOS CEJAS	6/30/2022	1	
	Sight Distances: Please address intersection sight distances at all locations in the document.			
	Phani Allu	6/30/2022	1	
	Will update field observations to include any sight distance concerns noted during field visits.			
	CARLOS CEJAS	7/1/2022	1	
	Agree.			

No	Status	Current Holder	Reference	Categories
21	COMMENT AGREED WITH		School Buses	TRANSIT
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	CARLOS CEJAS	6/30/2022	1	
	School Buses: Please address in the document if any school bus stops are located along the study limits.			
	Phani Allu	6/30/2022	1	
	Will verify and update the document accordingly.			

No	Status	Current Holder	Reference	Categories
22	RESPONSE ACCEPTED		School Children	TRANSIT
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	CARLOS CEJAS	6/30/2022	1	
	School Children: Please specifically address safe routes to schools and all school zones within the study area.			
	Phani Allu	6/30/2022	1	
	As noted earlier, there is a school outside the study limits to the west. The Department is performing separate studies to address concerns associated with this school.			
	CARLOS CEJAS	7/1/2022	1	
	Agree: Please clarify and address this in the document not to the reviewer.			

No	Status	Current Holder	Reference	Categories
23	RESPONSE ACCEPTED		Ped and Cyclist Safety	TRANSIT
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	CARLOS CEJAS	6/30/2022	1	
	Ped and Cyclist Safety: Please address in the document why pedestrian and cyclist Conflict and Violation Studies were not performed in addition to the Crash Analysis.			
	Phani Allu	6/30/2022	1	



We will review and update our field observations to include any conflicts noted during field visits. Conflict/violation studies are beyond the scope of this study.

CARLOS CEJAS 7/1/2022 1

Agree: Please note both observed conflicts and violations noted in the field review since each has different mitigation solutions.

No	Status	Current Holder	Reference	Categories
24	COMMENT AGREED WITH		Ped and Cyclist Counts	TRANSIT
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	CARLOS CEJAS	6/30/2022	1	
	Ped and Cyclist Counts: Please classify the pedestrians and cyclists when counting in the field to identify and summarize those that are most vulnerable such as children, elderly and disabled.			
	Phani Allu	6/30/2022	1	
	Based on adjacent land uses, it does not appear that classification of pedestrians (as noted in the comment) is not anticipated to change the recommendations from the study.			
	CARLOS CEJAS	7/1/2022	1	
	Disagree: The data should be stratified as requested to get a better understanding of the specific safety needs within the study roadway segment. A basic analysis and understanding of these types of vulnerable users along the roadway and at all crosswalks (intersection and midblock) at a minimum based on field review is fundamental to understanding pedestrian and cyclist safety.			
	Phani Allu	7/4/2022	1	
	As noted earlier, such stratification of data is beyond the scope of this study effort. We will verify with the Department and update, if needed.			

No	Status	Current Holder	Reference	Categories
25	RESPONSE ACCEPTED		Coordination	TRANSIT
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	CARLOS CEJAS	6/30/2022	1	
	Coordination: Please provide documentation regarding the coordination that occurred with DTPW/MDT regarding existing bus stops and specifically regarding any deficiencies and/or potential need for stop relocations and/or improvements.			
	Phani Allu	6/30/2022	1	
	MDT was contacted to obtain boarding/alighting data. The study is not suggesting any relocations to the bus stops. Any improvements suggested at the bus stops will be coordinated with MDT as part of the implementation plan for the study.			
	CARLOS CEJAS	7/1/2022	1	
	Agree: Please clarify and address in the document not to the reviewer.			

No	Status	Current Holder	Reference	Categories
26	RESPONSE ACCEPTED		High Emphasis Crosswalks	TRANSIT
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	CARLOS CEJAS	6/30/2022	1	
	High Emphasis Crosswalks: Please address the need for high emphasis crosswalks on all intersection legs and all existing and proposed midblock crossings.			
	Phani Allu	6/30/2022	1	
	All signalized intersections have high emphasis crosswalks and the recommended midblock crosswalk is going to be a high emphasis crosswalk.			
	CARLOS CEJAS	7/1/2022	1	
	Agree: Please clarify and address in the document not to the reviewer.			

