TOWN OF MEDLEY

NW South River Drive Corridor Study

NW 107th Avenue to the Palmetto Expressway (SR-826)

Volume II: Traffic Report

C3TS Project No.: 1314-038

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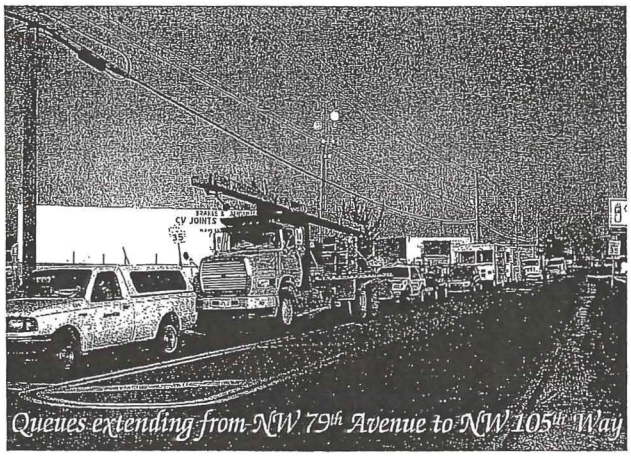
1. Executive Summary

The Town of Medley is located in an area of Miami-Dade County characterized by its industrial and commercial nature. The Town is primarily an industrial community that depends on industry and commerce for its survival. Similar to most areas in Miami-Dade County, the Town of Medley has experienced a significant increase in growth within its boundaries, especially along the Northwestern fringes of the Town. As a result, increasing numbers of vehicles are causing greater congestion and delay along the roadways resulting in both an economic impact and a deterioration of the quality of life for the many business owners and employees that call Medley their place of employment. NW South River Drive is one of the primary thoroughfares serving an important role for Medley, providing access from the Palmetto Expressway (SR 826), Okeechobee Road and points south to the many businesses abutting and surrounding it.

The Town of Medley considers the improvement of NW South River Drive vital to its continued growth and economic vitality. Based on this premise, this study investigates the possibility of providing capacity improvements along NW South River Dr. as well as intersection improvements along this corridor.

This study utilizes data collected from recent pertinent projects in the area as an important source for the various traffic analyses performed. The initial analyses for the existing year revealed inadequate levels of service for NW South River Drive from NW 105th Way to SR 826, including the intersections at NW South River Dr./SB SR 826/79th Avenue/NW 93rd Street & NW 105th Way. For the opening year of improvements (2008), six (6) out of the eight (8) intersections analyzed fail from an LOS standpoint. By the year 2028 all but one of the intersections fail, as well as the entire corridor analyzed from NW 107th Avenue to SR 826. However, field reviews conducted revealed much worse operational conditions than were being obtained through the initial intersection analyses. Evidence gathered on site suggests that there are several main factors contributing to the poor traffic operations along NW South River Dr. These are a) insufficient capacity, b) lack of proper synchronization between signals and c) operational concerns resulting from the turning movements of large tractor-trailer trucks from both Okeechobee Rd. and NW South River Drive. This last factor coupled with the inadequate geometry of the bridges (inadequate storage length) results in the trucks blocking the intersection thus further degrading the intersection operations and creating a queue extending from SR 826 to NW 105th Way. An Intersection delay study was conducted on September 17 & 18, 2003, to gauge the actual delay being



Queues extending from NW 79th Avenue to NW 105th Way

experienced along NW South River Drive. The results indicate significant delays along NW South River Drive in both the A.M. and P.M. Observations suggest that in addition to increased capacity, the corridor would benefit greatly from the proper synchronization of the signals at NW 79th Ave. and SR 826. In addition the synchronization of the NW South River Drive/NW 79th Ave. signal with the Okeechobee Rd./NW 79th Ave. signal would greatly alleviate the NB approach from NW 79th Ave. which is currently experiencing large delays as a result of the additional traffic being generated by the new Metrorail Station south of the project corridor.

The study calls for the provision of left and right turn bays at various intersections as well as increasing the number of through lanes at the approaches. In addition a large portion of the study area requires the four (4)-laning of NW South River Drive by the design year 2028. However, due to the R/W constraints along NW South River Drive and based on the availability of funding a phasing plan was recommended for implementation of the improvements.

- Phase I (2003) : Synchronization of the South River Dr./NW 79th Ave. & SR 826 signals and the Okeechobee Rd./NW 79th Ave. signal
- Phase II (2008) : 3-Lane NW South River Dr. from NW 105th Way to SR 826; Initial Intersection Improvements
- Phase III (2018) : 3-Lane NW South River Dr. from NW 107th Ave. to NW 105thWay. 4-Lane NW South River Drive from NW 105th Way to SR 826
- Phase IV (2028) : 4-Lane NW South River Dr. from NW 107th Avenue to NW 105th Way. Additional Intersection Improvements

The 3-lane concept will benefit EB vehicles, which was observed to be the most critical approach along the corridor. The final step would involve the four (4)-laning of NW South River Drive by the year 2028.

2. Introduction

The purpose of the N.W. South River Drive Corridor Study is to investigate the transportation characteristics/deficiencies along a segment of the N.W. South River Drive Corridor within the Town of Medley's City limits. The segment extends from NW 107th Avenue to the Palmetto Expressway (approx. 3.9 miles). The specific objectives of this project are:

- Evaluate feasibility of widening South River Drive to 3 or 4 lanes to allow for better movement of heavy industrial traffic to and from the Palmetto from NW 105th Way.
- Evaluate the impact that additional traffic created by construction of Metrorail Station on NW 79th Ave. (west of Palmetto) will have on traffic flow within Medley, specifically on South River Drive.

    - Determine best way to reduce daylong traffic congestion and increase flow once construction is complete on the Palmetto Expressway, Metrorail Station and Okeechobee Road construction as well as the proposed construction on NW 87th Ave. presently in the PD&E phase.
    - Consider new bridges at Miami Canal (C-6) at NW 72nd Ave. and NW 79th Ave. as well as those being built as part of the Palmetto Project

Traffic Report Objective

The goal of this report is to provide The Town with proper documentation on the traffic methodology findings and recommendations of improvements along the NW South River Drive Corridor.

Methodology

Based on the objective of this Traffic Report, a specific methodology was utilized in the development of design traffic forecasts. The basic methodology is as follows:

- Collect all traffic count information, previous studies, traffic characteristics, and other available data of the area.
- Based on previous studies within the project area obtain Design Hour Demand (K), Design Hour Directional Demand (D) and percentage of trucks for design hour demand (Tpeak).
- Using historical traffic counts (trends analysis), historical growth rates and travel demand models (FSUTMS) for the area, develop estimate of future traffic volumes for comparison.
- Using the FHWA approved HCS and the Synchro 5 simulation model, develop and analyze the existing condition, opening year and design year traffic projection along the study corridor and at 8 intersections within the study corridor.

- Based on the design hour traffic, provide recommendations for intersection & roadway improvements to accommodate the anticipated travel demand within the corridor for the recommended configuration.
- Supplement existing data with field studies and intersection delay studies as needed.

3. Existing Information

Project Location

This effort involves the development of Design Traffic Volumes to evaluate potential improvements for the NW South River Drive corridor from NW 107th Ave. to the Palmetto Expressway within the Town of Medley in Miami-Dade County. The project's overall location is shown in Figure 3-1.

Existing Conditions

NW South River Drive's orientation is in the NW-SE direction. It currently exists as an undivided 2-lane facility paralleling Okeechobee Rd. (US 27) within the Town's Limits. The general study area is located within a section of Miami-Dade County with primarily industrial land uses servicing a significant amount of truck traffic.

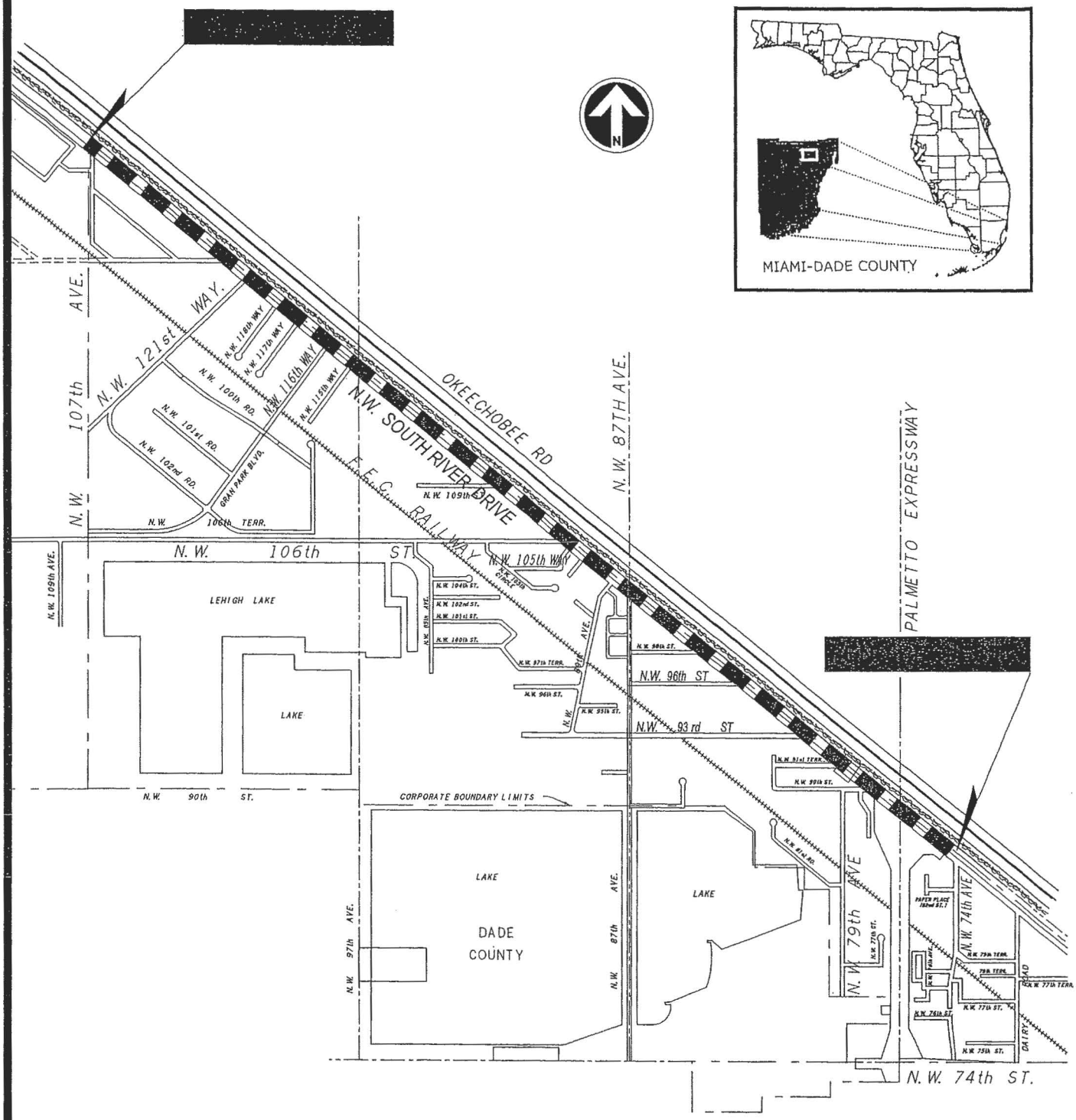
Existing Intersections

Figure 3-2 provides the existing number of lanes, by approach at 8 major intersections along the corridor. They are as follows:

- NW South River Drive & NW 121st Way
- NW South River Drive & NW 116th Way
- NW South River Drive & NW 105th Way
- NW South River Drive & NW 87th Ave.
- NW South River Drive & NW 96th St.
- NW South River Drive & NW 93rd St.
- NW South River Drive & NW 79th Ave.
- NW South River Drive & SB entrance to SR-826

Currently the intersections at SR-826, NW 79th Ave., NW 93rd St., 105th Way, NW 116th Way and NW 121st Way are signalized.

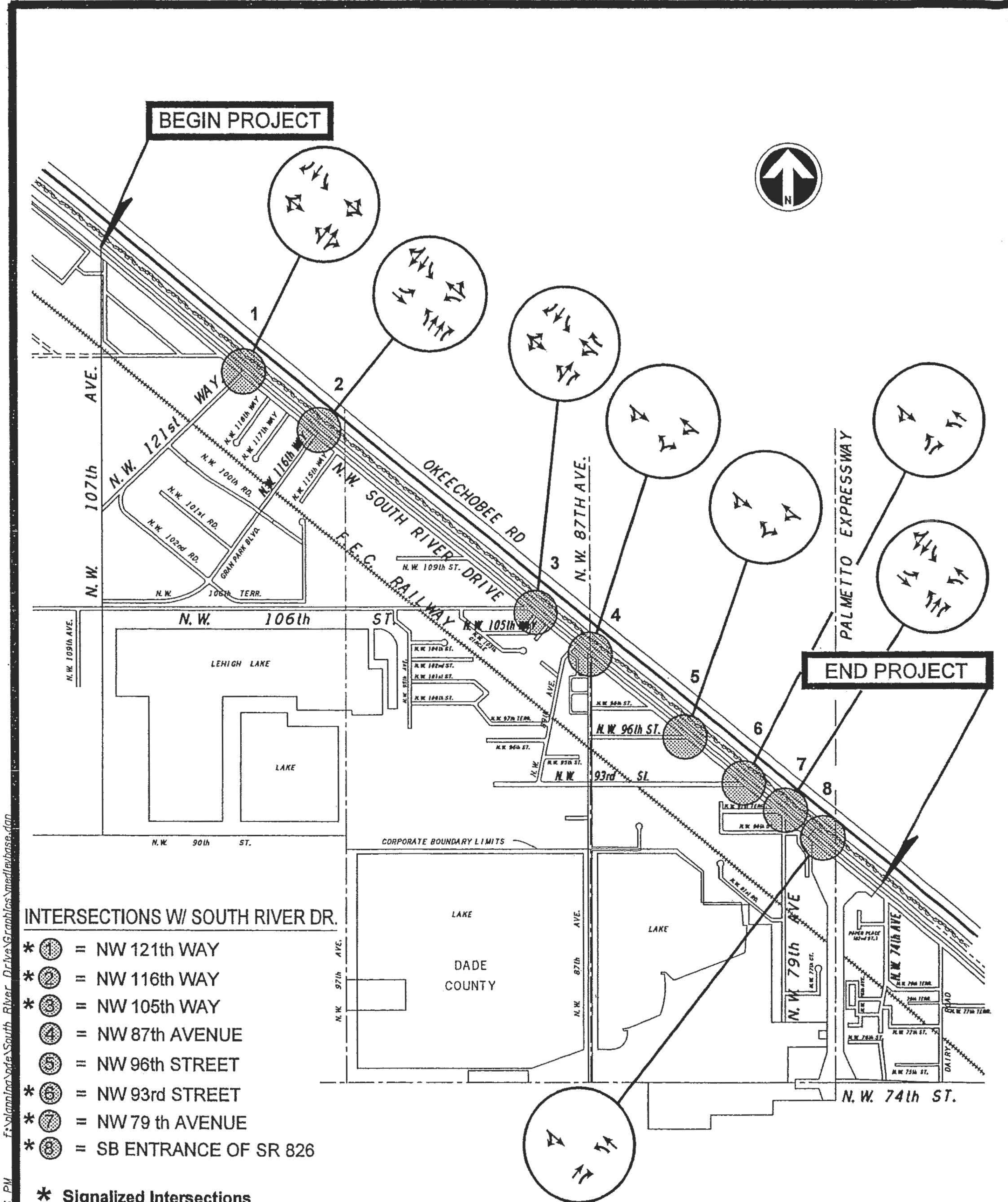
Figure 3-3 provides the existing a.m. and p.m. peak hour turning movement counts observed in the field for the above-mentioned intersections. Based on these existing turning movement counts, level of service (LOS) operational analysis were performed for each of the aforementioned intersections using the Synchro 5 software and the Highway Capacity Software 2000 program. Table 3-1 summarizes the intersection approach LOS analyses for each of the 8 intersections. Printouts of HCS & Synchro analyses are furnished in Appendix A. The results indicate that the majority of the intersections along NW South River Dr. are operating at or near capacity. Furthermore, the LOS results as indicated do not fully convey the operational problems plaguing NW South River Drive. The close proximity of NW South River Drive to Okeechobee Rd.,



PROJECT LOCATION MAP

FIGURE NO.

3-1


BEGIN PROJECT
END PROJECT
N
1
2
3
4
5
6
7
8
OKEECHOBEE RD
N.W. SOUTH RIVER DRIVE
F.E.C. RAILWAY
N.W. 121st WAY
N.W. 116th WAY
N.W. 105th WAY
N.W. 107th AVE.
N.W. 87TH AVE.
PALMETTO EXPRESSWAY
N.W. 106th ST.
N.W. 106th TERR.
N.W. 96th ST.
N.W. 93rd ST.
N.W. 90th ST.
N.W. 79th AVE
N.W. 74th AVE
N.W. 74th ST.
N.W. 97th AVE.
N.W. 87th AVE.
N.W. 109th ST.
N.W. 109th AVE.
GRAN PARK BLVD.
LEHIGH LAKE
LAKE
DADE COUNTY
CORPORATE BOUNDARY LIMITS
DAIRY ROAD
INTERSECTIONS W/ SOUTH RIVER DR.
* ① = NW 121th WAY
* ② = NW 116th WAY
* ③ = NW 105th WAY
④ = NW 87th AVENUE
⑤ = NW 96th STREET
* ⑥ = NW 93rd STREET
* ⑦ = NW 79 th AVENUE
* ⑧ = SB ENTRANCE OF SR 826
* Signalized Intersections

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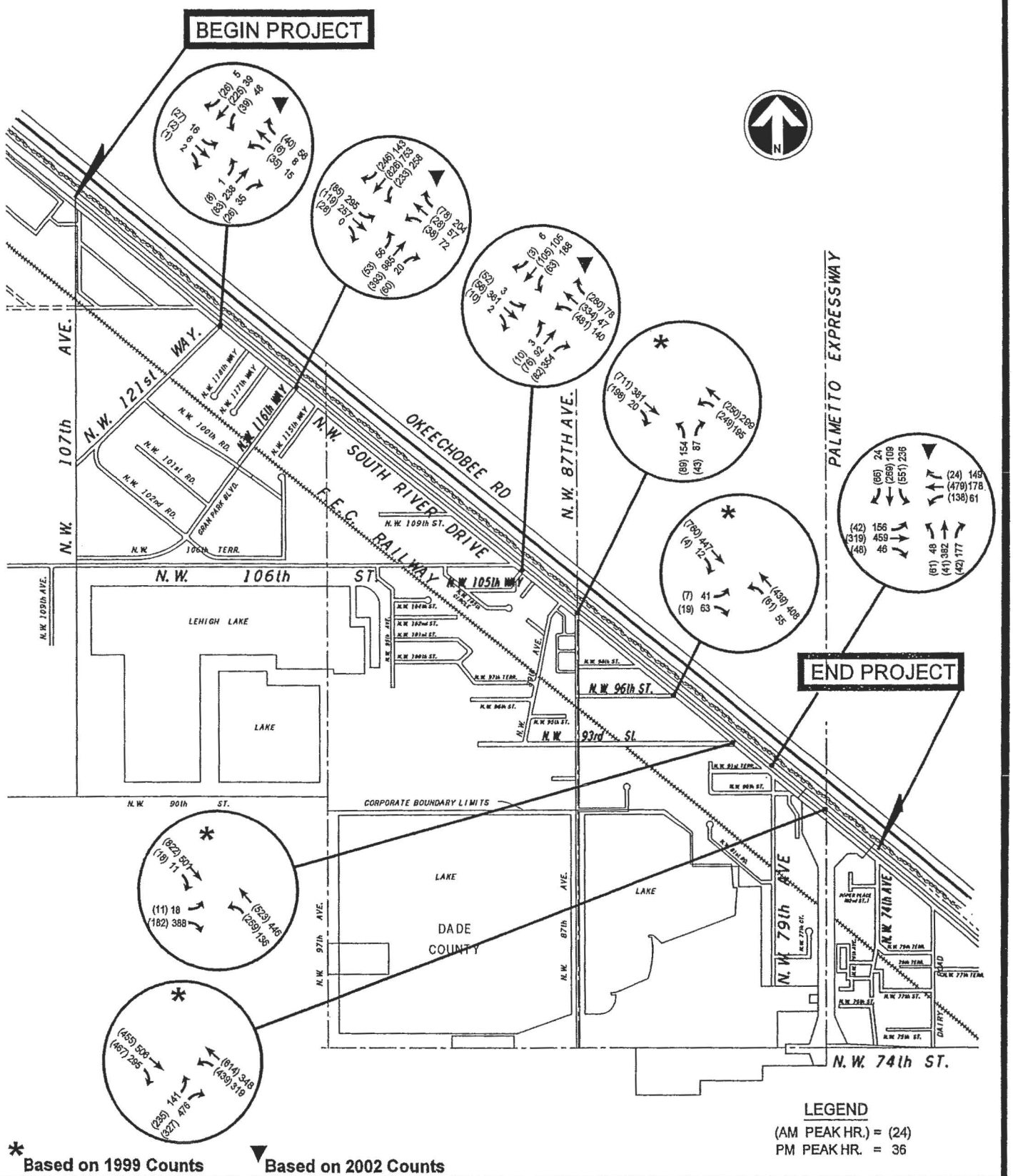
EXISTING INTERSECTION LANE CONFIGURATION

FIGURE NO.

3-2



LEGEND
(AM PEAK HR.) = (24)
PM PEAK HR. = 36

*Based on 1999 Counts ▼Based on 2002 Counts

EXISTING INT. PEAK HR. TURNING MOVEMENT COUNTS

FIGURE NO.
3-3

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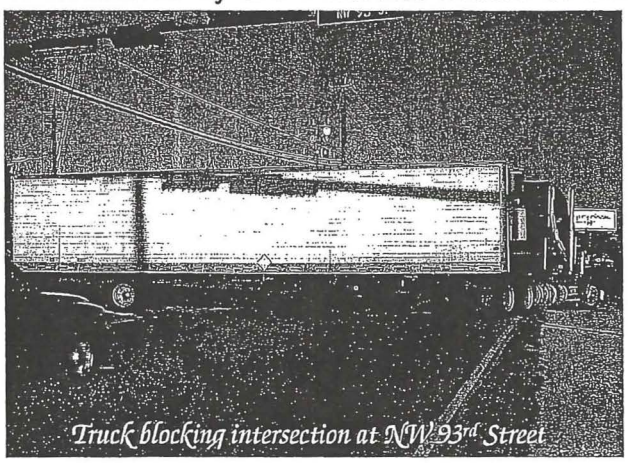
creates a situation that severely restricts the storage capacity for all bridge crossings over the Miami Canal (C-6). The situation is worsened by the industrial nature of the corridor which attracts a large percentage of trucks which block intersections resulting in bottlenecks which drastically reduce the capacity beyond what HCS intersection analyses indicates. During field visits it was observed that the signals along NW South River Dr. are not properly synchronized further diminishing the capacity of the corridor. Based on these findings it was determined that an Intersection delay study would be required. On September 17 and 18, 2003 the study was conducted and the results validate the initial field observations. The average delay for vehicles at the NW South River Drive/NW 79th Avenue intersection was observed to be over 321 seconds for eastbound vehicles and over 256 seconds for northbound vehicles (see Appendix B for details). The large delays along Eastbound South River Dr. is causing the intersections downstream to fail as a result of the queue back-up. Furthermore the recent completion of the Metrorail station has increased the northbound approach at NW 79th Avenue substantially resulting in the further degradation of the intersection.



Truck blocking intersection at NW 93rd Street

Table 3-1
Existing Intersection LOS (Approach)

Intersection		LOS (AM)				LOS (PM)			
NB/SB	EB/WB	EB	WB	NB	SB	EB	WB	NB	SB
NW 121st Way	S. River Dr.	D	C	A	A	D	C	A	A
NW 116th Way	S. River Dr.	C	C	A	A	F	C	A	D
NW 105th Way	S. River Dr.	D	F	B	C	B	B	F	D
NW 87th Ave.	S. River Dr.	--	B	F	--	--	B	C	--
NW 96th St.	S. River Dr.	--	A	D	--	--	A	C	--
NW 93rd St.	S. River Dr.	A	F	B	--	A	B	E	--
NW 79th St.	S. River Dr.	D	E	D	F	B	B	C	F
SB SR 826 Entance	S. River Dr.	A	F	C	--	C	C	F	--

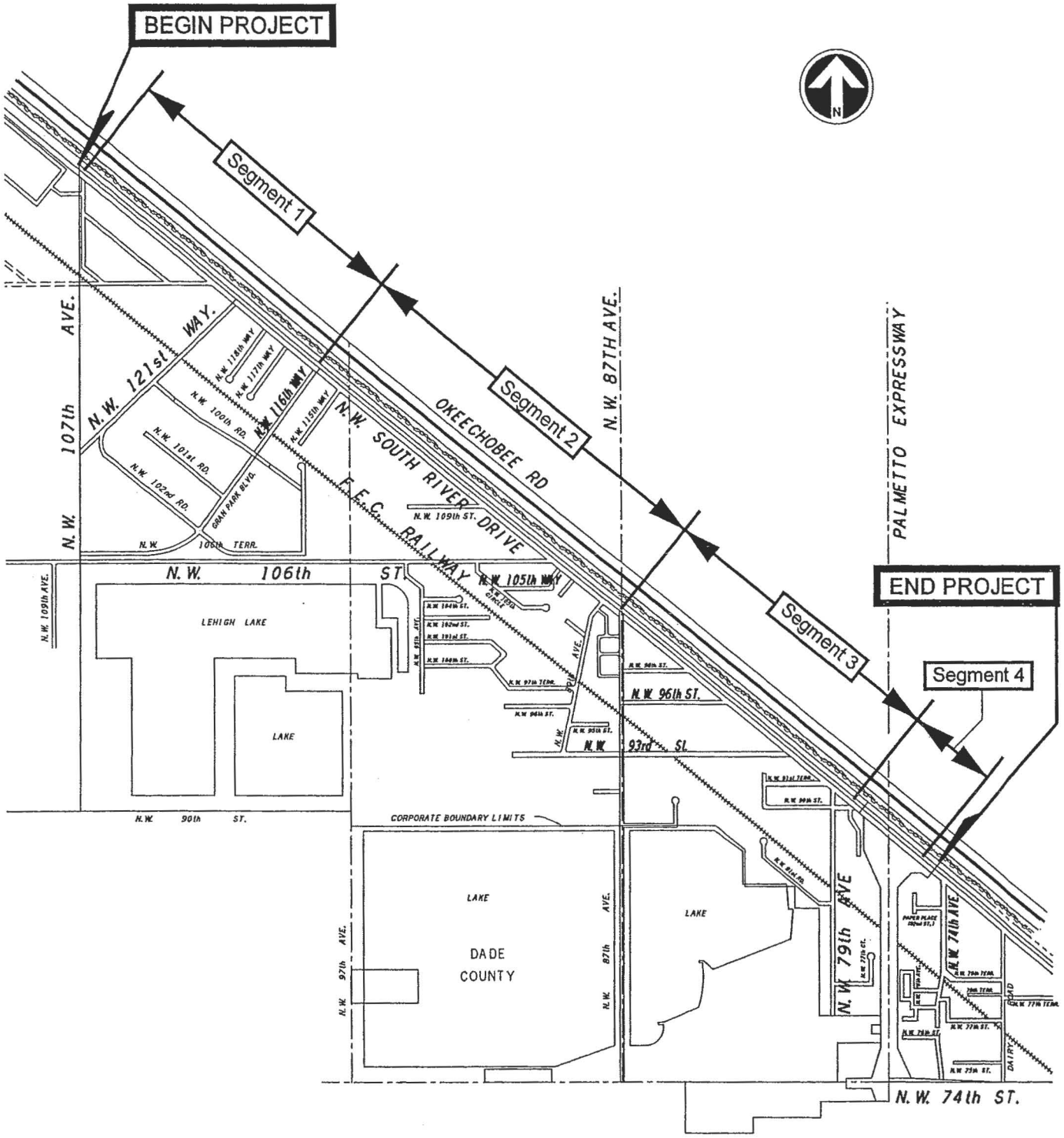
Existing Roadway Segments

The project was divided into four separate segments (see Figure 3-4). Segment 1 commences at NW 107th and terminates at NW 116th Way. This is the least utilized portion of the corridor. Segment 2 stretches from NW 116th Way to NW 87th Avenue. Segment 3 runs from NW 87th Avenue to NW 90th Street. Segment 4 extends from NW 90th Street to the southbound entrance of the Palmetto Expressway (SR 826). Although Segment 4 is a very short segment distance wise, the heavy amount of traffic movements that converge in this portion of the corridor warrants its own segment designation. Average Annual Daily Traffic Volumes for these segments are illustrated on Figure 3-5. These values were obtained by trend analysis based on FSUTMS models generated for the project area and validated with traffic counts. Table 3-2 summarizes the corridor LOS analyses for this section of South River Drive based on the 2002 Quality Level of Service Handbook. As shown in Table 3-2 segment 4 currently operates at an unacceptable LOS F.

Table 3-2
Existing Corridor LOS

Segments	From	To	2003 AADT	LOS
1	107th Ave.	116th Way.	5300	C
2	116th Way	NW 87th Ave.	9600	D
3	NW 87 Ave.	90th st.	12700	D
4	90th St	SR 826	16100	F

However, actual field observations, reveal LOS F conditions from NW 105th Way to SR 826 (see Appendix B). As previously mentioned this fact is attributed to poor signal synchronization along with vehicles blocking the intersections as well as the need for additional EB capacity.



EXISTING PROJECT SEGMENTS

FIGURE NO.

3-4

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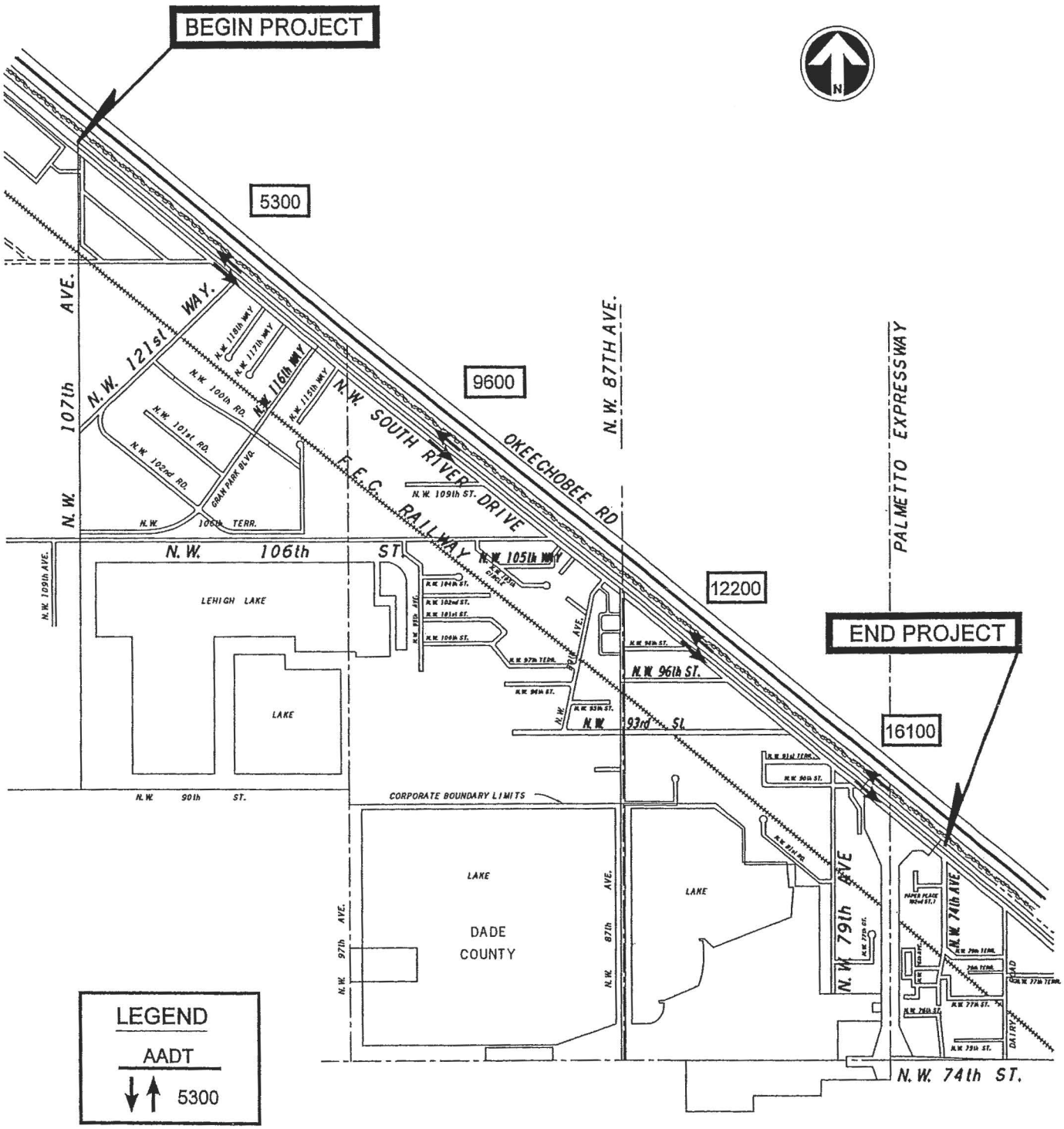

EXISTING NW SOUTH RIVER DR. LINK AADT

FIGURE NO.

3-5

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4. Study Design Factors

Design Hour Factors

Design Hour Factors are utilized to convert future daily forecasts to Design Hour Volumes (DHVs) and Directional Design Hour Volumes (DDHVs). Provided is an overview of the procedures applied for selecting the design factors to use for the study. Values for each of the following factors are presented:

- K_{30} Factor: The K_{30} by definition is the ration of the thirtieth highest hourly volume in a year to the AADT
- D_{30} Factor: "D" factor is by definition the ratio of the design hour peak direction count to the design hour total count. The D_{30} factor is calculated by taking the average of the "D" factors for the 28th, 29th, 30th, 31st and 32nd highest hourly counts
- T_{30} Factor: the design hour truck factor, or T30, is the percentage of trucks within the design hour

Referenced Traffic Count Data

The information used to obtain the design factors for this analysis was obtained from the NW 87th Ave. PD&E Design Traffic Report. Table 4-1 provides the location and type of existing count information referenced in the development of design factors. As noted in the table, the K and D factor associated with the ten (10) sites reflected are all identical.

Table 4-1
Referenced Design Factors

Count Site	Count Location Description	1998 AADT	K_{30} Factor	D_{30} Factor	T Factor
0571	SR 826/Palmetto Expwy, 1000' N of NW 36 St.	205,000	9.29	52.66	6.92
0572	SR 826/Palmetto Expwy, 1000' N of NW 58 St.	176,500	9.29	52.66	6.92
0573	SR 826/Palmetto Expwy, 1000' N of NW 74 St.	190,000	9.29	52.66	6.92
0553	SR 826/Palmetto Expwy, 1000' N of Okeechobee Rd.	176,000	9.29	52.66	6.92
0039	SR 969/Millam Dairy Rd., 200' NW 74 St.	29,500	9.29	52.66	8.61
1217	SR 932/NW 103 St., 200' E NW 87 Ave.	15,800	9.29	52.66	3.38
0109	SR 25/US 27/Okeechobee Rd., 200' NW 103 St.	34,000	9.29	52.66	15.97
2537	SR 25/US 27/Okeechobee Rd., 500' NW SR 826	47,000	9.29	52.66	9.06
0528	SR 27/US 27/Okeechobee Rd., 200' SE SR 826	40,000	9.29	52.66	7.81
2540	SR 934/NW 74 St., 200 W NW 74 Ave.	35,000	9.29	52.66	10.39

Recommended Study Design

Table 4-2 displays the recommended study design factors. The K factors were deemed too high for NW South River Drive and a County Count taken in 1999 provided justification for a lower value. A value of 8.89% was selected. The D factor was used as presented. The T factor selected reflects the area's Industrial land uses (10.00%).

Table 4-2
Study Design Factors

Factor	Value
K_{30}	8.89%
D_{30}	52.66%
T_{30}	10.00%

5. Travel Demand Forecasts

Description of Model

The Miami Urban Area Transportation Study (MUATS) Florida Standard Transportation Model Structure (FSUTMS) based model was used in accessing future daily traffic demand within the corridor. The Metropolitan Planning Organization (MPO) for the Miami Urbanized Area adopted MUATS model consists of a year 2000, 2015, and 2020 data set. The model takes into account projects proposed under the County's Long Range Transportation Plan (see Figure 5-1). These model results were validated and obtained from the NW 87th Ave. PD&E Study Design Traffic Report (See Appendix B).

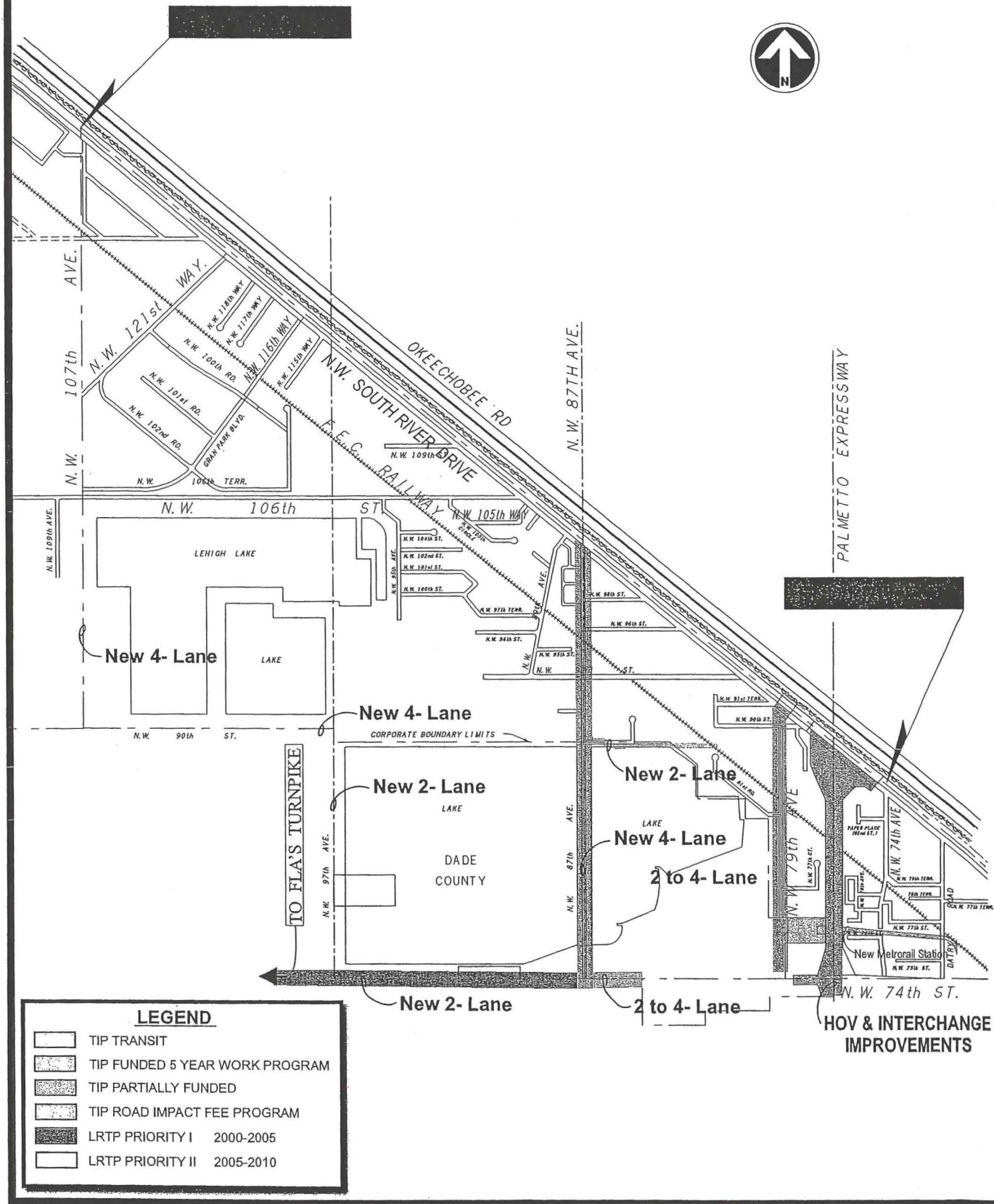
Year 2008 and 2028 Future Forecasts

The year 2020 model forecasts converted to AADT served as the basis for the development of the design traffic. The year 2008 opening year traffic was obtained by interpolation between the validated 1999 base year and the 2020 model (See Figure 5-2). Table 5-1 below illustrates how different growth factors were prevalent along different sections of NW South River Drive. The northwestern portion of the corridor experienced the greatest amount of growth. This is attributed to the fact that this is currently the most underdeveloped area of the corridor and is expected to have rapid growth as evidenced by the model results. In order to obtain the design year 2028 traffic volumes the year 2020 model was extrapolated by a 2% annual growth factor (a rate observed within the study area) to obtain the year 2028 volumes (See Figure 5-2). In addition, in order to properly identify the lanage deficiencies and requirements at each of the intersections being analyzed, existing traffic counts were taken and adjusted to future year 2008 & 2028 volumes to reflect growth rates obtained in the model (See Figures 5-3 & 5-4). Percentages of overall volumes corresponding to each turning movement were maintained.

Table 5-1
NW South River Drive Growth Factors*

Segments	From	To	2008	2028
1	NW 107 Ave.	116th Way.	11.07%	3.86%
2	116th way	NW 87th Ave.	3.56%	2.36%
3	NW 87 Ave.	90th st.	1.30%	1.49%
4	NW 90th st.	SR 826	2.18%	1.86%

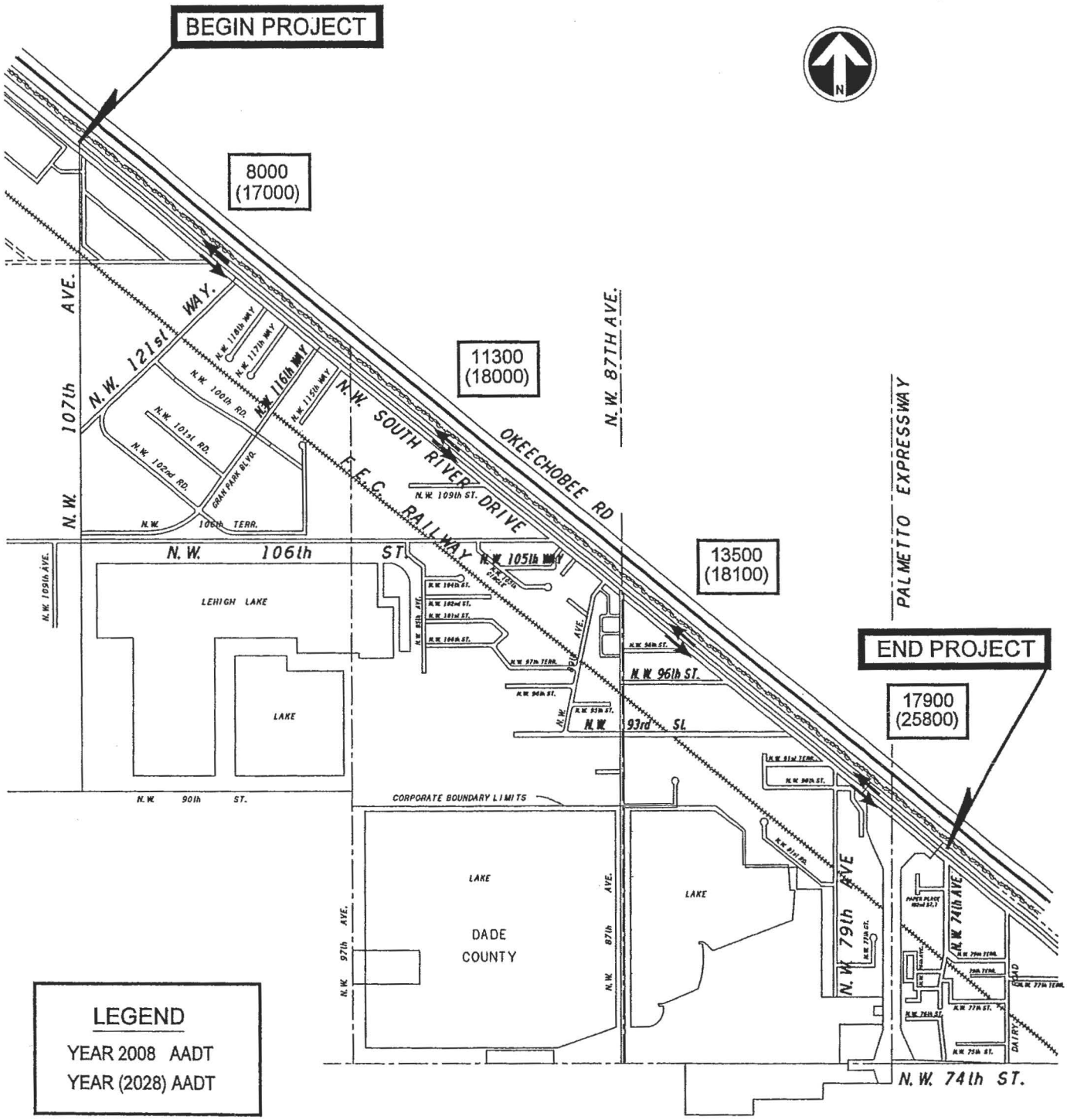
*obtained from traffic model per year rates



PROPOSED IMPROVEMENTS WITHIN THE PROJECT VICINITY

FIGURE NO.

5-1



FUTURE NW SOUTH RIVER DR. AADT LINK FORECASTS

FIGURE NO.