No	Status	Current Holder	Reference	Categories
27	RESPONSE ACCEPTED		Lighting	TRANSIT
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	CARLOS CEJAS	6/30/2022	1	
	Lighting: Please verify and specifically address illumination levels at all existing and proposed crosswalks (intersection and midblock) to fully comply with the latest FDM requirements.			
	Phani Allu	6/30/2022	1	
	This is anticipated to be performed during the design phase. Lighting for midblock crosswalk has been accounted in the cost estimate.			
	CARLOS CEJAS	7/1/2022	1	
	Agree: Please clarify and address in the document not to the reviewer.			

No	Status	Current Holder	Reference	Categories
28	RESPONSE ACCEPTED		Speed Management	TRANSIT
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	CARLOS CEJAS	6/30/2022	1	
	Speed Management: Please address more specifically the speed management techniques and target speed applicable to this roadway segment as per the latest FDM. Please address posted speed, design speed, and measured operating speeds when developing an applicable target speed.			
	Phani Allu	6/30/2022	1	
	Speed management ideas for the corridor are being discussed with the Department. Speed reduction has been ruled out, speed feedback signs will be considered as a potential measure. Target speed determination is beyond the scope of this study.			
	CARLOS CEJAS	7/1/2022	1	
	Agree: Please clarify and address in the document not to the reviewer.			

Name	Assignment	Due Date	Status	Comments
Carlos Perez	REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Carlos Perez	REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Cheryl Callender	REVIEWER	6/30/2022	ACTIVE	1

No	Status	Current Holder	Reference	Categories
38	COMMENT AGREED WITH		Pg. 21	LANDSCAPING
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	Cheryl Callender	6/30/2022	1	
	Under Suggestions for Improvements, consider including mechanical root pruning / root grinding as part of the sidewalk reconstruction to prevent future issues, particularly along West 16th Ave. Add the corresponding pay item.			
	Phani Allu	6/30/2022	1	
	Will include per suggestion.			

Name	Assignment	Due Date	Status	Comments
Christopher Tavella	REVIEWER	6/30/2022	ACTIVE	0*

Name	Assignment	Due Date	Status	Comments
Diana Peralta	REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Dima Poe	REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Dionne Richardson	LEAD REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Elisa Azcona	REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Felipe Gonzalez	REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Felix Hernandez	LEAD REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
GIRISH THALLAPRAGADA	LEAD REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Guillermo Gomez	REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Gustavo Firpi	REVIEWER	6/30/2022	ACTIVE	0*

Name	Assignment	Due Date	Status	Comments
Hailing Zhang	LEAD REVIEWER	6/30/2022	ACTIVE	0
Name	Assignment	Due Date	Status	Comments
Heather Branca	LEAD REVIEWER	6/30/2022	ACTIVE	0
Name	Assignment	Due Date	Status	Comments
Hector Hartmann	LEAD REVIEWER	6/30/2022	ACTIVE	1
No	Status	Current Holder	Reference	Categories
2	COMMENT AGREED WITH			RAILROAD
Created By	Created On	Version	Delegate For	
Hector Hartmann	6/29/2022	1	LEILA MOUSSEAU	
	Project will NOT have rail involvement. (Comment created by Leila Franzoi for Hector Hartmann).			
Phani Allu	6/29/2022	1		
	thank you!			
Name	Assignment	Due Date	Status	Comments
James Spinks	REVIEWER	6/30/2022	ACTIVE	8
No	Status	Current Holder	Reference	Categories
41	RESPONSE SUBMITTED	James Spinks	Corridor Overview	SAFETY
Created By	Created On	Version	Delegate For	
James Spinks	6/30/2022	1	JAMES SPINKS	
	List the context classification to this section			
Phani Allu	6/30/2022	1		
	Context classification information is included on page 10 (PDF page 13).			
No	Status	Current Holder	Reference	Categories
42	COMMENT AGREED WITH		AADT	SAFETY
Created By	Created On	Version	Delegate For	
James Spinks	6/30/2022	1	JAMES SPINKS	
	Source the historical data, including agency, count station numbers and exact location used for the figure.			
Phani Allu	6/30/2022	1		
	Will include information per comment.			
No	Status	Current Holder	Reference	Categories
43	RESPONSE SUBMITTED	James Spinks	Table 1	SAFETY
Created By	Created On	Version	Delegate For	
James Spinks	6/30/2022	1	JAMES SPINKS	
	Specify if push buttons are present on each corner, by approach.			
Phani Allu	6/30/2022	1		
	Pushbuttons are present to cross NW 103 Street (the mainline) at all signalized intersections.			
No	Status	Current Holder	Reference	Categories
44	RESPONSE SUBMITTED	James Spinks	Table 1	SAFETY
Created By	Created On	Version	Delegate For	
James Spinks	6/30/2022	1	JAMES SPINKS	
	Please add crosswalks to this table. It would help to quickly identify if there are any locations that do/don't have a crosswalk in comparison to other pedestrian amenities.			
Phani Allu	6/30/2022	1		
	Crosswalk information is graphically shown in the condition sketch included in Appendix A.			

No	Status	Current Holder	Reference	Categories
45	COMMENT AGREED WITH		Page 19 - Field Review	SAFETY
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	James Spinks	6/30/2022	1	JAMES SPINKS
	List the items included in field review packet.			
	Phani Allu	6/30/2022	1	
	Will update to list the items included.			

No	Status	Current Holder	Reference	Categories
46	COMMENT AGREED WITH		Appendix A	SAFETY
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	James Spinks	6/30/2022	1	JAMES SPINKS
	Appendix A includes many items, all of which appear to be part of the field review packet. It would be helpful to separate these items out in the Appendix.			
	Phani Allu	6/30/2022	1	
	Will consider adding separator tabs.			

No	Status	Current Holder	Reference	Categories
47	RESPONSE SUBMITTED	James Spinks	Appendix A - All Figures	SAFETY
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	James Spinks	6/30/2022	1	JAMES SPINKS
	Include north arrow on all figures			
	Phani Allu	6/30/2022	1	
	North arrow is included on the bottom left corner of the page.			

No	Status	Current Holder	Reference	Categories
50	COMMENT AGREED WITH		Appendix I	SAFETY
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	James Spinks	6/30/2022	1	JAMES SPINKS
	Please include the spreadsheet that detail the number of crashes to be reduced by the countermeasure, which feeds the Benefit Analysis form.			
	Phani Allu	6/30/2022	1	
	Will include information per comment.			

Name	Assignment	Due Date	Status	Comments
Javier Hurtado	REVIEWER	6/30/2022	ACTIVE	0
Name	Assignment	Due Date	Status	Comments
Javier Rodriguez	LEAD REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Jennifer Borges	REVIEWER	6/30/2022	ACTIVE	3
No	Status	Current Holder	Reference	Categories
3	COMMENT AGREED WITH			TRAFFIC OPERATIONS
Created By	Created On	Version	Delegate For	
Jennifer Borges	6/29/2022	1		
<p>1. Figure 2 is not introduced in the report.  2. Figure 3 is not introduced in the report.  3. Figure 4 is not introduced in the report.  4. It is a bit confusing to be discussing in the report information contained under Table 1, then introducing a new section with a new figure followed by Table 1. Table 1 should be shown before the AADT section and before showing Historical AADT graph. Also, the Historical AADT graph should have a label.  5. Page 16, please clarify what years were downloaded from CARS and which years for SF4.</p>				
Phani Allu	6/30/2022	1		
Will verify and update the report accordingly.				
No	Status	Current Holder	Reference	Categories
4	COMMENT AGREED WITH			TRAFFIC OPERATIONS
Created By	Created On	Version	Delegate For	
Jennifer Borges	6/29/2022	1		
Please note updates to Section 2.11 of the TEM removed focus on the 'Share the Road' sign to the 'Bicycles May Use Full Lane' sign. Please review latest criteria and revise recommendations as needed.				
Phani Allu	6/30/2022	1		
Will verify and update the report accordingly.				
No	Status	Current Holder	Reference	Categories
5	RESPONSE ACCEPTED			TRAFFIC OPERATIONS
Created By	Created On	Version	Delegate For	
Jennifer Borges	6/29/2022	1		
Please verify the number of crashes used for B/C analyses is correct. Appendix I shows a big discrepancy in the number of crashes for 2017-2019 and for 2020-2021.				
Phani Allu	6/30/2022	1		
The difference is based on the data from CARS. The B/C and NPV values are more conservative this way.				
Jennifer Borges	7/1/2022	1		
Response Accepted & Comment Closed				