5-2

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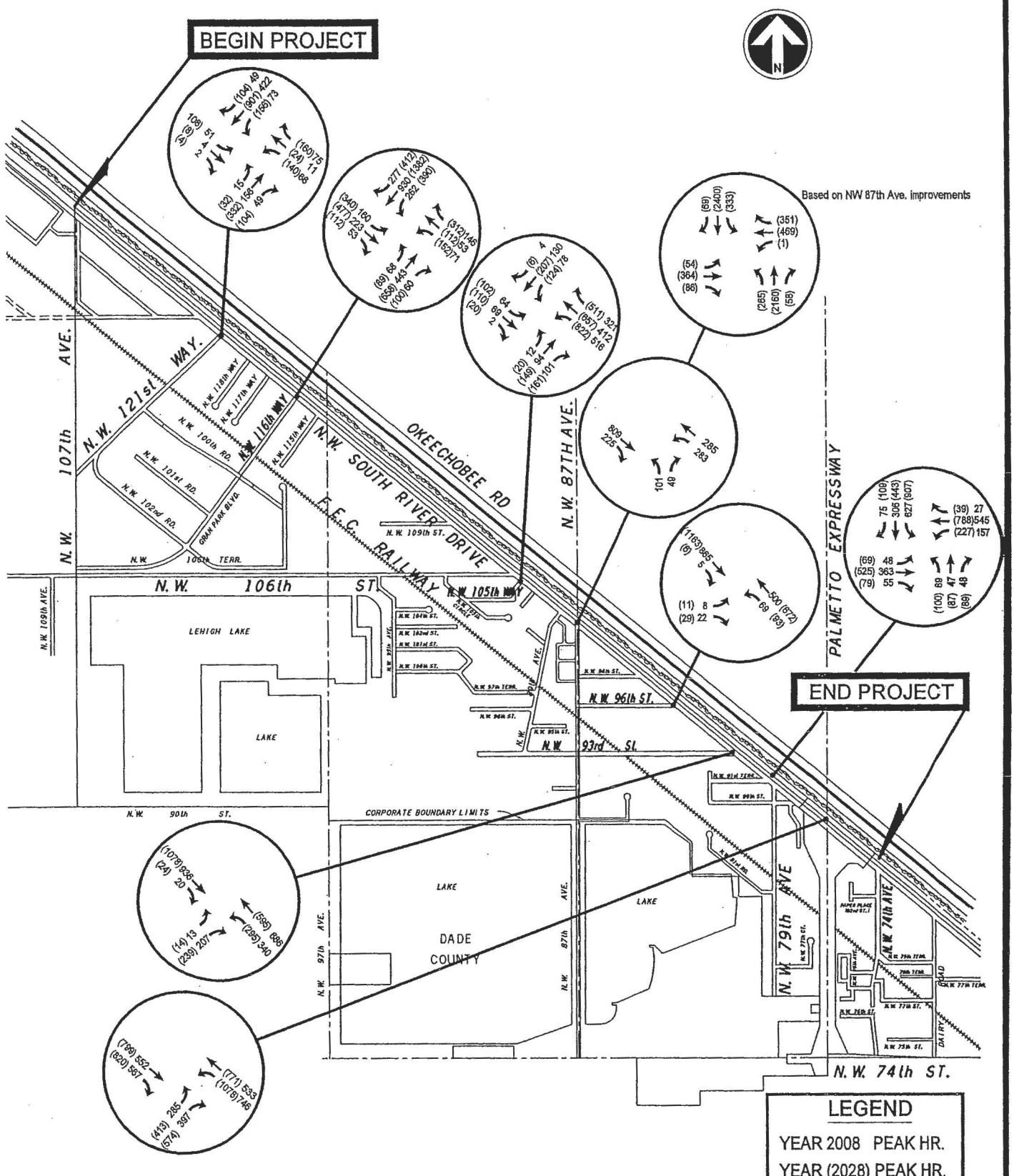

FUTURE INTERSECTION AM PEAK HOUR VOLUMES

FIGURE NO.

5-3

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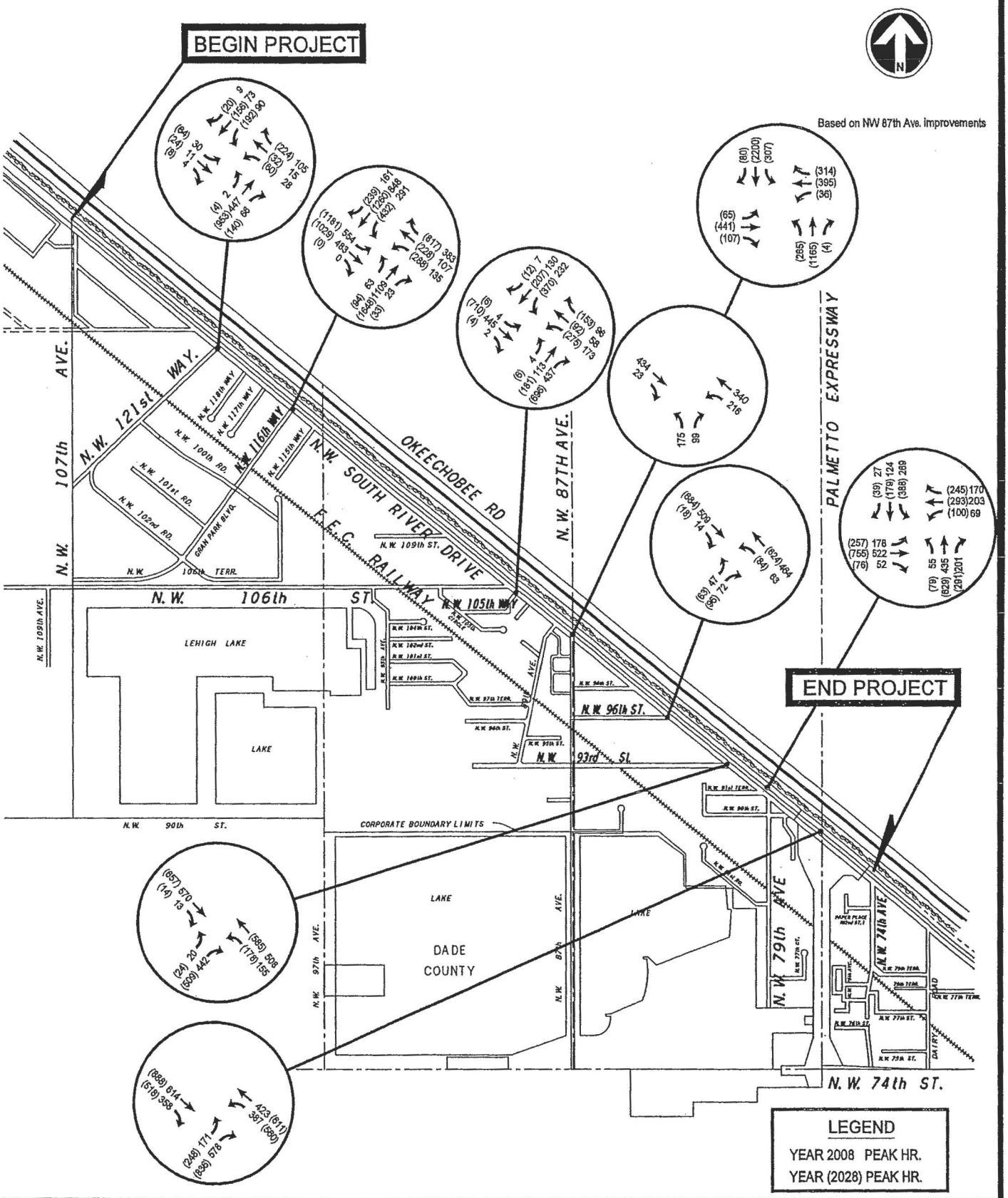

FUTURE INTERSECTION PM PEAK HR. VOLUMES

FIGURE NO.

5-4

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6. Alternative Analysis

The focus of the NW South River Drive corridor analysis is to determine the optimum number of lanes needed along the corridor to effectively carry the expected demand on it and to provide intersection improvements (i.e. left/right turn lanes and storage bays) to ensure that the intersections operate accordingly.

No Build

Based on future AADT projections (see Table 6-1) by the opening year 2008 portions of the eastern stretch of the corridor will operate at an unacceptable LOS F. The entire study area by the year 2028 will operate with an unacceptable LOS F according to the projections, based on the standards set forth in the 2002 LOS Manual Handbook.

Table 6-1
No Build Future Corridor LOS*

From	To	2008 AADT	2008 LOS	2018 AADT	2018 LOS	2028 AADT	2028 LOS
90th st.	SR 826	17840	F	21300	F	25814	F
NW 87 Ave	90th st.	13466	D	15100	E	18089	F
106th way	NW 87th Ave.	11321	D	14700	E	18044	F
116th way	106th st.	7971	C	13400	D	16954	F

* interpolated linearly between 1999 and 2020 MUATS volumes
applied proper MOCF
extrapolated from 2020 MUATS volumes based on an average of growth rate of 2%

However, based on the fact that the corridor is currently operating worse than what the AADT tables indicate; actual field conditions (i.e. proximity to Okeechobee Rd., unsynchronized signals) further diminish capacity. Future conditions will undoubtedly be worse than what the numbers indicate.

In addition design hour volumes at each of the 8 intersections were analyzed under existing lane configuration for the opening and design years. Based on these volumes, level of services (LOS) operational analyses were performed for each of the 8 intersections using the Highway Capacity Software 2000 program. Table 6-2 summarizes the intersection LOS analyses for each of the intersections. By the design year 2028 a majority of the intersections will operate at an unacceptable LOS F. Printouts of the HCS analyses are furnished in Appendix D.

Table 6-2
No Build Future Intersection LOS

Intersection		LOS			
NB/SB	EB/WB	2008		2028	
		AM	PM	AM	PM
NW 121st Way	S. River Dr.	A	B	E	D
NW 116th Way	S. River Dr.	B	F	F	F
NW 105th Way	S. River Dr.	F	D	F	F
NW 87th Ave.	S. River Dr.	F	F	F	F
NW 96th St.	S. River Dr.	D	D	F	F
NW 93rd St.	S. River Dr.	F	E	F	F
NW 79th St.	S. River Dr.	F	F	F	F
SB SR 826	S. River Dr.	F	F	F	F

Build

Based on the future DDHV, level of service (LOS) operational analysis were performed for each of the 8 aforementioned intersections along NW South River Drive using the Synchro 5 Software (See Appendix E). Tables 6-3 & 6-4 summarize the intersection LOS analyses along with the resulting intersection geometry requirements for both years 2008 & 2028. All of the intersections on Tables 6-3 & 6-4 were optimized using the Synchro 5 software (See Appendix E). By the year 2008 the majority of the intersection improvements involved the addition of left & right turn lanes, as well as signal phasing & cycle optimization. By the year 2028 seven out of the eight intersections require two (2) through lanes in each direction along NW South River Drive, in addition to the provision of some dual left-turn and exclusive right-turn lanes.

Table 6-3
Year 2008 Design Hour
Intersection Level of Service Analysis and Recommended Improvements

Intersection		Recommended Improvements					LOS	
NB/SB	EB/WB	Movement	Approach					
			NB	SB	EB	WB	AM	PM
NW 116th Way	NW South River Dr.	Left	1	1	2	1	C	D
		Thru	2	2	2	1		
		Right	1	S	S	1		
NW 87th Ave.	NW South River Dr.	Left	S	N/A	N/A	1	B	A
		Thru	N/A	N/A	1	1		
		Right	S	N/A	S	N/A		
NW 93rd St.	NW South River Dr.	Left	S	N/A	N/A	1	B	B
		Thru	N/A	N/A	1	1		
		Right	S	N/A	S	N/A		
SR 826 SB Entr.	NW South River Dr.	Left	S	N/A	N/A	2	D	B
		Thru	N/A	N/A	1	1		
		Right	S	N/A	1	N/A		
105th Way	NW South River Dr.	Left	S	1	1	1	B	B
		Thru	1	1	2	1		
		Right	1	1	S	1		
79th Ave.	NW South River Dr.	Left	1	2	1	1	C	B
		Thru	1	1	2	1		
		Right	1	S	S	S		

(S) - Shared Thru and Right Turn Lane or Shared Thru and Left Turn Lane

N/A - not applicable - turning movement does not exist

Table 6-4
Year 2028 Design Hour
Intersection Level of Service Analysis and Recommended Improvements

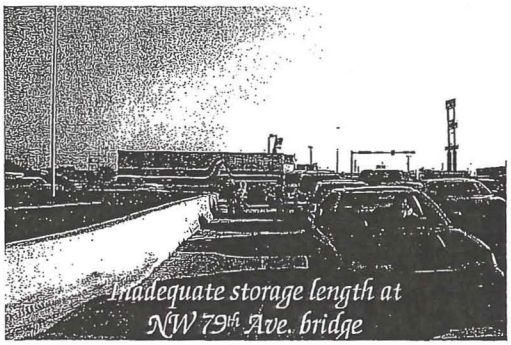
Intersection		Recommended Improvements					LOS	
NB/SB	EB/WB	Movement	Approach					
			NB	SB	EB	WB	AM	PM
NW 116th Way	NW South River Dr.	Left	1	2	2	2	C	E
		Thru	4	3	2	2		
		Right	S	1	S	S		
NW 105th Way	NW South River Dr.	Left	S	1	1	2	B	D
		Thru	1	1	2	2		
		Right	1	1	S	S		
NW 87th Ave.	NW South River Dr.	Left	1	1	1	1	D	D
		Thru	3	3	2	2		
		Right	S	S	S	1		
NW 96th St.	NW South River Dr.	Left	1	N/A	N/A	1	A	A
		Thru	N/A	N/A	2	2		
		Right	S	N/A	S	N/A		
NW 93rd St.	NW South River Dr.	Left	1	N/A	N/A	1	A	A
		Thru	N/A	N/A	2	2		
		Right	S	N/A	S	N/A		
NW 79th Ave.	NW South River Dr.	Left	1	2	1	1	E	D
		Thru	1	2	2	2		
		Right	1	S	S	1		
SR 826 SB Entr.	NW South River Dr.	Left	1	N/A	N/A	2	D	D
		Thru	N/A	N/A	2	2		
		Right	1	N/A	1	N/A		

(S) - Shared Thru and Right Turn Lane or Shared Thru and Left Turn Lane

N/A - not applicable - turning movement does not exist

Summary

These improvements and benefits are based on the assumption that the signals along NW South River Dr. be properly synchronized. Furthermore that the potential restriction of certain truck turning movements at the intersections with connections to Okeechobee Rd. be further investigated. The actual operational restriction resulting from the combination of large WB50 trucks turning at the short bridge crossings leads to extensive vehicular



queues. The provision of four (4) lanes along NW South River Drive would dramatically increase the capacity and operation of the facility as well as of the intersections along the corridor. Providing this improvement would maintain all segments evaluated with a LOS D or better by the design year 2028. However, due to the R/W constraints along NW South River Drive and based on the availability of funding a phasing plan for the implementation of improvements is recommended as follows:

- Phase I (2003): Synchronization of the South River Dr./NW 79th Ave. & SR 826 signals and the Okeechobee Rd./NW 79th Ave. signal

- Phase II (2008) : 3-Lane NW South River Dr. from NW 105th Way to SR 826; Initial Intersection Improvements

- Phase III (2018): 3-Lane NW South River Dr. from NW 107th Ave. to NW 105th Way. 4-Lane NW South River Drive from NW 105th Way to SR 826

- Phase IV (2028) : 4-Lane NW South River Dr. from NW 107th Avenue to NW 105th Way. Additional Intersection Improvements at NW 79th Ave.

The three (3)-lane concept will benefit EB vehicles, by providing more capacity in what was observed to be the most critical travel direction along NW South River Drive. The provision of a three (3)-lane typical section would serve in improving the operation of the roadway and provide temporary relief prior to the ultimate solution being implemented.

Appendix A — Existing AM

HCS2000: Signalized Intersections Release 4.1

Analyst: Robert L	Inter.: SRD &
Agency:	Area Type: All other areas
Date: 05/20/2003	Jurisd:
Period: Am Peak Hour	Year : 2002
Project ID:	
E/W St: SRD	N/S St: NW 121 Way

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	0	0	2	0	1	1	1
Lane Config		LTR			LTR			LTR		L	T	R
Volume	27	2	1	35	6	40	8	83	26	39	225	26
Lane Width		12.0			12.0			12.0		12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left		A			NB Left	P			
Thru		A			Thru	P			
Right		A			Right	P			
Peds		X			Peds	X			
WB Left	A				SB Left	P			
Thru	A				Thru	P			
Right	A				Right	P			
Peds	X				Peds	X			
Right					EB Right				
Right					WB Right				
Green	6.5	1.7				45.5			
Yellow	4.0	4.0				4.0			
All Red	1.0	1.0				1.0			

Cycle Length: 68.7

Secs

Intersection Performance Summary

Lane pr/ Lane p	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
stbound								
LTR	70	1774	0.46	0.04	37.0	D	37.0	D
stbound								
mR	186	1703	0.47	0.11	30.6	C	30.6	C
Northbound								
R	2174	3212	0.06	0.68	3.8	A	3.8	A
Southbound								
	847	1251	0.05	0.68	3.8	A		
	1261	1863	0.19	0.68	4.5	A	4.3	A
R	1071	1583	0.03	0.68	3.7	A		

Intersection Delay = 10.2 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1

Baseline

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst:	Robert L
Agency/Co.:	
Date Performed:	05/20/2003
Analysis Time Period:	Am Peak Hour
Intersection:	SRD &
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	2002
Project ID:	

East/West Street	North/South Street
SRD	NW 121 Way

HCS2000: Signalized Intersections Release 4.1

Analyst: Robert L	Inter.: SRD & NW 116th Way
Agency: Metric Engineering Inc	Area Type: All other areas
Date: 05/20/2003	Jurisd:
Period: AM Peak Hour	Year : Baseline
Project ID:	
E/W St: SRD	N/S St: NW 116th Way

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	0	1	2	1	1	2	0
LGConfig	L	TR		L	TR		L	T	R	L	TR	
Volume	85	119	28	38	28	78	53	393	60	233	826	246
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left	A				NB	Left	P			
Thru	A					Thru	P			
Right	A					Right	P			
Peds	X					Peds	X			
NB Left	A				SB	Left	P			
Thru	A					Thru	P			
Right	A					Right	P			
Peds	X					Peds	X			
Right					EB	Right				
Right					WB	Right				
Green	10.8						45.1			
Yellow	4.0						4.0			
All Red	1.0						1.0			

Cycle Length: 65.9 secs

Intersection Performance Summary

Lane Group	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
	211	1180	0.44	0.18	25.5	C		
TR	300	1678	0.53	0.18	26.3	C	26.0	C
Westbound								
	182	1014	0.23	0.18	23.8	C		
TR	275	1536	0.42	0.18	25.0	C	24.7	C
Northbound								
L	254	363	0.23	0.70	5.6	A		
	2296	3282	0.19	0.70	3.6	A	3.8	A
R	1027	1468	0.06	0.70	3.2	A		
Southbound								
	608	869	0.42	0.70	6.3	A		
	2217	3169	0.53	0.70	5.6	A	5.7	A

Intersection Delay = 8.7 (sec/veh) Intersection LOS = A

HCS2000: Signalized Intersections Release 4.1

Baseline

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst:	Robert L
Agency/Co.:	Metric Engineering Inc
Date Performed:	05/20/2003
Analysis Time Period:	AM Peak Hour
Intersection:	SRD & NW 116th Way
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	Baseline
Project ID:	

East/West Street	North/South Street
SRD	NW 116th Way

HCS2000: Signalized Intersections Release 4.1

Analyst: Robert L	Inter.: SRD & NW 105th Way
Agency: Metric Engineering Inc.	Area Type: All other areas
Date: 05/20/2003	Jurisd:
Period: AM Peak Hour	Year : Baseline
Project ID:	
E/W St: SRD	N/S St: NW 105th Way

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	1	0	1	1	1	1	1
Lane Config		LTR			LT	R		LT	R	L	T	R
Volume	52	56	10	481	334	260	10	76	82	63	105	3
Lane Width		12.0			12.0	12.0		12.0	12.0	12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	P				NB	Left	A			
	Thru	P					Thru	A			
	Right	P					Right	A			
	Peds						Peds				
NB	Left	P				SB	Left		A		
	Thru	P					Thru		A		
	Right	P					Right		A		
	Peds						Peds				
	Right					EB	Right				
	Right					WB	Right				
Green		50.6						8.6	9.4		
Yellow		4.0						4.0	4.0		
All Red		2.0						1.0	1.0		

Cycle Length: 84.6

HCS

Intersection Performance mmary

Lane pr/ p	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
stbound								
LTR	645	1057	0.20	0.61	8.0	A	8.0	A
stbound								
T	806	1297	1.10	0.62	78.4	E	61.4	E
	913	1468	0.31	0.62	8.4	A		
orthbound								
	195	1717	0.48	0.11	37.0	D	37.8	D
	167	1468	0.53	0.11	38.7	D		
Southbound								
	202	1641	0.34	0.12	34.9	C		
	212	1727	0.54	0.12	37.6	D	36.5	D
R	180	1468	0.02	0.12	32.6	C		

Intersection Delay = 51.9 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1

aseline

one: Fax:
-Mail:

OPERATIONAL LYSIS

lyst:	Robert L
ncy/Co.:	Metric Engineering Inc.
ate Performed:	05/20/2003
lysis Time Period:	AM Peak Hour
ersection:	SRD & NW 105th Way
rea Type:	All other areas
risdiction:	
lysis Year:	Baseline
oject ID:	

East/West Street	North/South Street
SRD	NW 105th Way

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L
Agency: Metric Engineering Inc
Date: 05/20/2003
riod: AM Peak Hour
Project ID:
E/W St: SRD

Inter.: NW 79th Avenue & SRD
Area Type: All other areas
Jurisd:
Year : Baseline

N/S St: NW 79th Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	1	1	0	1	1	0	1	1	1	1	2	0
Config	L	TR		L	TR		L	T	R	L	TR	
Volume	42	319	48	138	479	24	61	41	42	551	269	66
ne Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	
OR Vol			0			0			0			0

cation 0.25 Area Type: All other areas

Signal Operations

ase Combination	1	2	3	4		5	6	7	8
EB Left	P				NB Left	A			
Thru	P				Thru	A			
Right	P				Right	A			
Peds	X				Peds	X			
WB Left	P				SB Left	P			
Thru	P				Thru	P			
Right	P				Right	P			
Peds	X				Peds	X			
Right					EB Right				
Right					WB Right				
reen	61.0					38.0			
llow	4.0					4.0			
Red	1.0					1.0			

Cycle Length: 109.0

ocs

Intersection Performance Summary

Lane/ Lane Group	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
	332	583	0.14	0.57	11.9	B		
TR	964	1694	0.41	0.57	14.6	B	14.3	B
Westbound								
L	439	772	0.34	0.57	14.7	B		
	976	1715	0.56	0.57	17.2	B	16.7	B
Northbound								
	294	821	0.22	0.36	24.8	C		
	618	1727	0.07	0.36	23.1	C	23.9	C
	525	1468	0.09	0.36	23.3	C		
Southbound								
	450	1257	1.33	0.36	198.6	F		
	1139	3184	0.32	0.36	26.1	C	133.4	F

Intersection Delay = 66.4 (sec/veh) Intersection LOS = E

HCS2000: Signalized Intersections Release 4.1

Baseline

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst:	Robert L
Agency/Co.:	Metric Engineering Inc
Date Performed:	05/20/2003
Analysis Time Period:	AM Peak Hour
Intersection:	NW 79th Avenue & SRD
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	Baseline
Project ID:	

East/West Street	North/South Street
SRD	NW 79th Avenue

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L
Agency: Metric Engineering Inc.
ate: 05/20/2003
riod: AM Peak Hour
roject ID:
E/W St: SRD

Inter.: SRD & SB Ent. SR826
Area Type: All other areas
Jurisd:
Year : Baseline

N/S St: SB Ent. SR826

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Lanes	0	1	0	1	1	0	1	0	1	0	0	0
Config		T		L	T		L		R			
Volume		455		439	614		235		327			
ne Width		12.0		12.0	12.0		12.0		12.0			
OR Vol									0			

ation 0.25 Area Type: All other areas

Signal Operations

ase Combination	1	2	3	4		5	6	7	8
EB Left					NB Left	P			
Thru	P				Thru				
Right					Right	P			
Peds	X				Peds				
WB Left	A				SB Left				
Thru	A				Thru				
Right					Right				
Peds	X				Peds				
Right					EB Right				
Right					WB Right				
reen	65.0					23.0			
llow	4.0					4.0			
Red	1.0					1.0			

Cycle Length: 98.0

ds

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1163	1727	0.43	0.67	8.5	A	8.5	A
Westbound								
L	73	105	6.53	0.67		F		
T	1163	1727	0.57	0.67	9.2	A		F
Northbound								
L	402	1641	0.63	0.24	40.5	D		
							64.0	E
	360	1468	0.99	0.24	80.9	F		
Southbound								

Intersection Delay = 559.7 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1

Baseline

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst:	Robert L
Agency/Co.:	Metric Engineering Inc.
Date Performed:	05/20/2003
Analysis Time Period:	AM Peak Hour
Intersection:	SRD & SB Ent. SR826
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	Baseline
Project ID:	

East/West Street	North/South Street
SRD	SB Ent. SR826

Existing PM

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L
Agency: Metric Engineering Inc.
te: 05/20/2003
riod: PM Peak Hour
Project ID:
W St: SRD

Inter.: SRD &
Area Type: All other areas
Jurisd:
Year : Baseline

N/S St: NW 121 Way

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	0	1	0	0	1	0	0	2	0	1	1	1
Config		LTR			LTR			LTR		L	T	R
Volume	16	6	2	15	8	56	1	238	35	48	39	5
ne Width		12.0			12.0			12.0		12.0	12.0	12.0
OR Vol			0			0			0			0

cation 0.25 Area Type: All other areas

Signal Operations

ase Combination	1	2	3	4			5	6	7	8
EB Left					NB	Left	P			
Thru						Thru	P			
Right						Right	P			
Peds						Peds	X			
WB Left	A				SB	Left	P			
Thru	A					Thru	P			
Right	A					Right	P			
Peds	X					Peds	X			
Right					EB	Right				
Right					WB	Right				
Green	9.3						50.6			
low	4.0						4.0			
Red	1.0						1.0			

Cycle Length: 69.9

gs

Intersection Performance

mmary

pr/ Lane p	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
stbound								
LTR				0.00				
stbound								
TR	246	1669	0.35	0.15	27.7	C	27.7	C
orthbound								
R	2447	3315	0.12	0.74	2.7	A	2.7	A
Southbound								
	783	1061	0.07	0.74	2.7	A		
	1375	1863	0.03	0.74	2.5	A	2.6	A
R	1169	1583	0.00	0.74	2.4	A		
	Intersection Delay =			(sec/veh)	Intersection LOS =			

HCS2000: Signalized Intersections Release 4.1

aseline

one: Fax:
E-Mail:

OPERATIONAL
ALYSIS

lyst:	Robert L
ncy/Co.:	Metric Engineering Inc.
ate Performed:	05/20/2003
lysis Time Period:	PM Peak Hour
ersection:	SRD &
rea Type:	All other areas
risdiction:	
lysis Year:	Baseline
oject ID:	

East/West Street	North/South Street
SRD	NW 121 Way

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L	Inter.: SRD & NW 116th Way
Agency: Metric Engineering Inc.	Area Type: All other areas
Date: 05/20/2003	Jurisd:
riod: PM Peak Hour	Year : Baseline
roject ID:	
E/W St: SRD	N/S St: NW 116th Way

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	1	1	0	1	1	0	1	2	1	1	2	0
Config	L	TR		L	TR		L	T	R	L	TR	
Volume	295	257	0	72	57	204	56	985	20	258	753	143
ne Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	
OR Vol			0			0			0			0

ration 0.25 Area Type: All other areas

Signal Operations

ase Combination	1	2	3	4			5	6	7	8
Left	A				NB	Left	P			
Thru	A					Thru	P			
Right						Right	P			
Peds	X					Peds	X			
WB Left	A				SB	Left	P			
Thru	A					Thru	P			
Right	A					Right	P			
Peds	X					Peds	X			
Right					EB	Right				
Right					WB	Right				
reen	21.0						45.0			
ellow	4.0						4.0			
Red	1.0						1.0			

Cycle Length: 76.0

ecs

Intersection Performance

mmary

pr/ Lane p	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
stbound								
	211	730	1.52	0.29	284.3	F		
LR	500	1727	0.56	0.29	24.3	C	163.4	F
stbound								
	215	743	0.36	0.29	22.5	C		
TR	441	1525	0.64	0.29	26.8	C	25.9	C
orthbound								
	255	421	0.24	0.61	9.1	A		
	1986	3282	0.54	0.61	9.8	A	9.7	A
	889	1468	0.02	0.61	6.1	A		
Southbound								
	220	364	1.27	0.61	168.3	F		
	1939	3203	0.50	0.61	9.4	A	44.9	D

Intersection Delay = 51.9 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1

aseline

one: Fax:
-Mail:

OPERATIONAL
ALYSIS

lyst: Robert L
ncy/Co.: Metric Engineering Inc.
ate Performed: 05/20/2003
lysis Time Period: PM Peak Hour
ersection: SRD & NW 116th Way
rea Type: All other areas
risdiction:
lysis Year: Baseline
oject ID:

East/West Street	North/South Street
SRD	NW 116th Way

HCS2000: Signalized Intersections Release 4.1

nalyst: Robert L
Agency: Metric Engineering Inc
ate: 05/20/2003
eriod: Pm Peak Hour
Project ID:
/W St: SRD

Inter.: SRD & NW 105th Way
Area Type: All other areas
Jurisd:
Year : Baseline

N/S St: NW 105th Way

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	0	1	0	0	1	1	0	1	1	1	1	1
Config		LTR			LT	R		LT	R	L	T	R
Volume	3	361	2	140	47	78	3	92	354	188	105	6
ne Width		12.0			12.0	12.0		12.0	12.0	12.0	12.0	12.0
OR Vol			0			0			0			0

ration 0.25 Area Type: All other areas

Signal erations

ase Combination		1	2	3	4			5	6	7	8
EB	Left	P				NB	Left	A			
	Thru	P					Thru	A			
	Right	P					Right	A			
	Peds	X					Peds	X			
WB	Left	P				SB	Left		A		
	Thru	P					Thru		A		
	Right	P					Right		A		
	Peds	X					Peds		X		
	Right					EB	Right				
	Right					WB	Right				
Green		44.8						12.3	16.0		
llow		4.0						4.0	4.0		
l Red		2.0						1.0	1.0		

Cycle Length: 89.1

cs

Intersection Performance Summary

Lane Group	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound							
LTR	886	0.45	0.51	15.3	B	15.3	B
Westbound							
LTR	495	0.41	0.53	15.3	B	14.0	B
	771	0.11	0.53	10.9	B		
Northbound							
	257	0.40	0.15	35.3	D	320.7	F
	219	1.76	0.15	397.1	F		
Southbound							
	313	0.65	0.19	38.1	D		
	330	0.35	0.19	31.9	C	35.7	D
R	280	0.03	0.19	29.3	C		

Intersection Delay = 119.0 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1

Baseline

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst:	Robert L
Agency/Co.:	Metric Engineering Inc
Date Performed:	05/20/2003
Analysis Time Period:	Pm Peak Hour
Intersection:	SRD & NW 105th Way
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	Baseline
Project ID:	

East/West Street	North/South Street
SRD	NW 105th Way

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L	Inter.: NW 79th Avenue & SRD
Agency: Metric Engineering Inc.	Area Type: All other areas
ate: 05/20/2003	Jurisd:
riod: PM Peak Hour	Year : Baseline
roject ID:	
/W St: SRD	N/S St: NW 79th Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	1	1	0	1	1	0	1	1	1	1	2	0
Config	L	TR		L	TR		L	T	R	L	TR	
Volume	156	459	46	61	178	149	48	382	177	236	109	24
ne Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	
OR Vol			0			0			0			0

ration 0.25 Area Type: All other areas

Signal Operations

ase Combination	1	2	3	4		5	6	7	8
B Left	P				NB Left	A			
Thru	P				Thru	A			
Right	P				Right	A			
Peds	X				Peds	X			
NB Left	P				SB Left	A			
Thru	P				Thru	A			
Right	P				Right	A			
Peds	X				Peds	X			
Right					EB Right				
Right					WB Right				
Green	61.0					38.0			
llow	4.0					4.0			
. Red	1.0					1.0			

Cycle Length: 109.0

cs

Intersection Performance

mmary

pr/ Lane p	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
stbound								
	473	832	0.36	0.57	14.9	B		
TR	969	1704	0.57	0.57	17.3	B	16.8	B
stbound								
L	330	580	0.20	0.57	12.8	B		
TR	915	1609	0.39	0.57	14.2	B	14.0	B
orthbound								
L	408	1141	0.13	0.36	23.7	C		
	618	1727	0.67	0.36	32.4	C	30.0	C
	525	1468	0.37	0.36	26.3	C		
Southbound								
	181	507	1.42	0.36	253.1	F		
	1142	3193	0.13	0.36	23.6	C	170.7	F

Intersection Delay = 48.2 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1

aseline

one: Fax:
-Mail:

OPERATIONAL
LYSIS

lyst: Robert L
ncy/Co.: Metric Engineering Inc.
ate Performed: 05/20/2003
lysis Time Period: PM Peak Hour
ersection: NW 79th Avenue & SRD
ea Type: All other areas
risdiction:
lysis Year: Baseline
oject ID:

East/West Street: SRD
North/South Street: NW 79th Avenue

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L
Agency: Metric Engineering Inc.
te: 05/20/2003
riod: PM Peak Hour
Project ID:
/W St: SRD

Inter.: SRD & SB Ent. SR826
Area Type: All other areas
Jurisd:
Year : Baseline

N/S St: SB Ent. SR826

SIGNALIZED INTERSECTION
MMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	0	1	0	1	1	0	1	0	1	0	0	0
gConfig		T		L	T		L		R			
olume		506		319	348		141		476			
ne Width		12.0		12.0	12.0		12.0		12.0			
OR Vol									0			

cation 0.25 Area Type: All other areas

Signal
erations

ase Combination	1	2	3	4			5	6	7	8
EB Left					NB	Left	P			
Thru		P				Thru				
Right						Right	P			
Peds		X				Peds				
WB Left	A				SB	Left				
Thru	A	A				Thru				
Right						Right				
Peds	X	X				Peds				
Right					EB	Right				
Right					WB	Right				
Green	33.6	65.3					23.1			
low	4.0	4.0					4.0			
Red	1.0	1.0					1.0			

Cycle Length: 137.0

s

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	836	1727	0.66	0.48	30.8	C	30.8	C
Westbound								
L	414	1641	0.84	0.25	62.6	E		
T	1322	1727	0.29	0.77	4.9	A	32.6	C
Northbound								
L	289	1641	0.53	0.18	58.1	E		
T	258	1468	2.00	0.18	521.7	F	415.8	F
Southbound								

Intersection Delay = 164.1 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1

Baseline

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst:	Robert L
Agency/Co.:	Metric Engineering Inc.
Date Performed:	05/20/2003
Analysis Time Period:	PM Peak Hour
Intersection:	SRD & SB Ent. SR826
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	Baseline
Project ID:	

East/West Street	North/South Street
SRD	SB Ent. SR826

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1203	1267	1077	1203	3183	0	1641	1693	0	1641	1715	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1203	1267	1077	1203	3183	0	1641	1693	0	1641	1715	0
Satd. Flow (RTOR)			52		19			6			2	
Volume (vph)	69	47	48	627	306	75	48	363	55	157	545	27
Lane Group Flow (vph)	75	51	52	682	415	0	52	455	0	171	621	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2									
Total Split (s)	30.0	43.0	43.0	30.0	43.0	0.0	15.0	66.0	0.0	15.0	66.0	0.0
Act Effct Green (s)	14.1	27.1	27.1	26.0	39.0		9.1	62.1		11.0	64.0	
Actuated g/C Ratio	0.10	0.19	0.19	0.18	0.27		0.06	0.44		0.08	0.45	
v/c Ratio	0.63	0.21	0.21	3.10	0.47		0.50	0.61		1.35	0.80	
Uniform Delay, d1	61.5	48.5	0.0	58.1	40.8		64.3	30.3		65.6	33.5	
Delay	61.5	48.2	11.5	398.4	41.8		65.5	31.8		201.6	39.4	
LOS	E	D	B	F	D		E	C		F	D	
Approach Delay		43.1			263.5			35.3			74.4	
Approach LOS		D			F			D			E	
Queue Length 50th (ft)	68	40	0	~1097	161		47	316		~206	491	
Queue Length 95th (ft)	125	80	36	#1412	228		97	472		#381	#773	
Internal Link Dist (ft)		1042			1006			900			900	
50th Up Block Time (%)				12%								
95th Up Block Time (%)				32%								
Turn Bay Length (ft)							150			150		
50th Bay Block Time %								31%		31%	39%	
95th Bay Block Time %								41%		63%	48%	2
Queuing Penalty (veh)								18		291	74	

% of time the intersection is blocked

Intersection Summary	
Cycle Length: 154	
Actuated Cycle Length: 142.2	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 3.10	
Intersection Signal Delay: 145.1	Intersection LOS: F
Intersection Capacity Utilization 103.2%	ICU Level of Service F

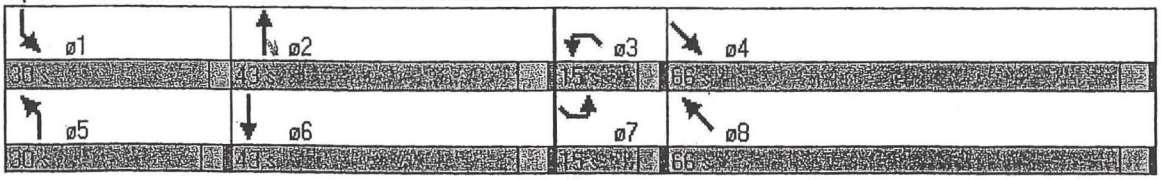
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

\# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 20: NW 79th Avenue & SRD



Footnotes { ~ # indicate that volumes exceeds capacity.

Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1727	0	1641	1727	1641	1468
Flt Permitted			0.358		0.950	
Satd. Flow (perm)	1727	0	618	1727	1641	1468
Satd. Flow (RTOR)						344
Volume (vph)	552	0	746	533	285	397
Lane Group Flow (vph)	600	0	811	579	310	432
Turn Type			Perm			Perm
Protected Phases	6			2	4	
Permitted Phases			2			4
Total Split (s)	70.0	0.0	70.0	70.0	28.0	28.0
Act Effct Green (s)	66.0		66.0	66.0	24.0	24.0
Actuated g/C Ratio	0.67		0.67	0.67	0.24	0.24
v/c Ratio	0.52		1.95	0.50	0.77	0.70
Uniform Delay, d1	8.0		16.0	7.9	34.4	6.2
Delay	8.3		284.1	8.2	39.6	8.0
LOS	A		F	A	D	A
Approach Delay	8.3			169.2	21.2	
Approach LOS	A			F	C	
Queue Length 50th (ft)	166		~788	157	181	44
Queue Length 95th (ft)	245		#1016	233	#308	156
Internal Link Dist (ft)	900			742	565	
50th Up Block Time (%)			12%			
95th Up Block Time (%)			32%			
Turn Bay Length (ft)			75			
50th Bay Block Time %			41%	20%		
95th Bay Block Time %			43%	24%		
Queuing Penalty (veh)			245	178		

Intersection Summary

Cycle Length: 98

Actuated Cycle Length: 98

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.95

Intersection Signal Delay: 93.6 Intersection LOS: F

Intersection Capacity Utilization 103.7% ICU Level of Service F

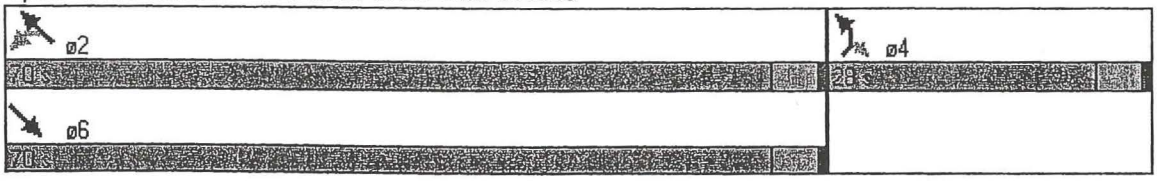
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 24: SRD & SB Ent. SR826



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1722	0	1641	1727	1641	1468
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1722	0	1641	1727	1641	1468
Satd. Flow (RTOR)	2					216
Volume (vph)	936	20	340	686	13	207
Lane Group Flow (vph)	1039	0	370	746	14	225
Turn Type			Prot			Perm
Protected Phases	6		5	2	4	
Permitted Phases						4
Total Split (s)	93.0	0.0	8.0	30.0	20.5	20.5
Act Effct Green (s)	89.1		4.0	97.1	9.1	9.1
Actuated g/C Ratio	0.78		0.04	0.85	0.08	0.08
v/c Ratio	0.77		6.38	0.51	0.11	0.71
Uniform Delay, d1	6.9		55.1	2.3	48.8	1.9
Delay	8.7		449.5	2.8	47.8	7.8
LOS	A		F	A	D	A
Approach Delay	8.7			150.9	10.2	
Approach LOS	A			F	B	
Queue Length 50th (ft)	117		~511	82	10	6
Queue Length 95th (ft)	434		#753	237	30	83
Internal Link Dist (ft)	1520			900	1460	
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)			50			50
50th Bay Block Time %			92%	8%		
95th Bay Block Time %			95%	17%		35%
Queuing Penalty (veh)			699	47		5

Intersection Summary

Cycle Length: 121.5

Actuated Cycle Length: 114.2

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 6.38

Intersection Signal Delay: 75.2 Intersection LOS: E

Intersection Capacity Utilization 88.7% ICU Level of Service D

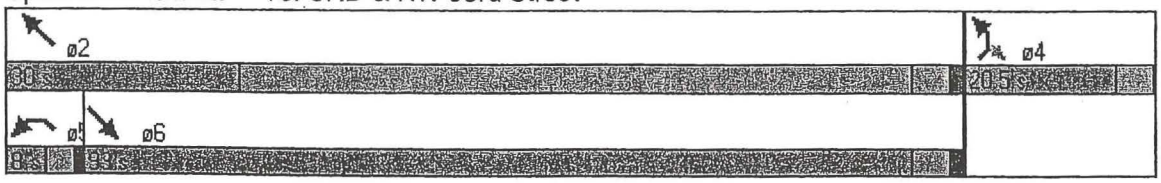
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 18: SRD & NW 93rd Street



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	865	5	69	500	8	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	940	5	75	543	9	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
vC, conflicting volume			946		1636	943
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			89		91	92
cM capacity (veh/h)			694		95	308

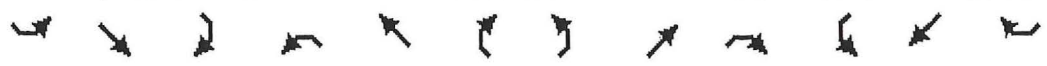
Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	946	618	33
Volume Left	0	75	9
Volume Right	5	0	24
cSH	1700	694	192
Volume to Capacity	0.56	0.11	0.17
Queue Length (ft)	0	9	15
Control Delay (s)	0.0	2.8	27.5
Lane LOS		A	D
Approach Delay (s)	0.0	2.8	27.5
Approach LOS			D

Intersection Summary			
Average Delay		1.7	
Intersection Capacity Utilization	95.9%	ICU Level of Service	E

Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	101	49	809	225	283	285
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	110	53	879	245	308	310
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type	None					
Median storage veh)						
vC, conflicting volume	1927	1002			1124	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.5	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.3	
p0 queue free %	0	81			48	
cM capacity (veh/h)	34	284			593	

Direction, Lane #	NB 1	SE 1	NW 1
Volume Total	163	1124	617
Volume Left	110	0	308
Volume Right	53	245	0
cSH	61	1700	593
Volume to Capacity	2.69	0.66	0.52
Queue Length (ft)	413	0	75
Control Delay (s)	910.0	0.0	14.2
Lane LOS	F		B
Approach Delay (s)	910.0	0.0	14.2
Approach LOS	F		

Intersection Summary			
Average Delay	82.5		
Intersection Capacity Utilization	110.6%	ICU Level of Service	G



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		1	0		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. 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
Ped Bike Factor												
Frt		0.998				0.850			0.850			0.850
Flt Protected		0.977			0.973			0.994		0.950		
Satd. Flow (prot)	0	1684	0	0	1681	1468	0	1717	1468	1641	1727	1468
Flt Permitted		0.472			0.621			0.967		0.650		
Satd. Flow (perm)	0	814	0	0	1073	1468	0	1670	1468	1123	1727	1468
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				180			110			4
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
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3539			1490			906			916	
Travel Time (s)		80.4			33.9			20.6			20.8	
Volume (vph)	64	69	2	516	412	321	12	94	101	78	130	4
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	70	75	2	561	448	349	13	102	110	85	141	4
Lane Group Flow (vph)	0	147	0	0	1009	349	0	115	110	85	141	4
Turn Type	Split			Split		Perm	Perm		Perm	Perm		Perm
Protected Phases	6	6		2	2			4			8	
Permitted Phases						2	4		4	8		8
Detector Phases	6	6		2	2	2	4	4	4	8	8	8
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	16.0	16.0	16.0	16.0	16.0	16.0
Minimum Split (s)	21.0	21.0		22.0	22.0	22.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	31.0	31.0	0.0	50.0	50.0	50.0	41.0	41.0	41.0	41.0	41.0	41.0
Total Split (%)	25%	25%	0%	41%	41%	41%	34%	34%	34%	34%	34%	34%
Maximum Green (s)	26.0	26.0		44.0	44.0	44.0	36.0	36.0	36.0	36.0	36.0	36.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	Min	Min		Min	Min	Min	Max	Max	Max	Max	Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		15.8			46.1	46.1		37.1	37.1	37.1	37.1	37.1
Actuated g/C Ratio		0.14			0.42	0.42		0.33	0.33	0.33	0.33	0.33
v/c Ratio		0.61			1.45	0.49		0.21	0.20	0.23	0.24	0.01
Uniform Delay, d1		44.4			32.4	10.6		26.4	0.0	26.6	26.8	0.0
Delay		44.3			195.9	11.7		27.9	5.5	28.5	28.2	17.0
LOS		D			F	B		C	A	C	C	B
Approach Delay		44.3			148.6			16.9			28.1	
Approach LOS		D			F			B			C	
90th %ile Green (s)	21.2	21.2		44.0	44.0	44.0	36.0	36.0	36.0	36.0	36.0	36.0
90th %ile Term Code	Gap	Gap		Max	Max	Max	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
70th %ile Green (s)	17.4	17.4		44.0	44.0	44.0	36.0	36.0	36.0	36.0	36.0	36.0
70th %ile Term Code	Gap	Gap		Max	Max	Max	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
50th %ile Green (s)	14.8	14.8		44.0	44.0	44.0	36.0	36.0	36.0	36.0	36.0	36.0
50th %ile Term Code	Gap	Gap		Max	Max	Max	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
30th %ile Green (s)	12.3	12.3		44.0	44.0	44.0	36.0	36.0	36.0	36.0	36.0	36.0
30th %ile Term Code	Gap	Gap		Max	Max	Max	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
10th %ile Green (s)	8.8	8.8		44.0	44.0	44.0	36.0	36.0	36.0	36.0	36.0	36.0
10th %ile Term Code	Gap	Gap		Max	Max	Max	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
Stops (vph)		172			2016	113		74	14	56	92	3
Fuel Used(gal)		6			59	5		2	1	1	2	0
CO Emmisions (g/hr)		412			4119	358		128	63	92	153	4
NOx Emmisions (g/hr)		80			801	70		24	12	18	30	1
VOC Emmisions (g/hr)		95			955	83		29	15	21	35	1
Dilemma Vehicles (#)		0			0	0		0	0	0	0	0
Queue Length 50th (ft)		99			#980	77		58	0	43	72	0
Queue Length 95th (ft)		166			#1320	172		112	41	91	133	8
Internal Link Dist (ft)		3459			1410			826			836	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)												
50th Bay Block Time %												
95th Bay Block Time %												
Queuing Penalty (veh)												

Intersection Summary

Area Type: Other

Cycle Length: 122

Actuated Cycle Length: 110.9

Natural Cycle: 110

Control Type: Semi Act-Uncoord

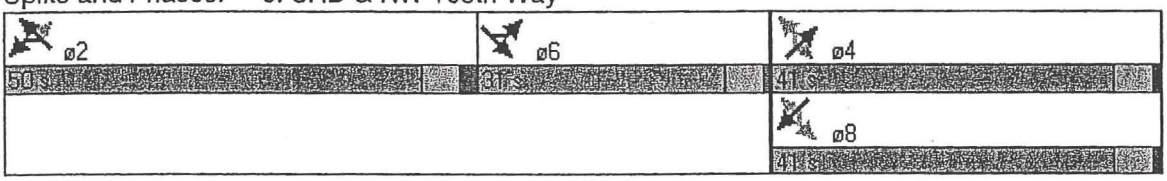
Maximum v/c Ratio: 1.45

Intersection Signal Delay: 111.5 Intersection LOS: F

Intersection Capacity Utilization 91.3% ICU Level of Service E

90th %ile Actuated Cycle: 117.2
70th %ile Actuated Cycle: 113.4
50th %ile Actuated Cycle: 110.8
30th %ile Actuated Cycle: 108.3
10th %ile Actuated Cycle: 104.8
~ 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.