Name	Assignment	Due Date	Status	Comments
JESSICA JOSSELYN	REVIEWER	6/30/2022	ACTIVE	2
No	Status	Current Holder	Reference	Categories
39	COMMENT AGREED WITH			OTHER
Created By	Created On	Version	Delegate For	
JESSICA JOSSELYN	6/30/2022	1		
<p>The Planning Office is conducting Project Level Context Classification (PLCC) reviews as projects are conducted. The purpose of these reviews is to re-evaluate at a more granular level the original systemwide Context Classification (CC) assignments.</p> <p>A PLCC review for SR 923 from SR 826 to W 6 Avenue was recently conducted in March 2022. The CC for SR 923 was determined to be C3C – Suburban Commercial from SR 826 to W 12 Avenue/Ludlam Road (mileposts 1.156 to 2.16), and C4 – Urban General from W 12 Avenue/Ludlam Road to W 6 Avenue (mileposts 2.16 to 2.9442).</p> <p>A PLCC review was conducted for the remaining segment from W 6 Avenue to W 4 Avenue/Red Road (mileposts 2.9442 to 3.15), and it was determined that the CC is C4 – Urban General, consistent with the segment from W 12 Avenue/Ludlam Road to W 6 Avenue.</p> <p>The CC for SR 923 from W 12 Avenue/Ludlam Road to W 4 Avenue/Red Road is C4 - Urban General which is consistent with the report. Please update the stated CC for SR 923 from SR 826 to W 12 Avenue/Ludlam Road as C3C – Suburban Commercial.</p> <p>Please let us know if you would like our attendance at any ERC follow-up meetings.</p>				
Phani Allu	6/30/2022	1		
Acknowledged, thank you!				

No	Status	Current Holder	Reference	Categories
40	COMMENT AGREED WITH			OTHER
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	JESSICA JOSSELYN	6/30/2022	1	
	For reference, a detailed PLCC memo is attached.			
	Phani Allu	6/30/2022	1	
	thank you			

Name	Assignment	Due Date	Status	Comments
Jesus Perez	IN-HOUSE PROJECT MANAGER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Jinyan Lu	LEAD REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
JOHN MCWILLIAMS	REVIEWER	6/30/2022	ACTIVE	0*

Name	Assignment	Due Date	Status	Comments
Juan Navarro	LEAD REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Judy Solaun-Gonzalez	LEAD REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Kate Nelson	REVIEWER	6/30/2022	ACTIVE	2

No	Status	Current Holder	Reference	Categories
48	COMMENT AGREED WITH			ENVIRONMENTAL PERMITS
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	Kate Nelson	6/30/2022	1	
	Based on a review of the recommended safety improvements, no federal, state, or local environmental permits are anticipated for this project. Please note that any future modifications to the project scope (e.g., expanding the project limits, work outside of existing right of way, removal of trees, roadway improvements, changes and/or drainage retrofit activities) are proposed at a later design phase the project will require reevaluation to determine it still qualifies under the environmental permitting exemption criteria.			
	Phani Allu	6/30/2022	1	
	Acknowledged, thank you.			

No	Status	Current Holder	Reference	Categories
49	COMMENT AGREED WITH			ENVIRONMENTAL PERMITS
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	Kate Nelson	6/30/2022	1	
	Should you have any questions or require clarification regarding these environmental comments, please contact me (Kate Nelson) at 561-839-1748 or kate.nelson@wginc.com			
	Phani Allu	6/30/2022	1	
	thank you			

Name	Assignment	Due Date	Status	Comments
Ken Jeffries	LEAD REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Kirenia Borbolla	LEAD REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Krish Dial	REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Leonard Salazar	LEAD REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
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Leonardo Francis	REVIEWER	6/30/2022	ACTIVE	0*
<b>Name</b>	<b>Assignment</b>	<b>Due Date</b>	<b>Status</b>	<b>Comments</b>
Luis Lopez	REVIEWER	6/30/2022	ACTIVE	0
<b>Name</b>	<b>Assignment</b>	<b>Due Date</b>	<b>Status</b>	<b>Comments</b>
Madeline Martinez	REVIEWER	6/30/2022	ACTIVE	6
<b>No</b>	<b>Status</b>	<b>Current Holder</b>	<b>Reference</b>	<b>Categories</b>
9	COMMENT AGREED WITH			ENVIRONMENTAL MANAGEMENT OFF.
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	Madeline Martinez	6/29/2022	1	
	This safety study has been reviewed by the Environment Section and has been determined that this project will need to be revisited during design once the full scope of work and funding information is available. This information is needed to confirm the appropriate class of action and to determine the appropriate scope of coordination with local, state and/or federal agencies.			
	Phani Allu	6/30/2022	1	
	Acknowledged, this will occur in design phase.			
<b>No</b>	<b>Status</b>	<b>Current Holder</b>	<b>Reference</b>	<b>Categories</b>
10	COMMENT AGREED WITH			ENVIRONMENTAL MANAGEMENT OFF.
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	Madeline Martinez	6/29/2022	1	
	The Project Manager must provide the Environment Section with the opportunity to perform an environmental impact review once design plans have been developed. If warranted, an Environmental Certification will be prepared upon the completion of the environmental impact review.			
	Phani Allu	6/30/2022	1	
	Acknowledged, this will occur in design phase.			
<b>No</b>	<b>Status</b>	<b>Current Holder</b>	<b>Reference</b>	<b>Categories</b>
11	COMMENT AGREED WITH			ENVIRONMENTAL MANAGEMENT OFF.
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	Madeline Martinez	6/29/2022	1	
	The project corridor is within the consultation area for the Florida bonneted bat which is listed as an endangered species. Please be aware that if any tree and/or bridge impacts are proposed as part of this project, a species survey may be warranted to determine if roosting or foraging habitat exists. Coordination with U.S. Fish and Wildlife Service may be required.			
	Phani Allu	6/30/2022	1	
	Acknowledged, this will occur in design phase.			
<b>No</b>	<b>Status</b>	<b>Current Holder</b>	<b>Reference</b>	<b>Categories</b>
12	COMMENT AGREED WITH			ENVIRONMENTAL MANAGEMENT OFF.
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	Madeline Martinez	6/29/2022	1	
	Please be aware that the project corridor is within the Consultation Area for the Snail Kite, Eastern Indigo Snake, and Wood Stork, and adjacent to designated Critical Habitat of the West Indian manatee. All of which are federally listed species and coordination with U.S. Fish and Wildlife Service may be required.			
	Phani Allu	6/30/2022	1	
	Acknowledged, this will occur in design phase.			
<b>No</b>	<b>Status</b>	<b>Current Holder</b>	<b>Reference</b>	<b>Categories</b>
13	COMMENT AGREED WITH			ENVIRONMENTAL MANAGEMENT OFF.
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	Madeline Martinez	6/29/2022	1	
	Please be aware that part of the project corridor at West 4th Avenue is adjacent to wetlands, including riverine wetlands (C-7 Canal). Should any future work be proposed within or immediately adjacent to these wetlands, coordination with federal, state, and local permitting agencies may be required.			
	Phani Allu	6/30/2022	1	
	Acknowledged, this will occur in design phase.			

No	Status	Current Holder	Reference	Categories
14	COMMENT AGREED WITH			ENVIRONMENTAL MANAGEMENT OFF.
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	Madeline Martinez	6/29/2022	1	
	If you have any questions or require clarification regarding these environmental comments, please contact Madeline Martinez at Madeline.Martinez@dot.state.fl.us.			
	Phani Allu	6/30/2022	1	
	thank you!			

Name	Assignment	Due Date	Status	Comments
Marc Rodriguez	REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Marvin Guillen	REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Mauricio Gomez	LEAD REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Max Imberman	REVIEWER	6/30/2022	ACTIVE	3

No	Status	Current Holder	Reference	Categories
6	COMMENT AGREED WITH		General Comment	CULTURAL RESOURCES
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	Max Imberman	6/29/2022	1	
	Recommended improvements are located within the limits of an unevaluated segment of a historic roadway. There are also numerous unrecorded historic strictures located within parcels adjacent to the recommended improvements. Therefore, it is anticipated that the Planning and Environmental Management Office (PLEMO) will prepare a cultural evaluation during design and coordinate the resultant report with the Florida Division of Historical Resources (FDHR) or State Historic Preservation Officer (SHPO), depending upon if federal funding is associated with this project.			
	Phani Allu	6/30/2022	1	
	Acknowledged, this will occur in design phase.			

No	Status	Current Holder	Reference	Categories
7	COMMENT AGREED WITH		General Comment	CULTURAL RESOURCES
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	Max Imberman	6/29/2022	1	
	PLEMO will need to revisit this project during design once the full scope of work and funding information is available. This information is needed to confirm an area of potential effect (APE) and to determine the appropriate scope of coordination with state and/or federal agencies.			
	Phani Allu	6/30/2022	1	
	Acknowledged, this will occur in design phase.			