Splits and Phases: 9: SRD & NW 105th Way



INTERSECTION DELAY STUDY

Location: SRD + NW 79 Av.		City: Medley			County: Dade	
Approach: West		Movement: Thru			Date: 9/18/2003	
Weather: Sunny		Study No.			Observer: Carlos/Diana	
TIME (Minute starting at)	TOTAL NUMBER OF VEHICLES STOPPED IN THE APPROACH AT TIME				APPROACH VOLUME	
	+ 0 SEC	+15 SEC	+30 SEC	+45SEC	NUMBER STOPPED	No. NOT STOPPED
7:25 AM	3	35	35	35	35	0
7:26 AM	35	35	35	35	3	0
7:27 AM	35	35	35	35	11	0
7:28 AM	35	35	35	35	9	0
7:29 AM	5	35	35	35	2	0
7:30 AM	35	35	35	35	35	0
7:31 AM	35	0	0	0	3	0
7:32 AM	3	17	17	18	2	0
7:33 AM	35	35	35	35	35	0
7:34 AM	35	0	0	0	3	0
7:35 AM	5	35	35	35	2	0
7:36 AM	35	35	35	35	3	0
7:37 AM	35	0	0	0	0	0
SUBTOTAL	331	332	332	333	143	0
TOTAL	1328				143	

TOTAL DELAY = TOTAL NUMBER STOPPED X SAMPLING INTERVAL

TOTAL DELAY = 1328 X 15 = 19920 Veh-Sec

AVERAGE DELAY per STOPPED VEHICLE = $\frac{\text{Total Delay}}{\text{Number of Stopped Vehicles}}$

$= \frac{19920}{143} =$ 139.3 Sec

AVERAGE DELAY per APPROACH VEHICLE = $\frac{\text{Total Delay}}{\text{Approach Volume}}$

$= \frac{19920}{143} =$ 139.3 Sec

PERCENT OF VEHICLES STOPPED = $\frac{\text{Number of Stopped Vehicles}}{\text{Approach Volume}}$

$= \frac{143}{143} =$ 100.00%

INTERSECTION DELAY STUDY

Location: SRD + NW 79 Av.		City: Medley			County: Dade	
Approach: South		Movement: Thru			Date: 9/18/2003	
Weather: Sunny		Study No.			Observer: Carlos/Diana	
TIME (Minute starting at)	TOTAL NUMBER OF VEHICLES STOPPED IN THE APPROACH AT TIME				APPROACH VOLUME	
	+ 0 SEC	+15 SEC	+30 SEC	+45SEC	NUMBER STOPPED	No. NOT STOPPED
7:45 AM	0	0	0	1	2	0
7:46 AM	2	2	3	5	4	0
7:47 AM	5	0	0	0	2	0
7:48 AM	1	1	1	3	4	0
7:49 AM	4	5	6	6	2	0
7:50 AM	6	0	0	0	3	0
7:51 AM	0	0	0	3	3	0
7:52 AM	3	4	4	4	1	0
7:53 AM	5	6	8	0	0	0
7:54 AM	0	3	3	3	1	0
7:55 AM	3	3	3	4		
SUBTOTAL	29	24	28	29	22	0
TOTAL	110				22	

TOTAL DELAY = TOTAL NUMBER STOPPED X SAMPLING INTERVAL

TOTAL DELAY = 110 X 15 = 1650 Veh-Sec

AVERAGE DELAY per STOPPED VEHICLE = $\frac{\text{Total Delay}}{\text{Number of Stopped Vehicles}}$

$= \frac{1650}{22} =$ 75.0 Sec

AVERAGE DELAY per APPROACH VEHICLE = $\frac{\text{Total Delay}}{\text{Approach Volume}}$

$= \frac{1650}{22} =$ 75.0 Sec

PERCENT OF VEHICLES STOPPED = $\frac{\text{Number of Stopped Vehicles}}{\text{Approach Volume}}$

$= \frac{22}{22} =$ 100.00%

INTERSECTION DELAY STUDY

Location: SRD + NW 79 Av.		City: Medley			County: Dade	
Approach: North		Movement: Thru			Date: 9/18/2003	
Weather: Sunny		Study No.			Observer: Carlos/Diana	
TIME (Minute starting at)	TOTAL NUMBER OF VEHICLES STOPPED IN THE APPROACH AT TIME				APPROACH VOLUME	
	+ 0 SEC	+15 SEC	+30 SEC	+45SEC	NUMBER STOPPED	No. NOT STOPPED
8:15 AM	3	4	4	4	5	0
8:16 AM	4	4	4	0	5	0
8:17 AM	2	8	8	8	4	0
8:18 AM	8	8	8	0	6	0
8:19 AM	1	4	4	7	3	0
8:20 AM	8	8	8	8	4	0
8:21 AM	2	2	2	2	4	0
8:22 AM	2	2	2	2	3	0
8:23 AM					2	0
8:24 AM					2	0
SUBTOTAL	30	40	40	31	38	0
TOTAL	141				38	

TOTAL DELAY = TOTAL NUMBER STOPPED X SAMPLING INTERVAL

TOTAL DELAY = 141 X 15 = 2115 Veh-Sec

AVERAGE DELAY per STOPPED VEHICLE = $\frac{\text{Total Delay}}{\text{Number of Stopped Vehicles}}$

$= \frac{2115}{38} =$ 55.7 Sec

AVERAGE DELAY per APPROACH VEHICLE = $\frac{\text{Total Delay}}{\text{Approach Volume}}$

$= \frac{2115}{38} =$ 55.7 Sec

PERCENT OF VEHICLES STOPPED = $\frac{\text{Number of Stopped Vehicles}}{\text{Approach Volume}}$

$= \frac{38}{38} =$ 100.00%

INTERSECTION DELAY STUDY

Location: SRD + NW 79 Av.		City: Medley			County: Dade	
Approach: West		Movement: Thru			Date: 9/17/2003	
Weather: Sunny		Study No.			Observer: Carlos/Jaques	
TIME (Minute starting at)	TOTAL NUMBER OF VEHICLES STOPPED IN THE APPROACH AT TIME				APPROACH VOLUME	
	+ 0 SEC	+15 SEC	+30 SEC	+45SEC	NUMBER STOPPED	No. NOT STOPPED
4:00 PM	35	35	35	35	35	0
4:01 PM	35	35	35	35	3	0
4:02 PM	35	35	35	35	2	0
4:03 PM	35	35	35	35	3	0
4:04 PM	35	35	35	35	2	0
4:05 PM	35	35	35	35	3	0
4:06 PM	9	9	9	9	2	2
4:07 PM	15	35	35	35	5	0
4:08 PM	35	35	35	35	3	0
4:09 PM	35	35	35	35	3	0
4:10 PM	35	32	35	35	5	0
SUBTOTAL	339	356	359	359	66	2
TOTAL	1413				68	

TOTAL DELAY = TOTAL NUMBER STOPPED X SAMPLING INTERVAL

TOTAL DELAY = 1413 X 15 = 21195 Veh-Sec

AVERAGE DELAY per STOPPED VEHICLE = $\frac{\text{Total Delay}}{\text{Number of Stopped Vehicles}}$

$= \frac{21195}{66} =$ 321.1 Sec

AVERAGE DELAY per APPROACH VEHICLE = $\frac{\text{Total Delay}}{\text{Approach Volume}}$

$= \frac{21195}{68} =$ 311.7 Sec

PERCENT OF VEHICLES STOPPED = $\frac{\text{Number of Stopped Vehicles}}{\text{Approach Volume}}$

$= \frac{66}{68} =$ 97.06%

INTERSECTION DELAY STUDY

Location: SRD + NW 79 Av.		City: Medley			County: Dade	
Approach: East		Movement: Thru			Date: 9/17/2003	
Weather: Cloudy		Study No.			Observer: Carlos/Jaques	
TIME (Minute starting at)	TOTAL NUMBER OF VEHICLES STOPPED IN THE APPROACH AT TIME				APPROACH VOLUME	
	+ 0 SEC	+15 SEC	+30 SEC	+45SEC	NUMBER STOPPED	No. NOT STOPPED
Afternoon	5	5	7	9	10	5
	11	13	14	15	5	0
	3	6	6	7	4	0
	10	10	11	11	6	0
	6	6	8	10	2	12
	10	12	12	10	4	0
	3	11	12	14	4	4
	14	16	18	18	15	0
	3	3	6	8	2	13
	10	12	16	18	11	0
	5	7	7	11	8	6
	14	14	17	20	7	0
	8	8	9	9	6	8
	11	13	16	19	8	0
					7	2
SUBTOTAL	113	136	159	179	99	50
TOTAL	587				149	

TOTAL DELAY = TOTAL NUMBER STOPPED X SAMPLING INTERVAL

TOTAL DELAY = 587 X 15 = 8805 Veh-Sec

AVERAGE DELAY per STOPPED VEHICLE = $\frac{\text{Total Delay}}{\text{Number of Stopped Vehicles}}$

$= \frac{8805}{99} = 88.9$ Sec

AVERAGE DELAY per APPROACH VEHICLE = $\frac{\text{Total Delay}}{\text{Approach Volume}}$

$= \frac{8805}{149} = 59.1$ Sec

PERCENT OF VEHICLES STOPPED = $\frac{\text{Number of Stopped Vehicles}}{\text{Approach Volume}}$

$= \frac{99}{149} = 66.44\%$

INTERSECTION DELAY STUDY

Location: SRD + NW 79 Av.		City: Medley			County: Dade	
Approach: North		Movement: Thru			Date: 9/17/2003	
Weather: Cloudy		Study No.			Observer: Carlos/Jaques	
TIME (Minute starting at)	TOTAL NUMBER OF VEHICLES STOPPED IN THE APPROACH AT TIME				APPROACH VOLUME	
	+ 0 SEC	+15 SEC	+30 SEC	+45SEC	NUMBER STOPPED	No. NOT STOPPED
5:00 PM	9	16	35	35	7	0
5:01 PM	35	35	35	35	5	6
5:02 PM	35	35	0	0	7	0
5:03 PM	35	35	35	35	6	0
5:04 PM	35	35	35	35	7	8
5:05 PM	35	35	0	0	6	4
5:06 PM	11	35	35	35	6	2
5:07 PM	35	35	35	35	8	3
5:08 PM	35	35	0	0	7	4
5:09 PM	12	35	35	35	7	5
5:10 PM	35	35	35	35	8	3
5:11 PM	35	35	0	0	7	5
5:12 PM	16	35	35	35	8	3
5:13 PM	35	35	35	35	7	3
5:14 PM	35	35	35	35	4	0
SUBTOTAL	433	506	385	385	100	46
TOTAL	1709				146	

TOTAL DELAY = TOTAL NUMBER STOPPED X SAMPLING INTERVAL

TOTAL DELAY = 1709 X 15 = 25635 Veh-Sec

AVERAGE DELAY per STOPPED VEHICLE = $\frac{\text{Total Delay}}{\text{Number of Stopped Vehicles}}$

$= \frac{25635}{100} =$ 256.4 Sec

AVERAGE DELAY per APPROACH VEHICLE = $\frac{\text{Total Delay}}{\text{Approach Volume}}$

$= \frac{25635}{146} =$ 175.6 Sec

PERCENT OF VEHICLES STOPPED = $\frac{\text{Number of Stopped Vehicles}}{\text{Approach Volume}}$

$= \frac{100}{146} =$ 68.49%

INTERSECTION DELAY STUDY

Location: SRD + NW 79 Av.		City: Medley			County: Dade	
Approach: South		Movement: Thru			Date: 9/17/2003	
Weather: Cloudy		Study No.			Observer: Carlos/Jaques	
TIME (Minute starting at)	TOTAL NUMBER OF VEHICLES STOPPED IN THE APPROACH AT TIME				APPROACH VOLUME	
	+ 0 SEC	+15 SEC	+30 SEC	+45SEC	NUMBER STOPPED	No. NOT STOPPED
5:17 PM	2	2	2	3	13	0
5:18 PM	4	4	6	6	8	0
5:19 PM	6	0	0	0	4	0
5:20 PM	2	2	4	4	7	0
5:21 PM	6	7	7	7	5	0
5:22 PM	7	0	0	0	8	0
5:23 PM	0	1	3	4	13	0
5:24 PM	4	4	5	5	9	0
5:25 PM	5	0	0	0	20	0
5:26 PM	0	0	4	4	8	0
5:27 PM	5	6	6	6	7	0
5:28 PM	6	0	0	0	10	0
5:29 PM	0	1	2	3	11	0
5:30 PM	3	3	4	7	6	0
5:31 PM	7	0	0	0	5	0
SUBTOTAL	57	30	43	49	134	0
TOTAL	179				134	

TOTAL DELAY = TOTAL NUMBER STOPPED X SAMPLING INTERVAL

TOTAL DELAY = 179 X 15 = 2685 Veh-Sec

AVERAGE DELAY per STOPPED VEHICLE = $\frac{\text{Total Delay}}{\text{Number of Stopped Vehicles}}$

$= \frac{2685}{134} = 20.0$ Sec

AVERAGE DELAY per APPROACH VEHICLE = $\frac{\text{Total Delay}}{\text{Approach Volume}}$

$= \frac{2685}{134} = 20.0$ Sec

PERCENT OF VEHICLES STOPPED = $\frac{\text{Number of Stopped Vehicles}}{\text{Approach Volume}}$

$= \frac{134}{134} = 100.00\%$

INTERSECTION DELAY STUDY

Location: SRD + NW 105 Way		City: Medley			County: Dade	
Approach: East		Movement: Thru			Date: 9/18/2003	
Weather: Sunny		Study No.			Observer: Maria Elena	
TIME (Minute starting at)	TOTAL NUMBER OF VEHICLES STOPPED IN THE APPROACH AT TIME				APPROACH VOLUME	
	+ 0 SEC	+15 SEC	+30 SEC	+45SEC	NUMBER STOPPED	No. NOT STOPPED
7:10 AM	3	0	0	0	3	0
7:11 AM	0	1	0	1	2	0
7:12 AM	1	0	0	0	0	1
7:13 AM	0	0	0	0	0	5
7:14 AM	0	0	0	0	0	1
7:15 AM	0	0	0	1	1	0
7:16 AM	0	0	0	0	0	0
7:17 AM	0	1	0	0	1	0
7:18 AM	0	0	0	0	1	0
7:19 AM	0	0	0	0	0	2
7:20 AM	0	0	0	0	0	1
7:21 AM	0	0	0	0	0	2
7:22 AM	0	0	0	0	0	3
7:23 AM	0	0	0	0	0	2
7:24 AM	0	0	0	0	0	2
SUBTOTAL	4	2	0	2	8	19
TOTAL	8				27	

TOTAL DELAY = TOTAL NUMBER STOPPED X SAMPLING INTERVAL

TOTAL DELAY = 8 X 15 = 120 Veh-Sec

AVERAGE DELAY per STOPPED VEHICLE = $\frac{\text{Total Delay}}{\text{Number of Stopped Vehicles}}$

$= \frac{120}{8} =$ 15.0 Sec

AVERAGE DELAY per APPROACH VEHICLE = $\frac{\text{Total Delay}}{\text{Approach Volume}}$

$= \frac{120}{27} =$ 4.4 Sec

PERCENT OF VEHICLES STOPPED = $\frac{\text{Number of Stopped Vehicles}}{\text{Approach Volume}}$

$= \frac{8}{27} =$ 29.63%

INTERSECTION DELAY STUDY

Location: SRD + NW 105 Way		City: Medley			County: Dade	
Approach: West		Movement: Thru			Date: 9/18/2003	
Weather: Sunny		Study No.			Observer: Maria Elena	
TIME (Minute starting at)	TOTAL NUMBER OF VEHICLES STOPPED IN THE APPROACH AT TIME				APPROACH VOLUME	
	+ 0 SEC	+15 SEC	+30 SEC	+45SEC	NUMBER STOPPED	No. NOT STOPPED
7:30 AM	12	15	16	17	17	0
7:31 AM	15	13	13	14	5	0
7:32 AM	15	15	15	15	1	0
7:33 AM	15	9	6	7	7	1
7:34 AM	7	7	7	7	0	0
7:35 AM	7	7	7	4	1	3
7:36 AM	0	2	3	3	3	0
7:37 AM	4	5	6	9	5	0
7:38 AM	6	0	0	0	0	1
7:39 AM	0	1	2	4	4	0
7:40 AM	8	6	0	0	6	0
7:41 AM	0	0	0	1	1	0
7:42 AM	2	4	4	0	4	0
7:43 AM	0	0	0	1	1	0
7:44 AM	2	4	9	9	9	0
SUBTOTAL	93	88	88	91	64	5
TOTAL	360				69	

TOTAL DELAY = TOTAL NUMBER STOPPED X SAMPLING INTERVAL

TOTAL DELAY = 360 X 15 = 5400 Veh-Sec

AVERAGE DELAY per STOPPED VEHICLE = $\frac{\text{Total Delay}}{\text{Number of Stopped Vehicles}}$

$= \frac{5400}{64} =$ 84.4 Sec

AVERAGE DELAY per APPROACH VEHICLE = $\frac{\text{Total Delay}}{\text{Approach Volume}}$

$= \frac{5400}{69} =$ 78.3 Sec

PERCENT OF VEHICLES STOPPED = $\frac{\text{Number of Stopped Vehicles}}{\text{Approach Volume}}$

$= \frac{64}{69} =$ 92.75%

INTERSECTION DELAY STUDY

Location: SRD + NW 105 Way	City: Medley	County: Dade
Approach: South	Movement: Thru	Date: 9/18/2003
Weather: Sunny	Study No.	Observer: Maria Elena

TIME (Minute starting at)	TOTAL NUMBER OF VEHICLES STOPPED IN THE APPROACH AT TIME				APPROACH VOLUME	
	+ 0 SEC	+15 SEC	+30 SEC	+45SEC	NUMBER STOPPED	No. NOT STOPPED
7:49 AM	1	1	2	0	3	0
7:50 AM	0	0	0	1	1	0
7:51 AM	1	1	1	1	0	0
7:52 AM	0	0	0	0	0	3
7:53 AM	0	0	0	1	1	1
7:54 AM	1	1	2	0	1	1
7:55 AM	0	0	0	0	0	1
7:56 AM	0	0	0	0	0	1
7:57 AM	0	0	0	0	0	0
7:58 AM	0	0	1	1	1	0
7:59 AM	1	0	0	0	0	0
8:00 AM	0	0	2	2	2	0
8:01 AM	2	3	3	0	1	0
8:02 AM	0	0	0	0	0	2
8:03 AM	0	0	0	0	0	2
SUBTOTAL	6	6	11	6	10	11
TOTAL	29				21	

TOTAL DELAY = TOTAL NUMBER STOPPED X SAMPLING INTERVAL

TOTAL DELAY = 29 X 15 = 435 Veh-Sec

AVERAGE DELAY per STOPPED VEHICLE = $\frac{\text{Total Delay}}{\text{Number of Stopped Vehicles}}$

$= \frac{435}{10} =$ 43.5 Sec

AVERAGE DELAY per APPROACH VEHICLE = $\frac{\text{Total Delay}}{\text{Approach Volume}}$

$= \frac{435}{21} =$ 20.7 Sec

PERCENT OF VEHICLES STOPPED = $\frac{\text{Number of Stopped Vehicles}}{\text{Approach Volume}}$

$= \frac{10}{21} =$ 47.62%

INTERSECTION DELAY STUDY

Location: SRD + NW 105 Way		City: Medley			County: Dade	
Approach: South		Movement: Thru			Date: 9/17/2003	
Weather: Sunny		Study No.			Observer: Maria/Diana	
TIME (Minute starting at)	TOTAL NUMBER OF VEHICLES STOPPED IN THE APPROACH AT TIME				APPROACH VOLUME	
	+ 0 SEC	+15 SEC	+30 SEC	+45SEC	NUMBER STOPPED	No. NOT STOPPED
5:10 PM	0	0	0	0	21	0
5:11 PM	0	0	0	0	0	12
5:12 PM	0	0	0	0	18	0
5:13 PM	0	2	5	8	7	4
5:14 PM	0	8	9	12	9	0
5:15 PM	0	0	1	2	7	4
5:16 PM	6	8	9	4	7	1
5:17 PM	0	0	0	1	6	2
5:18 PM	6	7	10	12	7	3
5:19 PM	12	14	0	0	8	0
5:20 PM	0	1	2	2	2	3
5:21 PM	4	6	2	0	4	0
5:22 PM	0	0	1	1	1	3
5:23 PM	2	3	5	7	4	0
5:24 PM	7	4	2	0	8	0
SUBTOTAL	37	53	46	49	109	32
TOTAL	185				141	

TOTAL DELAY = TOTAL NUMBER STOPPED X SAMPLING INTERVAL

TOTAL DELAY = 185 X 15 = 2775 Veh-Sec

AVERAGE DELAY per STOPPED VEHICLE = $\frac{\text{Total Delay}}{\text{Number of Stopped Vehicles}}$

$= \frac{2775}{109} =$ 25.5 Sec

AVERAGE DELAY per APPROACH VEHICLE = $\frac{\text{Total Delay}}{\text{Approach Volume}}$

$= \frac{2775}{141} =$ 19.7 Sec

PERCENT OF VEHICLES STOPPED = $\frac{\text{Number of Stopped Vehicles}}{\text{Approach Volume}}$

$= \frac{109}{141} =$ 77.30%

INTERSECTION DELAY STUDY

Location: SRD + NW 105 Way	City: Medley	County: Dade
Approach: West	Movement: Thru	Date: 9/17/2003
Weather: Sunny	Study No.	Observer: Maria/Diana

TIME (Minute starting at)	TOTAL NUMBER OF VEHICLES STOPPED IN THE APPROACH AT TIME				APPROACH VOLUME	
	+ 0 SEC	+15 SEC	+30 SEC	+45SEC	NUMBER STOPPED	No. NOT STOPPED
5:26 PM	5	0	1	3	12	1
5:27 PM	5	5	5	6	4	0
5:28 PM	6	0	0	0	0	6
5:29 PM	2	3	3	3	3	0
5:30 PM	4	4	6	6	3	0
5:31 PM	0	0	0	0	1	1
5:32 PM	1	1	1	1	0	0
5:33 PM	0	2	2	3	3	0
5:34 PM	4	6	6	6	4	0
5:35 PM	7	7	0	5	4	0
5:36 PM	5	6	7	9	7	0
5:37 PM	9	10	10	5	2	0
5:38 PM	4	0	0	0	0	9
5:39 PM	0	0	0	1	1	0
SUBTOTAL	52	44	41	48	44	17
TOTAL	185				61	

TOTAL DELAY = TOTAL NUMBER STOPPED X SAMPLING INTERVAL

TOTAL DELAY = 185 X 15 = 2775 Veh-Sec

AVERAGE DELAY per STOPPED VEHICLE = $\frac{\text{Total Delay}}{\text{Number of Stopped Vehicles}}$

$= \frac{2775}{44} =$ 63.1 Sec

AVERAGE DELAY per APPROACH VEHICLE = $\frac{\text{Total Delay}}{\text{Approach Volume}}$

$= \frac{2775}{61} =$ 45.5 Sec

PERCENT OF VEHICLES STOPPED = $\frac{\text{Number of Stopped Vehicles}}{\text{Approach Volume}}$

$= \frac{44}{61} =$ 72.13%

INTERSECTION DELAY STUDY

Location: SRD + Palmetto	City: Medley	County: Dade
Approach: West	Movement: Thru	Date: 9/18/2003
Weather: Sunny	Study No.	Observer: Carlos/Diana

TIME (Minute starting at)	TOTAL NUMBER OF VEHICLES STOPPED IN THE APPROACH AT TIME				APPROACH VOLUME	
	+ 0 SEC	+15 SEC	+30 SEC	+45SEC	NUMBER STOPPED	No. NOT STOPPED
8:35 AM	0	0	2	2	2	0
8:36 AM	2	0	0	0	1	0
8:37 AM	0	1	3	3	2	0
8:38 AM	3	0	0	0	5	0
8:39 AM	3	4	5	5	0	0
8:40 AM	0	1	1	1	2	0
8:41 AM	2	0	0	0	0	0
8:42 AM	0	0	1	2	3	0
8:43 AM	3	0	0	0	0	0
8:44 AM	0	0	0	0	0	0
SUBTOTAL	13	6	12	13	15	0
TOTAL	44				15	

TOTAL DELAY = TOTAL NUMBER STOPPED X SAMPLING INTERVAL

TOTAL DELAY = 44 X 15 = 660 Veh-Sec

AVERAGE DELAY per STOPPED VEHICLE = $\frac{\text{Total Delay}}{\text{Number of Stopped Vehicles}}$

$= \frac{660}{15} =$ 44.0 Sec

AVERAGE DELAY per APPROACH VEHICLE = $\frac{\text{Total Delay}}{\text{Approach Volume}}$

$= \frac{660}{15} =$ 44.0 Sec

PERCENT OF VEHICLES STOPPED = $\frac{\text{Number of Stopped Vehicles}}{\text{Approach Volume}}$

$= \frac{15}{15} =$ 100.00%

INTERSECTION DELAY STUDY

Location: SRD + Palmetto	City: Medley	County: Dade
Approach: South	Movement: Thru	Date: 9/18/2003
Weather: Sunny	Study No.	Observer: Carlos/Diana

TIME (Minute starting at)	TOTAL NUMBER OF VEHICLES STOPPED IN THE APPROACH AT TIME				APPROACH VOLUME	
	+ 0 SEC	+15 SEC	+30 SEC	+45SEC	NUMBER STOPPED	No. NOT STOPPED
8:50 AM	0	1	1	2	2	
8:51 AM	2	2	0	0	1	
8:52 AM	0	1	1	1	3	
8:53 AM	3	3	0	0	5	
8:54 AM	0	0	1	1	0	
8:55 AM	1	1	0	0	2	
8:56 AM	0	0	1	2	0	
8:57 AM	2	3	0	0	4	
8:58 AM	0	1	1	2	0	
8:59 AM	5	5	0	0	0	
9:00 AM	0	0	0	0		
9:01 AM	0	0	0	0		
SUBTOTAL	13	17	5	8	17	0
TOTAL	43				17	

TOTAL DELAY = TOTAL NUMBER STOPPED X SAMPLING INTERVAL

TOTAL DELAY = 43 X 15 = 645 Veh-Sec

AVERAGE DELAY per STOPPED VEHICLE = $\frac{\text{Total Delay}}{\text{Number of Stopped Vehicles}}$

$= \frac{645}{17} =$ 37.9 Sec

AVERAGE DELAY per APPROACH VEHICLE = $\frac{\text{Total Delay}}{\text{Approach Volume}}$

$= \frac{645}{17} =$ 37.9 Sec

PERCENT OF VEHICLES STOPPED = $\frac{\text{Number of Stopped Vehicles}}{\text{Approach Volume}}$

$= \frac{17}{17} =$ 100.00%

INTERSECTION DELAY STUDY

Location: SRD + Palmetto	City: Medley	County: Dade
Approach: East	Movement: Thru	Date: 9/18/2003
Weather: Sunny	Study No.	Observer: Carlos/Diana

TIME (Minute starting at)	TOTAL NUMBER OF VEHICLES STOPPED IN THE APPROACH AT TIME				APPROACH VOLUME	
	+ 0 SEC	+15 SEC	+30 SEC	+45SEC	NUMBER STOPPED	No. NOT STOPPED
9:06 AM	1	1	2	2	2	
9:07 AM	0	0	2	3	0	
9:08 AM	0	1	2	5	3	
9:09 AM	0	0	1	1	5	
9:10 AM	2	3	6	6	0	
9:11 AM	8	8	12	12	3	
9:12 AM	0	2	3	3	2	
9:13 AM					3	
9:14 AM					10	
9:15 AM					5	
SUBTOTAL	11	15	28	32	33	0
TOTAL	86				33	

TOTAL DELAY = TOTAL NUMBER STOPPED X SAMPLING INTERVAL

TOTAL DELAY = 86 X 15 = 1290 Veh-Sec

AVERAGE DELAY per STOPPED VEHICLE = $\frac{\text{Total Delay}}{\text{Number of Stopped Vehicles}}$

$= \frac{1290}{33} =$ 39.1 Sec

AVERAGE DELAY per APPROACH VEHICLE = $\frac{\text{Total Delay}}{\text{Approach Volume}}$

$= \frac{1290}{33} =$ 39.1 Sec

PERCENT OF VEHICLES STOPPED = $\frac{\text{Number of Stopped Vehicles}}{\text{Approach Volume}}$

$= \frac{33}{33} =$ 100.00%

Year 2020 MUATS Model
Peak Season Weekday Average Daily Traffic (PSWADT)
4 Lanes to Okeechobee Road

Table 3
NW 87th Avenue Design Traffic Report
Mini-Validation Summary

Roadway	From	To	FDOT Station Number	1998 AADT (1)	Project Counts Station Number	1999 AADT (2)	1999 PSWADT MUATS	1999 MOCF	1999 AADT MUATS (3)	V/C (4)	V-C (5)
S.R. 826 (Palmetto Expressway)	NW 36th Street	NW 58th Street	0571	205,000	-	209,100	206,475	0.99	204,410	0.98	(4,690)
	NW 58th Street	S.R. 934/NW 74th Street	0572	176,500	-	180,030	218,506	0.99	216,321	1.20	36,291
	S.R. 934/NW74th Street	S.R. 25/Okeechobee Road	0573	190,000	-	193,800	194,882	0.99	192,933	1.00	(867)
	S.R. 25/Okeechobee Road	95th Street	0553	176,000	-	179,520	188,327	0.99	186,444	1.04	6,924
S.R. 969 (NW 72nd Avenue)	34th Street	NW 36th Street	1204	36,000	-	36,720	44,689	0.99	44,242	1.20	7,522
	NW 36th Street	NW 58th Street	1205	32,000	-	32,640	26,168	0.99	25,906	0.79	(6,734)
	NW 58th Street	NW 71st Street	0039	29,500	-	30,090	36,730	0.99	36,363	1.21	6,273
S.R 25/U.S. 27 (Okeechobee Road)	105th Way (George Albel Way)	NW 103rd Street	0109	34,000	36/37	28,150	35,682	0.99	35,325	1.25	7,175
	NW 103rd Street	S.R. 826/Palmetto Expressway	2537	47,000	1001	54,169	46,389	0.99	45,925	0.85	(8,244)
	S.R. 826/Palmetto Expressway	S.R. 969/NW 72nd Avenue	0528	40,000	-	40,800	41,537	0.99	41,122	1.01	322
	S.R. 969/NW 72nd Avenue	West 14th Avenue	5252	38,500	-	39,270	49,982	0.99	49,482	1.26	10,212
S.R. 932 (NW 103rd Street)	S.R. 25/Okeechobee Road	West 26th Avenue	1217	15,800	-	16,116	14,010	0.99	13,870	0.86	(2,246)
S.R. 934 (NW 74th Street)	81st Place	S.R. 826/Palmetto Expressway	-	-	1004	26,720	21,544	0.99	21,329	0.80	(5,391)
	S.R. 826/Palmetto Expressway	S.R. 969/NW 72nd Avenue	2540	35,000	-	35,700	43,004	0.99	42,574	1.19	6,874
	S.R. 969/NW 72nd Avenue	West 14th Avenue	0534	38,010	-	38,770	47,436	0.99	46,962	1.21	8,191
NW 58th Street	NW 102nd Avenue	97th Avenue	-	-	16	14,780	14,555	0.99	14,409	0.97	(371)
	97th Avenue	92nd Avenue	-	-	15	19,480	18,599	0.99	18,413	0.95	(1,067)
	92nd Avenue	NW 87th Avenue	-	-	18	22,260	19,777	0.99	19,579	0.88	(2,681)
	NW 87th Avenue	81st Place	-	-	21	24,500	22,358	0.99	22,134	0.90	(2,366)
	81st Place	S.R. 826/Palmetto Expressway	-	-	38	24,780	31,527	0.99	31,212	1.26	6,432
NW South River Drive	109th Street	106th Street	-	-	29	5,120	3,129	0.99	3,098	0.61	(2,022)
	106th Street	NW 87th Avenue	-	-	27	11,200	8,345	0.99	8,262	0.74	(2,938)
	NW 87th Avenue	81st Place	-	-	34/35	10,970	12,108	0.99	11,987	1.09	1,017
	81st Place	90th Street	-	-	1003	19,650	16,056	0.99	15,895	0.81	(3,755)
	90th Street	S.R. 826/Palmetto Expressway	-	-	26	17,330	14,844	0.99	14,696	0.85	(2,634)
97th Avenue	NW 52nd Street	NW 62nd Street	-	-	17	6,420	7,496	0.99	7,421	1.16	1,001
NW 77th Court	NW 58th Street	NW 66th Street	-	-	25	8,250	8,241	0.99	8,159	0.99	(91)
	NW 66th Street	S.R. 934/NW 74th Street	-	-	24	7,260	8,831	0.99	8,743	1.20	1,483
NW 87th Avenue	54th Street	NW 58th Street	-	-	19	14,440	21,640	0.99	21,424	1.48	6,984
	NW 58th Street	S.R. 934/NW 74th Street	-	-	20	1,960	4,144	0.99	4,103	2.09	2,143
	S.R. 934/NW 74th Street	S.R. 25/Okeechobee Road	-	-	33	3,460	2,731	0.99	2,704	0.78	(756)
79th Avenue	80th Street	NW South River Drive	-	-	31	5,550	5,891	0.99	5,832	1.05	282
84th Avenue	NW 58th Street	NW 66th Street	-	-	22	10,970	15,800	0.99	15,642	1.43	4,672
	NW 66th Street	S.R. 934/NW 74th Street	-	-	23	9,190	15,294	0.99	15,141	1.65	5,951
79th Place	S.R. 934/NW 74th Street	80th Street	-	-	1002	7,720	5,899	0.99	5,840	0.76	(1,880)
106th Street	105th Way (George Albel Way)	NW South River Drive	-	-	30	5,550	6,233	0.99	6,171	1.11	621
105th Way (George Albel Way)	106th Street	NW South River Drive	-	-	28	4,120	N/A	0.99	N/A	N/A	N/A
NW 36th Street	S.R. 826/Palmetto Expressway	S.R. 969/NW 72nd Avenue	1173	75,500	-	77,010	69,573	0.99	68,877	0.89	(8,133)
	S.R. 969/NW 72nd Avenue	64th Avenue	1172	66,500	-	67,830	77,614	0.99	76,838	1.13	9,008

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(%RMSE) 20.545

(1) FDOT District 6 Traffic Counts.
(2) Project counts for the 87th Avenue project. If the count was not available, then the 1998 AADT count was used with a 2% growth factor.
(3) 1999 PSWADT * 1999 MOCF
(4) V/C = 1999 AADT MUATS / 1999 AADT Counts
(5) V-C = 1999 AADT MUATS - 1999 AADT Counts

Appendix D — No Build (AM, 2008)

HCS2000: Signalized Intersections Release 4.1

Analyst: Robert L	Inter.: SRD &
Agency: Metric Engineering Inc.	Area Type: All other areas
Date: 05/20/2003	Jurisd:
Period: AM Peak Hour	Year : 2008
Project ID:	
E/W St: SRD	N/S St: NW 121 Way

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	0	0	2	0	1	1	1
Lane Config		LTR			LTR			LTR		L	T	R
Volume	51	4	2	66	11	75	15	156	49	73	422	49
Lane Width		12.0			12.0			12.0		12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	A				NB	Left	P			
	Thru	A					Thru	P			
	Right	A					Right	P			
	Peds	X					Peds	X			
WB	Left	A				SB	Left	P			
	Thru	A					Thru	P			
	Right	A					Right	P			
	Peds	X					Peds	X			
	Right					EB	Right				
	Right					WB	Right				
Green		8.8						36.5			
Yellow		4.0						4.0			
	Red	1.0						1.0			

Cycle Length: 55.3

Notes

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	211	1193	0.29	0.18	20.5	C	20.5	C
Westbound								
TR	256	1445	0.65	0.18	26.8	C	26.8	C
Northbound								
R	2148	3167	0.11	0.68	3.2	A	3.2	A
Southbound								
	762	1124	0.10	0.68	3.4	A		
	1263	1863	0.36	0.68	4.6	A	4.3	A
R	1073	1583	0.05	0.68	3.1	A		
	Intersection Delay = 8.5		(sec/veh)		Intersection LOS = A			

HCS2000: Signalized Intersections Release 4.1

Baseline

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst:	Robert L
Agency/Co.:	Metric Engineering Inc.
Date Performed:	05/20/2003
Analysis Time Period:	AM Peak Hour
Intersection:	SRD &
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	2008
Project ID:	

East/West Street	North/South Street
SRD	NW 121 Way

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L
Agency: Metric Engineering Inc.
Date: 05/20/2003
riod: AM Peak Hour
Project ID:
E/W St: SRD

Inter.: SRD & NW 116th Way
Area Type: All other areas
Jurisd:
Year : 2008

N/S St: NW 116th Way

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Lanes	1	1	0	1	1	0	1	2	1	1	2	0
Config	L	TR		L	TR		L	T	R	L	TR	
Volume	160	223	53	71	53	146	68	658	60	262	930	277
ne Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	
OR Vol			0			0			0			0

cation 0.25 Area Type: All other areas

Signal Operations

	Phase Combination	1	2	3	4			5	6	7	8
EB	Left	A				NB	Left	P			
	Thru	A					Thru	P			
	Right	A					Right	P			
	Peds	X					Peds	X			
WB	Left	A				SB	Left	P			
	Thru	A					Thru	P			
	Right	A					Right	P			
	Peds	X					Peds	X			
	Right					EB	Right				
	Right					WB	Right				
Green		17.2						45.2			
Yellow		4.0						4.0			
	Red	1.0						1.0			

Cycle Length: 72.4

eas

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
	219	873	0.79	0.25	43.4	D		
TR	422	1677	0.71	0.25	30.2	C	35.1	D
Westbound								
L	156	622	0.49	0.25	25.6	C		
TR	386	1537	0.56	0.25	25.5	C	25.5	C
Northbound								
L	170	266	0.44	0.64	14.5	B		
T	2094	3282	0.34	0.64	6.5	A	7.1	A
R	937	1468	0.07	0.64	5.1	A		
Southbound								
L	392	615	0.73	0.64	20.1	C		
TR	2022	3169	0.65	0.64	9.7	A	11.6	B

Intersection Delay = 15.1 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1

Baseline

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst:	Robert L
Agency/Co.:	Metric Engineering Inc.
Date Performed:	05/20/2003
Analysis Time Period:	AM Peak Hour
Intersection:	SRD & NW 116th Way
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	2008
Project ID:	

East/West Street	North/South Street
SRD	NW 116th Way

HCS2000: Signalized Intersections Release 4.1

Analyst: Robert L	Inter.: SRD & NW 105th Way
Agency: Metric Engineering Inc.	Area Type: All other areas
Date: 05/20/2003	Jurisd:
Period: AM Peak Hour	Year : 2008
Project ID:	
E/W St: SRD	N/S St: NW 105th Way

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	1	0	1	1	1	1	1
Lane Config		LTR			LT	R		LT	R	L	T	R
Volume	64	69	2	516	412	321	12	94	101	78	130	4
Lane Width		12.0			12.0	12.0		12.0	12.0	12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	P				NB Left	A		
Thru	P				Thru	A		
Right	P				Right	A		
Peds	X				Peds	X		
NB Left	P				SB Left		A	
Thru	P				Thru		A	
Right	P				Right		A	
Peds	X				Peds		X	
Right					EB Right			
Right					WB Right			
Green	46.9					10.9	12.1	
Yellow	4.0					4.0	4.0	
All Red	2.0					1.0	1.0	

Cycle Length: 85.9

Secs

Intersection Performance Summary

Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	447	802	0.33	0.56	12.3	B	12.3	B
Westbound								
LT	742	1304	1.36	0.57	189.1	F	143.6	F
	836	1468	0.42	0.57	12.0	B		
Northbound								
	238	1718	0.48	0.14	35.7	D	36.5	D
	203	1468	0.54	0.14	37.4	D		
Southbound								
	250	1641	0.34	0.15	33.3	C		
	263	1727	0.54	0.15	35.8	D	34.8	C
R	224	1468	0.02	0.15	31.0	C		

Intersection Delay = 108.7 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1

Baseline

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst:	Robert L
Agency/Co.:	Metric Engineering Inc.
Date Performed:	05/20/2003
Analysis Time Period:	AM Peak Hour
Intersection:	SRD & NW 105th Way
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	2008
Project ID:	

East/West Street	North/South Street
SRD	NW 105th Way

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L
Agency: Metric Engineering Inc.
ate: 05/20/2003
eriod: AM Peak Hour
Project ID:
/W St: SRD

Inter.: NW 79th Avenue & SRD
Area Type: All other areas
Jurisd:
Year : 2008

N/S St: NW 79th Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	1	1	0	1	1	0	1	1	1	1	2	0
Config	L	TR		L	TR		L	T	R	L	TR	
Volume	48	363	55	157	545	27	69	47	48	627	306	75
ne Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	
OR Vol			0			0			0			0

ration 0.25 Area Type: All other areas

Signal Operations

ase Combination	1	2	3	4			5	6	7	8
B Left	P				NB	Left	A			
Thru	P					Thru	A			
Right	P					Right	A			
Peds	X					Peds	X			
B Left	P				SB	Left	A			
Thru	P					Thru	A			
Right	P					Right	A			
Peds	X					Peds	X			
Right					EB	Right				
Right					WB	Right				
reen	61.0						38.0			
llow	4.0						4.0			
l Red	1.0						1.0			

Cycle Length: 109.0

cs

Intersection Performance

ummary

Lane Group	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
astbound							
280	493	0.19	0.57	12.8	B		
R 963	1693	0.47	0.57	15.5	B	15.2	B
estbound							
398	699	0.43	0.57	16.8	B		
R 976	1715	0.64	0.57	19.0	B	18.6	B
orthbound							
269	751	0.28	0.36	25.5	C		
618	1727	0.08	0.36	23.2	C	24.2	C
525	1468	0.10	0.36	23.4	C		
Southbound							
447	1250	1.53	0.36	282.7	F		
1140	3185	0.36	0.36	26.0	C	185.6	F

Intersection Delay = 89.5 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1

Baseline

Phone: Fax:
E-Mail:

OPERATIONAL ALYSIS

alyst:	Robert L
ency/Co.:	Metric Engineering Inc.
Date Performed:	05/20/2003
alysis Time Period:	AM Peak Hour
tersection:	NW 79th Avenue & SRD
rea Type:	All other areas
risdiction:	
alysis Year:	2008
roject ID:	

East/West Street	North/South Street
SRD	NW 79th Avenue

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L
Agency: Metric Engineering Inc.
Date: 05/20/2003
riod: AM Peak Hour
Project ID:
E/W St: SRD