No	Status	Current Holder	Reference	Categories
8	COMMENT AGREED WITH		Contact Information	CULTURAL RESOURCES
	<b>Created By</b>	<b>Created On</b>	<b>Version</b>	<b>Delegate For</b>
	Max Imberman	6/29/2022	1	
	Contact Information: If you have any questions or require clarification for these comments, please contact Max Adriel Imberman at 813-330-9111/ max_imberman@janus-research.com.			
	Phani Allu	6/30/2022	1	
	thank you			



Name	Assignment	Due Date	Status	Comments
Michael Miller	REVIEWER	6/30/2022	ACTIVE	1

No	Status	Current Holder	Reference	Categories
1	COMMENT AGREED WITH			CONTAMINATION

Created By	Created On	Version	Delegate For
Michael Miller	6/28/2022	1	

There are known contaminated sites within a 500-foot radius of the project corridor. If drainage or other subsurface features that require excavation and/or dewatering are added to the project scope, additional evaluation for contamination impacts may be required.

Phani Allu	6/29/2022	1	
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Acknowledged, this will occur during design phase.

Name	Assignment	Due Date	Status	Comments
Mikhail Dubrovsky	LEAD REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Nicholas Danu	LEAD REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Pablo Orozco	LEAD REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Paola Baez	REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Patrick Marchant	LEAD REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Phani Allu	CONSULTANT PROJECT MANAGER	7/1/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Shereen Yee Fong	LEAD REVIEWER	6/30/2022	ACTIVE	0*

Name	Assignment	Due Date	Status	Comments
Simon Gutierrez	REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Simon Prilutsky	REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Stefan Escanes	REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Steven James	LEAD REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
X Negrin	LEAD REVIEWER	6/30/2022	ACTIVE	0*

Name	Assignment	Due Date	Status	Comments
Xiomara Nunez	LEAD REVIEWER	6/30/2022	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
YEVGENY (EUGENE) SHERMAN	REVIEWER	6/30/2022	ACTIVE	3

No	Status	Current Holder	Reference	Categories
29	COMMENT AGREED WITH		General	ADA

Created By	Created On	Version	Delegate For
YEVGENY (EUGENE) SHERMAN	6/30/2022	1	

The following deficiencies which are not included in the list of observation items included in the report, were observed based on the Google Street Views imageries:

1. At the majority of signalized intersections with pushbutton actuation, the face of the pushbuttons and detector signs are not parallel to the direction of the crosswalk to be used. This is a non-compliance with FDM 232.6 and SPI 665-001 requirements.
2. The pushbutton actuation is absent at side street crossings.
3. At some locations, the pushbuttons are not accessible from the level surface within 10" max of reach due to the size of the protruding foundation of the mast arms (for eg., at SEC of SR 932/W 18 Ct, at NEC of SR 932/W 16 Ave).
4. At some locations, the pushbuttons are not accessible from level surface as they mounted on the mast arms installed on the sloped part of the curb ramp or installed too far behind the sidewalk curb (for eg., at SEC of SR 932/W 17 Ct, at NEC of SR 932/W 12 Ave).
5. The pushbutton and associated sign are more than 10 feet from the bottom pedestrian ramps (for eg., at NWC of SR 932/W 17 Ct).

Phani Allu	6/30/2022	1	
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Will verify and consider these suggestions. These could also be verified/addressed during the design phase.

No	Status	Current Holder	Reference	Categories
30	COMMENT AGREED WITH		Appendix A	ADA

Created By	Created On	Version	Delegate For
YEVGENY (EUGENE) SHERMAN	6/30/2022	1	

Conceptual Sketch with SAPM, Fig. 1 – 4: Per TEM 2.44.3, for signalized intersection or free-flow channelized right or left turn lane the R10-15a "Turning Vehicles Stop for Pedestrians" sign shall be used instead of R10-15 "Turning Vehicles Yield for Pedestrians".

Phani Allu	6/30/2022	1	
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Will consider updating report per suggestion.

No	Status	Current Holder	Reference	Categories
31	COMMENT AGREED WITH		General	ADA

Created By	Created On	Version	Delegate For
YEVGENY (EUGENE) SHERMAN	6/30/2022	1	

This is a safety study; all improvements affecting ADA features will be further evaluated during the design phase.

Phani Allu	6/30/2022	1	
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thank you!