Inter.: SRD & SB Ent. SR826
Area Type: All other areas
Jurisd:
Year : 2008

N/S St: SB Ent. SR826

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	0	1	0	1	1	0	1	0	1	0	0	0
Config		T		L	T		L		R			
Volume		552		746	533		285		397			
ne Width		12.0		12.0	12.0		12.0		12.0			
OR Vol									0			

ration 0.25 Area Type: All other areas

Signal Operations

ase Combination	1	2	3	4			5	6	7	8
B Left					NB	Left	P			
Thru	P					Thru				
Right						Right	P			
Peds	X					Peds				
WB Left	A				SB	Left				
Thru	A					Thru				
Right						Right				
Peds	X					Peds				
Right					EB	Right				
Right					WB	Right				
Green	65.0						23.0			
ellow	4.0						4.0			
l Red	1.0						1.0			

Cycle Length: 98.0

ecs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1163	1727	0.52	0.67	9.6	A	9.6	A
Westbound								
L	73	105		0.67				
T	1163	1727	0.50	0.67	8.2	A		
Northbound								
L	402	1641	0.77	0.24	47.8	D	107.7	F
T	360	1468	1.20	0.24	150.7	F		
Southbound								

Intersection Delay = (sec/veh) Intersection LOS =

HCS2000: Signalized Intersections Release 4.1

Baseline

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst:	Robert L
Agency/Co.:	Metric Engineering Inc.
Date Performed:	05/20/2003
Analysis Time Period:	AM Peak Hour
Intersection:	SRD & SB Ent. SR826
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	2008
Project ID:	

East/West Street	North/South Street
SRD	SB Ent. SR826

no Build (2008 @ PM)

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L
Agency: Metric Engineering Inc.
ate: 05/20/2003
riod: PM Peak Hour
Project ID:
/W St: SRD

Inter.: SRD &
Area Type: All other areas
Jurisd:
Year : 2008

N/S St: NW 121 Way

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	0	1	0	0	1	0	0	2	0	1	1	1
Config		LTR			LTR			LTR		L	T	R
Volume	30	11	4	28	15	105	2	447	66	90	73	9
ne Width		12.0			12.0			12.0		12.0	12.0	12.0
OR Vol			0			0			0			0

ration 0.25 Area Type: All other areas

Signal Operations

ase Combination	1	2	3	4			5	6	7	8
EB Left		A			NB	Left	P			
Thru		A				Thru	P			
Right		A				Right	P			
Peds		X				Peds	X			
WB Left	A				SB	Left	P			
Thru	A					Thru	P			
Right	A					Right	P			
Peds	X					Peds	X			
Right					EB	Right				
Right					WB	Right				
Green	7.8	1.5					37.3			
llow	4.0	4.0					4.0			
l Red	1.0	1.0					1.0			

Cycle Length: 61.6

cs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	72	1782	0.68	0.04	52.2	D	52.2	D
Westbound								
WTR	238	1668	0.67	0.14	32.3	C	32.3	C
Northbound								
R	2060	3314	0.27	0.62	5.6	A	5.6	A
Southbound								
	504	811	0.19	0.62	5.9	A		
	1158	1863	0.07	0.62	4.7	A	5.3	A
R	984	1583	0.01	0.62	4.5	A		

Intersection Delay = 12.4 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1

Baseline

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst:	Robert L
Agency/Co.:	Metric Engineering Inc.
Date Performed:	05/20/2003
Analysis Time Period:	PM Peak Hour
Intersection:	SRD &
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	2008
Project ID:	

East/West Street	North/South Street
SRD	NW 121 Way

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L
Agency: Metric Engineering Inc.
Date: 05/20/2003
riod: PM Peak Hour
Project ID:
E/W St: SRD

Inter.: SRD & NW 116th Way
Area Type: All other areas
Jurisd:
Year : 2008

N/S St: NW 116th Way

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	1	1	0	1	1	0	1	2	1	1	2	0
Config	L	TR		L	TR		L	T	R	L	TR	
Volume	554	483	0	135	107	383	63	1109	23	291	848	161
ne Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	
OR Vol			0			0			0			0

cation 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	A				NB	Left	P			
	Thru	A					Thru	P			
	Right						Right	P			
	Peds	X					Peds	X			
WB	Left	A				SB	Left	P			
	Thru	A					Thru	P			
	Right	A					Right	P			
	Peds	X					Peds	X			
	Right					EB	Right				
	Right					WB	Right				
Green		21.0						45.0			
Yellow		4.0						4.0			
. Red		1.0						1.0			

Cycle Length: 76.0

ocs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
	95	314	6.34	0.29		F		
TR	500	1727	1.05	0.29	81.0	F		F
Westbound								
L	95	314	1.55	0.29	318.6	F		
TR	441	1525	1.21	0.29	139.5	F	178.3	F
Northbound								
L	212	350	0.32	0.61	11.3	B		
T	1986	3282	0.61	0.61	10.7	B	10.7	B
R	889	1468	0.03	0.61	6.1	A		
Southbound								
L	179	295	1.77	0.61	381.2	F		
T	1939	3203	0.57	0.61	10.2	B	93.2	F

Intersection Delay = 395.1 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1

Baseline

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst:	Robert L
Agency/Co.:	Metric Engineering Inc.
Date Performed:	05/20/2003
Analysis Time Period:	PM Peak Hour
Intersection:	SRD & NW 116th Way
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	2008
Project ID:	

East/West Street	North/South Street
SRD	NW 116th Way

HCS2000: Signalized Intersections Release 4.1

ıalyst: Robert L	Inter.: SRD & NW 105th Way
Agency: Metric Engineering Inc.	Area Type: All other areas
ate: 05/20/2003	Jurisd:
eriod: PM Peak Hour	Year : 2008
roject ID:	
/W St: SRD	N/S St: NW 105th Way

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	0	1	0	0	1	1	0	1	1	1	1	1
Config		LTR			LT	R		LT	R	L	T	R
Volume	4	445	2	173	58	96	4	113	437	232	130	7
ne Width		12.0			12.0	12.0		12.0	12.0	12.0	12.0	12.0
OR Vol			0			0			0			0

ration 0.25 Area Type: All other areas

Signal Operations

ase Combination		1	2	3	4			5	6	7	8
B	Left	P				NB	Left	A			
	Thru	P					Thru	A			
	Right	P					Right	A			
	Peds	X					Peds	X			
WB	Left	P				SB	Left	A			
	Thru	P					Thru	A			
	Right	P					Right	A			
	Peds	X					Peds	X			
	Right					EB	Right				
	Right					WB	Right				
reen		44.5						21.4			
llow		4.0						4.0			
l Red		2.0						1.0			

Cycle Length: 76.9

cs

Intersection Performance

ummary

ppr/ Lane p	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
stbound								
LTR	1019	1723	0.48	0.59	10.6	B	10.6	B
stbound								
	540	893	0.46	0.60	11.2	B	9.9	A
	888	1468	0.12	0.60	6.7	A		
Northbound								
	500	1716	0.25	0.29	21.1	C	86.5	F
	428	1468	1.11	0.29	104.0	F		
Southbound								
	289	993	0.87	0.29	49.9	D		
	503	1727	0.28	0.29	21.3	C	39.2	D
R	428	1468	0.02	0.29	19.4	B		

Intersection Delay = 41.4 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1

Baseline

Phone: Fax:
E-Mail:

OPERATIONAL ALYSIS

alyst:	Robert L
ency/Co.:	Metric Engineering Inc.
Date Performed:	05/20/2003
alysis Time Period:	PM Peak Hour
tersection:	SRD & NW 105th Way
Area Type:	All other areas
risdiction:	
alysis Year:	2008
Project ID:	

East/West Street	North/South Street
SRD	NW 105th Way

HCS2000: Signalized Intersections Release 4.1

ıalyst: Robert L	Inter.: NW 79th Avenue & SRD
Agency: Metric Engineering Inc.	Area Type: All other areas
ate: 05/20/2003	Jurisd:
eriod: PM Peak Hour	Year : 2008
Project ID:	
/W St: SRD	N/S St: NW 79th Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	1	1	0	1	1	0	1	1	1	1	2	0
Config	L	TR		L	TR		L	T	R	L	TR	
Volume	178	522	52	69	203	170	55	435	201	269	124	27
ne Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	
OR Vol			0			0			0			0

ration 0.25 Area Type: All other areas

Signal Operations

ase Combination	1	2	3	4			5	6	7	8
EB Left	P				NB	Left	A			
Thru	P					Thru	A			
Right	P					Right	A			
Peds	X					Peds	X			
WB Left	P				SB	Left	A			
Thru	P					Thru	A			
Right	P					Right	A			
Peds	X					Peds	X			
Right					EB	Right				
Right					WB	Right				
Green	61.0						38.0			
llow	4.0						4.0			
l Red	1.0						1.0			

Cycle Length: 109.0

cs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
	434	763	0.44	0.57	16.8	B		
TR	969	1704	0.64	0.57	19.3	B	18.7	B
Westbound								
L	279	490	0.27	0.57	14.3	B		
TR	915	1609	0.44	0.57	15.1	B	15.0	B
Northbound								
L	401	1120	0.15	0.36	23.9	C		
T	618	1727	0.77	0.36	36.7	D	32.8	C
R	525	1468	0.42	0.36	26.9	C		
Southbound								
L	141	394	2.07	0.36	540.5	F		
TR	1143	3195	0.14	0.36	23.8	C	354.6	F

Intersection Delay = 83.4 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1

Baseline

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst:	Robert L
Agency/Co.:	Metric Engineering Inc.
Date Performed:	05/20/2003
Analysis Time Period:	PM Peak Hour
Intersection:	NW 79th Avenue & SRD
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	2008
Project ID:	

East/West Street	North/South Street
SRD	NW 79th Avenue

Intersection Performance Summary

Lane pr/ p	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
stbound								
	1163	1727	0.58	0.67	10.7	B	10.7	B
stbound								
	73	105	5.77	0.67		F		
	1163	1727	0.40	0.67	7.3	A		F
orthbound								
	402	1641	0.46	0.24	35.3	D		
							303.8	F
	360	1468	1.74	0.24	383.3	F		
outhbound								

Intersection Delay = 498.4 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1

aseline

one: Fax:
E-Mail:

OPERATIONAL ALYSIS

alyst:	Robert L
ency/Co.:	Metric Engineering Inc.
ate Performed:	05/20/2003
alysis Time Period:	PM Peak Hour
tersection:	SRD & SB Ent. SR826
rea Type:	All other areas
risdiction:	
alysis Year:	2008
roject ID:	

East/West Street	North/South Street
SRD	SB Ent. SR826

2028 AM NO Build

HCS2000: Signalized Intersections Release 4.1

nalyst: Robert L	Inter.: SRD &
Agency: Metric Engineering Inc.	Area Type: All other areas
ate: 05/20/2003	Jurisd:
eriod: AM Peak Hour	Year : 2028
Project ID:	
/W St: SRD	N/S St: NW 121 Way

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	0	1	0	0	1	0	0	2	0	1	1	1
Config		LTR			LTR			LTR		L	T	R
Volume	108	8	4	140	24	160	32	332	104	156	901	104
ne Width		12.0			12.0			12.0		12.0	12.0	12.0
OR Vol			0			0			0			0

ration 0.25 Area Type: All other areas

Signal erations

ase Combination	1	2	3	4			5	6	7	8
EB Left		A			NB	Left	P			
Thru		A				Thru	P			
Right		A				Right	P			
Peds		X				Peds	X			
WB Left	A				SB	Left	P			
Thru	A					Thru	P			
Right	A					Right	P			
Peds	X					Peds	X			
Right					EB	Right				
Right					WB	Right				
Green	8.9	3.0					21.0			
llow	4.0	4.0					4.0			
l Red	1.0	1.0					1.0			

Cycle Length: 47.9

cs

Intersection Performance Summary

Lane Group	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
stbound								
LTR	148	1775	0.88	0.08	62.5	E	62.5	E
stbound								
TR	352	1702	1.00	0.21	67.0	E	67.0	E
orthbound								
R	1120	2438	0.45	0.46	10.2	B	10.2	B
outhbound								
	388	845	0.44	0.46	12.3	B		
	856	1863	1.14	0.46	91.4	F	73.3	E
R	727	1583	0.16	0.46	8.0	A		

Intersection Delay = 57.4 (sec/veh) Intersection LOS = E

HCS2000: Signalized Intersections Release 4.1

aseline

one: Fax:
-Mail:

OPERATIONAL ALYSIS

alyst: Robert L
ency/Co.: Metric Engineering Inc.
ate Performed: 05/20/2003
alysis Time Period: AM Peak Hour
ersection: SRD &
rea Type: All other areas
risdiction:
alysis Year: 2028
roject ID:

East/West Street	North/South Street
SRD	NW 121 Way

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L
Agency: Metric Engineering Inc.
te: 05/20/2003
riod: AM Peak Hour
Project ID:
/W St: SRD

Inter.: SRD & NW 116th Way
Area Type: All other areas
Jurisd:
Year : 2028

N/S St: NW 116th Way

SIGNALIZED INTERSECTION
UMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	1	1	0	1	1	0	1	2	1	1	2	0
Config	L	TR		L	TR		L	T	R	L	TR	
Volume	340	477	112	152	112	312	89	658	100	390	1382	412
ne Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	
OR Vol			0			0			0			0

ration 0.25 Area Type: All other areas

Signal
erations

ase Combination	1	2	3	4			5	6	7	8
EB Left	A				NB	Left	P			
Thru	A					Thru	P			
Right	A					Right	P			
Peds	X					Peds	X			
WB Left	A				SB	Left	A			
Thru	A					Thru	A			
Right	A					Right	A			
Peds	X					Peds	X			
Right					EB	Right				
Right					WB	Right				
Green	21.0						45.0			
llow	4.0						4.0			
l Red	1.0						1.0			

Cycle Length: 76.0

cs

Intersection Performance

ummary

Lane Group	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
stbound							
95	314	3.89	0.29		F		
486	1678	1.32	0.29	183.6	F	612.6	F
stbound							
95	314	1.74	0.29	398.4	F		
445	1537	1.04	0.29	79.3	E	163.4	F
orthbound							
95	150	1.02	0.61	113.2	F		
1986	3282	0.36	0.61	8.1	A	19.0	B
889	1468	0.12	0.61	6.7	A		
outhbound							
363	600	1.17	0.61	116.3	F		
1918	3169	1.02	0.61	39.8	D	53.5	D

Intersection Delay = 175.5 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1

aseline

one: Fax:
E-Mail:

OPERATIONAL
ALYSIS

alyst: Robert L
ency/Co.: Metric Engineering Inc.
Date Performed: 05/20/2003
alysis Time Period: AM Peak Hour
tersection: SRD & NW 116th Way
rea Type: All other areas
risdiction:
alysis Year: 2028
roject ID:

East/West Street	North/South Street
SRD	NW 116th Way

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L	Inter.: SRD & NW 105th Way
Agency: Metric Engineering Inc.	Area Type: All other areas
te: 05/20/2003	Jurisd:
riod: AM Peak Hour	Year : 2028
Project ID:	
W St: SRD	N/S St: NW 105th Way

SIGNALIZED INTERSECTION

MMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	0	1	0	0	1	1	0	1	1	1	1	1
Config		LTR			LT	R		LT	R	L	T	R
Volume	102	110	20	822	657	511	20	149	161	124	207	6
ne Width		12.0			12.0	12.0		12.0	12.0	12.0	12.0	12.0
OR Vol			0			0			0			0

ration 0.25 Area Type: All other areas

Signal

erations

ase Combination	1	2	3	4		5	6	7	8
EB Left	P				NB Left	A			
Thru	P				Thru	A			
Right	P				Right	A			
Peds	X				Peds	X			
WB Left	P				SB Left		A		
Thru	P				Thru		A		
Right	P				Right		A		
Peds	X				Peds		X		
Right					EB Right				
Right					WB Right				
reen	44.6					14.9	17.0		
low	4.0					4.0	4.0		
Red	2.0					1.0	1.0		

Cycle Length: 92.5

s

Intersection Performance Summary

Lane Group	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
stbound								
LTR	120	243	2.11	0.49	549.3	F	549.3	F
stbound								
m	602	1194	2.67	0.50	778.9	F	585.5	F
	740	1468	0.75	0.50	25.2	C		
orthbound								
	295	1717	0.62	0.17	39.6	D	41.8	D
	252	1468	0.69	0.17	44.0	D		
Southbound								
	319	1641	0.42	0.19	33.6	C		
	336	1727	0.67	0.19	39.6	D	37.2	D
R	286	1468	0.02	0.19	30.2	C		

Intersection Delay = 456.3 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1

aseline

one: Fax:
E-Mail:

OPERATIONAL ALYSIS

alyst:	Robert L
ency/Co.:	Metric Engineering Inc.
Date Performed:	05/20/2003
alysis Time Period:	AM Peak Hour
tersection:	SRD & NW 105th Way
rea Type:	All other areas
risdiction:	
alysis Year:	2028
roject ID:	

East/West Street	North/South Street
SRD	NW 105th Way

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L
Agency: Metric Engineering Inc.
te: 05/20/2003
riod: AM Peak Hour
Project ID:
'W St: SRD

Inter.: NW 79th Avenue & SRD
Area Type: All other areas
Jurisd:
Year : 2028

N/S St: NW 79th Avenue

SIGNALIZED INTERSECTION
MMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	1	1	0	1	1	0	1	1	1	1	2	0
Config	L	TR		L	TR		L	T	R	L	TR	
olume	69	525	79	227	788	39	100	87	89	907	443	109
ne Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	
OR Vol			0			0			0			0

ration 0.25 Area Type: All other areas

Signal
erations

ase Combination	1	2	3	4		5	6	7	8
EB Left	P				NB Left	A			
Thru	P				Thru	A			
Right	P				Right	A			
Peds	X				Peds	X			
B Left	P				SB Left	A			
Thru	P				Thru	A			
Right	P				Right	A			
Peds	X				Peds	X			
Right					EB Right				
Right					WB Right				
Green	61.0					38.0			
llow	4.0					4.0			
l Red	1.0					1.0			

Cycle Length: 109.0

:s

Intersection Performance Summary

Lane Gr/ Lane Gp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
	100	176	0.75	0.57	57.5	E		
TR	963	1693	0.68	0.57	20.5	C	24.3	C
Westbound								
L	257	451	0.96	0.57	69.3	E		
TR	976	1715	0.92	0.57	36.4	D	43.5	D
Northbound								
T	189	529	0.58	0.36	32.6	C		
	618	1727	0.15	0.36	23.9	C	27.2	C
	525	1468	0.18	0.36	24.2	C		
Southbound								
	430	1201	2.29	0.36	624.2	F		
	1140	3185	0.53	0.36	28.1	C	398.7	F

Intersection Delay = 188.1 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1

Baseline

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst:	Robert L
Agency/Co.:	Metric Engineering Inc.
Date Performed:	05/20/2003
Analysis Time Period:	AM Peak Hour
Intersection:	NW 79th Avenue & SRD
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	2028
Project ID:	

East/West Street	North/South Street
SRD	NW 79th Avenue

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L
Agency: Metric Engineering Inc.
te: 05/20/2003
riod: AM Peak Hour
Project ID:
W St: SRD

Inter.: SRD & SB Ent. SR826
Area Type: All other areas
Jurisd:
Year : 2028

N/S St: SB Ent. SR826

SIGNALIZED INTERSECTION
MMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	0	1	0	1	1	0	1	0	1	0	0	0
Config		T		L	T		L		R			
Volume		799		1078	771		413		574			
ne Width		12.0		12.0	12.0		12.0		12.0			
OR Vol									0			

ration 0.25 Area Type: All other areas

Signal

erations

ase Combination	1	2	3	4			5	6	7	8
EB Left					NB	Left	P			
Thru	P					Thru				
Right						Right	P			
Peds	X					Peds				
NB Left	A				SB	Left				
Thru	A					Thru				
Right						Right				
Peds	X					Peds				
Right					EB	Right				
Right					WB	Right				
reen	65.0						23.0			
.low	4.0						4.0			
Red	1.0						1.0			

Cycle Length: 98.0

s

Intersection Performance

ummary

ppr/ Lane p	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
stbound								
f	1163	1727	0.75	0.67	14.9	B	14.9	B
stbound								
L	73	105		0.67				
	1163	1727	0.72	0.67	12.4	B		
orthbound								
r	402	1641	1.12	0.24	117.6	F		
							269.3	F
	360	1468	1.73	0.24	378.4	F		
Southbound								

Intersection Delay = (sec/veh) Intersection LOS =

HCS2000: Signalized Intersections Release 4.1

aseline

hone: Fax:
E-Mail:

OPERATIONAL
ALYSIS

lyst:	Robert L
ncy/Co.:	Metric Engineering Inc.
ate Performed:	05/20/2003
lysis Time Period:	AM Peak Hour
ersection:	SRD & SB Ent. SR826
rea Type:	All other areas
isdiction:	
lysis Year:	2028
roject ID:	

East/West Street	North/South Street
SRD	SB Ent. SR826

2028 PM no Build

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L
Agency: Metric Engineering Inc.
te: 05/20/2003
riod: PM Peak Hour
Project ID:
W St: SRD

Inter.: SRD &
Area Type: All other areas
Jurisd:
Year : 2028

N/S St: NW 121 Way

SIGNALIZED INTERSECTION
MMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	0	1	0	0	1	0	0	2	0	1	1	1
Config		LTR			LTR			LTR		L	T	R
olume	64	24	8	60	32	224	4	953	140	192	156	20
ne Width		12.0			12.0			12.0		12.0	12.0	12.0
OR Vol			0			0			0			0

ration 0.25 Area Type: All other areas
Signal

erations

ase Combination	1	2	3	4		5	6	7	8
B Left		A			NB Left	P			
Thru		A			Thru	P			
Right		A			Right	P			
Peds		X			Peds	X			
B Left	A				SB Left	P			
Thru	A				Thru	P			
Right	A				Right	P			
Peds	X				Peds	X			
Right					EB Right				
Right					WB Right				
reen	8.8	2.4				22.5			
llow	4.0	4.0				4.0			
l Red	1.0	1.0				1.0			

Cycle Length: 48.7

cs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Westbound								
LTR	124	1782	0.85	0.07	61.4	E	61.4	E
Eastbound								
TR	336	1669	1.02	0.20	74.0	E	74.0	E
Northbound								
R	1599	3313	0.75	0.48	13.4	B	13.4	B
Southbound								
	153	317	1.37	0.48	213.3	F		
	899	1863	0.19	0.48	7.6	A	114.8	F
R	764	1583	0.03	0.48	6.7	A		

Intersection Delay = 46.0 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1

Baseline

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst:	Robert L
Agency/Co.:	Metric Engineering Inc.
Date Performed:	05/20/2003
Analysis Time Period:	PM Peak Hour
Intersection:	SRD &
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	2028
Project ID:	

East/West Street	North/South Street
SRD	NW 121 Way

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L
Agency: Metric Engineering Inc.
ate: 05/20/2003
riod: PM Peak Hour
Project ID:
/W St: SRD

Inter.: SRD & NW 116th Way
Area Type: All other areas
Jurisd:
Year : 2028

N/S St: NW 116th Way

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	1	1	0	1	1	0	1	2	1	1	2	0
Config	L	TR		L	TR		L	T	R	L	TR	
Volume	1181	1029	0	288	228	817	94	1648	33	432	1260	239
ne Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	
OR Vol			0			0			0			0

ration 0.25 Area Type: All other areas

Signal Operations

ase Combination		1	2	3	4			5	6	7	8
EB	Left	A				NB	Left	P			
	Thru	A					Thru	P			
	Right						Right	P			
	Peds	X					Peds	X			
WB	Left	A				SB	Left	P			
	Thru	A					Thru	P			
	Right	A					Right	P			
	Peds	X					Peds	X			
	Right					EB	Right				
	Right					WB	Right				
Green		21.0						45.0			
llow		4.0						4.0			
l Red		1.0						1.0			

Cycle Length: 76.0

ecs

Intersection Performance Summary

Lane Gpr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
	95	314		0.29				
LR	500	1727	2.24	0.29	589.6	F		
Westbound								
	95	314	3.29	0.29		F		
TR	441	1525	2.58	0.29	742.8	F	817.0	F
Northbound								
L	95	150	1.07	0.61	128.7	F		
	1986	3282	0.90	0.61	20.2	C	25.7	C
	889	1468	0.04	0.61	6.2	A		
Southbound								
	95	150	4.95	0.61		F		
	1939	3203	0.84	0.61	16.7	B	419.1	F

Intersection Delay = (sec/veh) Intersection LOS =

HCS2000: Signalized Intersections Release 4.1

seline

one: Fax:
-Mail:

OPERATIONAL ALYSIS

alyst:	Robert L
ency/Co.:	Metric Engineering Inc.
ate Performed:	05/20/2003
nalysis Time Period:	PM Peak Hour
tersection:	SRD & NW 116th Way
ea Type:	All other areas
urisdiction:	
alysis Year:	2028
oject ID:	

East/West Street	North/South Street
SRD	NW 116th Way

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L
gency: Metric Engineering Inc.
ate: 05/20/2003
riod: PM Peak Hour
oject ID:
E/W St: SRD

Inter.: SRD & NW 105th Way
Area Type: All other areas
Jurisd:
Year : 2028

N/S St: NW 105th Way

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	0	1	0	0	1	1	0	1	1	1	1	1
Config		LTR			LT	R		LT	R	L	T	R
Volume	6	710	4	275	92	153	6	181	696	370	207	12
ne Width		12.0			12.0	12.0		12.0	12.0	12.0	12.0	12.0
OR Vol			0			0			0			0

ration 0.25 Area Type: All other areas

Signal Operations

ase Combination	1	2	3	4			5	6	7	8
Left	P				NB	Left	A			
Thru	P					Thru	A			
Right	P					Right	A			
Peds	X					Peds	X			
WB Left	P				SB	Left		A		
Thru	P					Thru		A		
Right	P					Right		A		
Peds	X					Peds		X		
Right					EB	Right				
Right					WB	Right				
reen	44.0						36.0	33.7		
ellow	4.0						4.0	4.0		
l Red	2.0						1.0	1.0		

Cycle Length: 129.7

ecs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	596	1719	1.31	0.35	195.2	F	195.2	F
Westbound								
LT	90	254	4.43	0.35		F		F
	521	1468	0.32	0.35	32.1	C		
Northbound								
	492	1724	0.41	0.29	38.1	D	337.9	F
	419	1468	1.81	0.29	418.7	F		
Southbound								
	439	1641	0.92	0.27	69.9	E		
	462	1727	0.49	0.27	40.8	D	58.9	E
R	393	1468	0.03	0.27	35.1	D		

Intersection Delay = 394.7 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1

Baseline

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst:	Robert L
Agency/Co.:	Metric Engineering Inc.
Date Performed:	05/20/2003
Analysis Time Period:	PM Peak Hour
Intersection:	SRD & NW 105th Way
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	2028
Project ID:	

East/West Street	North/South Street
SRD	NW 105th Way

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L
gency: Metric Engineering Inc.
te: 05/20/2003
riod: PM Peak Hour
roject ID:
W St: SRD

Inter.: NW 79th Avenue & SRD
Area Type: All other areas
Jurisd:
Year : 2028

N/S St: NW 79th Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	1	1	0	1	1	0	1	1	1	1	2	0
gConfig	L	TR		L	TR		L	T	R	L	TR	
Volume	257	755	76	100	293	245	79	629	291	388	179	39
ne Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	
OR Vol			0			0			0			0

ration 0.25 Area Type: All other areas

Signal erations

	ase Combination	1	2	3	4			5	6	7	8
P	Left	P				NB	Left	A			
	Thru	P					Thru	A			
	Right	P					Right	A			
	Peds	X					Peds	X			
WP	Left	P				SB	Left	A			
	Thru	P					Thru	A			
	Right	P					Right	A			
	Peds	X					Peds	X			
	Right					EB	Right				
	Right					WB	Right				
reen		61.0						38.0			
	low	4.0						4.0			
	Red	1.0						1.0			

Cycle Length: 109.0

s

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
	306	538	0.91	0.57	54.2	D		
LTR	969	1703	0.93	0.57	38.2	D	42.0	D
Westbound								
	97	171	1.12	0.57	152.1	F		
TR	915	1609	0.64	0.57	19.3	B	40.2	D
Northbound								
L	362	1011	0.24	0.36	24.9	C		
T	618	1727	1.11	0.36	104.1	F	76.4	E
R	525	1468	0.60	0.36	30.6	C		
Southbound								
L	66	177	6.39	0.36		F		
TR	1143	3195	0.21	0.36	24.4	C		F

Intersection Delay = 336.6 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1

Baseline

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst:	Robert L
Agency/Co.:	Metric Engineering Inc.
Date Performed:	05/20/2003
Analysis Time Period:	PM Peak Hour
Intersection:	NW 79th Avenue & SRD
Area Type:	All other areas
Jurisdiction:	
Analysis Year:	2028
Project ID:	

East/West Street	North/South Street
SRD	NW 79th Avenue

HCS2000: Signalized Intersections Release 4.1

alyst: Robert L
gency: Metric Engineering Inc.
te: 05/20/2003
eriod: PM Peak Hour
roject ID:
W St: SRD

Inter.: SRD & SB Ent. SR826
Area Type: All other areas
Jurisd:
Year : 2028

N/S St: SB Ent. SR826

SIGNALIZED INTERSECTION
MMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
. Lanes	0	1	0	1	1	0	1	0	1	0	0	0
Config		T		L	T		L		R			
olume		888		560	611		248		836			
ne Width		12.0		12.0	12.0		12.0		12.0			
OR Vol									0			

ration 0.25 Area Type: All other areas
Signal

erations

ase Combination	1	2	3	4		5	6	7	8
B Left					NB Left	P			
Thru	P				Thru				
Right					Right	P			
Peds	X				Peds				
T Left	A				SB Left				
Thru	A				Thru				
Right					Right				
Peds	X				Peds				
Right					EB Right				
Right					WB Right				
reen	65.0					23.0			
low	4.0					4.0			
Red	1.0					1.0			

Cycle Length: 98.0

s

Intersection Performance

ummary

ppr/ Lane grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
astbound								
	1163	1727	0.83	0.67	18.8	B	18.8	B
estbound								
	73	105	8.34	0.67		F		
	1163	1727	0.57	0.67	9.2	A		F
orthbound								
	402	1641	0.67	0.24	42.1	D		
							573.6	F
	360	1468	2.53	0.24	731.4	F		
Southbound								

Intersection Delay = 801.7 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1

aseline

lone: Fax:
E-Mail:

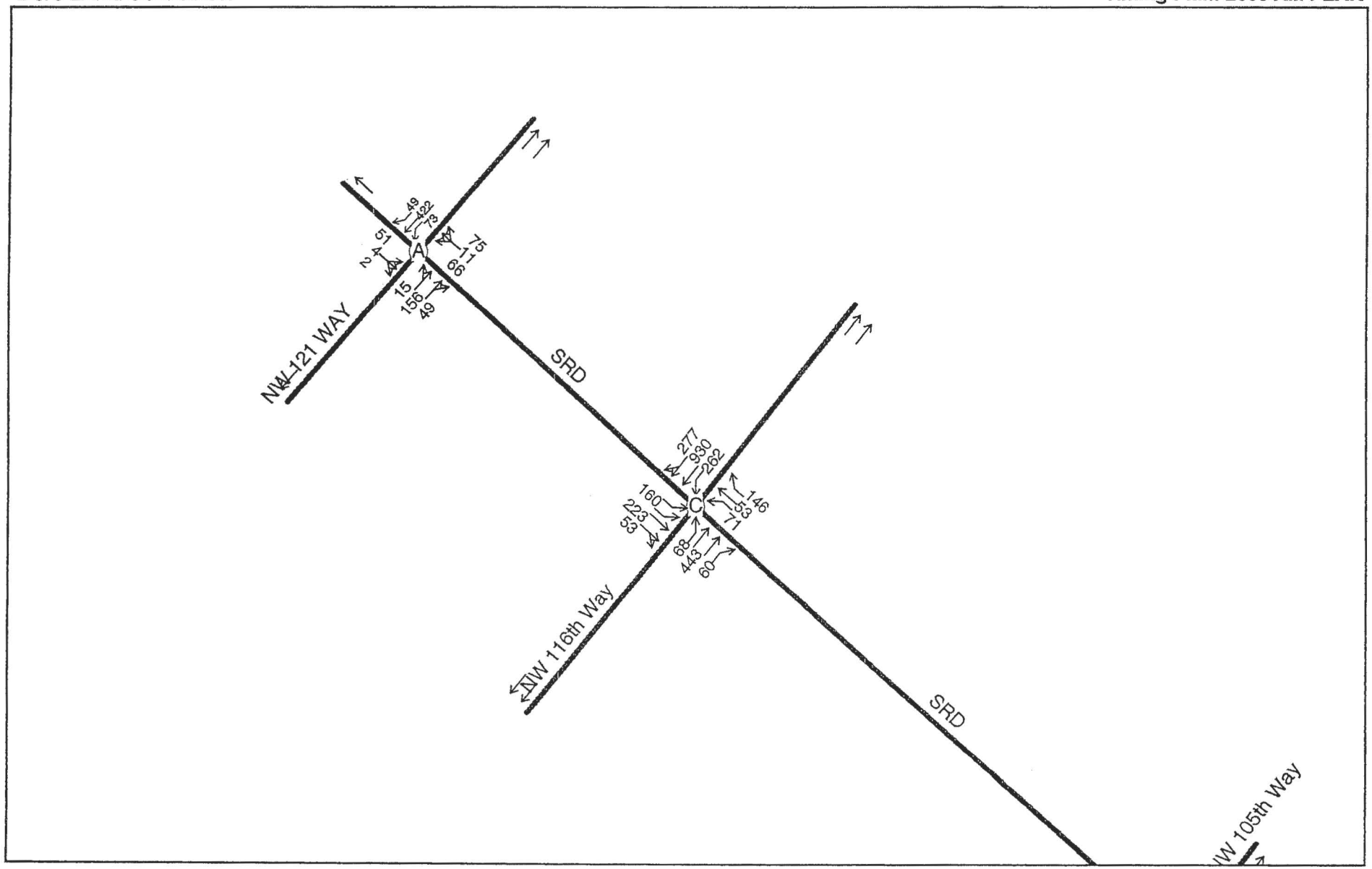
OPERATIONAL
ALYSIS

alyst:	Robert L
ency/Co.:	Metric Engineering Inc.
ate Performed:	05/20/2003
alysis Time Period:	PM Peak Hour
tersection:	SRD & SB Ent. SR826
rea Type:	All other areas
risdiction:	
alysis Year:	2028
roject ID:	

East/West Street	North/South Street
SRD	SB Ent. SR826

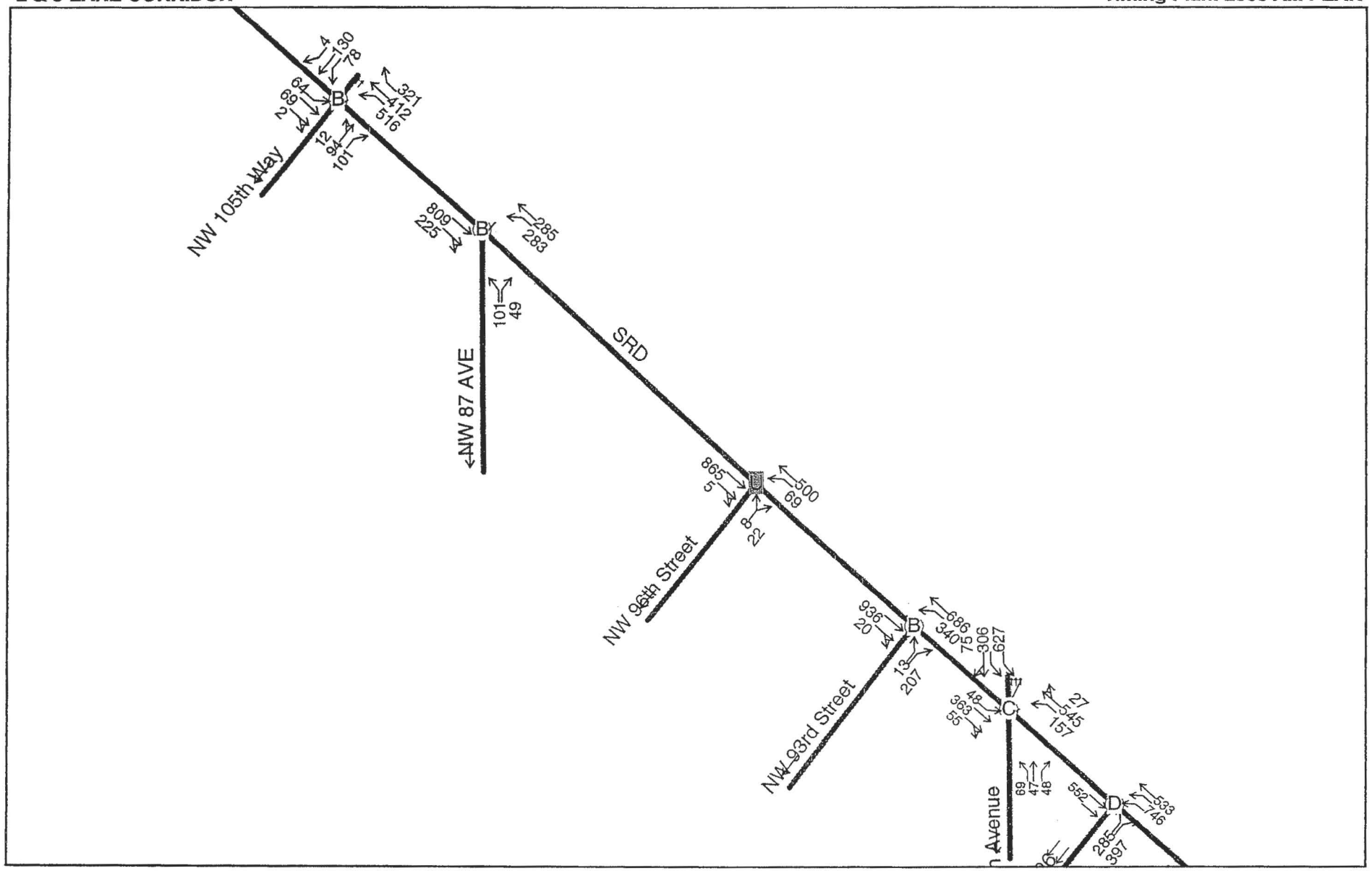
SRD PROPOSED GEOMETRY
2 & 3 LANE CORRIDOR

Timing Plan: 2008 AM PEAK



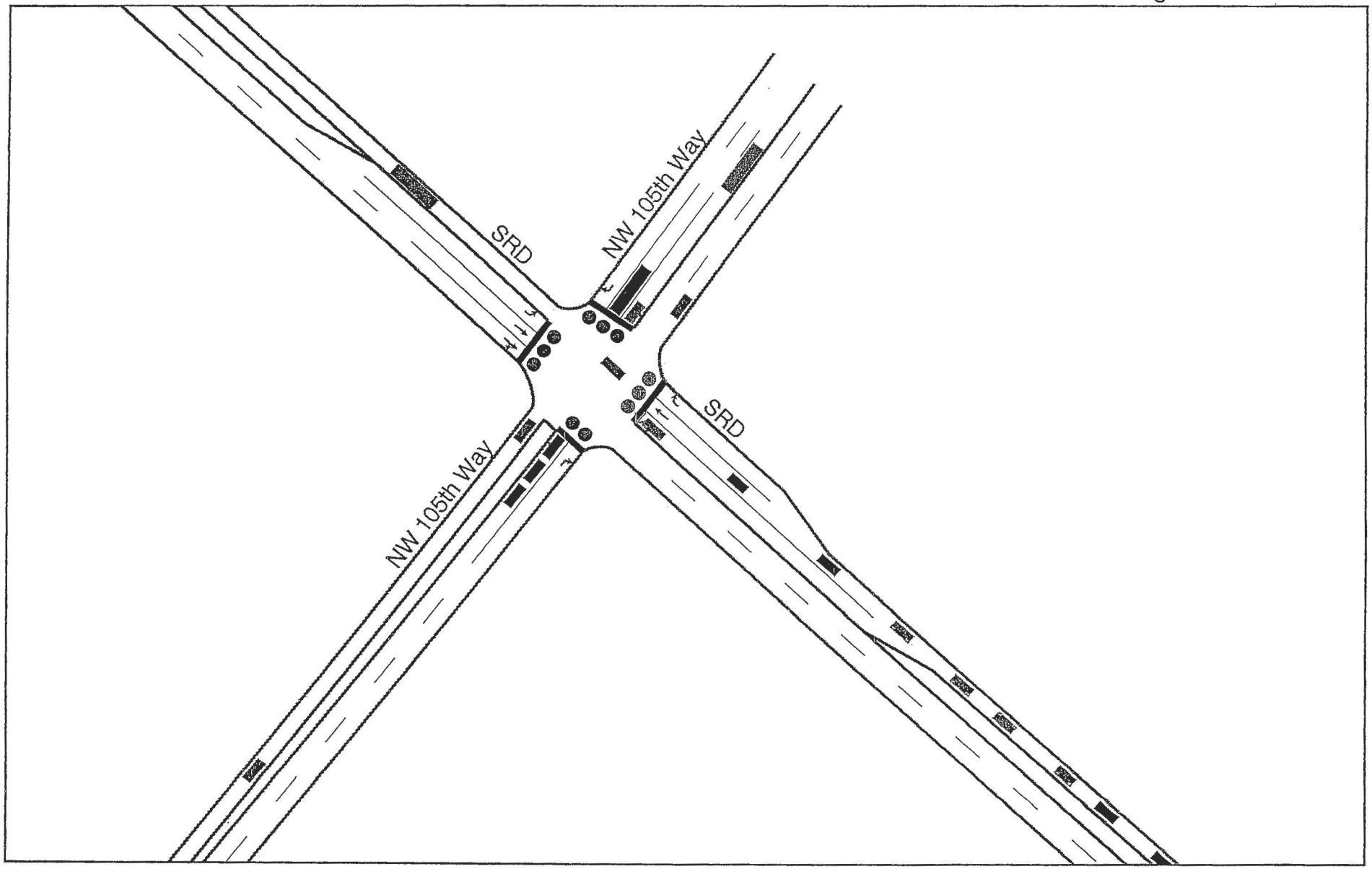
SRD PROPOSED GEOMETRY
2 & 3-LANE CORRIDOR

Timing Plan: 2008 AM PEAK



SRD PROPOSED GEOMETRY
3-LANE CORRIDOR

Timing Plan: 2008 AM PEAK

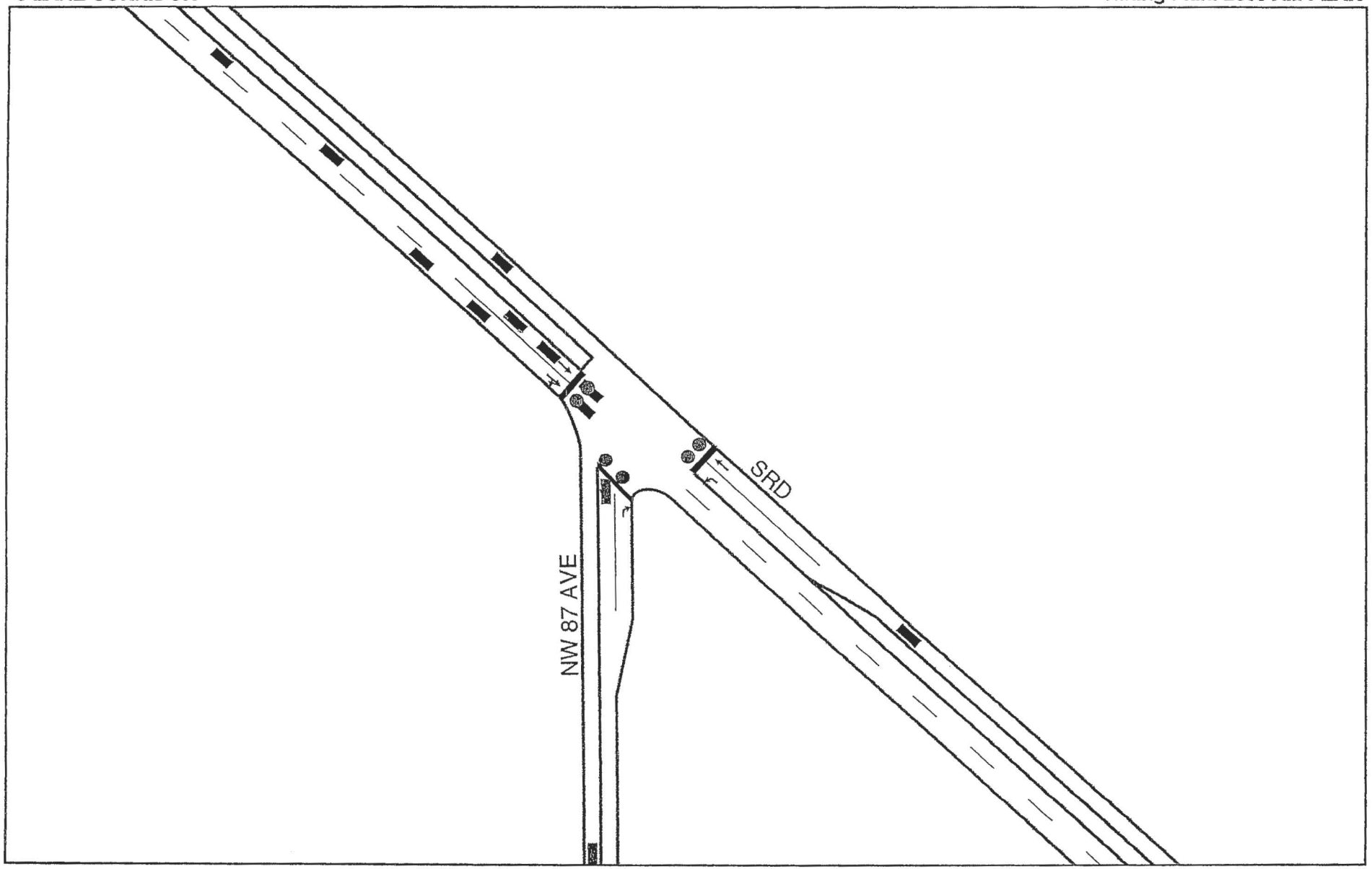


9/22/2003

SRD PROPOSED GEOMETRY

3-LANE CORRIDOR

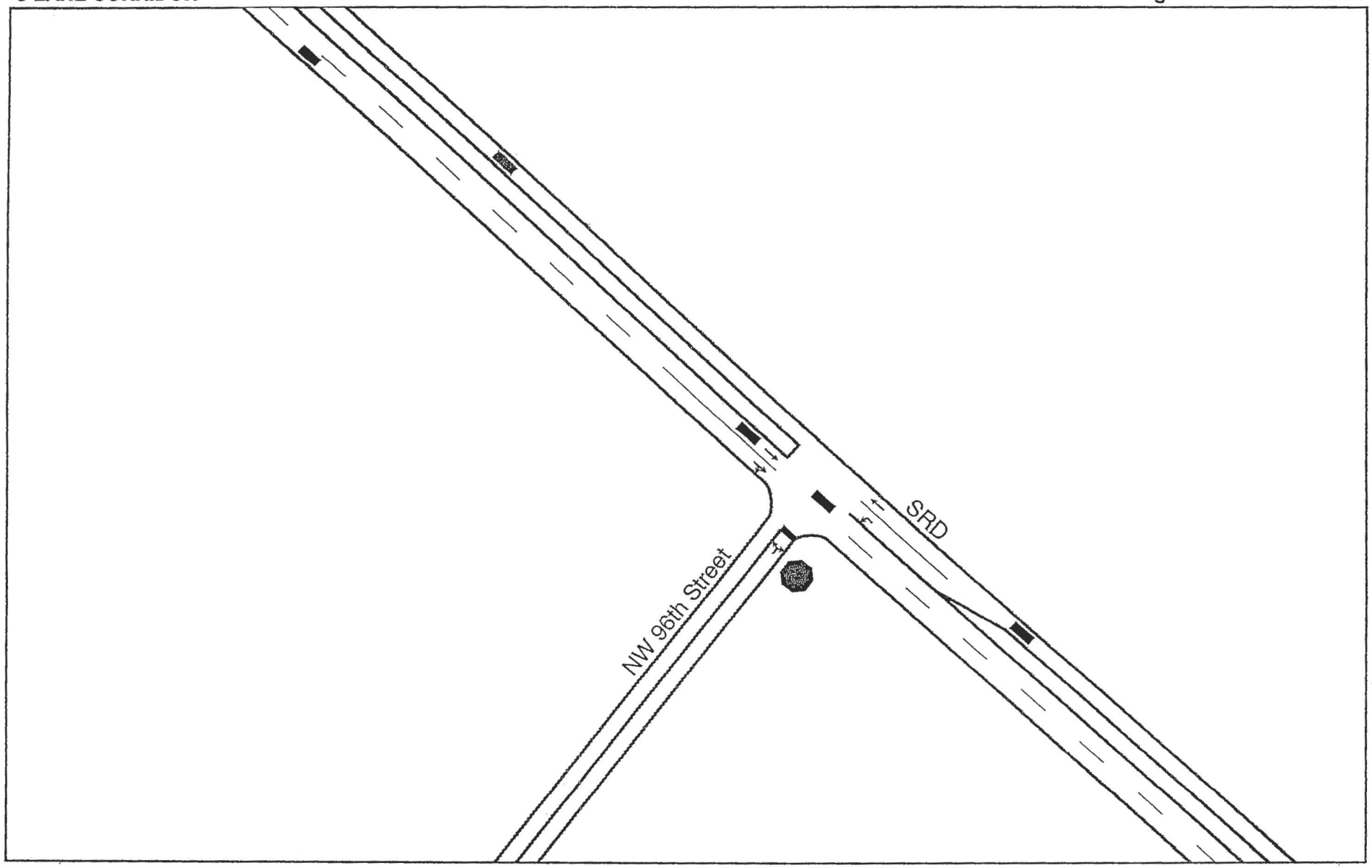
Timing Plan: 2008 AM PEAK



9/22/2003

SRD PROPOSED GEOMETRY
3-LANE CORRIDOR

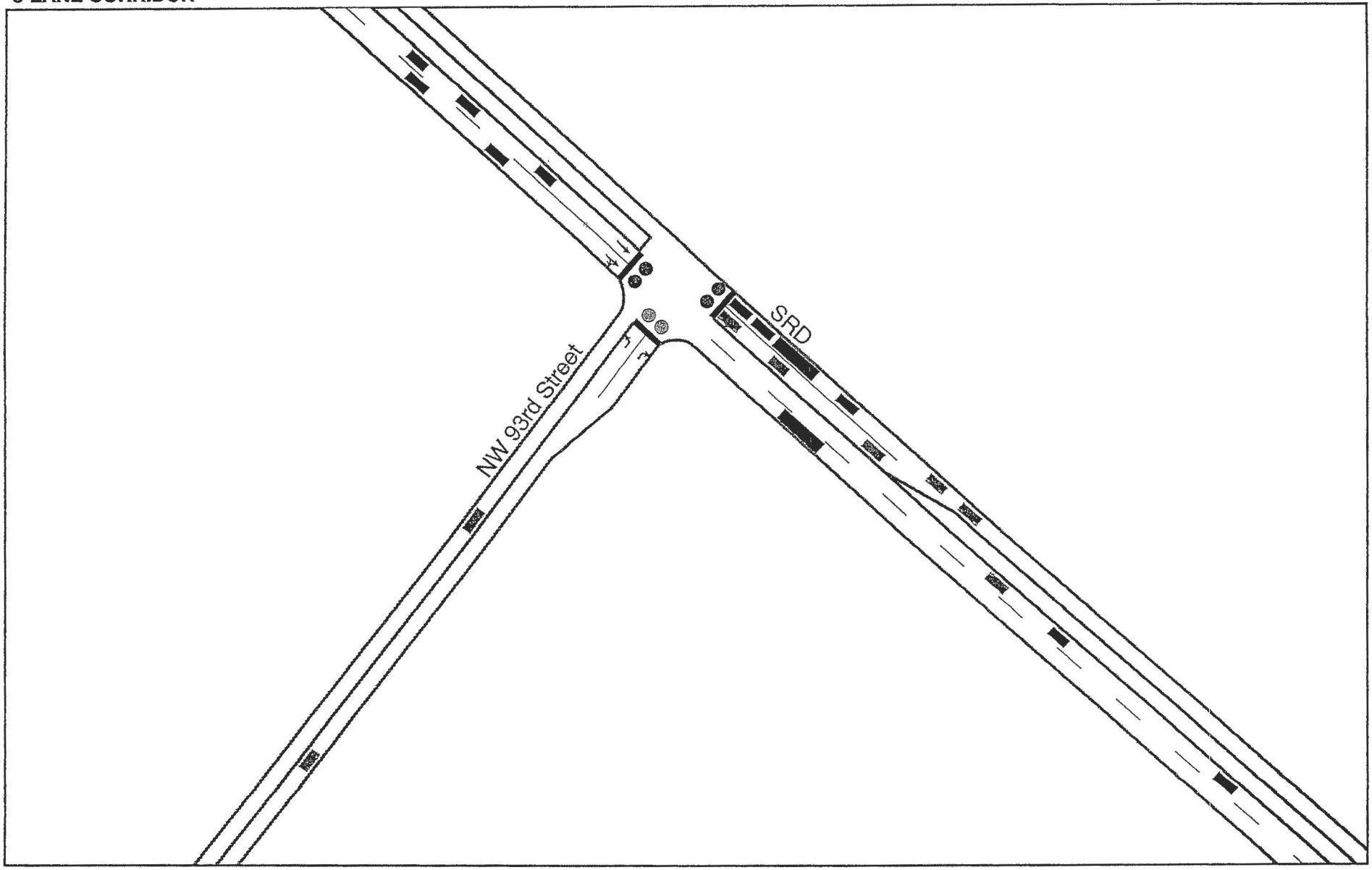
Timing Plan: 2008 AM PEAK



9/22/2003

SRD PROPOSED GEOMETRY
3-LANE CORRIDOR

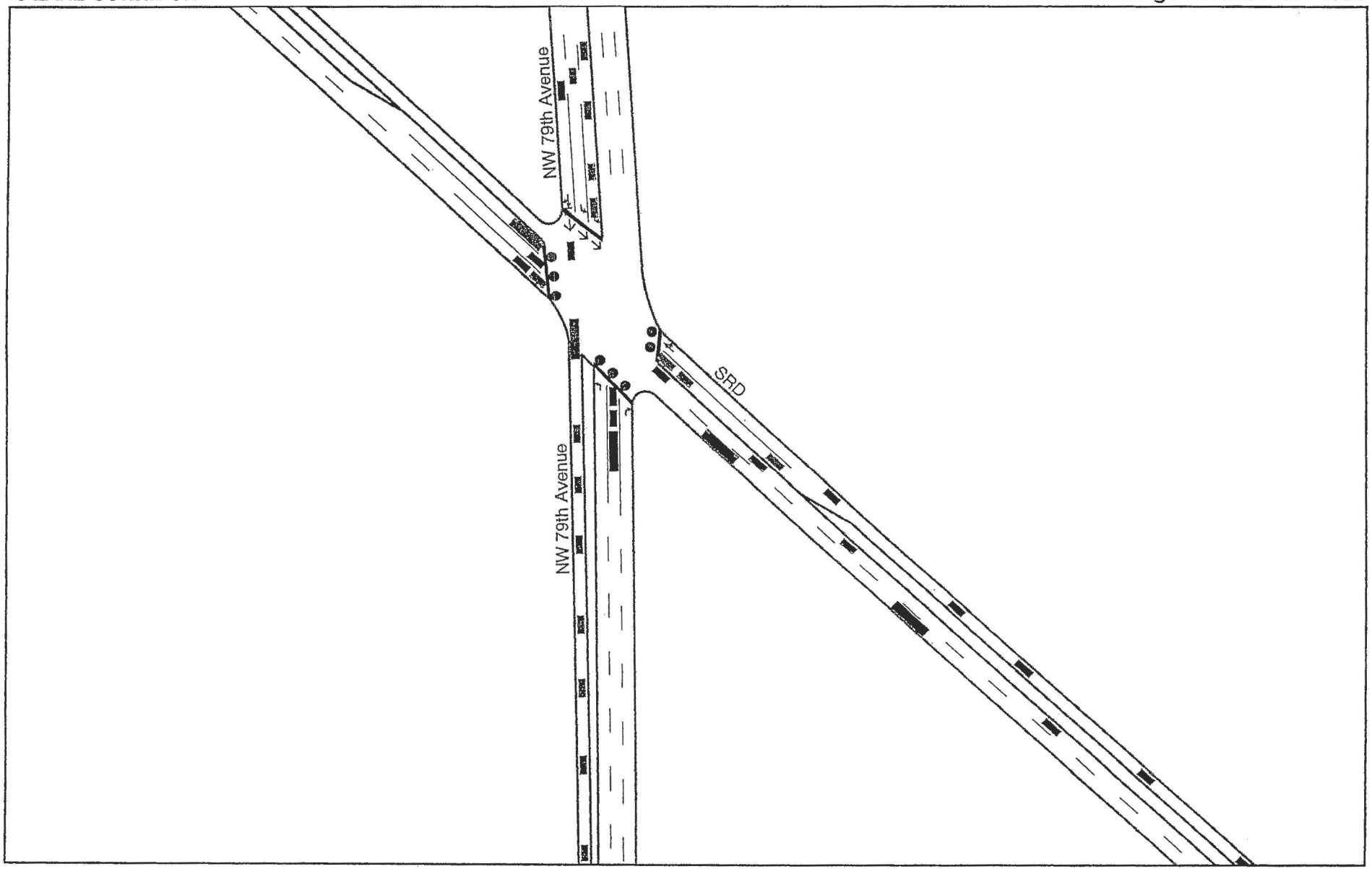
Timing Plan: 2008 AM PEAK



9/22/2003

SRD PROPOSED GEOMETRY
3-LANE CORRIDOR

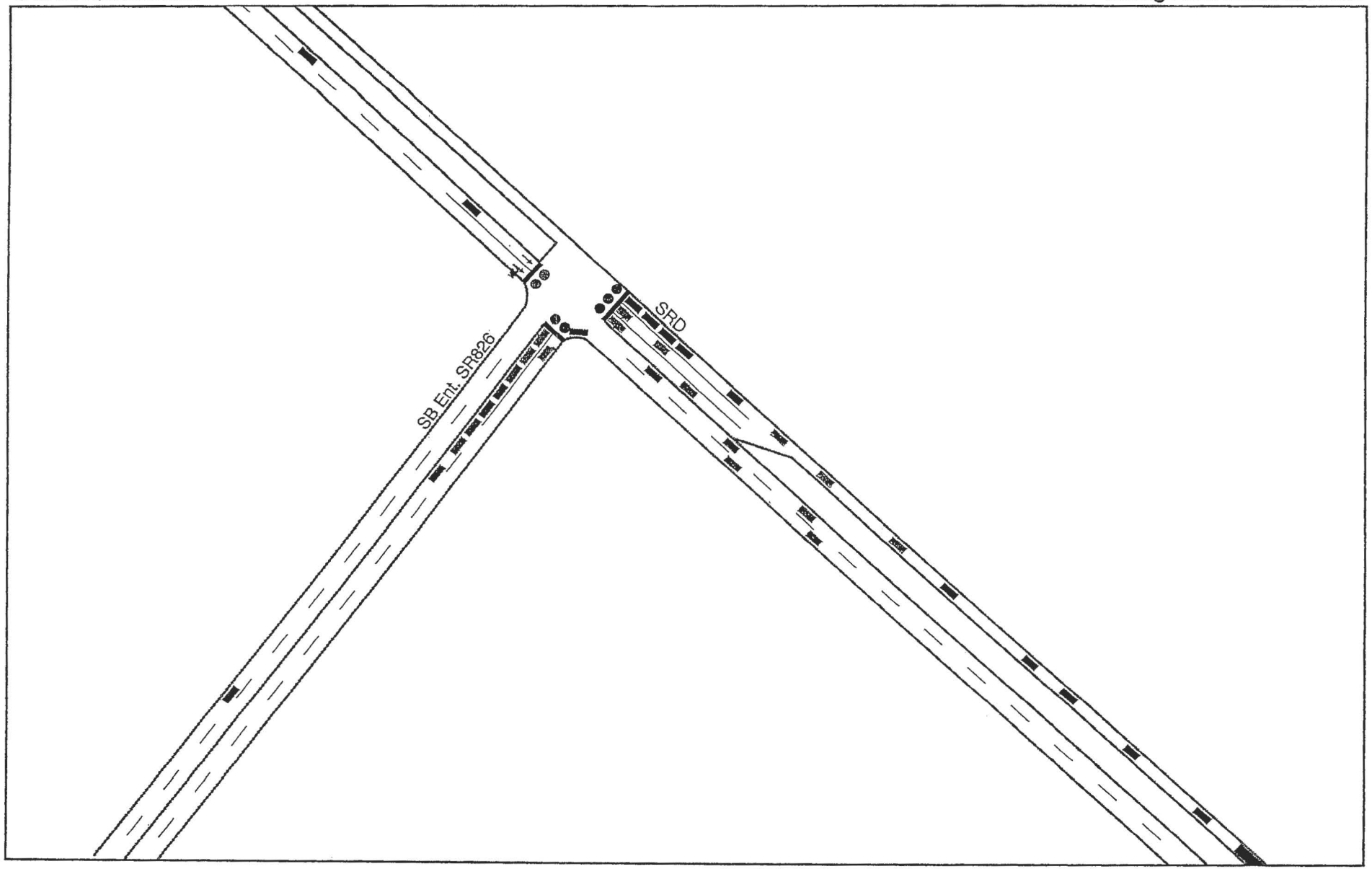
Timing Plan: 2008 AM PEAK



9/22/2003

SRD PROPOSED GEOMETRY
3-LANE CORRIDOR

Timing Plan: 2008 AM PEAK



9/22/2003

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.933			0.967				0.850
Flt Protected		0.957			0.979			0.997		0.950		
Satd. Flow (prot)	0	1508	0	0	1445	0	0	2898	0	1503	1582	1345
Flt Permitted		0.725			0.864			0.918		0.603		
Satd. Flow (perm)	0	1142	0	0	1275	0	0	2668	0	954	1582	1345
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			82			53				53
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		768			2844			1486			1322	
Travel Time (s)		17.5			64.6			33.8			30.0	
Volume (vph)	51	4	2	66	11	75	15	156	49	73	422	49
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	55	4	2	72	12	82	16	170	53	79	459	53
Lane Group Flow (vph)	0	61	0	0	166	0	0	239	0	79	459	53
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		8
Detector Phases	6	6		2	2		4	4		8	8	8
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	20.0
Total Split (%)	50%	50%	0%	50%	50%	0%	50%	50%	0%	50%	50%	50%
Maximum Green (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	Max	Max		Max	Max		None	None		None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		16.0			16.0			14.7		14.7	14.7	14.7
Actuated g/C Ratio		0.41			0.41			0.38		0.38	0.38	0.38
v/c Ratio		0.13			0.29			0.28		0.22	0.76	0.10
Uniform Delay, d1		6.8			3.6			6.2		8.1	10.5	0.0
Delay		7.8			5.0			6.3		8.4	14.6	3.2
LOS		A			A			A		A	B	A
Approach Delay		7.8			5.0			6.3			12.8	
Approach LOS		A			A			A			B	
90th %ile Green (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Hold	Hold		Max	Max	Max
70th %ile Green (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Hold	Hold		Max	Max	Max
50th %ile Green (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Hold	Hold		Max	Max	Max
30th %ile Green (s)	15.0	15.0		15.0	15.0		14.0	14.0		14.0	14.0	14.0
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Hold	Hold		Gap	Gap	Gap
10th %ile Green (s)	15.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	10.0
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Hold	Hold		Gap	Gap	Gap
Stops (vph)		40			56			102		49	342	13
Fuel Used(gal)		1			4			3		1	7	1
CO Emmisions (g/hr)		45			270			237		80	524	43
NOx Emmisions (g/hr)		9			52			46		16	102	8
VOC Emmisions (g/hr)		10			63			55		19	121	10
Dilemma Vehicles (#)		0			0			0		0	0	0
Queue Length 50th (ft)		0			0			13		11	81	0
Queue Length 95th (ft)		21			33			28		31	#199	13
Internal Link Dist (ft)		688			2764			1406			1242	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)												
50th Bay Block Time %												
95th Bay Block Time %												
Queuing Penalty (veh)												

Intersection Summary

Area Type: Other

Cycle Length: 40

Actuated Cycle Length: 38.8

Natural Cycle: 45

Control Type: Semi Act-Uncoord

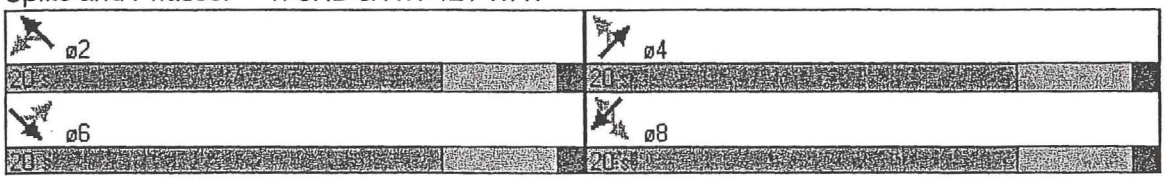
Maximum v/c Ratio: 0.76

Intersection Signal Delay: 9.8 Intersection LOS: A

Intersection Capacity Utilization 59.5% ICU Level of Service A

90th %ile Actuated Cycle: 40
70th %ile Actuated Cycle: 40
50th %ile Actuated Cycle: 40
30th %ile Actuated Cycle: 39
10th %ile Actuated Cycle: 35
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: SRD & NW 121 WAY



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	2		0	1		1	1		1	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.971				0.850			0.850		0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2915	2918	0	1503	1582	1345	1503	3005	1345	1503	2903	0
Flt Permitted	0.950			0.569			0.210			0.950		
Satd. Flow (perm)	2915	2918	0	900	1582	1345	332	3005	1345	1503	2903	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39				159			65		79	
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2844			6120			2022			1932	
Travel Time (s)		64.6			139.1			46.0			43.9	
Volume (vph)	160	223	53	71	53	146	68	443	60	262	930	277
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	174	242	58	77	58	159	74	482	65	285	1011	301
Lane Group Flow (vph)	174	300	0	77	58	159	74	482	65	285	1312	0
Turn Type	Prot			Perm		Perm	Perm		Perm	Prot		
Protected Phases	1	6			2			4		3	8	
Permitted Phases				2		2	4		4			
Detector Phases	1	6		2	2	2	4	4	4	3	8	
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	9.0	20.0		20.0	20.0	20.0	20.0	20.0	20.0	9.0	20.0	
Total Split (s)	10.0	31.0	0.0	21.0	21.0	21.0	28.0	28.0	28.0	21.0	49.0	0.0
Total Split (%)	13%	39%	0%	26%	26%	26%	35%	35%	35%	26%	61%	0%
Maximum Green (s)	5.0	26.0		16.0	16.0	16.0	23.0	23.0	23.0	16.0	44.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lead/Lag	Lead			Lag	Lag	Lag	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Min		Min	Min	Min	None	None	None	None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	6.1	22.2		11.9	11.9	11.9	19.8	19.8	19.8	16.3	40.2	
Actuated g/C Ratio	0.09	0.31		0.17	0.17	0.17	0.28	0.28	0.28	0.23	0.57	
v/c Ratio	0.69	0.32		0.51	0.22	0.44	0.80	0.57	0.15	0.82	0.78	
Uniform Delay, d1	31.2	15.8		26.4	25.1	0.0	23.2	21.5	0.0	25.7	10.8	
Delay	45.0	16.9		28.8	26.7	5.4	50.2	22.3	6.1	42.8	11.7	
LOS	D	B		C	C	A	D	C	A	D	B	
Approach Delay		27.2			15.7			23.9			17.2	
Approach LOS		C			B			C			B	
90th %ile Green (s)	5.0	26.0		16.0	16.0	16.0	23.0	23.0	23.0	16.0	44.0	
90th %ile Term Code	Max	Hold		Max	Max	Max	Max	Max	Max	Max	Max	
70th %ile Green (s)	5.0	24.5		14.5	14.5	14.5	23.0	23.0	23.0	16.0	44.0	
70th %ile Term Code	Max	Hold		Gap	Gap	Gap	Max	Max	Max	Max	Max	
50th %ile Green (s)	5.0	21.7		11.7	11.7	11.7	23.0	23.0	23.0	16.0	44.0	
50th %ile Term Code	Max	Hold		Gap	Gap	Gap	Max	Max	Max	Max	Hold	
30th %ile Green (s)	5.0	18.5		8.5	8.5	8.5	17.6	17.6	17.6	16.0	38.6	
30th %ile Term Code	Max	Hold		Gap	Gap	Gap	Gap	Gap	Gap	Max	Hold	
10th %ile Green (s)	5.0	15.5		5.5	5.5	5.5	9.6	9.6	9.6	11.6	26.2	
10th %ile Term Code	Max	Hold		Gap	Gap	Gap	Gap	Gap	Gap	Gap	Hold	
Stops (vph)	151	161		61	45	41	69	350	13	249	823	
Fuel Used(gal)	6	8		4	3	7	2	11	1	8	26	
CO Emmisions (g/hr)	409	556		290	214	514	150	764	76	532	1789	
NOx Emmisions (g/hr)	80	108		56	42	100	29	149	15	103	348	
VOC Emmisions (g/hr)	95	129		67	50	119	35	177	18	123	415	
Dilemma Vehicles (#)	0	0		0	0	0	0	0	0	0	0	
Queue Length 50th (ft)	42	46		33	24	0	30	95	0	129	200	
Queue Length 95th (ft)	#97	76		75	55	42	#108	152	27	#279	326	
Internal Link Dist (ft)		2764			6040			1942			1852	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)												
50th Bay Block Time %												
95th Bay Block Time %												
Queuing Penalty (veh)												

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 70.6

Natural Cycle: 80

Control Type: Semi Act-Uncoord

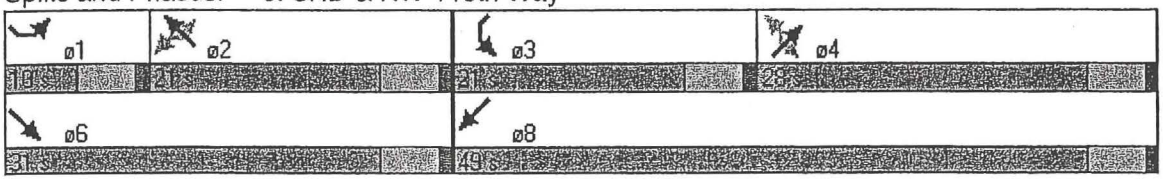
Maximum v/c Ratio: 0.82

Intersection Signal Delay: 20.0 Intersection LOS: C

Intersection Capacity Utilization 70.8% ICU Level of Service C

90th %ile Actuated Cycle: 80
70th %ile Actuated Cycle: 78.5
50th %ile Actuated Cycle: 75.7
30th %ile Actuated Cycle: 67.1
10th %ile Actuated Cycle: 51.7
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: SRD & NW 116th Way



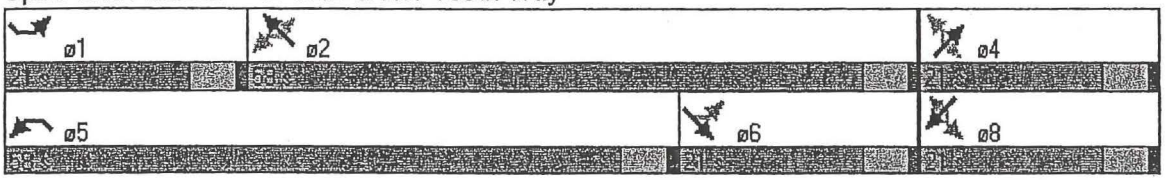
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	200		100	0		0	0		0
Storage Lanes	1		0	1		1	0		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.994		0.950		
Satd. Flow (prot)	1503	2993	0	1503	1582	1345	0	1572	1345	1503	1582	1345
Flt Permitted	0.504			0.570				0.960		0.616		
Satd. Flow (perm)	797	2993	0	902	1582	1345	0	1519	1345	974	1582	1345
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				305			110			4
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3539			1490			906			234	
Travel Time (s)		80.4			33.9			20.6			5.3	
Volume (vph)	64	69	2	516	412	321	12	94	101	78	130	4
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	70	75	2	561	448	349	13	102	110	85	141	4
Lane Group Flow (vph)	70	77	0	561	448	349	0	115	110	85	141	4
Turn Type	pm+pt			pm+pt		Perm	Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2		2	4		4	8		8
Detector Phases	1	6		5	2	2	4	4	4	8	8	8
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	16.0	16.0	16.0	16.0	16.0	16.0
Minimum Split (s)	21.0	21.0		22.0	22.0	22.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	21.0	21.0	0.0	58.0	58.0	58.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (%)	21%	21%	0%	58%	58%	58%	21%	21%	21%	21%	21%	21%
Maximum Green (s)	16.0	16.0		53.0	53.0	53.0	16.0	16.0	16.0	16.0	16.0	16.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	Max	Max		Max	Max	Max	Max	Max	Max	Max	Max	Max
Walk Time (s)				5.0	5.0	5.0						
Flash Dont Walk (s)				11.0	11.0	11.0						
Pedestrian Calls (#/hr)				0	0	0						
Act Effct Green (s)	34.0	17.0		75.0	54.0	54.0		17.0	17.0	17.0	17.0	17.0
Actuated g/C Ratio	0.34	0.17		0.75	0.54	0.54		0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.18	0.15		0.56	0.52	0.40		0.45	0.34	0.51	0.52	0.02
Uniform Delay, d1	12.5	34.4		5.0	14.7	1.4		37.2	0.0	37.7	37.8	0.0
Delay	12.9	34.7		5.2	15.3	2.4		38.0	7.5	39.0	38.6	22.0
LOS	B	C		A	B	A		D	A	D	D	C
Approach Delay		24.3			7.8			23.1			38.5	
Approach LOS		C			A			C			D	
90th %ile Green (s)	16.0	16.0		53.0	53.0	53.0	16.0	16.0	16.0	16.0	16.0	16.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
70th %ile Green (s)	16.0	16.0		53.0	53.0	53.0	16.0	16.0	16.0	16.0	16.0	16.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
50th %ile Green (s)	16.0	16.0		53.0	53.0	53.0	16.0	16.0	16.0	16.0	16.0	16.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
30th %ile Green (s)	16.0	16.0		53.0	53.0	53.0	16.0	16.0	16.0	16.0	16.0	16.0
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
10th %ile Green (s)	16.0	16.0		53.0	53.0	53.0	16.0	16.0	16.0	16.0	16.0	16.0
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
Stops (vph)	41	71		190	257	49		93	19	72	117	3
Fuel Used(gal)	2	3		8	7	4		2	1	1	2	0
CO Emmisions (g/hr)	151	199		531	523	290		146	68	81	133	3
NOx Emmisions (g/hr)	29	39		103	102	56		28	13	16	26	1
VOC Emmisions (g/hr)	35	46		123	121	67		34	16	19	31	1
Dilemma Vehicles (#)	0	0		0	0	0		0	0	0	0	0
Queue Length 50th (ft)	18	21		118	174	11		66	0	50	83	0
Queue Length 95th (ft)	37	42		181	262	56		123	47	101	145	10
Internal Link Dist (ft)		3459			1410			826			151	
50th Up Block Time (%)												
95th Up Block Time (%)											1%	
Turn Bay Length (ft)	150			200		100						
50th Bay Block Time %												
95th Bay Block Time %				4%	16%							
Queuing Penalty (veh)				15	43							

Intersection Summary
Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Natural Cycle: 65
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.56
Intersection Signal Delay: 14.4 Intersection LOS: B
Intersection Capacity Utilization 62.8% ICU Level of Service B

90th %ile Actuated Cycle: 100
70th %ile Actuated Cycle: 100
50th %ile Actuated Cycle: 100
30th %ile Actuated Cycle: 100
10th %ile Actuated Cycle: 100

Splits and Phases: 9: SRD & NW 105th Way



Lane Group	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%		0%			0%
Storage Length (ft)	0	75		0	100	
Storage Lanes	1	1		0	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50		50	50
Trailing Detector (ft)	0	0	0		0	0
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.967			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1503	1345	2906	0	1503	1582
Flt Permitted	0.950				0.250	
Satd. Flow (perm)	1503	1345	2906	0	395	1582
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		53	196			
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)	30		30			30
Link Distance (ft)	1801		1490			2680
Travel Time (s)	40.9		33.9			60.9
Volume (vph)	101	49	809	225	283	285
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	110	53	879	245	308	310
Lane Group Flow (vph)	110	53	1124	0	308	310
Turn Type		Perm			Perm	
Protected Phases	3		2			6
Permitted Phases		3			6	
Detector Phases	3	3	2		6	6
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.0	9.0	20.0		20.0	20.0
Total Split (s)	9.0	9.0	20.0	0.0	20.0	20.0
Total Split (%)	31%	31%	69%	0%	69%	69%
Maximum Green (s)	4.0	4.0	15.0		15.0	15.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0		3.0	3.0

Lane Group	NBL	NBR	SET	SER	NWL	NWT
Time Before Reduce (s)	0.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	Max		Max	Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
Act Effct Green (s)	7.0	7.0	35.7		35.7	35.7
Actuated g/C Ratio	0.13	0.13	0.73		0.73	0.73
v/c Ratio	0.55	0.24	0.52		1.07	0.27
Uniform Delay, d1	20.2	0.0	2.3		6.5	2.2
Delay	11.2	4.3	3.0		95.3	3.0
LOS	B	A	A		F	A
Approach Delay	8.9		3.0			49.0
Approach LOS	A		A			D
90th %ile Green (s)	4.0	4.0	15.0		15.0	15.0
90th %ile Term Code	Max	Max	MaxR		MaxR	MaxR
70th %ile Green (s)	4.0	4.0	15.0		15.0	15.0
70th %ile Term Code	Max	Max	MaxR		MaxR	MaxR
50th %ile Green (s)	4.0	4.0	15.0		15.0	15.0
50th %ile Term Code	Max	Max	MaxR		MaxR	MaxR
30th %ile Green (s)	0.0	0.0	32.0		32.0	32.0
30th %ile Term Code	Skip	Skip	Dwell		Dwell	Dwell
10th %ile Green (s)	0.0	0.0	115.0		115.0	115.0
10th %ile Term Code	Skip	Skip	Dwell		Dwell	Dwell
Stops (vph)	89	18	280		741	106
Fuel Used(gal)	2	1	14		15	7
CO Emmisions (g/hr)	150	58	991		1083	469
NOx Emmisions (g/hr)	29	11	193		211	91
VOC Emmisions (g/hr)	35	13	230		251	109
Dilemma Vehicles (#)	0	0	0		0	0
Queue Length 50th (ft)	15	0	22		69	19
Queue Length 95th (ft)	37	13	38		#144	39
Internal Link Dist (ft)	1721		1410			2600
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)		75			100	
50th Bay Block Time %						
95th Bay Block Time %					47%	
Queuing Penalty (veh)					73	

Intersection Summary

Area Type: Other

Cycle Length: 29

Actuated Cycle Length: 48.8

Natural Cycle: 90

Control Type: Semi Act-Uncoord

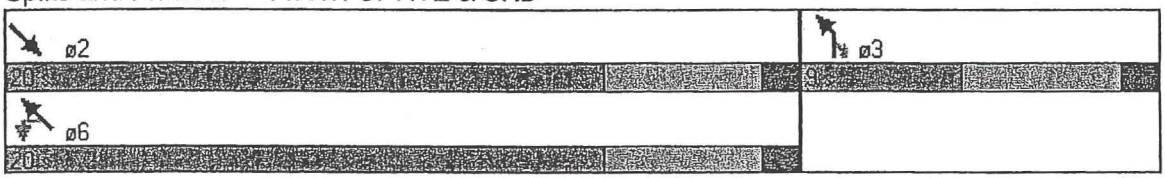
Maximum v/c Ratio: 1.07

Intersection Signal Delay: 18.4 Intersection LOS: B

Intersection Capacity Utilization 68.3% ICU Level of Service B

90th %ile Actuated Cycle: 29
70th %ile Actuated Cycle: 29
50th %ile Actuated Cycle: 29
30th %ile Actuated Cycle: 37
10th %ile Actuated Cycle: 120
~ 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.

Splits and Phases: 14: NW 87 AVE & SRD



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	75		0	0
Storage Lanes		0	1		1	0
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.999				0.902	
Flt Protected			0.950		0.987	
Satd. Flow (prot)	3002	0	1503	1582	1408	0
Flt Permitted			0.800		0.987	
Satd. Flow (perm)	3002	0	1265	1582	1408	0
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)	30			30	30	
Link Distance (ft)	2680			1600	1320	
Travel Time (s)	60.9			36.4	30.0	
Volume (vph)	865	5	69	500	8	22
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	940	5	75	543	9	24
Lane Group Flow (vph)	945	0	75	543	33	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 45.3%	ICU Level of Service A

Lane Group	SEL	SER	NWL	NWT	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	150		0	50
Storage Lanes		0	1		1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50		50	50	50	50
Trailing Detector (ft)	0		0	0	0	0
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.997					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	2996	0	1503	1582	1503	1345
Flt Permitted			0.218		0.950	
Satd. Flow (perm)	2996	0	345	1582	1503	1345
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	4					225
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)	30			30	30	
Link Distance (ft)	1600			980	1540	
Travel Time (s)	36.4			22.3	35.0	
Volume (vph)	936	20	340	686	13	207
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	1017	22	370	746	14	225
Lane Group Flow (vph)	1039	0	370	746	14	225
Turn Type			pm+pt			Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Detector Phases	6		5	2	4	4
Minimum Initial (s)	4.0		3.0	4.0	4.0	4.0
Minimum Split (s)	21.6		8.0	21.6	20.5	20.5
Total Split (s)	51.0	0.0	12.0	89.0	21.0	21.0
Total Split (%)	46%	0%	11%	81%	19%	19%
Maximum Green (s)	46.0		7.0	84.0	16.0	16.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0

Lane Group	SET	SER	NWL	NWT	NEL	NER
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	Coord		Max	Coord	Min	Min
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
Act Effct Green (s)	80.4		92.4	92.4	9.6	9.6
Actuated g/C Ratio	0.73		0.84	0.84	0.09	0.09
v/c Ratio	0.47		0.99	0.56	0.11	0.70
Uniform Delay, d1	6.1		5.3	2.7	46.2	0.0
Delay	6.7		42.5	6.5	43.6	6.1
LOS	A		D	A	D	A
Approach Delay	6.7			18.4	8.3	
Approach LOS	A			B	A	
90th %ile Green (s)	72.0		7.0	84.0	16.0	16.0
90th %ile Term Code	Coord		MaxR	Coord	Max	Max
70th %ile Green (s)	78.4		7.0	90.4	9.6	9.6
70th %ile Term Code	Coord		MaxR	Coord	Gap	Gap
50th %ile Green (s)	81.6		7.0	93.6	6.4	6.4
50th %ile Term Code	Coord		MaxR	Coord	Gap	Gap
30th %ile Green (s)	82.3		7.0	94.3	5.7	5.7
30th %ile Term Code	Coord		MaxR	Coord	Gap	Gap
10th %ile Green (s)	82.5		7.0	94.5	5.5	5.5
10th %ile Term Code	Coord		MaxR	Coord	Gap	Gap
Stops (vph)	363		230	279	14	32
Fuel Used(gal)	15		7	8	0	3
CO Emmisions (g/hr)	1065		476	538	24	204
NOx Emmisions (g/hr)	207		93	105	5	40
VOC Emmisions (g/hr)	247		110	125	6	47
Dilemma Vehicles (#)	0		0	0	0	0
Queue Length 50th (ft)	124		136	229	10	0
Queue Length 95th (ft)	210		m#204	m296	27	71
Internal Link Dist (ft)	1520			900	1460	
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)			150			50
50th Bay Block Time %				11%		
95th Bay Block Time %			18%	21%		23%
Queuing Penalty (veh)			66	58		3

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NWTL and 6:SET, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 12.3 Intersection LOS: B

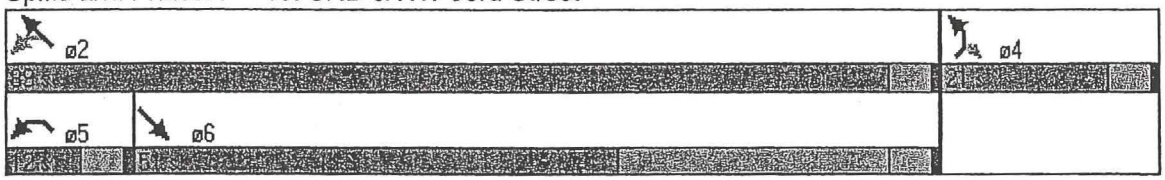
Intersection Capacity Utilization 65.4% ICU Level of Service B

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.

Splits and Phases: 18: SRD & NW 93rd Street



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	150		0	150		0
Storage Lanes	1		1	2		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850		0.970			0.980			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1503	1582	1345	2915	1534	0	1503	2945	0	1503	1571	0
Flt Permitted	0.519			0.950			0.167			0.339		
Satd. Flow (perm)	821	1582	1345	2915	1534	0	264	2945	0	536	1571	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			52		14			16			3	
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1122			252			980			980	
Travel Time (s)		25.5			5.7			22.3			22.3	
Volume (vph)	69	47	48	627	306	75	48	363	55	157	545	27
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	75	51	52	682	333	82	52	395	60	171	592	29
Lane Group Flow (vph)	75	51	52	682	415	0	52	455	0	171	621	0
Turn Type	pm+pt		Perm	Prot			Perm			pm+pt		
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2				4			8		
Detector Phases	5	2	2	1	6		4	4		3	8	
Minimum Initial (s)	4.0	18.0	18.0	4.0	4.0		10.0	10.0		5.0	10.0	
Minimum Split (s)	9.0	23.0	23.0	9.0	21.0		21.0	21.0		10.0	21.0	
Total Split (s)	10.0	23.0	23.0	32.0	52.0	0.0	38.0	38.0	0.0	10.0	48.0	0.0
Total Split (%)	9%	21%	21%	29%	47%	0%	35%	35%	0%	9%	44%	0%
Maximum Green (s)	5.0	18.0	18.0	27.0	47.0		33.0	33.0		5.0	43.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	

Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	150		0	0
Storage Lanes		0	2		1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50		50	50	50	50
Trailing Detector (ft)	0		0	0	0	0
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	1.00	0.97	1.00	1.00	1.00
Ped Bike Factor						
Frt						0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3005	0	2915	1582	1503	1345
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3005	0	2915	1582	1503	1345
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						41
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)	30			30	30	
Link Distance (ft)	980			822	645	
Travel Time (s)	22.3			18.7	14.7	
Volume (vph)	552	0	746	533	285	397
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	600	0	811	579	310	432
Lane Group Flow (vph)	600	0	811	579	310	432
Turn Type			Split			pt+ov
Protected Phases	6		2	2	4	4 2
Permitted Phases						
Detector Phases	6		2	2	4	4 2
Minimum Initial (s)	4.0		4.0	4.0	8.0	
Minimum Split (s)	31.0		31.0	31.0	21.0	
Total Split (s)	31.0	0.0	55.0	55.0	24.0	79.0
Total Split (%)	28%	0%	50%	50%	22%	72%
Maximum Green (s)	26.0		50.0	50.0	19.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Minimum Gap (s)	3.0		3.0	3.0	3.0	

Lane Group	SET	SER	NWL	NWT	NEL	NER
Time Before Reduce (s)	0.0		0.0	0.0	0.0	
Time To Reduce (s)	0.0		0.0	0.0	0.0	
Recall Mode	Max		Max	Max	Max	
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
Act Effct Green (s)	27.0		51.0	51.0	20.0	75.0
Actuated g/C Ratio	0.25		0.46	0.46	0.18	0.68
v/c Ratio	0.81		0.60	0.79	1.14	0.46
Uniform Delay, d1	39.1		21.9	24.9	45.0	7.2
Delay	42.8		22.3	27.0	119.7	7.5
LOS	D		C	C	F	A
Approach Delay	42.8			24.2	54.4	
Approach LOS	D			C	D	
90th %ile Green (s)	26.0		50.0	50.0	19.0	
90th %ile Term Code	MaxR		Coord	Coord	MaxR	
70th %ile Green (s)	26.0		50.0	50.0	19.0	
70th %ile Term Code	MaxR		Coord	Coord	MaxR	
50th %ile Green (s)	26.0		50.0	50.0	19.0	
50th %ile Term Code	MaxR		Coord	Coord	MaxR	
30th %ile Green (s)	26.0		50.0	50.0	19.0	
30th %ile Term Code	MaxR		Coord	Coord	MaxR	
10th %ile Green (s)	26.0		50.0	50.0	19.0	
10th %ile Term Code	MaxR		Coord	Coord	MaxR	
Stops (vph)	435		535	443	424	159
Fuel Used(gal)	11		11	9	11	3
CO Emmisions (g/hr)	799		777	615	749	243
NOx Emmisions (g/hr)	155		151	120	146	47
VOC Emmisions (g/hr)	185		180	142	174	56
Dilemma Vehicles (#)	0		0	0	0	0
Queue Length 50th (ft)	172		213	336	255	114
Queue Length 95th (ft)	m222		276	493	#429	179
Internal Link Dist (ft)	900			742	565	
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)			150			
50th Bay Block Time %			19%	32%		
95th Bay Block Time %			27%	39%		
Queuing Penalty (veh)			131	288		

Intersection Summary
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 104 (95%), Referenced to phase 2:NWTL, Start of Green
Natural Cycle: 85
Control Type: Pretimed
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 36.5 Intersection LOS: D

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	Min	Coord	Coord	Max	Coord		Max	Max		Max	Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	32.0	26.0	26.0	28.1	48.0		34.0	34.0		44.0	44.0	
Actuated g/C Ratio	0.29	0.24	0.24	0.26	0.44		0.31	0.31		0.40	0.40	
v/c Ratio	0.27	0.14	0.15	0.92	0.61		0.63	0.49		0.64	0.99	
Uniform Delay, d1	16.3	33.1	0.0	39.9	22.9		32.7	29.8		22.9	32.5	
Delay	16.7	33.7	9.5	50.3	23.7		45.3	25.1		16.8	41.0	
LOS	B	C	A	D	C		D	C		B	D	
Approach Delay		19.5			40.2			27.1			35.8	
Approach LOS		B			D			C			D	
90th %ile Green (s)	5.0	25.0	25.0	27.0	47.0		33.0	33.0		5.0	43.0	
90th %ile Term Code	Max	Coord	Coord	MaxR	Coord		MaxR	MaxR		MaxR	MaxR	
70th %ile Green (s)	5.0	25.0	25.0	27.0	47.0		33.0	33.0		5.0	43.0	
70th %ile Term Code	Max	Coord	Coord	MaxR	Coord		MaxR	MaxR		MaxR	MaxR	
50th %ile Green (s)	5.0	25.0	25.0	27.0	47.0		33.0	33.0		5.0	43.0	
50th %ile Term Code	Max	Coord	Coord	MaxR	Coord		MaxR	MaxR		MaxR	MaxR	
30th %ile Green (s)	5.0	25.0	25.0	27.0	47.0		33.0	33.0		5.0	43.0	
30th %ile Term Code	Max	Coord	Coord	MaxR	Coord		MaxR	MaxR		MaxR	MaxR	
10th %ile Green (s)	5.0	25.0	25.0	27.0	47.0		33.0	33.0		5.0	43.0	
10th %ile Term Code	Max	Coord	Coord	MaxR	Coord		MaxR	MaxR		MaxR	MaxR	
Stops (vph)	48	37	11	615	280		45	723		104	474	
Fuel Used(gal)	1	1	1	11	4		1	9		2	12	
CO Emmisions (g/hr)	77	66	40	772	289		74	653		162	821	
NOx Emmisions (g/hr)	15	13	8	150	56		14	127		31	160	
VOC Emmisions (g/hr)	18	15	9	179	67		17	151		37	190	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	25	29	0	242	213		31	132		78	298	
Queue Length 95th (ft)	49	62	31	#352	320		m#95	186		m81	m#430	
Internal Link Dist (ft)		1042			172			900			900	
50th Up Block Time (%)				24%	15%							
95th Up Block Time (%)				41%	29%							
Turn Bay Length (ft)							150			150		
50th Bay Block Time %											14%	
95th Bay Block Time %								10%			19%	
Queuing Penalty (veh)								2			28	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 34.8 Intersection LOS: C

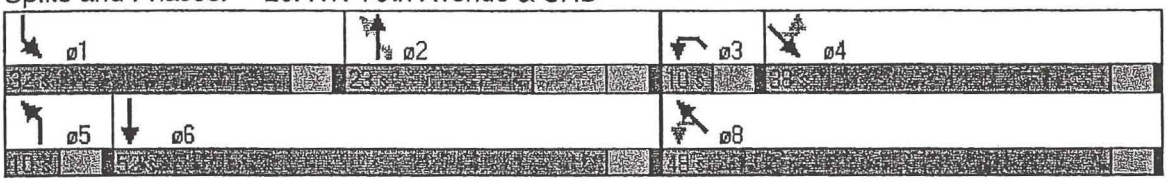
Intersection Capacity Utilization 92.0% ICU Level of Service E

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.

Splits and Phases: 20: NW 79th Avenue & SRD



Intersection Capacity Utilization 70.0% ICU Level of Service C

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

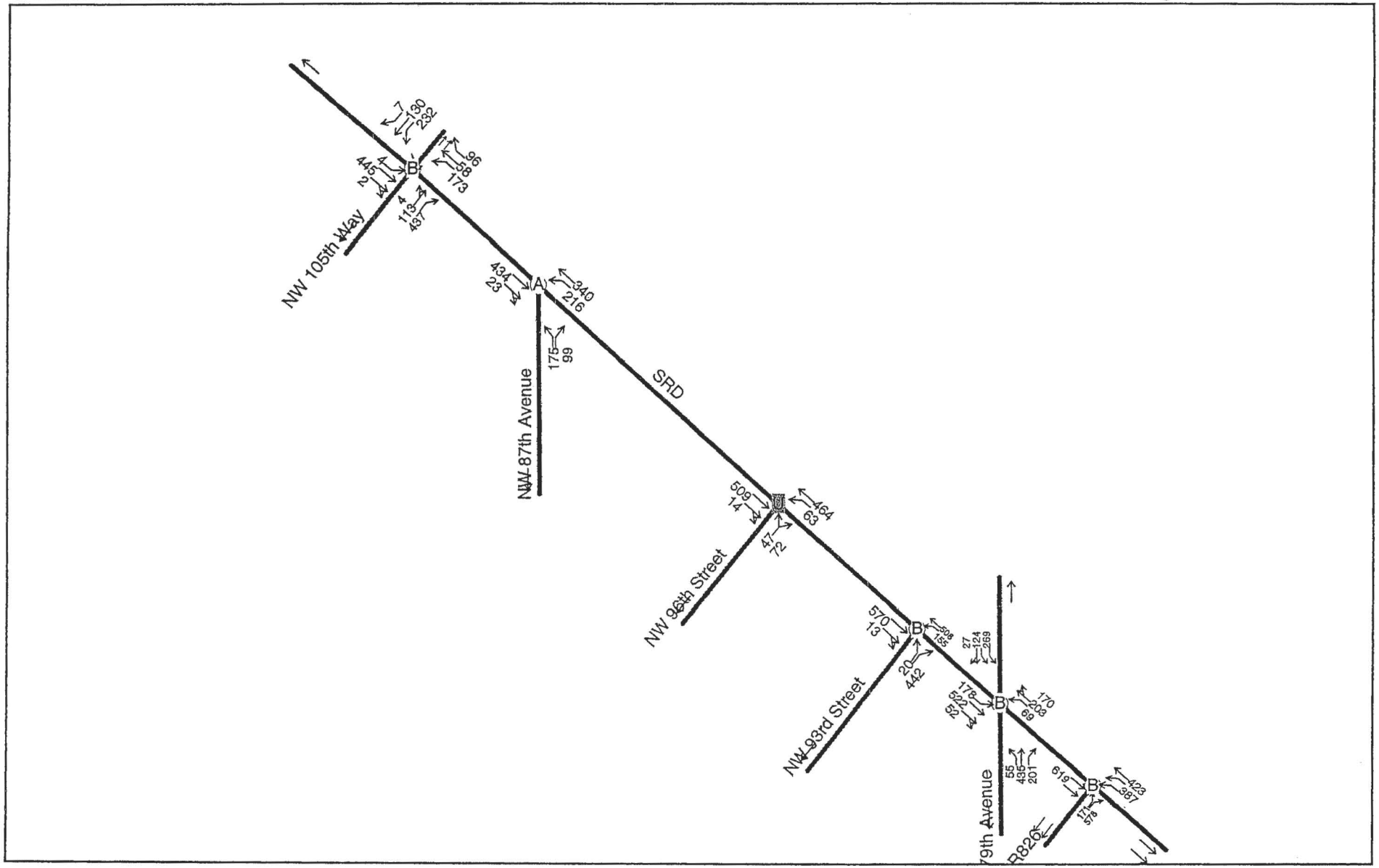
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: SRD & SB Ent. SR826

SRD PROPOSED GEOMETRY
3-LANE CORRIDOR

Timing Plan: 2008 PM PEAK



9/22/2003

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	200		100	0		0	0		0
Storage Lanes	1		0	1		1	0		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.998		0.950		
Satd. Flow (prot)	1503	3002	0	1503	1582	1345	0	1579	1345	1503	1582	1345
Flt Permitted	0.716			0.453				0.994		0.676		
Satd. Flow (perm)	1133	3002	0	717	1582	1345	0	1572	1345	1069	1582	1345
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				104			283			8
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1371			1490			906			421	
Travel Time (s)		31.2			33.9			20.6			9.6	
Volume (vph)	4	445	2	173	58	96	4	113	437	232	130	7
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	4	484	2	188	63	104	4	123	475	252	141	8
Lane Group Flow (vph)	4	486	0	188	63	104	0	127	475	252	141	8
Turn Type	Perm			Perm		Perm	Perm		Perm	Perm		Perm
Protected Phases		6			2			4			8	
Permitted Phases	6			2		2	4		4	8		8
Detector Phases	6	6		2	2	2	4	4	4	8	8	8
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	32.0	32.0	0.0	32.0	32.0	32.0	28.0	28.0	28.0	28.0	28.0	28.0
Total Split (%)	53%	53%	0%	53%	53%	53%	47%	47%	47%	47%	47%	47%
Maximum Green (s)	27.0	27.0		27.0	27.0	27.0	23.0	23.0	23.0	23.0	23.0	23.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	Coord	Coord		Coord	Coord	Coord	None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	33.3	33.3		33.3	33.3	33.3		18.7	18.7	18.7	18.7	18.7
Actuated g/C Ratio	0.56	0.56		0.56	0.56	0.56		0.31	0.31	0.31	0.31	0.31
v/c Ratio	0.01	0.29		0.47	0.07	0.13		0.26	0.77	0.76	0.29	0.02
Uniform Delay, d1	6.0	7.1		8.0	6.2	0.0		15.5	7.0	18.6	15.6	0.0
Delay	8.2	8.3		11.5	8.6	3.9		13.9	7.0	17.9	14.1	7.0
LOS	A	A		B	A	A		B	A	B	B	A
Approach Delay		8.3			8.8			8.4			16.4	
Approach LOS		A			A			A			B	
90th %ile Green (s)	27.0	27.0		27.0	27.0	27.0	23.0	23.0	23.0	23.0	23.0	23.0
90th %ile Term Code	Coord	Coord		Coord	Coord	Coord	Max	Max	Max	Max	Max	Max
70th %ile Green (s)	27.9	27.9		27.9	27.9	27.9	22.1	22.1	22.1	22.1	22.1	22.1
70th %ile Term Code	Coord	Coord		Coord	Coord	Coord	Hold	Hold	Hold	Gap	Gap	Gap
50th %ile Green (s)	31.5	31.5		31.5	31.5	31.5	18.5	18.5	18.5	18.5	18.5	18.5
50th %ile Term Code	Coord	Coord		Coord	Coord	Coord	Hold	Hold	Hold	Gap	Gap	Gap
30th %ile Green (s)	35.2	35.2		35.2	35.2	35.2	14.8	14.8	14.8	14.8	14.8	14.8
30th %ile Term Code	Coord	Coord		Coord	Coord	Coord	Hold	Hold	Hold	Gap	Gap	Gap
10th %ile Green (s)	40.1	40.1		40.1	40.1	40.1	9.9	9.9	9.9	9.9	9.9	9.9
10th %ile Term Code	Coord	Coord		Coord	Coord	Coord	Hold	Hold	Hold	Gap	Gap	Gap
Stops (vph)	3	318		112	33	34		77	172	195	88	4
Fuel Used(gal)	0	7		3	1	1		2	5	3	1	0
CO Emmisions (g/hr)	5	510		212	67	96		111	326	188	90	4
NOx Emmisions (g/hr)	1	99		41	13	19		22	63	37	18	1
VOC Emmisions (g/hr)	1	118		49	16	22		26	75	43	21	1
Dilemma Vehicles (#)	0	0		0	0	0		0	0	0	0	0
Queue Length 50th (ft)	1	41		37	11	1		83	54	79	37	0
Queue Length 95th (ft)	5	85		110	m37	0		60	142	138	66	7
Internal Link Dist (ft)		1291			1410			826			341	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	150			200		100						
50th Bay Block Time %												
95th Bay Block Time %												
Queuing Penalty (veh)												

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 16 (27%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

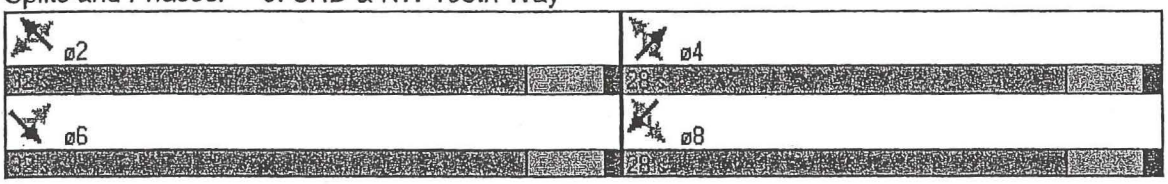
Maximum v/c Ratio: 0.77

Intersection Signal Delay: 10.2 Intersection LOS: B

Intersection Capacity Utilization 70.0% ICU Level of Service B

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: SRD & NW 105th Way



Lane Group	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%		0%			0%
Storage Length (ft)	0	75		0	100	
Storage Lanes	1	1		0	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50		50	50
Trailing Detector (ft)	0	0	0		0	0
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.992			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1503	1345	2981	0	1503	1582
Flt Permitted	0.950				0.467	
Satd. Flow (perm)	1503	1345	2981	0	739	1582
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		108	15			
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)	30		30			30
Link Distance (ft)	1801		1490			2680
Travel Time (s)	40.9		33.9			60.9
Volume (vph)	175	99	434	23	216	340
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	190	108	472	25	235	370
Lane Group Flow (vph)	190	108	497	0	235	370
Turn Type		Perm			Perm	
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phases	8	8	2		6	6
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	21.0	21.0	21.0		21.0	21.0
Total Split (s)	21.0	21.0	39.0	0.0	39.0	39.0
Total Split (%)	35%	35%	65%	0%	65%	65%
Maximum Green (s)	16.0	16.0	34.0		34.0	34.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0		3.0	3.0

Lane Group	NBL	NBR	SET	SER	NWL	NWT
Time Before Reduce (s)	0.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	Coord		Coord	Coord
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
Act Effct Green (s)	13.1	13.1	38.9		38.9	38.9
Actuated g/C Ratio	0.22	0.22	0.65		0.65	0.65
v/c Ratio	0.58	0.29	0.26		0.49	0.36
Uniform Delay, d1	20.9	0.0	4.3		5.4	4.8
Delay	20.4	4.5	2.8		7.4	5.8
LOS	C	A	A		A	A
Approach Delay	14.6		2.8			6.4
Approach LOS	B		A			A
90th %ile Green (s)	16.0	16.0	34.0		34.0	34.0
90th %ile Term Code	Max	Max	Coord		Coord	Coord
70th %ile Green (s)	14.6	14.6	35.4		35.4	35.4
70th %ile Term Code	Gap	Gap	Coord		Coord	Coord
50th %ile Green (s)	12.2	12.2	37.8		37.8	37.8
50th %ile Term Code	Gap	Gap	Coord		Coord	Coord
30th %ile Green (s)	10.3	10.3	39.7		39.7	39.7
30th %ile Term Code	Gap	Gap	Coord		Coord	Coord
10th %ile Green (s)	7.3	7.3	42.7		42.7	42.7
10th %ile Term Code	Gap	Gap	Coord		Coord	Coord
Stops (vph)	147	32	128		120	152
Fuel Used(gal)	4	2	6		6	8
CO Emmisions (g/hr)	279	116	439		385	584
NOx Emmisions (g/hr)	54	23	85		75	114
VOC Emmisions (g/hr)	65	27	102		89	135
Dilemma Vehicles (#)	0	0	0		0	0
Queue Length 50th (ft)	62	0	0		36	51
Queue Length 95th (ft)	108	0	0		107	113
Internal Link Dist (ft)	1721		1410			2600
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)		75			100	
50th Bay Block Time %						
95th Bay Block Time %	29%				12%	14%
Queuing Penalty (veh)	15				22	16

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 24 (40%), Referenced to phase 2:SET and 6:NWTL, Start of Green

Natural Cycle: 55

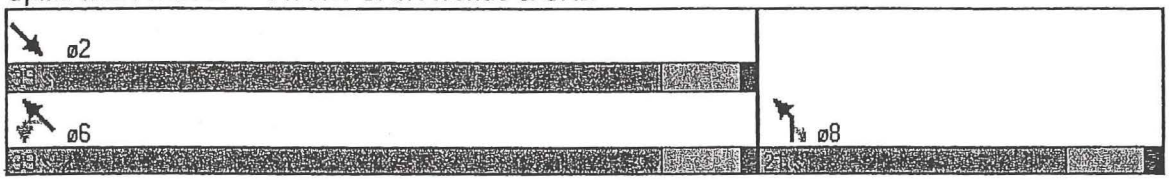
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 6.9 Intersection LOS: A

Intersection Capacity Utilization 49.5% ICU Level of Service A

Splits and Phases: 14: NW 87th Avenue & SRD



Lane Group	SEL	SER	NWL	NWT	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	75		0	0
Storage Lanes		0	1		1	0
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor						
Flt	0.996				0.918	
Flt Protected			0.950		0.981	
Satd. Flow (prot)	2993	0	1503	1582	1425	0
Flt Permitted			0.950		0.981	
Satd. Flow (perm)	2993	0	1503	1582	1425	0
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)	30			30	30	
Link Distance (ft)	2680			1600	1320	
Travel Time (s)	60.9			36.4	30.0	
Volume (vph)	509	14	63	464	47	72
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	553	15	68	504	51	78
Lane Group Flow (vph)	568	0	68	504	129	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 42.7%	ICU Level of Service A

Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	150		0	50
Storage Lanes		0	1		1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50		50	50	50	50
Trailing Detector (ft)	0		0	0	0	0
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.997					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	2996	0	1503	1582	1503	1345
Flt Permitted			0.307		0.950	
Satd. Flow (perm)	2996	0	486	1582	1503	1345
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	3					92
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)	30			30	30	
Link Distance (ft)	1600			980	1540	
Travel Time (s)	36.4			22.3	35.0	
Volume (vph)	570	13	155	508	20	442
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	620	14	168	552	22	480
Lane Group Flow (vph)	634	0	168	552	22	480
Turn Type			pm+pt			custom
Protected Phases	6		5	2	4	4
Permitted Phases			2			5
Detector Phases	6		5	2	4	4
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	25.0		9.0	25.0	25.0	25.0
Total Split (s)	29.0	0.0	15.0	44.0	31.0	31.0
Total Split (%)	39%	0%	20%	59%	41%	41%
Maximum Green (s)	24.0		10.0	39.0	26.0	26.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0

Lane Group	SET	SER	NWL	NWT	NEL	NER
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	Coord		None	Coord	None	None
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
Act Effct Green (s)	35.2		50.2	50.2	16.8	31.8
Actuated g/C Ratio	0.47		0.67	0.67	0.22	0.42
v/c Ratio	0.45		0.35	0.52	0.07	0.77
Uniform Delay, d1	13.3		6.3	6.3	22.9	14.6
Delay	15.5		12.2	10.1	18.6	13.7
LOS	B		B	B	B	B
Approach Delay	15.5			10.6	13.9	
Approach LOS	B			B	B	
90th %ile Green (s)	24.0		10.0	39.0	26.0	26.0
90th %ile Term Code	Coord		Hold	Coord	Max	Max
70th %ile Green (s)	29.2		10.0	44.2	20.8	20.8
70th %ile Term Code	Coord		Hold	Coord	Gap	Gap
50th %ile Green (s)	34.4		10.0	49.4	15.6	15.6
50th %ile Term Code	Coord		Hold	Coord	Gap	Gap
30th %ile Green (s)	39.4		10.0	54.4	10.6	10.6
30th %ile Term Code	Coord		Hold	Coord	Gap	Gap
10th %ile Green (s)	43.8		10.0	58.8	6.2	6.2
10th %ile Term Code	Coord		Hold	Coord	Gap	Gap
Stops (vph)	369		68	281	15	318
Fuel Used(gal)	11		2	6	0	8
CO Emmisions (g/hr)	779		136	453	28	580
NOx Emmisions (g/hr)	152		26	88	5	113
VOC Emmisions (g/hr)	181		31	105	6	134
Dilemma Vehicles (#)	0		0	0	0	0
Queue Length 50th (ft)	98		29	118	8	151
Queue Length 95th (ft)	156		m76	294	21	200
Internal Link Dist (ft)	1520			900	1460	
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)			150			50
50th Bay Block Time %						34%
95th Bay Block Time %				33%		34%
Queuing Penalty (veh)				28		15

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 4 (5%), Referenced to phase 2:NWTL and 6:SET, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

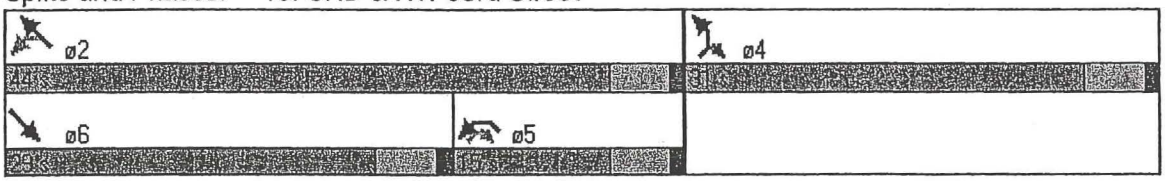
Maximum v/c Ratio: 0.77

Intersection Signal Delay: 13.1 Intersection LOS: B

Intersection Capacity Utilization 56.6% ICU Level of Service A

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: SRD & NW 93rd Street



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	150		0	150		0
Storage Lanes	1		1	2		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850		0.973			0.986			0.932	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1503	1582	1345	2915	1539	0	1503	2963	0	1503	1474	0
Flt Permitted	0.653			0.221			0.375			0.337		
Satd. Flow (perm)	1033	1582	1345	678	1539	0	593	2963	0	533	1474	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			171		20			17			68	
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1122			1086			980			980	
Travel Time (s)		25.5			24.7			22.3			22.3	
Volume (vph)	55	435	201	269	124	27	178	522	52	69	203	170
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	60	473	218	292	135	29	193	567	57	75	221	185
Lane Group Flow (vph)	60	473	218	292	164	0	193	624	0	75	406	0
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		2		1	6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phases	2	2	2	1	6		4	4		8	8	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0	21.0	9.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	31.0	31.0	31.0	9.0	40.0	0.0	35.0	35.0	0.0	35.0	35.0	0.0
Total Split (%)	41%	41%	41%	12%	53%	0%	47%	47%	0%	47%	47%	0%
Maximum Green (s)	26.0	26.0	26.0	4.0	35.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	Coord	Coord	Coord	None	Coord		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	30.8	30.8	30.8	39.8	39.8		27.2	27.2		27.2	27.2	
Actuated g/C Ratio	0.41	0.41	0.41	0.53	0.53		0.36	0.36		0.36	0.36	
v/c Ratio	0.14	0.73	0.33	0.57	0.20		0.90	0.58		0.39	0.70	
Uniform Delay, d1	13.8	18.6	2.9	9.2	8.0		22.6	18.7		17.7	16.7	
Delay	16.6	26.8	5.2	10.9	9.6		30.5	14.1		13.6	13.3	
LOS	B	C	A	B	A		C	B		B	B	
Approach Delay		19.7			10.4			18.0			13.4	
Approach LOS		B			B			B			B	
90th %ile Green (s)	26.0	26.0	26.0	4.0	35.0		30.0	30.0		30.0	30.0	
90th %ile Term Code	Coord	Coord	Coord	Max	Coord		Max	Max		Max	Max	
70th %ile Green (s)	26.0	26.0	26.0	4.0	35.0		30.0	30.0		30.0	30.0	
70th %ile Term Code	Coord	Coord	Coord	Max	Coord		Max	Max		Max	Max	
50th %ile Green (s)	26.0	26.0	26.0	4.0	35.0		30.0	30.0		30.0	30.0	
50th %ile Term Code	Coord	Coord	Coord	Max	Coord		Max	Max		Max	Max	
30th %ile Green (s)	31.0	31.0	31.0	4.0	40.0		25.0	25.0		25.0	25.0	
30th %ile Term Code	Coord	Coord	Coord	Max	Coord		Gap	Gap		Hold	Hold	
10th %ile Green (s)	40.2	40.2	40.2	4.0	49.2		15.8	15.8		15.8	15.8	
10th %ile Term Code	Coord	Coord	Coord	Max	Coord		Gap	Gap		Hold	Hold	
Stops (vph)	39	373	43	138	71		162	534		40	244	
Fuel Used(gal)	1	8	2	4	2		3	9		1	5	
CO Emmisions (g/hr)	62	576	154	254	137		235	628		66	365	
NOx Emmisions (g/hr)	12	112	30	49	27		46	122		13	71	
VOC Emmisions (g/hr)	14	134	36	59	32		54	146		15	85	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	19	197	14	38	36		87	73		20	91	
Queue Length 95th (ft)	44	#359	60	60	72		#184	86		m50	168	
Internal Link Dist (ft)		1042			1006			900			900	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)							150			150		
50th Bay Block Time %												
95th Bay Block Time %							18%				18%	
Queuing Penalty (veh)							28				6	

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 59 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

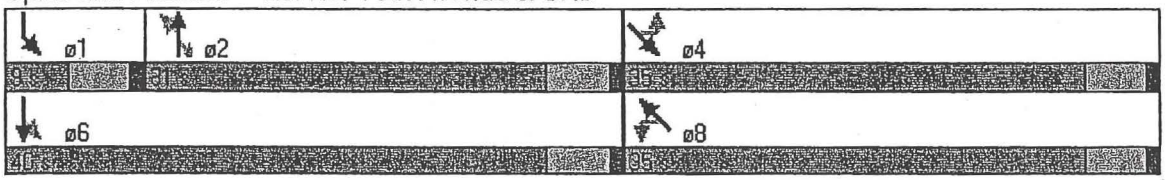
Maximum v/c Ratio: 0.90

Intersection Signal Delay: 16.2 Intersection LOS: B

Intersection Capacity Utilization 83.9% ICU Level of Service D

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.

Splits and Phases: 20: NW 79th Avenue & SRD



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	150		0	0
Storage Lanes		0	2		1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50		50	50	50	50
Trailing Detector (ft)	0		0	0	0	0
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	1.00	0.97	1.00	1.00	1.00
Ped Bike Factor						
Frt						0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3005	0	2915	1582	1503	1345
Flt Permitted			0.296		0.950	
Satd. Flow (perm)	3005	0	908	1582	1503	1345
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						164
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)	30			30	30	
Link Distance (ft)	980			822	645	
Travel Time (s)	22.3			18.7	14.7	
Volume (vph)	619	0	387	423	171	578
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	673	0	421	460	186	628
Lane Group Flow (vph)	673	0	421	460	186	628
Turn Type			pm+pt			custom
Protected Phases	6		5	2	4	4
Permitted Phases			2			5
Detector Phases	6		5	2	4	4
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	21.0		9.0	21.0	21.0	21.0
Total Split (s)	39.0	0.0	10.0	49.0	26.0	26.0
Total Split (%)	52%	0%	13%	65%	35%	35%
Maximum Green (s)	34.0		5.0	44.0	21.0	21.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0

Lane Group	SET	SER	NWL	NWT	NEL	NER
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		None	Coord	None	None
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
Act Effct Green (s)	35.0		45.0	45.0	22.0	32.0
Actuated g/C Ratio	0.47		0.60	0.60	0.29	0.43
v/c Ratio	0.48		0.60	0.48	0.42	0.94
Uniform Delay, d1	13.7		7.0	8.4	21.3	15.0
Delay	11.6		7.3	8.8	22.0	32.6
LOS	B		A	A	C	C
Approach Delay	11.6			8.1	30.2	
Approach LOS	B			A	C	
90th %ile Green (s)	34.0		5.0	44.0	21.0	21.0
90th %ile Term Code	Coord		Max	Coord	Max	Max
70th %ile Green (s)	34.0		5.0	44.0	21.0	21.0
70th %ile Term Code	Coord		Max	Coord	Max	Max
50th %ile Green (s)	34.0		5.0	44.0	21.0	21.0
50th %ile Term Code	Coord		Max	Coord	Max	Max
30th %ile Green (s)	34.0		5.0	44.0	21.0	21.0
30th %ile Term Code	Coord		Max	Coord	Max	Max
10th %ile Green (s)	34.0		5.0	44.0	21.0	21.0
10th %ile Term Code	Coord		Max	Coord	Max	Max
Stops (vph)	306		166	225	134	483
Fuel Used(gal)	8		4	5	2	9
CO Emmisions (g/hr)	551		278	330	166	658
NOx Emmisions (g/hr)	107		54	64	32	128
VOC Emmisions (g/hr)	128		64	76	38	152
Dilemma Vehicles (#)	0		0	0	0	0
Queue Length 50th (ft)	76		42	108	69	211
Queue Length 95th (ft)	148		63	177	126	#438
Internal Link Dist (ft)	900			742	565	
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)			150			
50th Bay Block Time %						
95th Bay Block Time %				13%		
Queuing Penalty (veh)				26		

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 8 (11%), Referenced to phase 2:NWTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

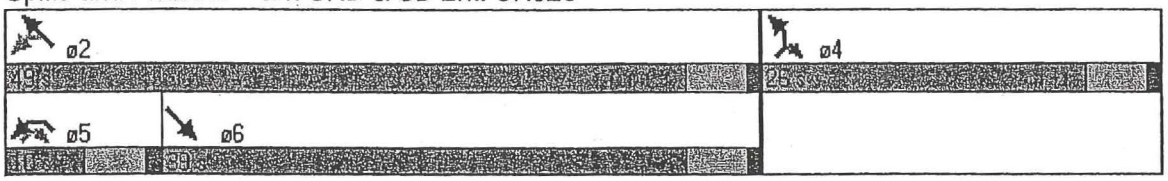
Maximum v/c Ratio: 0.94

Intersection Signal Delay: 16.7 Intersection LOS: B

Intersection Capacity Utilization 67.4% ICU Level of Service B

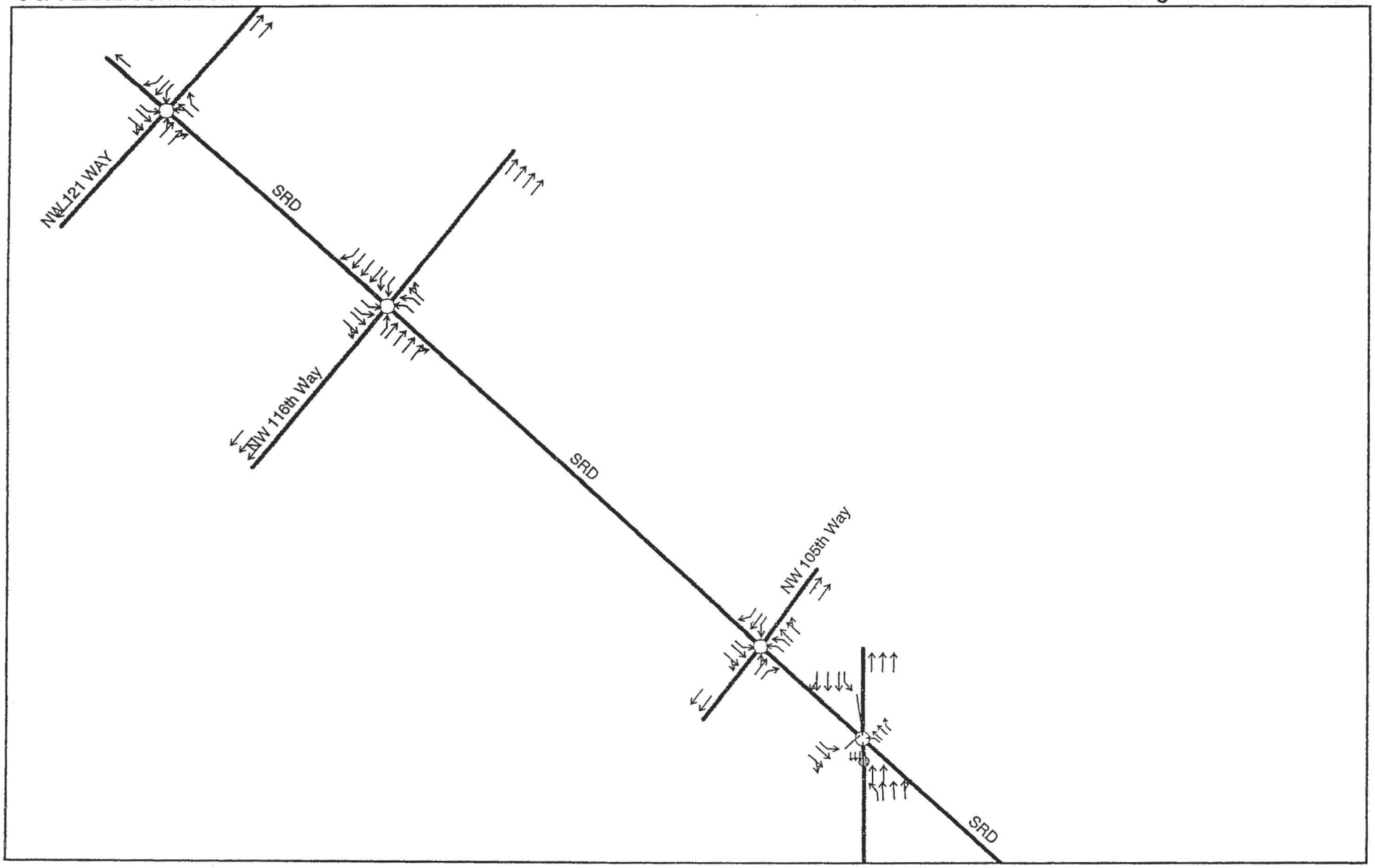
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles

Splits and Phases: 24: SRD & SB Ent. SR826



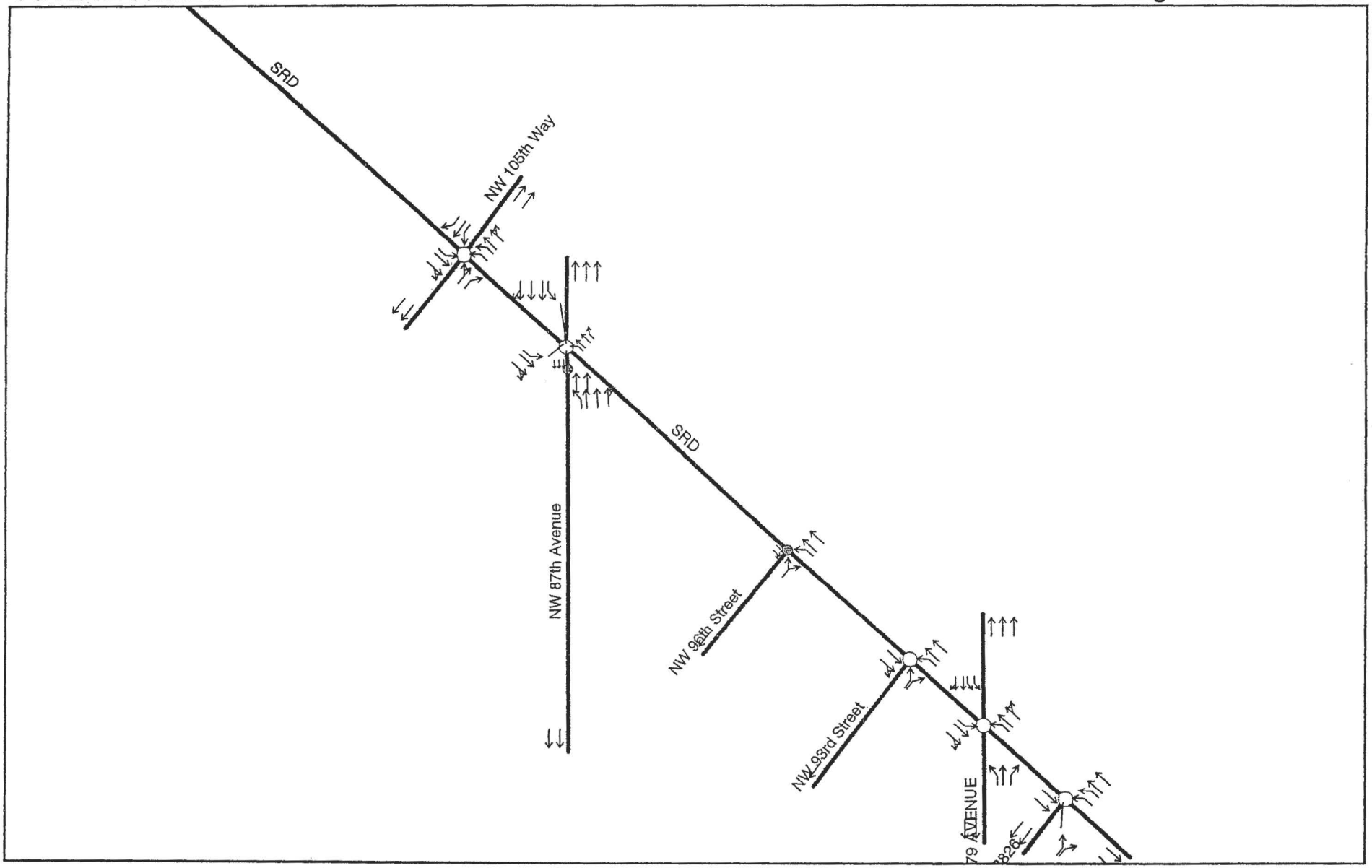
SRD PROPOSED GEOMETRY
3 & 4-LANE CORRIDOR

Timing Plan: 2018 AM PEAK



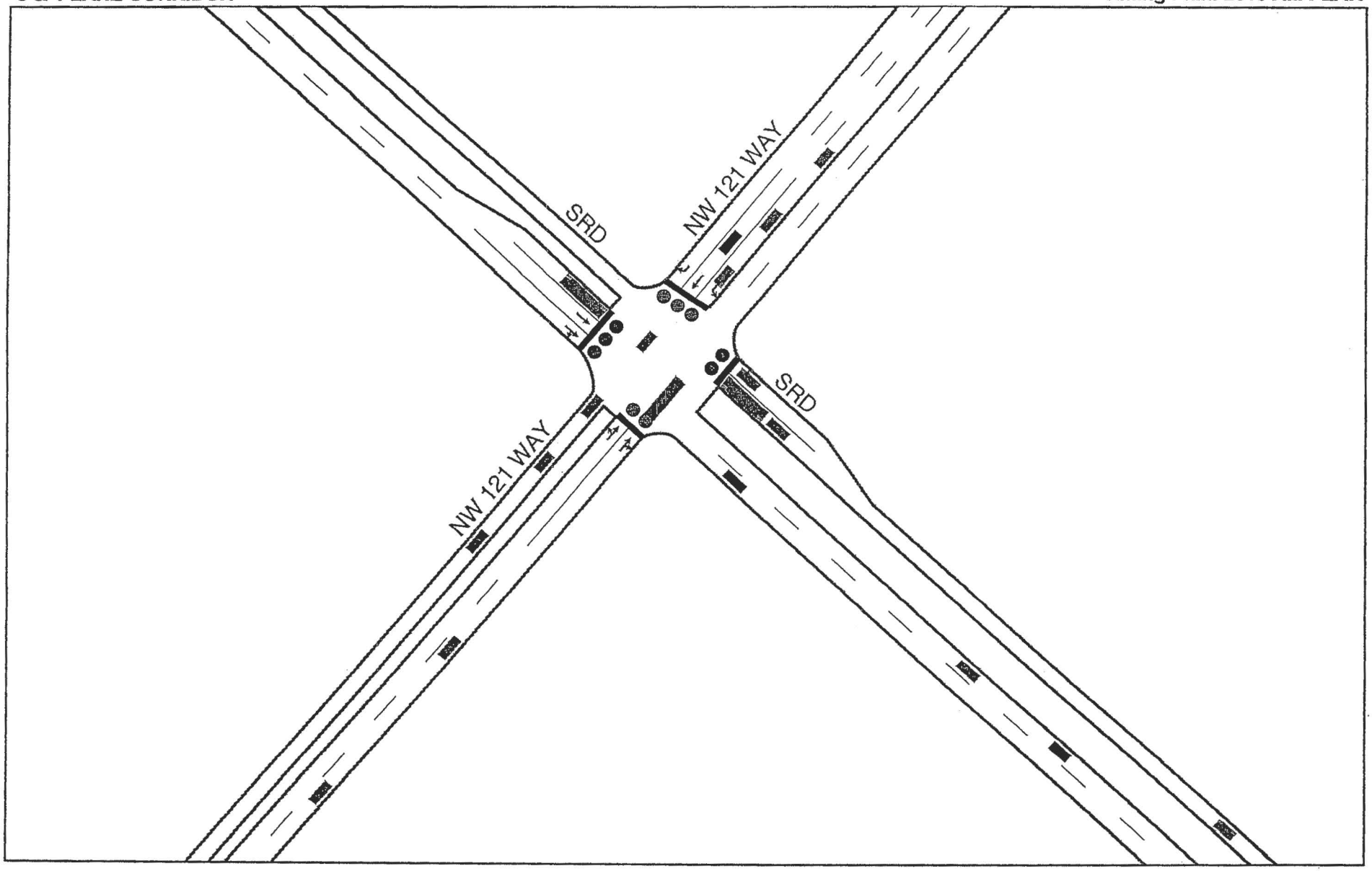
SRD PROPOSED GEOMETRY
3 & 4-LANE CORRIDOR

Timing Plan: 2018 AM PEAK



SRD PROPOSED GEOMETRY
3 & 4-LANE CORRIDOR

Timing Plan: 2018 AM PEAK



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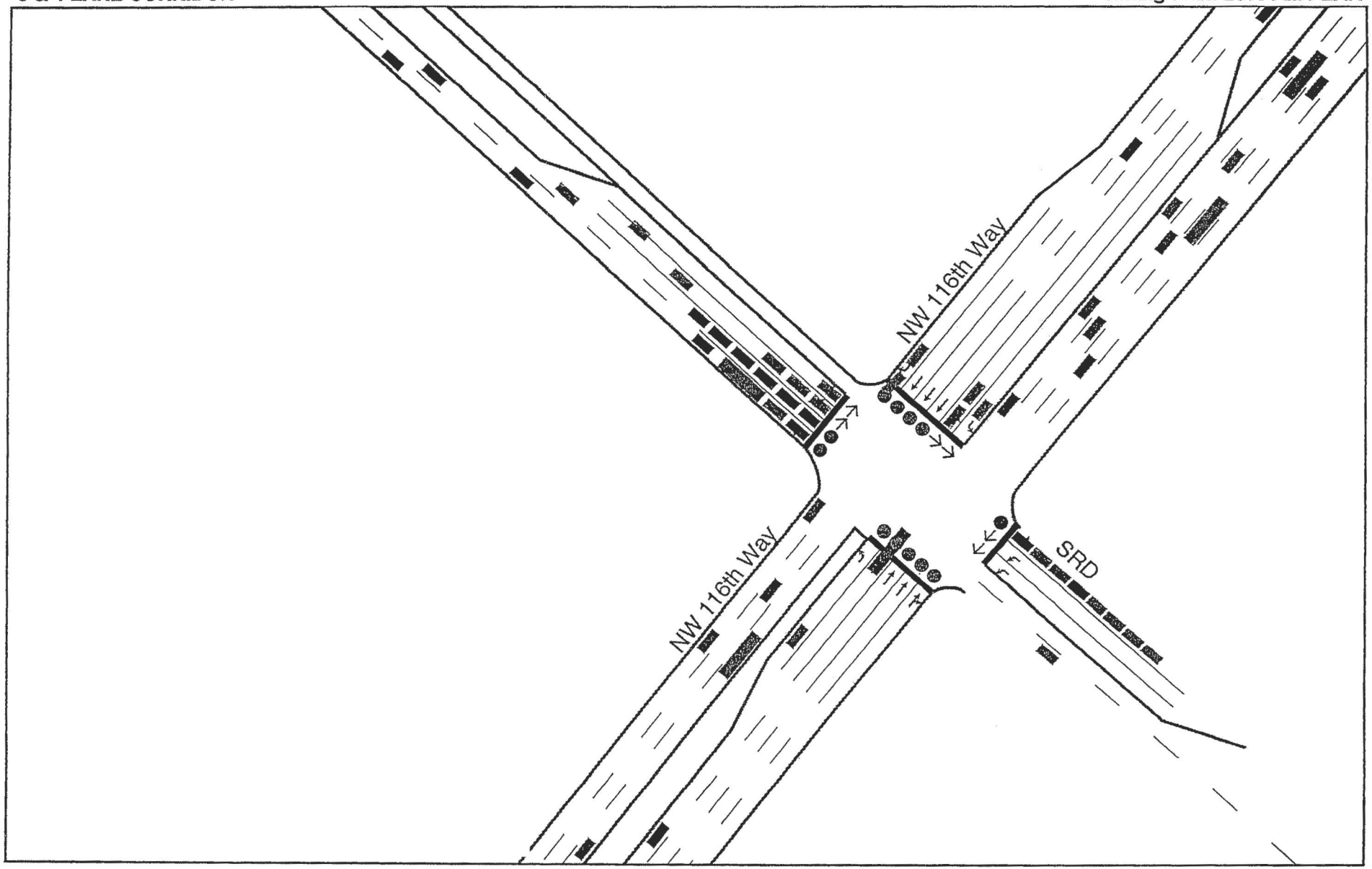
SRD PROPOSED GEOMETRY
3 & 4-LANE CORRIDOR

Timing Plan: 2018 AM PEAK



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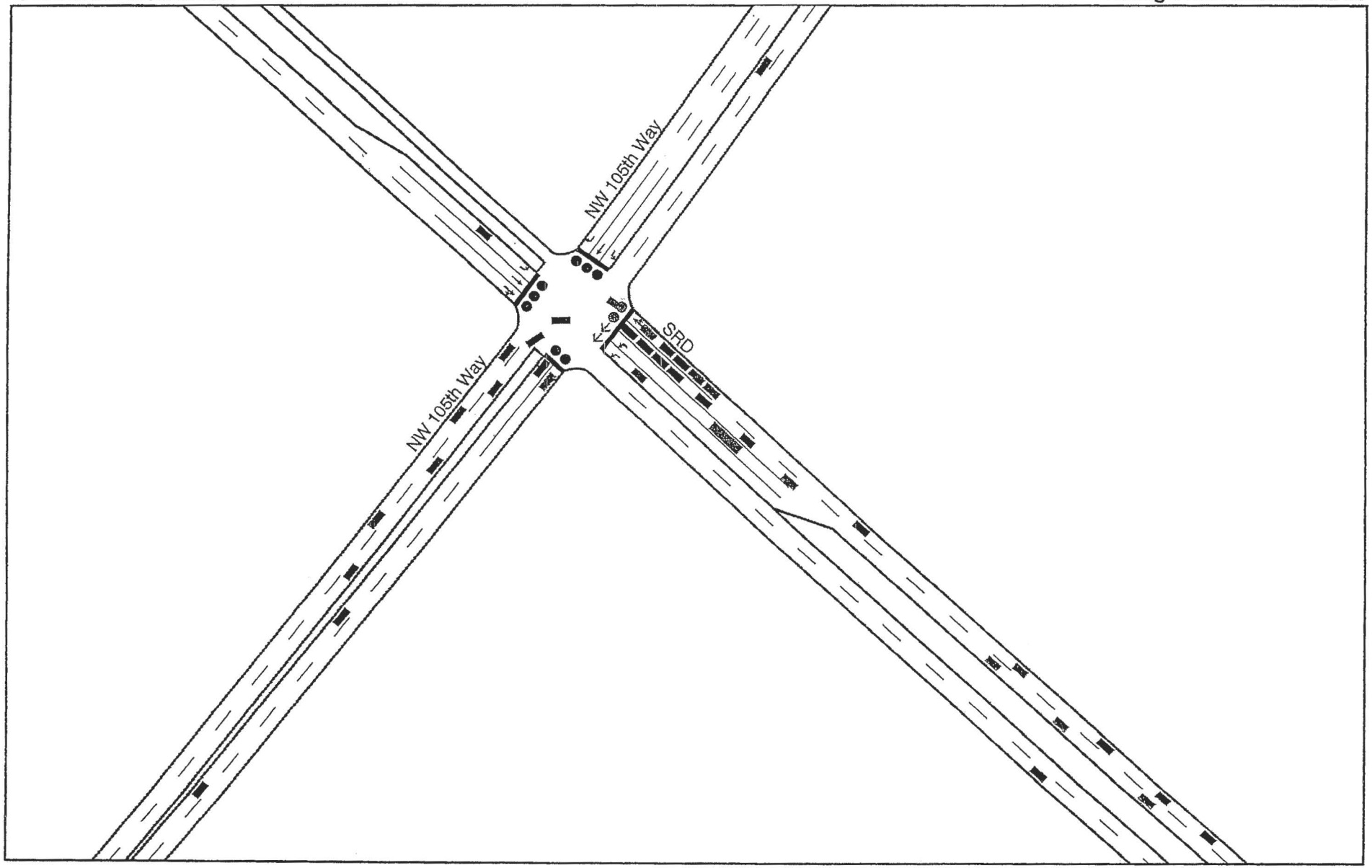
SRD PROPOSED GEOMETRY

3 & 4-LANE CORRIDOR

Timing Plan: 2018 AM PEAK

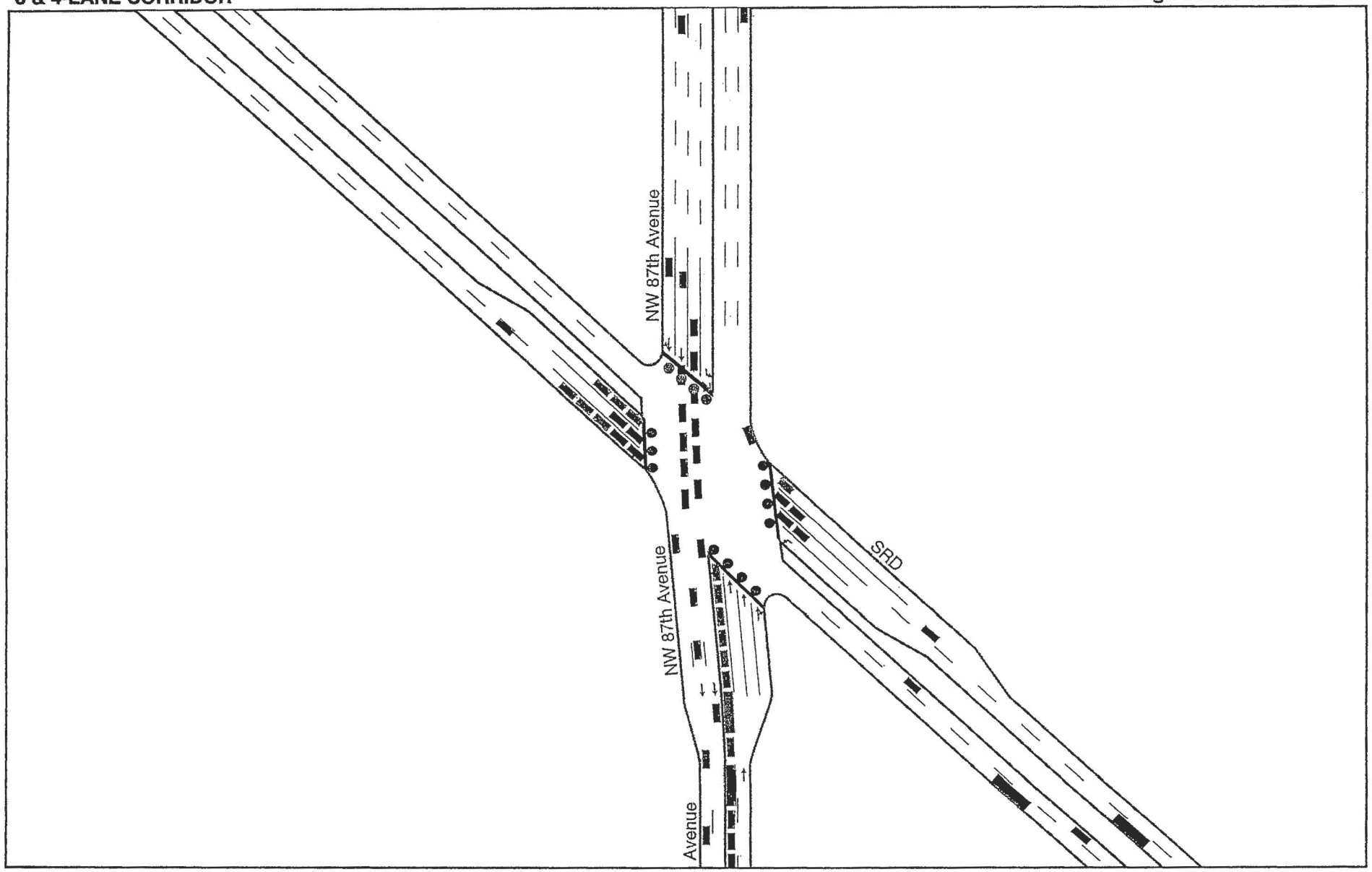


9/22/2003

SRD PROPOSED GEOMETRY

3 & 4-LANE CORRIDOR

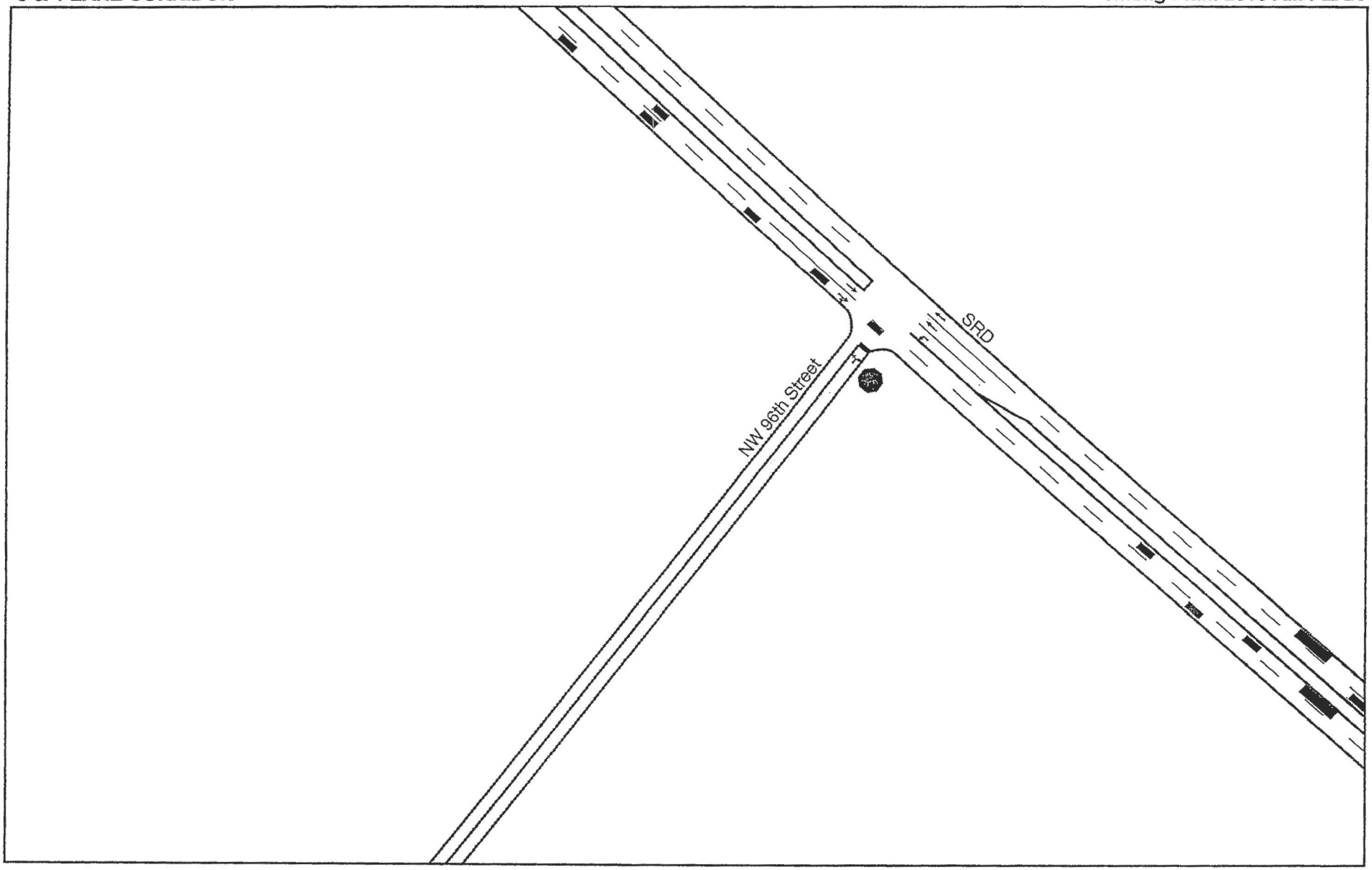
Timing Plan: 2018 AM PEAK



9/22/2003

SRD PROPOSED GEOMETRY
3 & 4-LANE CORRIDOR

Timing Plan: 2018 AM PEAK

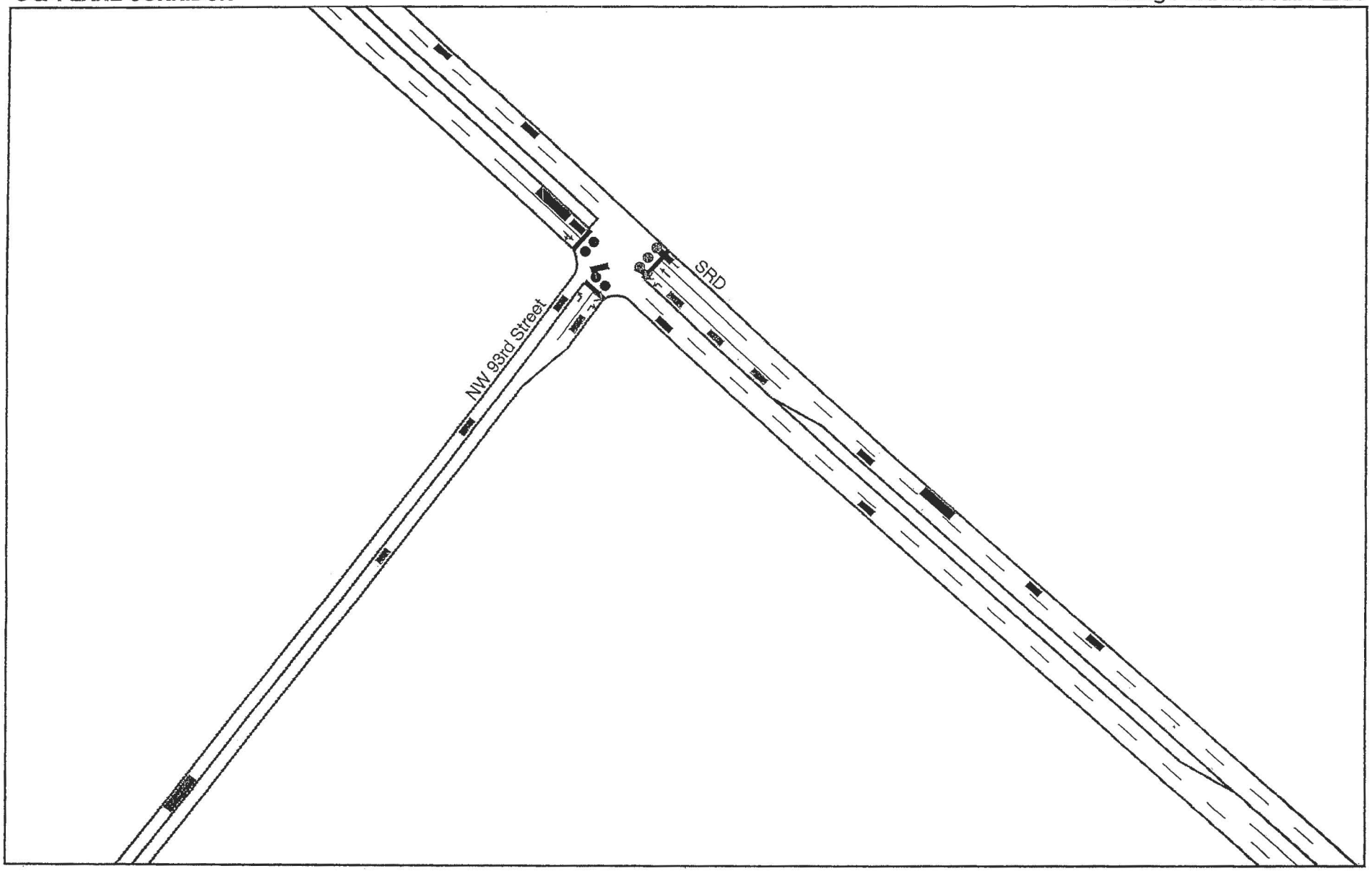


9/22/2003

SRD PROPOSED GEOMETRY

3 & 4-LANE CORRIDOR

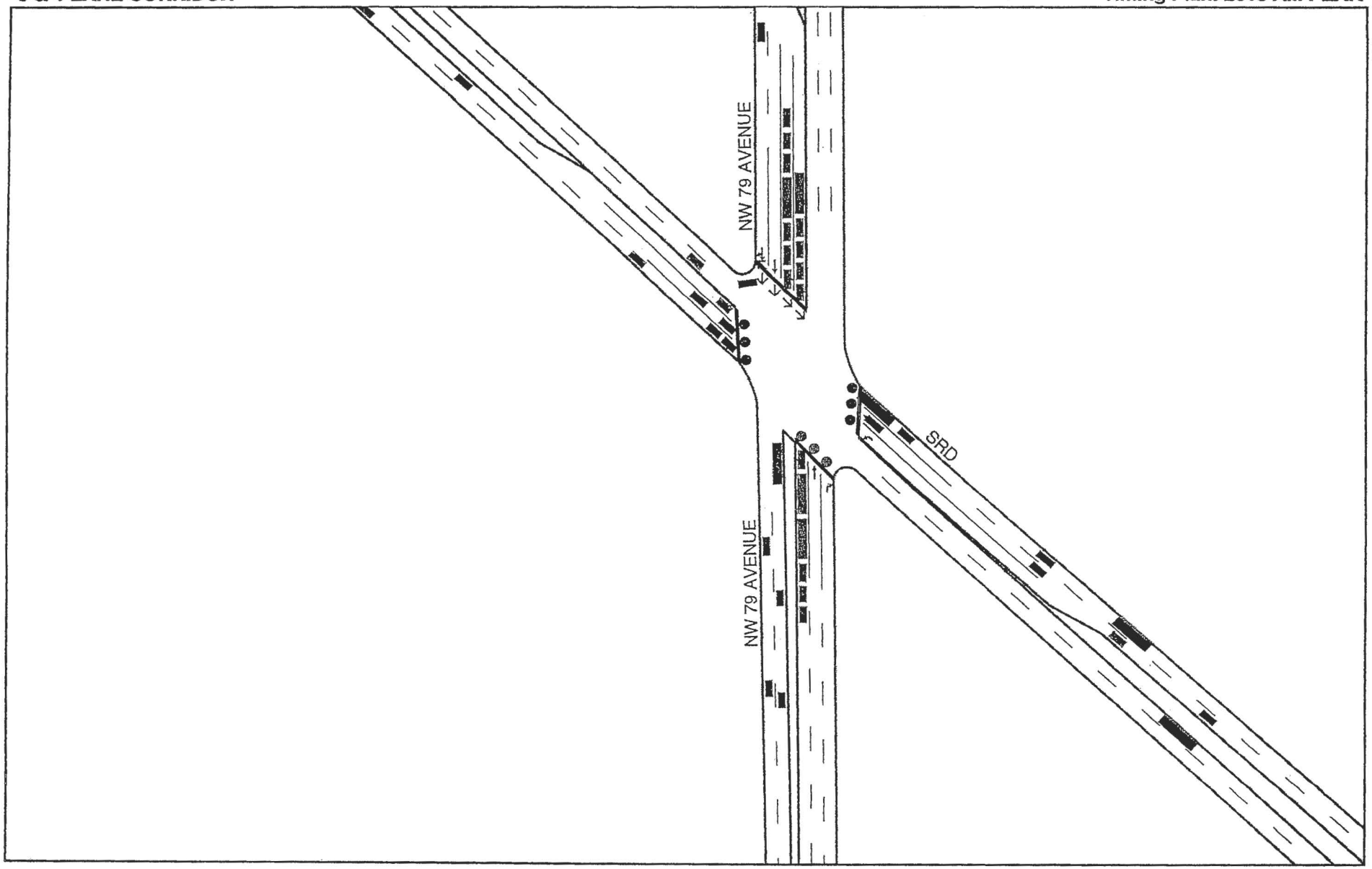
Timing Plan: 2018 AM PEAK



9/22/2003

SRD PROPOSED GEOMETRY
3 & 4-LANE CORRIDOR

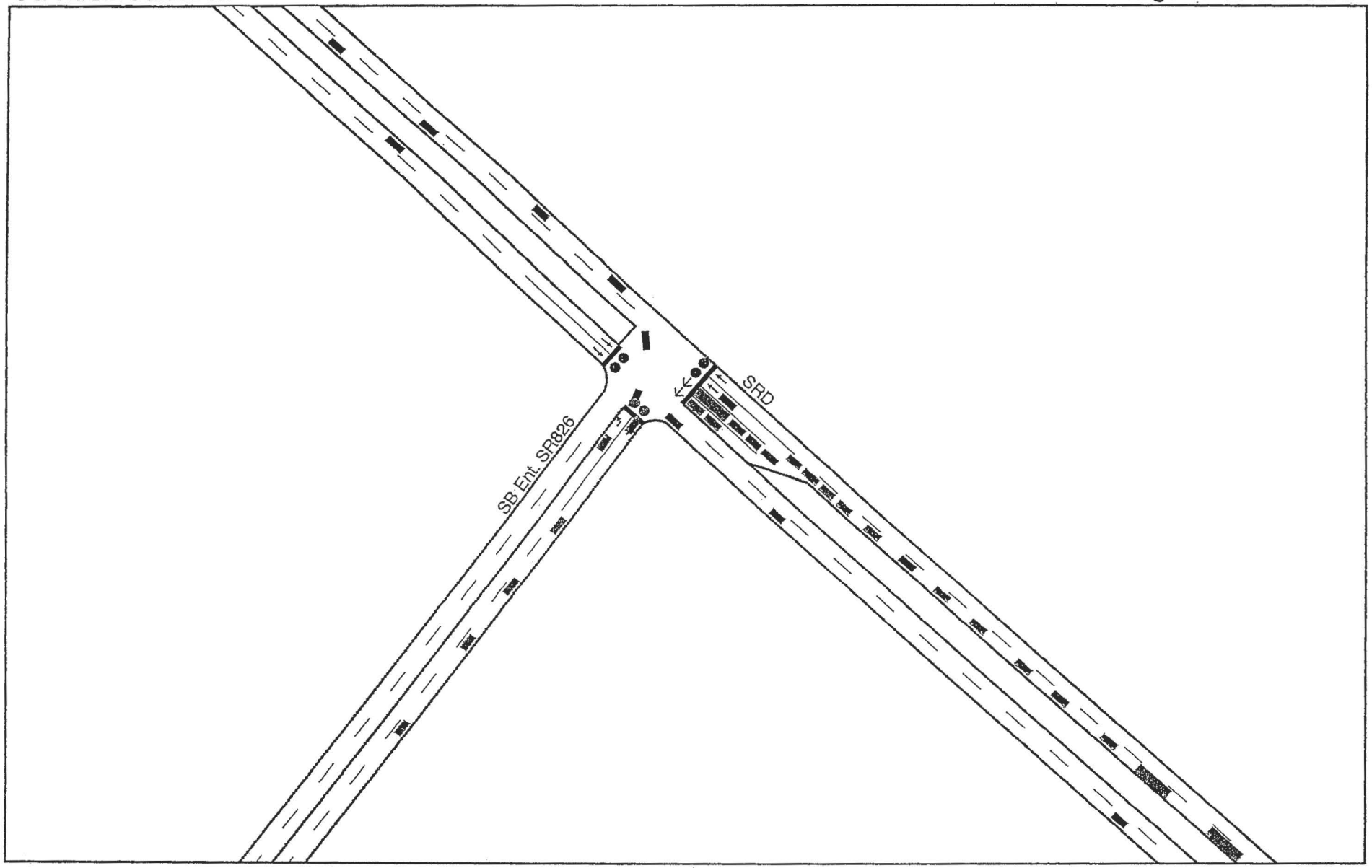
Timing Plan: 2018 AM PEAK



9/22/2003

SRD PROPOSED GEOMETRY
3 & 4-LANE CORRIDOR

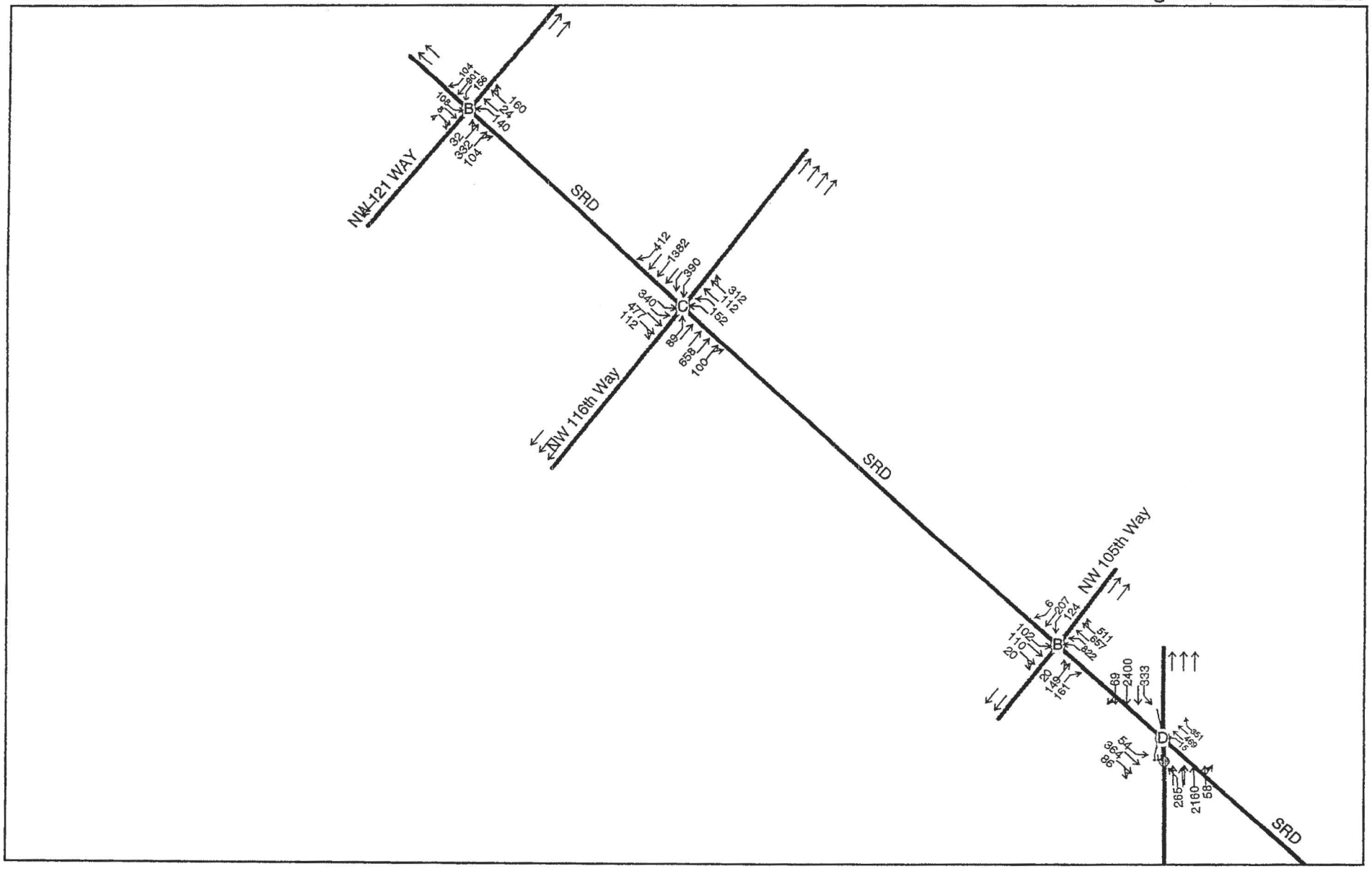
Timing Plan: 2018 AM PEAK



9/22/2003

SRD PROPOSED GEOMETRY
4-LANE CORRIDOR

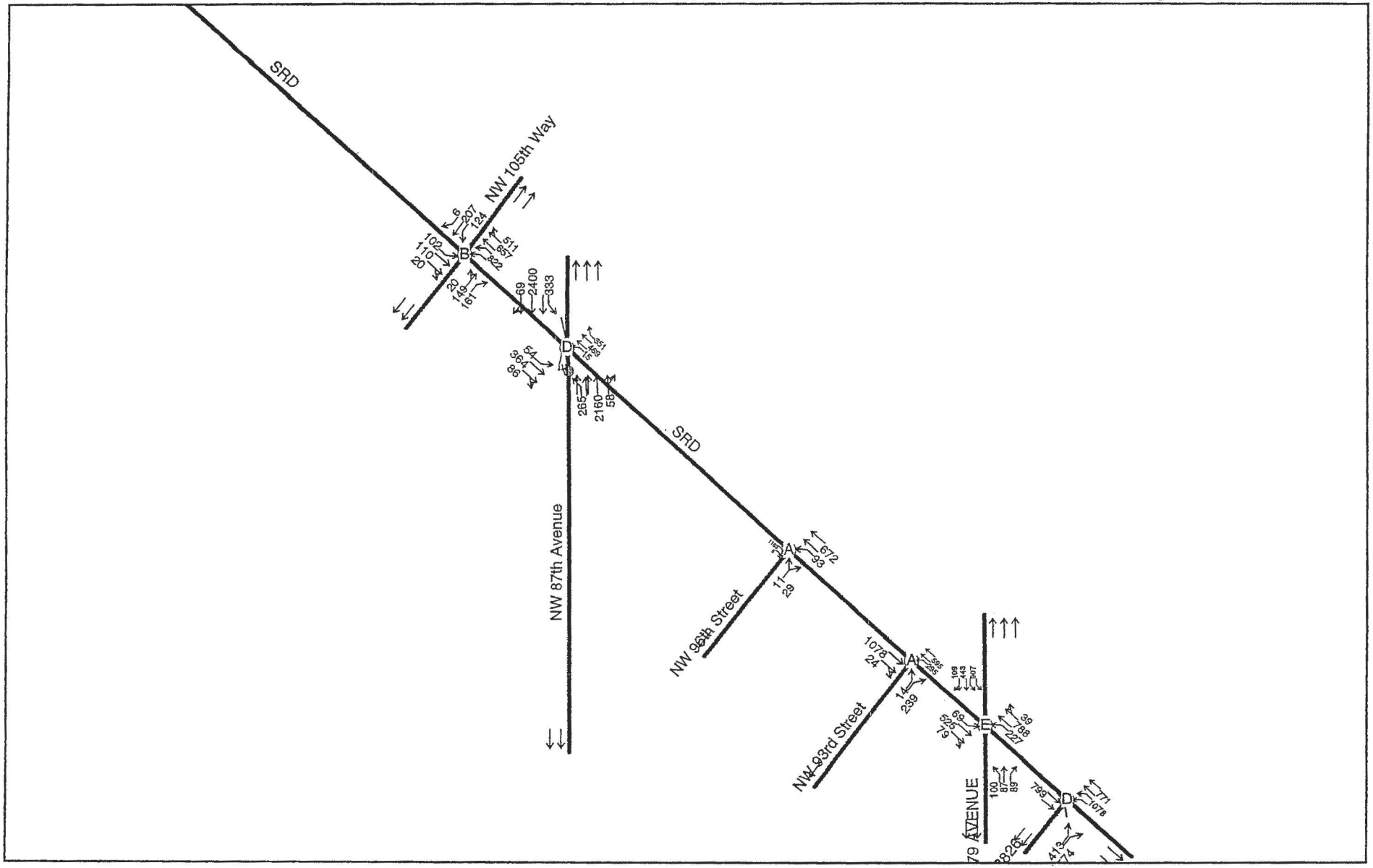
Timing Plan: 2028 AM PEAK



9/22/2003

SRD PROPOSED GEOMETRY
4-LANE CORRIDOR

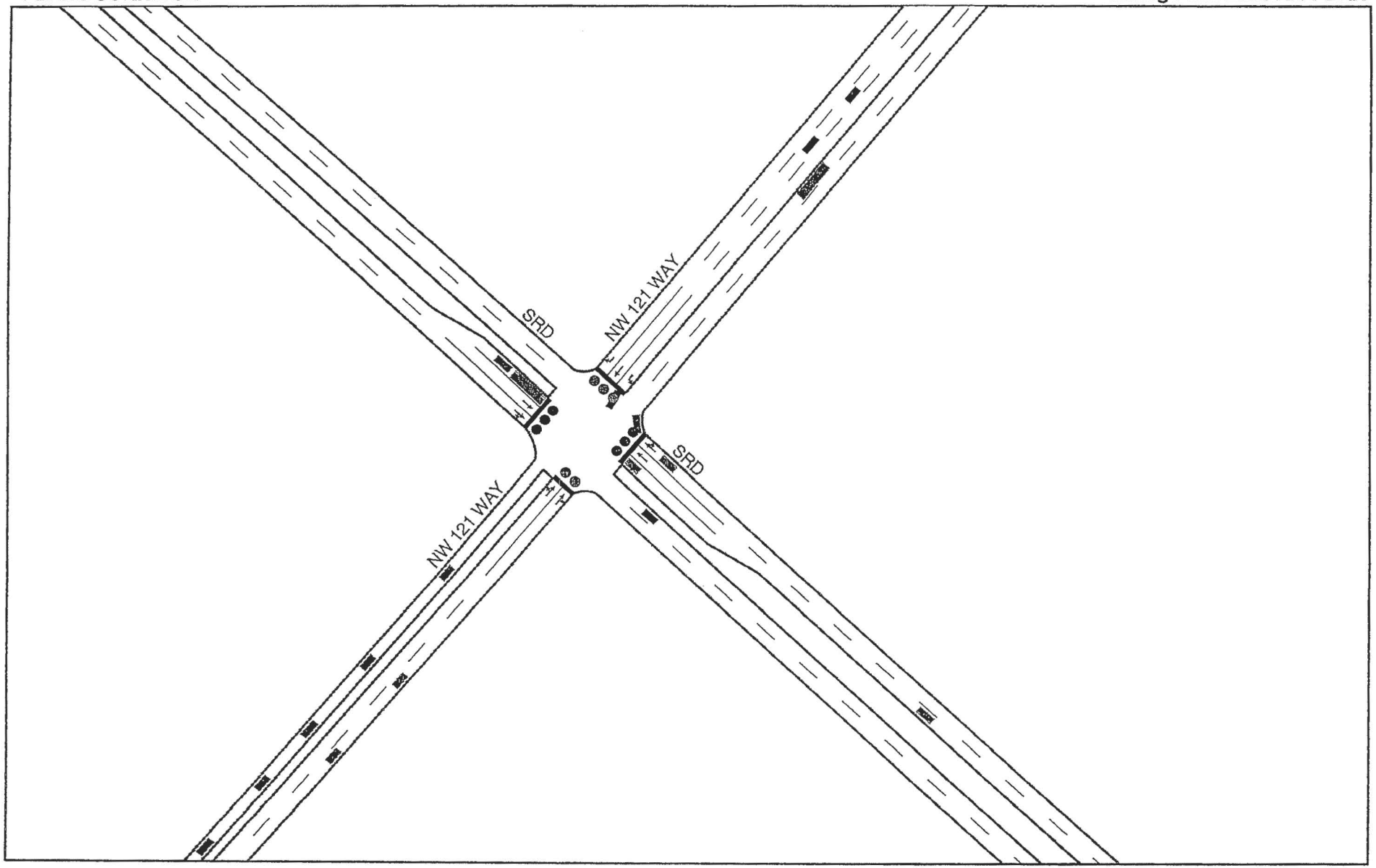
Timing Plan: 2028 AM PEAK



SRD PROPOSED GEOMETRY

4-LANE CORRIDOR

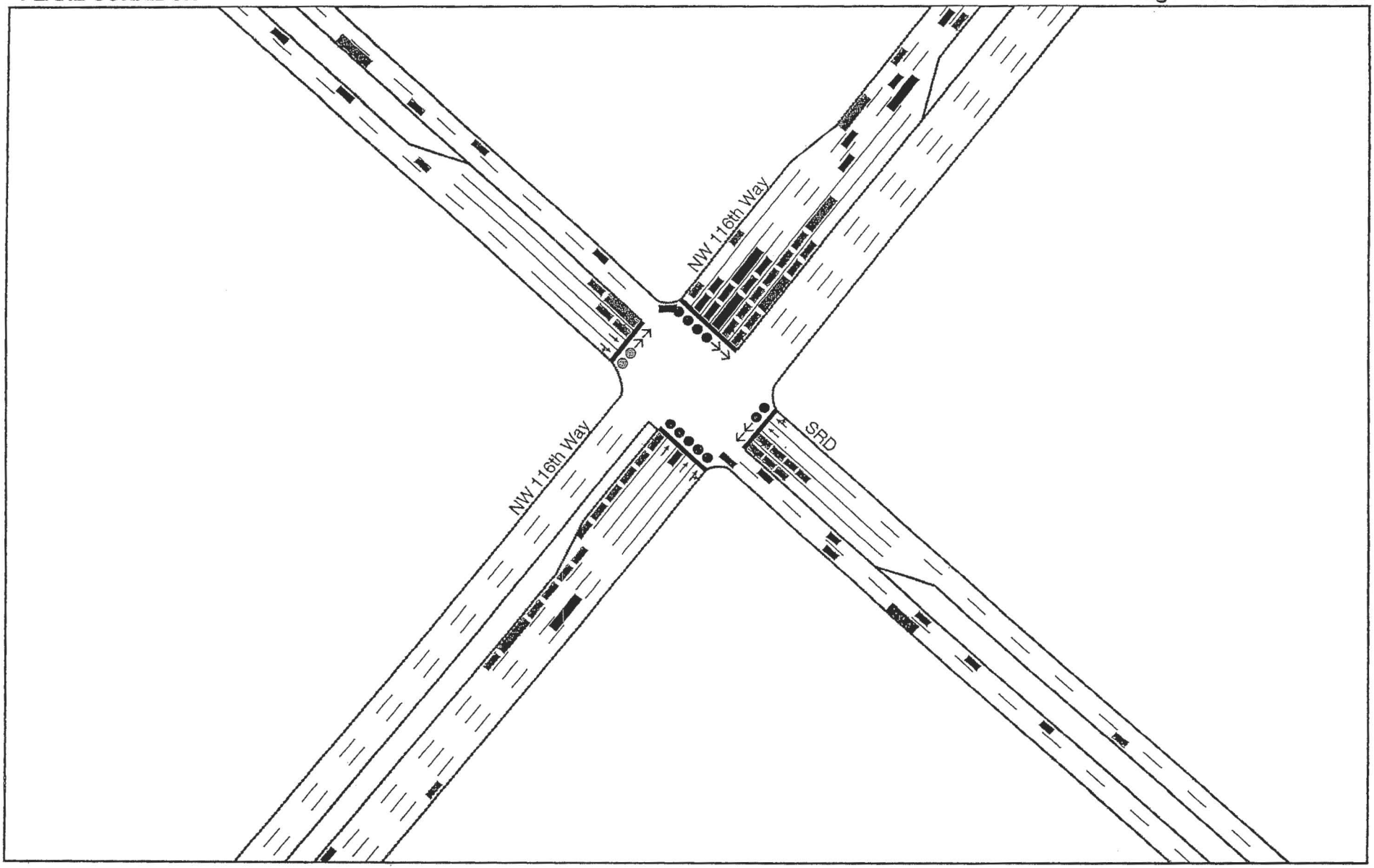
Timing Plan: 2028 AM PEAK



9/22/2003

SRD PROPOSED GEOMETRY
4-LANE CORRIDOR

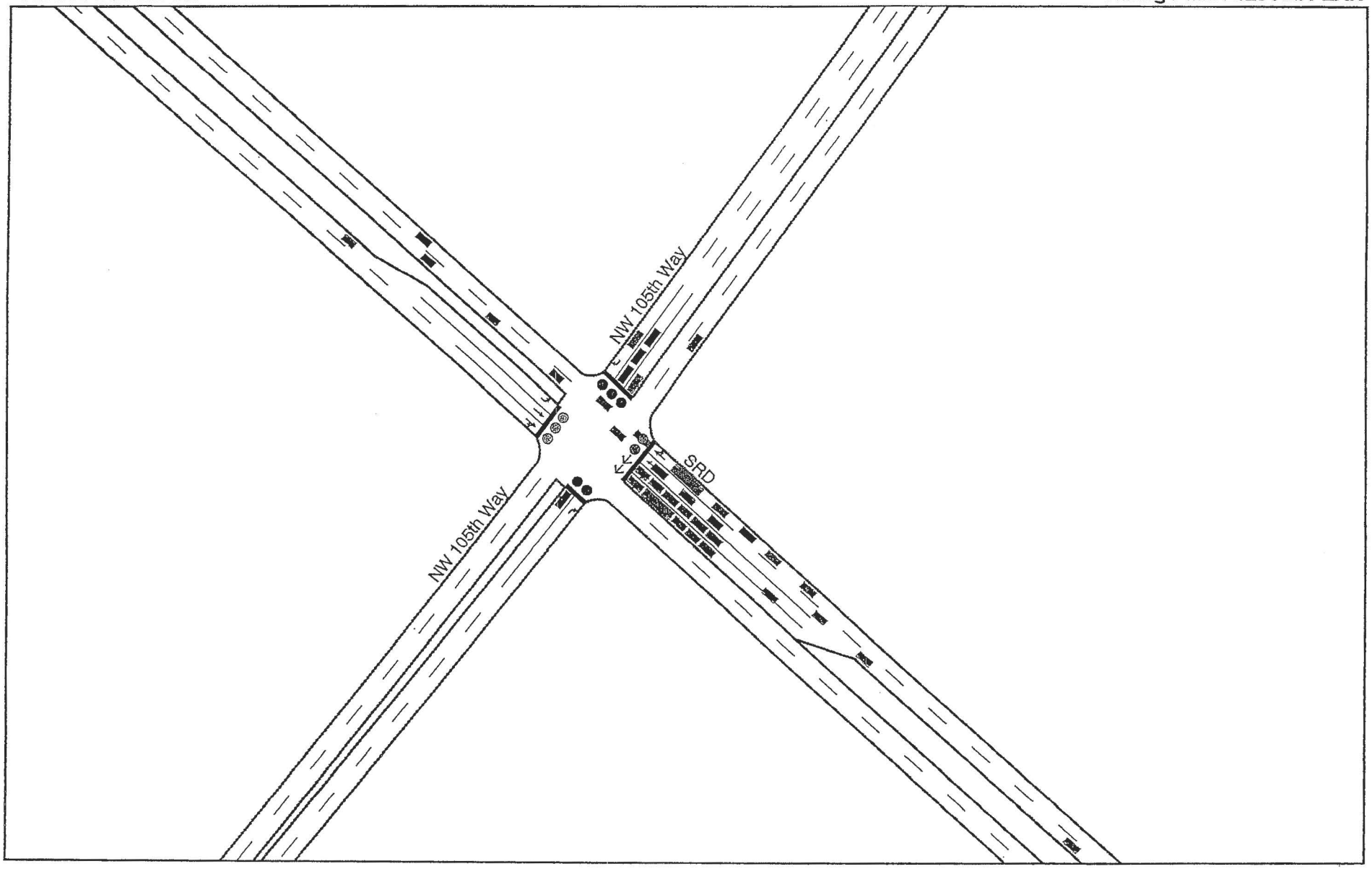
Timing Plan: 2028 AM PEAK



9/22/2003

SRD PROPOSED GEOMETRY
4-LANE CORRIDOR

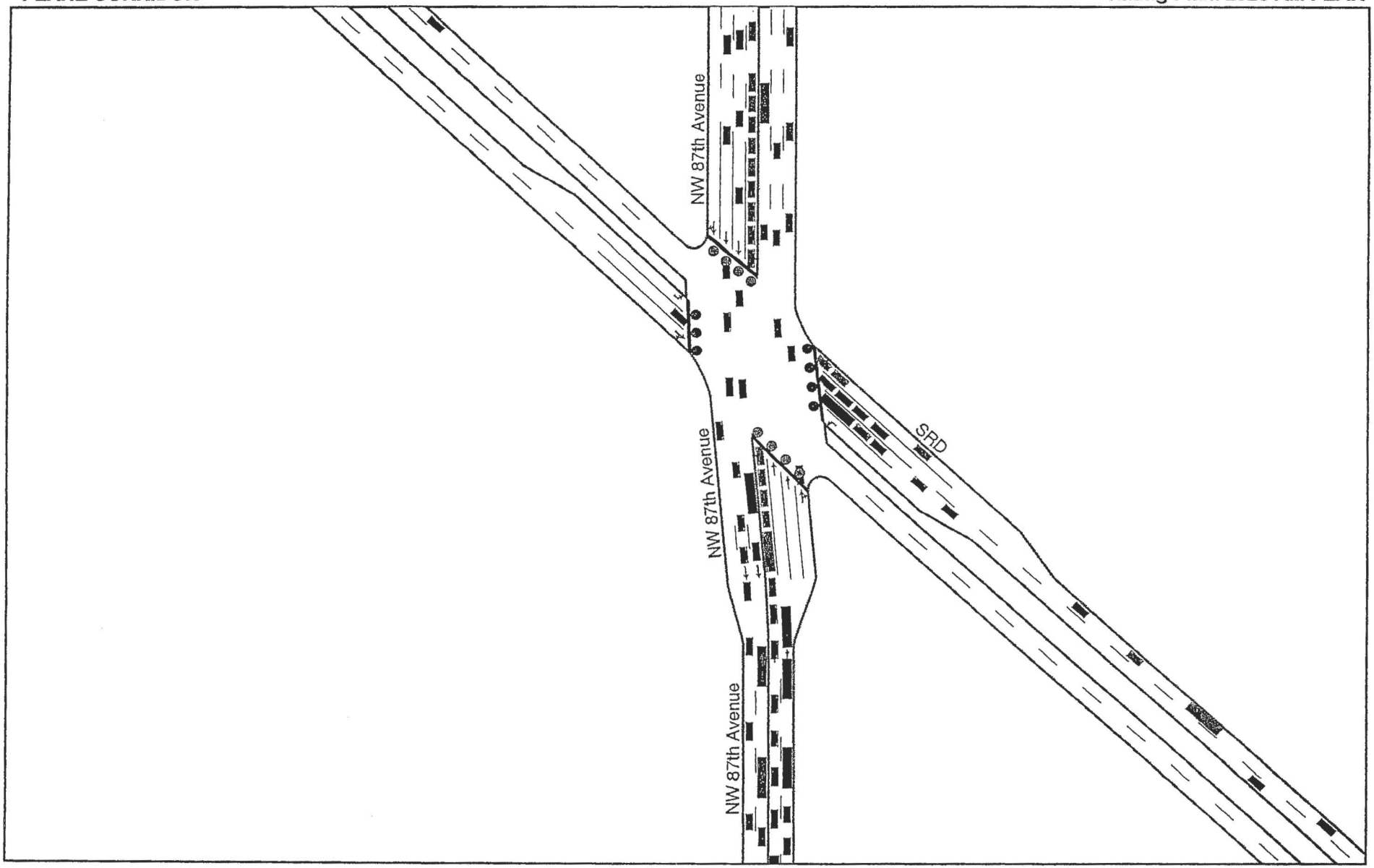
Timing Plan: 2028 AM PEAK



9/22/2003

SRD PROPOSED GEOMETRY
4-LANE CORRIDOR

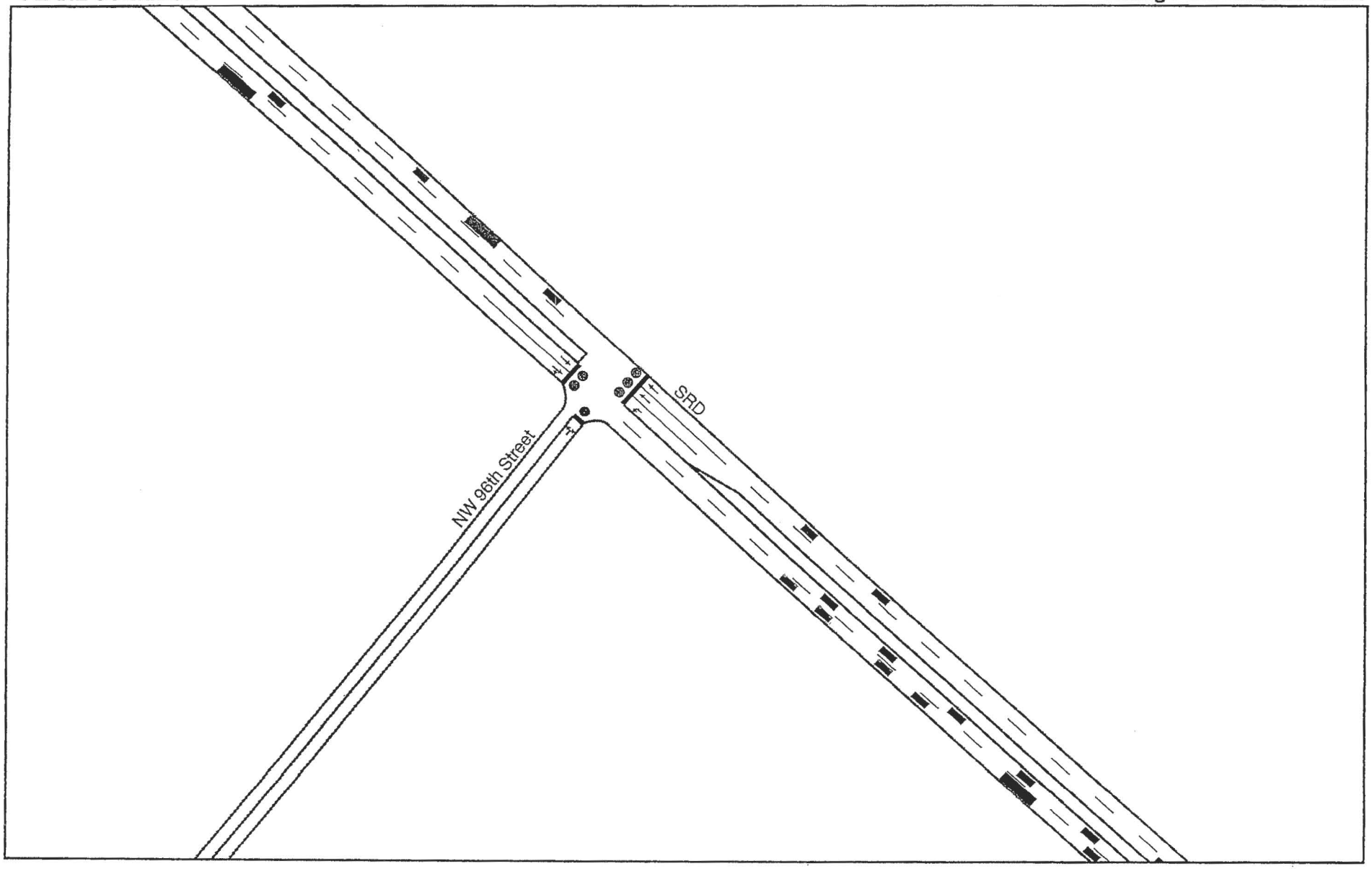
Timing Plan: 2028 AM PEAK



9/22/2003

SRD PROPOSED GEOMETRY
4-LANE CORRIDOR

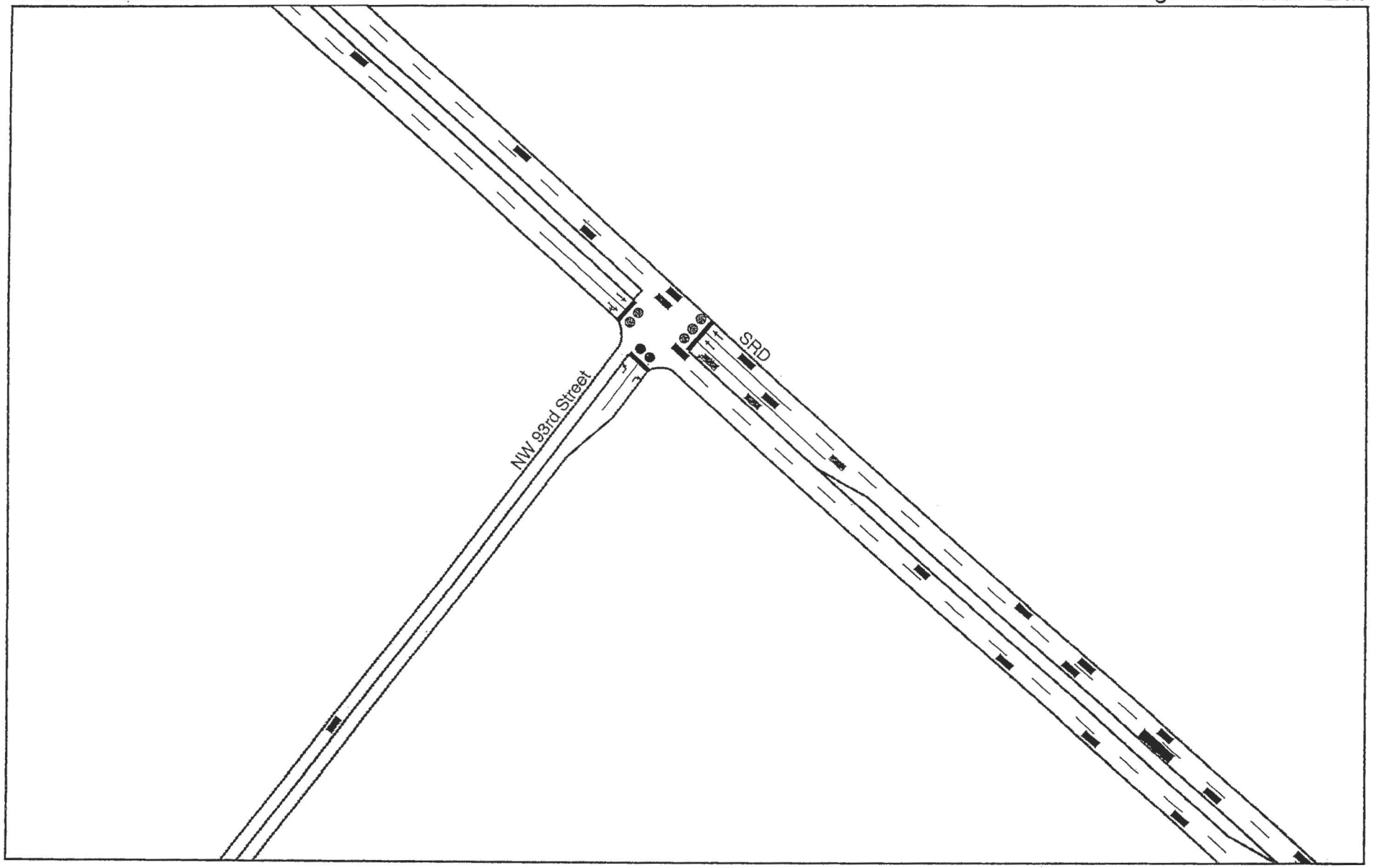
Timing Plan: 2028 AM PEAK



9/22/2003

SRD PROPOSED GEOMETRY
4-LANE CORRIDOR

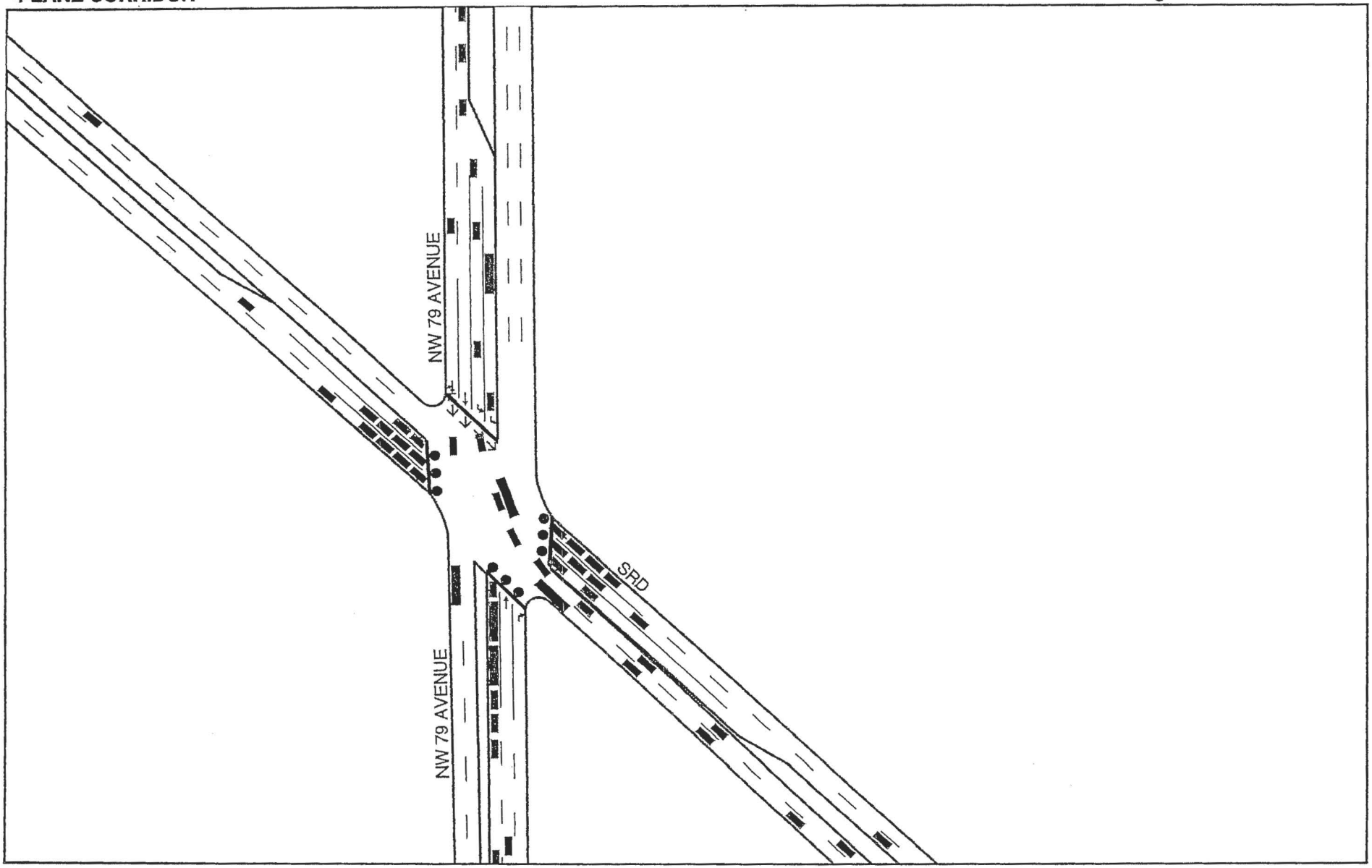
Timing Plan: 2028 AM PEAK



9/22/2003

SRD PROPOSED GEOMETRY
4-LANE CORRIDOR

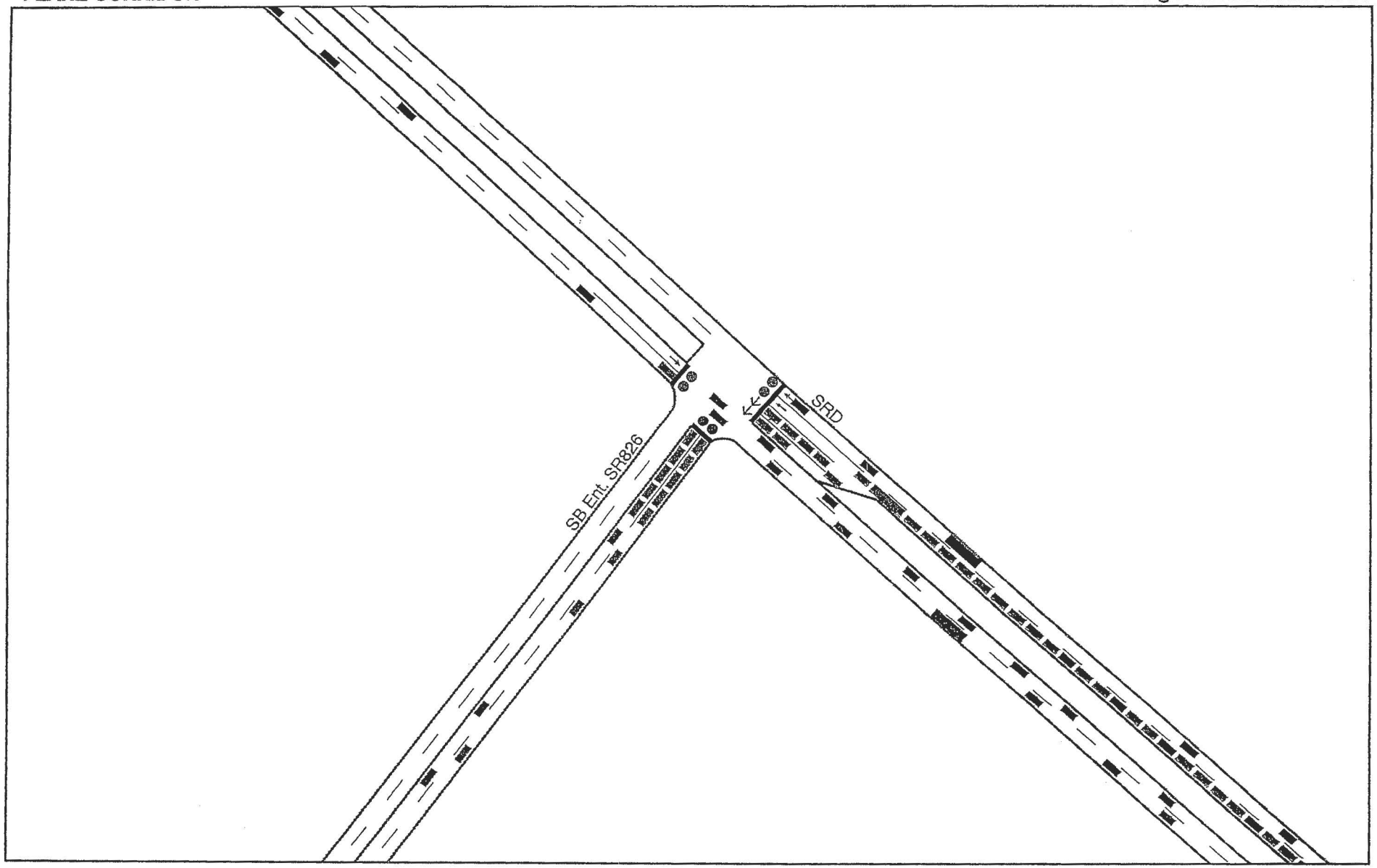
Timing Plan: 2028 AM PEAK



9/22/2003

SRD PROPOSED GEOMETRY
4-LANE CORRIDOR

Timing Plan: 2028 AM PEAK



9/22/2003

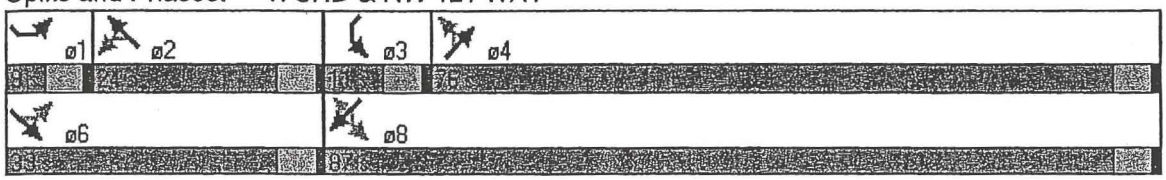
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	75		0	0		75	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.954			0.869			0.967				0.850
Flt Protected	0.950			0.950				0.997		0.950		
Satd. Flow (prot)	1503	2867	0	1503	2612	0	0	2898	0	1503	1582	1345
Flt Permitted	0.464			0.749				0.807		0.413		
Satd. Flow (perm)	734	2867	0	1185	2612	0	0	2345	0	653	1582	1345
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			174			55				113
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		768			2844			1486			1322	
Travel Time (s)		17.5			64.6			33.8			30.0	
Volume (vph)	108	8	4	140	24	160	32	332	104	156	901	104
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	117	9	4	152	26	174	35	361	113	170	979	113
Lane Group Flow (vph)	117	13	0	152	200	0	0	509	0	170	979	113
Turn Type	pm+pt			Perm			Perm			pm+pt		Perm
Protected Phases	1	6			2			4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phases	1	6		2	2		4	4		3	8	8
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	9.0	21.0		21.0	21.0		21.0	21.0		9.0	21.0	21.0
Total Split (s)	9.0	33.0	0.0	24.0	24.0	0.0	76.0	76.0	0.0	11.0	87.0	87.0
Total Split (%)	8%	28%	0%	20%	20%	0%	63%	63%	0%	9%	73%	73%
Maximum Green (s)	4.0	28.0		19.0	19.0		71.0	71.0		6.0	82.0	82.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0

Lane Group	SEL	SET	SEB	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	None	Min		Min	Min		Max	Max		None	Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	27.4	27.4		18.4	18.4			72.0		83.0	83.0	83.0
Actuated g/C Ratio	0.23	0.23		0.16	0.16			0.61		0.70	0.70	0.70
v/c Ratio	0.58	0.02		0.83	0.36			0.35		0.33	0.88	0.12
Uniform Delay, d1	38.4	24.2		48.4	5.5			10.1		6.0	13.9	0.0
Delay	39.6	28.0		59.1	9.5			10.5		6.4	19.6	1.1
LOS	D	C		E	A			B		A	B	A
Approach Delay		38.5			30.9			10.5			16.2	
Approach LOS		D			C			B			B	
90th %ile Green (s)	4.0	28.0		19.0	19.0		71.0	71.0		6.0	82.0	82.0
90th %ile Term Code	Max	Hold		Max	Max		MaxR	MaxR		Max	MaxR	MaxR
70th %ile Green (s)	4.0	28.0		19.0	19.0		71.0	71.0		6.0	82.0	82.0
70th %ile Term Code	Max	Hold		Max	Max		MaxR	MaxR		Max	MaxR	MaxR
50th %ile Green (s)	4.0	28.0		19.0	19.0		71.0	71.0		6.0	82.0	82.0
50th %ile Term Code	Max	Hold		Max	Max		MaxR	MaxR		Max	MaxR	MaxR
30th %ile Green (s)	4.0	26.8		17.8	17.8		71.0	71.0		6.0	82.0	82.0
30th %ile Term Code	Max	Hold		Gap	Gap		MaxR	MaxR		Max	MaxR	MaxR
10th %ile Green (s)	4.0	21.4		12.4	12.4		71.0	71.0		6.0	82.0	82.0
10th %ile Term Code	Max	Hold		Gap	Gap		MaxR	MaxR		Max	MaxR	MaxR
Stops (vph)	89	12		135	62			200		50	689	6
Fuel Used(gal)	2	0		6	5			8		2	17	1
CO Emmisions (g/hr)	140	14		387	334			526		146	1167	79
NOx Emmisions (g/hr)	27	3		75	65			102		28	227	15
VOC Emmisions (g/hr)	33	3		90	77			122		34	270	18
Dilemma Vehicles (#)	0	0		0	0			0		0	0	0
Queue Length 50th (ft)	75	0		114	5			87		41	554	0
Queue Length 95th (ft)	131	0		#223	34			122		67	#948	17
Internal Link Dist (ft)		688			2764			1406			1242	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	75											
50th Bay Block Time %	5%											
95th Bay Block Time %	35%											
Queuing Penalty (veh)	1											

Intersection Summary			
Area Type	Other		
Cycle Length: 120			
Actuated Cycle Length: 118.4			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 18.5		Intersection LOS: B	
Intersection Capacity Utilization 96.7%		ICU Level of Service E	

90th %ile Actuated Cycle: 120
70th %ile Actuated Cycle: 120
50th %ile Actuated Cycle: 120
30th %ile Actuated Cycle: 118.8
10th %ile Actuated Cycle: 113.4
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: SRD & NW 121 WAY



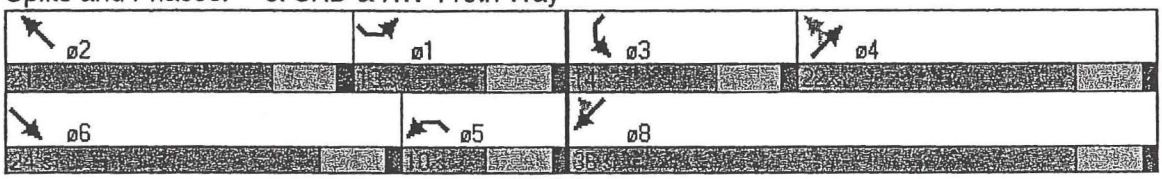
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		0	150		0	100		0	250		150
Storage Lanes	2		0	2		0	1		0	2		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	0.95	1.00	0.86	0.86	0.97	0.91	1.00
Ped Bike Factor												
Frt		0.971			0.890			0.980				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2915	2918	0	2915	2675	0	1503	5333	0	2915	4318	1345
Flt Permitted	0.950			0.950			0.222			0.950		
Satd. Flow (perm)	2915	2918	0	2915	2675	0	351	5333	0	2915	4318	1345
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			334			53				448
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2844			6120			2022			1932	
Travel Time (s)		64.6			139.1			46.0			43.9	
Volume (vph)	340	477	112	152	112	312	89	658	100	390	1382	412
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	370	518	122	165	122	339	97	715	109	424	1502	448
Lane Group Flow (vph)	370	640	0	165	461	0	97	824	0	424	1502	448
Turn Type	Prot			Prot			Perm			Prot		Perm
Protected Phases	1	6		5	2			4		3	8	
Permitted Phases							4					8
Detector Phases	1	6		5	2		4	4		3	8	8
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	9.0	21.0		9.0	21.0		21.0	21.0		9.0	21.0	21.0
Total Split (s)	13.0	24.0	0.0	10.0	21.0	0.0	22.0	22.0	0.0	14.0	36.0	36.0
Total Split (%)	19%	34%	0%	14%	30%	0%	31%	31%	0%	20%	51%	51%
Maximum Green (s)	8.0	19.0		5.0	16.0		17.0	17.0		9.0	31.0	31.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lead/Lag	Lag	Lead		Lag	Lead		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	None	Max		None	Max		None	None		None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	9.0	20.0		6.0	17.0		18.0	18.0		10.0	32.0	32.0
Actuated g/C Ratio	0.13	0.29		0.09	0.24		0.26	0.26		0.14	0.46	0.46
v/c Ratio	0.99	0.75		0.66	0.51		1.08	0.58		1.02	0.76	0.52
Uniform Delay, d1	30.4	21.8		31.0	5.8		26.0	21.1		30.0	15.8	0.0
Delay	66.6	23.1		36.0	6.8		126.0	21.4		72.4	16.1	1.6
LOS	E	C		D	A		F	C		E	B	A
Approach Delay		39.0			14.5			32.4			23.4	
Approach LOS		D			B			C			C	
90th %ile Green (s)	8.0	19.0		5.0	16.0		17.0	17.0		9.0	31.0	31.0
90th %ile Term Code	Max	MaxR		Max	MaxR		Max	Max		Max	Max	Max
70th %ile Green (s)	8.0	19.0		5.0	16.0		17.0	17.0		9.0	31.0	31.0
70th %ile Term Code	Max	MaxR		Max	MaxR		Max	Max		Max	Max	Max
50th %ile Green (s)	8.0	19.0		5.0	16.0		17.0	17.0		9.0	31.0	31.0
50th %ile Term Code	Max	MaxR		Max	MaxR		Max	Max		Max	Max	Max
30th %ile Green (s)	8.0	19.0		5.0	16.0		17.0	17.0		9.0	31.0	31.0
30th %ile Term Code	Max	MaxR		Max	MaxR		Max	Max		Max	Max	Max
10th %ile Green (s)	8.0	19.0		5.0	16.0		17.0	17.0		9.0	31.0	31.0
10th %ile Term Code	Max	MaxR		Max	MaxR		Max	Max		Max	Hold	Hold
Stops (vph)	437	471		144	107		174	593		535	1085	38
Fuel Used(gal)	15	18		9	21		5	19		15	31	7
CO Emmisions (g/hr)	1018	1288		640	1497		325	1295		1019	2192	458
NOx Emmisions (g/hr)	198	251		125	291		63	252		198	426	89
VOC Emmisions (g/hr)	236	299		148	347		75	300		236	508	106
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	0
Queue Length 50th (ft)	83	118		36	21		48	83		97	187	0
Queue Length 95th (ft)	#165	174		#75	56		#135	113		#185	242	46
Internal Link Dist (ft)		2764			6040			1942			1852	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	200			150			100			250		150
50th Bay Block Time %												
95th Bay Block Time %							33%	7%			2%	
Queuing Penalty (veh)							34	3				

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 27.2		Intersection LOS: C	
Intersection Capacity Utilization 75.9%		ICU Level of Service C	

90th %ile Actuated Cycle: 70
70th %ile Actuated Cycle: 70
50th %ile Actuated Cycle: 70
30th %ile Actuated Cycle: 70
10th %ile Actuated Cycle: 70
~ 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.

Splits and Phases: 6: SRD & NW 116th Way



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	200		100	0		0	0		0
Storage Lanes	1		0	2		0	0		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.977			0.934				0.850			0.850
Flt Protected	0.950			0.950				0.994		0.950		
Satd. Flow (prot)	1503	2936	0	2915	2807	0	0	1572	1345	1503	1582	1345
Flt Permitted	0.333			0.950				0.942		0.688		
Satd. Flow (perm)	527	2936	0	2915	2807	0	0	1490	1345	614	1582	1345
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			313				175			7
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		6120			1490			906			916	
Travel Time (s)		139.1			33.9			20.6			20.8	
Volume (vph)	102	110	20	822	657	511	20	149	161	124	207	6
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	111	120	22	893	714	555	22	162	175	135	225	7
Lane Group Flow (vph)	111	142	0	893	1269	0	0	184	175	135	225	7
Turn Type	pm+pt			Prot			Perm		Perm	pm+pt		Perm
Protected Phases	1	6		5	2			4		3	8	
Permitted Phases	6						4		4	8		8
Detector Phases	1	6		5	2		4	4	4	3	8	8
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0		9.0	21.0		21.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	11.0	23.0	0.0	37.0	49.0	0.0	21.0	21.0	21.0	9.0	30.0	30.0
Total Split (%)	12%	26%	0%	41%	54%	0%	23%	23%	23%	10%	33%	33%
Maximum Green (s)	6.0	18.0		32.0	44.0		16.0	16.0	16.0	4.0	25.0	25.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lead		Lag	Lag		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	Min	Coord		Max	Coord		Max	Max	Max	Max	Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	19.0	19.0		33.0	45.0			17.0	17.0	26.0	26.0	26.0
Actuated g/C Ratio	0.21	0.21		0.37	0.50			0.19	0.19	0.29	0.29	0.29
v/c Ratio	0.59	0.22		0.84	0.81			0.65	0.44	0.59	0.49	0.02
Uniform Delay, d1	30.2	24.9		26.0	13.7			33.7	0.0	25.2	26.5	0.0
Delay	33.6	25.2		19.5	8.3			36.5	5.5	27.0	27.2	18.5
LOS	C	C		B	A			D	A	C	C	B
Approach Delay		28.9			12.9			21.4			27.0	
Approach LOS		C			B			C			C	
90th %ile Green (s)	6.0	18.0		32.0	44.0		16.0	16.0	16.0	4.0	25.0	25.0
90th %ile Term Code	Max	Coord		MaxR	Coord		MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
70th %ile Green (s)	6.0	18.0		32.0	44.0		16.0	16.0	16.0	4.0	25.0	25.0
70th %ile Term Code	Max	Coord		MaxR	Coord		MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
50th %ile Green (s)	6.0	18.0		32.0	44.0		16.0	16.0	16.0	4.0	25.0	25.0
50th %ile Term Code	Max	Coord		MaxR	Coord		MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
30th %ile Green (s)	6.0	18.0		32.0	44.0		16.0	16.0	16.0	4.0	25.0	25.0
30th %ile Term Code	Max	Coord		MaxR	Coord		MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
10th %ile Green (s)	6.0	18.0		32.0	44.0		16.0	16.0	16.0	4.0	25.0	25.0
10th %ile Term Code	Max	Coord		MaxR	Coord		MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
Stops (vph)	85	93		571	621			154	34	96	168	5
Fuel Used(gal)	6	7		16	19			3	2	2	4	0
CO Emmisions (g/hr)	422	520		1116	1326			231	105	147	248	6
NOx Emmisions (g/hr)	82	101		217	258			45	20	29	48	1
VOC Emmisions (g/hr)	98	120		259	307			53	24	34	58	1
Dilemma Vehicles (#)	0	0		0	0			0	0	0	0	0
Queue Length 50th (ft)	54	30		177	147			98	0	60	106	0
Queue Length 95th (ft)	#111	55		m191	m155			#182	54	#112	177	10
Internal Link Dist (ft)		6040			1410			826			836	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	150			200								
50th Bay Block Time %				1%								
95th Bay Block Time %				3%								
Queuing Penalty (veh)												

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 74 (82%), Referenced to phase 2:NWT and 6:SETL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 16.8 Intersection LOS: B

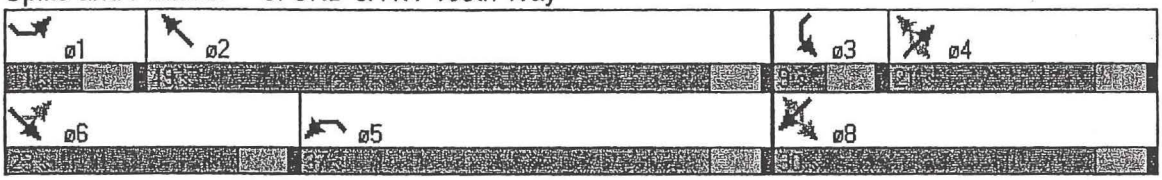
Intersection Capacity Utilization 82.2% ICU Level of Service D

\# 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.

Splits and Phases: 9: SRD & NW 105th Way



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		100	0		100	100		75	75		150
Storage Lanes	1		0	1		0	1		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
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	1.00
Ped Bike Factor												
Frt		0.996			0.996			0.971				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1503	4301	0	1503	4301	0	1503	2918	0	1503	3005	1345
Flt Permitted	0.077			0.071			0.235			0.246		
Satd. Flow (perm)	122	4301	0	112	4301	0	372	2918	0	389	3005	1345
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			12			7				151
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		223			878			1345			2936	
Travel Time (s)		5.1			20.0			30.6			66.7	
Volume (vph)	265	2160	58	333	2400	69	54	364	86	15	469	351
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	288	2348	63	362	2609	75	59	396	93	16	510	382
Lane Group Flow (vph)	288	2411	0	362	2684	0	59	489	0	16	510	382
Turn Type	Perm			pm+pt			Perm			Perm		Perm
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		8
Detector Phases	2	2		1	6		4	4		8	8	8
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	21.0	21.0		9.0	21.0		21.0	21.0		21.0	21.0	21.0
Total Split (s)	56.0	56.0	0.0	13.0	69.0	0.0	21.0	21.0	0.0	21.0	21.0	21.0
Total Split (%)	62%	62%	0%	14%	77%	0%	23%	23%	0%	23%	23%	23%
Maximum Green (s)	51.0	51.0		8.0	64.0		16.0	16.0		16.0	16.0	16.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	Coord	Coord		None	Coord		None	None		None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	52.0	52.0		65.0	65.0		17.0	17.0		17.0	17.0	17.0
Actuated g/C Ratio	0.58	0.58		0.72	0.72		0.19	0.19		0.19	0.19	0.19
v/c Ratio	4.11	0.97		1.65	0.86		0.84	0.88		0.22	0.90	1.01
Uniform Delay, d1	18.8	18.2		22.3	9.2		35.2	34.9		30.9	35.6	21.9
Delay	390.6	26.9		220.7	9.7		88.0	43.3		32.6	47.6	64.2
LOS	F	C		F	A		F	D		C	D	E
Approach Delay		65.7			34.7			48.1			54.3	
Approach LOS		E			C			D			D	
90th %ile Green (s)	51.0	51.0		8.0	64.0		16.0	16.0		16.0	16.0	16.0
90th %ile Term Code	Coord	Coord		Max	Coord		Max	Max		Max	Max	Max
70th %ile Green (s)	51.0	51.0		8.0	64.0		16.0	16.0		16.0	16.0	16.0
70th %ile Term Code	Coord	Coord		Max	Coord		Max	Max		Max	Max	Max
50th %ile Green (s)	51.0	51.0		8.0	64.0		16.0	16.0		16.0	16.0	16.0
50th %ile Term Code	Coord	Coord		Max	Coord		Max	Max		Max	Max	Max
30th %ile Green (s)	51.0	51.0		8.0	64.0		16.0	16.0		16.0	16.0	16.0
30th %ile Term Code	Coord	Coord		Max	Coord		Max	Max		Max	Max	Max
10th %ile Green (s)	51.0	51.0		8.0	64.0		16.0	16.0		16.0	16.0	16.0
10th %ile Term Code	Coord	Coord		Max	Coord		Hold	Hold		Max	Max	Max
Stops (vph)	1175	1275		864	1576		70	617		16	470	330
Fuel Used(gal)	36	87		22	30		2	12		1	18	14
CO Emmisions (g/hr)	2496	6105		1539	2130		134	845		37	1250	1010
NOx Emmisions (g/hr)	486	1188		299	414		26	164		7	243	196
VOC Emmisions (g/hr)	579	1415		357	494		31	196		9	290	234
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	0
Queue Length 50th (ft)	~302	243		~262	316		34	133		8	150	~146
Queue Length 95th (ft)	#459	#384		#435	395		m#99	#229		28	#243	#332
Internal Link Dist (ft)		143			798			1265			2856	
50th Up Block Time (%)	57%	14%										
95th Up Block Time (%)	72%	20%										
Turn Bay Length (ft)							100			75		150
50th Bay Block Time %								10%			42%	6%
95th Bay Block Time %							5%	36%			58%	58%
Queuing Penalty (veh)							6	13			8	80

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 12 (13%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 4.11

Intersection Signal Delay: 49.8 Intersection LOS: D

Intersection Capacity Utilization 96.7% ICU Level of Service E

~ Volume exceeds capacity, queue is theoretically infinite.

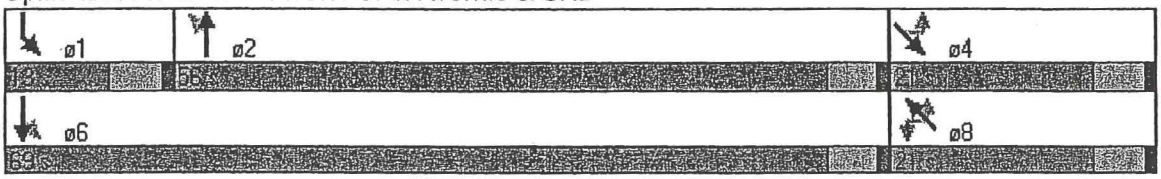
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 14: NW 87th Avenue & SRD



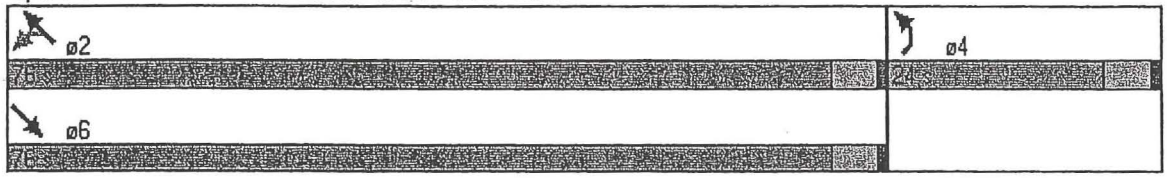
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	75		0	0
Storage Lanes		0	1		1	0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50		50	50	50	
Trailing Detector (ft)	0		0	0	0	
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.999				0.902	
Flt Protected			0.950		0.987	
Satd. Flow (prot)	3002	0	1503	3005	1408	0
Flt Permitted			0.180		0.987	
Satd. Flow (perm)	3002	0	285	3005	1408	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	1				32	
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)	30			30	30	
Link Distance (ft)	2680			1600	1320	
Travel Time (s)	60.9			36.4	30.0	
Volume (vph)	1163	6	93	672	11	29
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	1264	7	101	730	12	32
Lane Group Flow (vph)	1271	0	101	730	44	0
Turn Type			Perm			
Protected Phases	6			2	4	
Permitted Phases			2			
Detector Phases	6		2	2	4	
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	20.0		20.0	20.0	20.0	
Total Split (s)	76.0	0.0	76.0	76.0	24.0	0.0
Total Split (%)	76%	0%	76%	76%	24%	0%
Maximum Green (s)	71.0		71.0	71.0	19.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Minimum Gap (s)	3.0		3.0	3.0	3.0	

Lane Group	SET	SER	NWL	NWT	NET	NER
Time Before Reduce (s)	0.0		0.0	0.0	0.0	
Time To Reduce (s)	0.0		0.0	0.0	0.0	
Recall Mode	Coord		Coord	Coord	None	
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
Act Effct Green (s)	89.9		89.9	89.9	7.9	
Actuated g/C Ratio	0.90		0.90	0.90	0.08	
v/c Ratio	0.47		0.39	0.27	0.31	
Uniform Delay, d1	1.6		1.5	1.2	12.2	
Delay	1.8		1.3	0.3	20.1	
LOS	A		A	A	C	
Approach Delay	1.8			0.4	20.1	
Approach LOS	A			A	C	
90th %ile Green (s)	80.3		80.3	80.3	9.7	
90th %ile Term Code	Coord		Coord	Coord	Gap	
70th %ile Green (s)	82.4		82.4	82.4	7.6	
70th %ile Term Code	Coord		Coord	Coord	Gap	
50th %ile Green (s)	83.8		83.8	83.8	6.2	
50th %ile Term Code	Coord		Coord	Coord	Gap	
30th %ile Green (s)	95.0		95.0	95.0	0.0	
30th %ile Term Code	Coord		Coord	Coord	Skip	
10th %ile Green (s)	95.0		95.0	95.0	0.0	
10th %ile Term Code	Coord		Coord	Coord	Skip	
Stops (vph)	207		12	20	30	
Fuel Used(gal)	26		1	9	1	
CO Emmisions (g/hr)	1818		87	597	52	
NOx Emmisions (g/hr)	354		17	116	10	
VOC Emmisions (g/hr)	421		20	138	12	
Dilemma Vehicles (#)	0		0	0	0	
Queue Length 50th (ft)	74		2	7	6	
Queue Length 95th (ft)	132		8	13	38	
Internal Link Dist (ft)	2600			1520	1240	
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)			75			
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)						

Intersection Summary	
Area Type	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 52 (52%), Referenced to phase 2:NWTL and 6:SET, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.47	
Intersection Signal Delay: 1.7	Intersection LOS: A

Intersection Capacity Utilization 56.3% ICU Level of Service A

Splits and Phases: 17: SRD & NW 96th Street



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	150		0	50
Storage Lanes		0	1		1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50		50	50	50	50
Trailing Detector (ft)	0		0	0	0	0
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.997					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	2996	0	1503	3005	1503	1345
Flt Permitted			0.126		0.950	
Satd. Flow (perm)	2996	0	199	3005	1503	1345
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	3					41
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)	30			30	30	
Link Distance (ft)	1600			980	1540	
Travel Time (s)	36.4			22.3	35.0	
Volume (vph)	1078	24	295	595	14	239
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	1172	26	321	647	15	260
Lane Group Flow (vph)	1198	0	321	647	15	260
Turn Type			pm+pt			pm+ov
Protected Phases	6		5	2	4	5
Permitted Phases			2			4
Detector Phases	6		5	2	4	5
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	21.0		9.0	21.0	21.0	9.0
Total Split (s)	52.0	0.0	27.0	79.0	21.0	27.0
Total Split (%)	52%	0%	27%	79%	21%	27%
Maximum Green (s)	47.0		22.0	74.0	16.0	22.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lead/Lag	Lead		Lag			Lag
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0

Lane Group	SET	SER	NWL	NWT	NEL	NER
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	Coord		None	Coord	None	None
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
Act Effct Green (s)	66.4		93.4	96.6	7.4	34.4
Actuated g/C Ratio	0.66		0.93	0.97	0.07	0.34
v/c Ratio	0.60		0.66	0.22	0.14	0.53
Uniform Delay, d1	11.7		17.7	0.7	47.9	25.1
Delay	8.9		7.8	0.3	43.0	22.3
LOS	A		A	A	D	C
Approach Delay	8.9			2.8	23.4	
Approach LOS	A			A	C	
90th %ile Green (s)	54.8		22.0	81.8	8.2	22.0
90th %ile Term Code	Coord		Hold	Coord	Gap	Hold
70th %ile Green (s)	68.0		22.0	95.0	0.0	22.0
70th %ile Term Code	Coord		Hold	Coord	Skip	Hold
50th %ile Green (s)	68.0		22.0	95.0	0.0	22.0
50th %ile Term Code	Coord		Hold	Coord	Skip	Hold
30th %ile Green (s)	68.0		22.0	95.0	0.0	22.0
30th %ile Term Code	Coord		Hold	Coord	Skip	Hold
10th %ile Green (s)	68.0		22.0	95.0	0.0	22.0
10th %ile Term Code	Coord		Hold	Coord	Skip	Hold
Stops (vph)	555		182	20	16	215
Fuel Used(gal)	19		4	5	0	5
CO Emmisions (g/hr)	1315		260	328	26	359
NOx Emmisions (g/hr)	256		51	64	5	70
VOC Emmisions (g/hr)	305		60	76	6	83
Dilemma Vehicles (#)	0		0	0	0	0
Queue Length 50th (ft)	117		88	0	9	111
Queue Length 95th (ft)	335		m124	m26	29	185
Internal Link Dist (ft)	1520			900	1460	
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)			150			50
50th Bay Block Time %						26%
95th Bay Block Time %			4%			39%
Queuing Penalty (veh)			7			10

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 86 (86%), Referenced to phase 2:NWTL and 6:SET, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

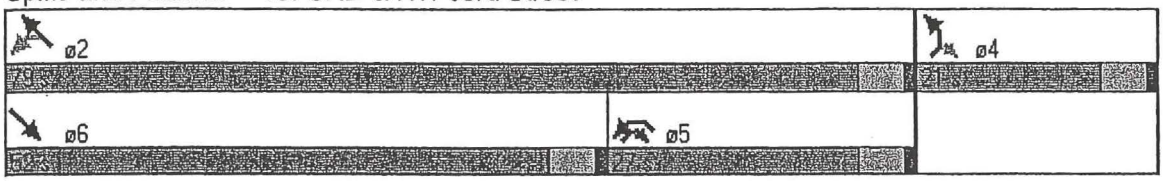
Maximum v/c Ratio: 0.66

Intersection Signal Delay: 8.1 Intersection LOS: A

Intersection Capacity Utilization 67.2% ICU Level of Service B

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: SRD & NW 93rd Street



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	200		0	150		0	200		0
Storage Lanes	1		1	2		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Red Bike Factor												
Frt			0.850		0.970			0.980			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1503	1582	1345	2915	2915	0	1503	2945	0	1503	2984	0
Flt Permitted	0.295			0.950			0.185			0.304		
Satd. Flow (perm)	467	1582	1345	2915	2915	0	293	2945	0	481	2984	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97		44			20			6	
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1122			1086			980			980	
Travel Time (s)		25.5			24.7			22.3			22.3	
Volume (vph)	100	87	89	907	443	109	69	525	79	227	788	39
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	109	95	97	986	482	118	75	571	86	247	857	42
Lane Group Flow (vph)	109	95	97	986	600	0	75	657	0	247	899	0
Turn Type	Perm		Perm	Prot			Perm			Perm		
Protected Phases		2		1	6			4			8	
Permitted Phases	2		2				4			8		
Detector Phases	2	2	2	1	6		4	4		8	8	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0	21.0	9.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	25.0	25.0	25.0	30.0	55.0	0.0	45.0	45.0	0.0	45.0	45.0	0.0
Total Split (%)	25%	25%	25%	30%	55%	0%	45%	45%	0%	45%	45%	0%
Maximum Green (s)	20.0	20.0	20.0	25.0	50.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lead/Lag	Lead	Lead	Lead	Lag								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	Coord	Coord	Coord	None	Coord		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	21.0	21.0	21.0	26.0	51.0		41.0	41.0		41.0	41.0	
Actuated g/C Ratio	0.21	0.21	0.21	0.26	0.51		0.41	0.41		0.41	0.41	
v/c Ratio	1.11	0.29	0.27	1.30	0.40		0.62	0.54		1.25	0.73	
Uniform Delay, d1	39.5	33.2	0.0	37.0	13.8		23.4	21.6		29.5	24.7	
Delay	130.8	33.9	7.2	143.4	14.0		24.6	16.5		124.8	16.6	
LOS	F	C	A	F	B		C	B		F	B	
Approach Delay		60.4			94.4			17.4			40.0	
Approach LOS		E			F			B			D	
90th %ile Green (s)	20.0	20.0	20.0	25.0	50.0		40.0	40.0		40.0	40.0	
90th %ile Term Code	Coord	Coord	Coord	Hold	Coord		Max	Max		Max	Max	
70th %ile Green (s)	20.0	20.0	20.0	25.0	50.0		40.0	40.0		40.0	40.0	
70th %ile Term Code	Coord	Coord	Coord	Hold	Coord		Max	Max		Max	Max	
50th %ile Green (s)	20.0	20.0	20.0	25.0	50.0		40.0	40.0		40.0	40.0	
50th %ile Term Code	Coord	Coord	Coord	Hold	Coord		Hold	Hold		Max	Max	
30th %ile Green (s)	20.0	20.0	20.0	25.0	50.0		40.0	40.0		40.0	40.0	
30th %ile Term Code	Coord	Coord	Coord	Hold	Coord		Hold	Hold		Max	Max	
10th %ile Green (s)	20.0	20.0	20.0	25.0	50.0		40.0	40.0		40.0	40.0	
10th %ile Term Code	Coord	Coord	Coord	Hold	Coord		Hold	Hold		Max	Max	
Stops (vph)	161	71	22	1674	305		55	624		369	424	
Fuel Used(gal)	4	2	1	43	8		1	10		10	11	
CO Emmisions (g/hr)	309	123	72	3034	555		82	706		667	801	
NOx Emmisions (g/hr)	60	24	14	590	108		16	137		130	156	
VOC Emmisions (g/hr)	72	28	17	703	129		19	164		155	186	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	80	51	0	417	108		40	67		192	112	
Queue Length 95th (ft)	#189	98	41	#541	150		m#88	94		m#279	m165	
Internal Link Dist (ft)		1042			1006			900			900	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)				200			150			200		
50th Bay Block Time %				46%						4%		
95th Bay Block Time %				57%						34%	1%	
Queuing Penalty (veh)				155						84		

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 44 (44%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.30

Intersection Signal Delay: 60.1 Intersection LOS: E

Intersection Capacity Utilization 82.2% ICU Level of Service D

~ Volume exceeds capacity, queue is theoretically infinite.

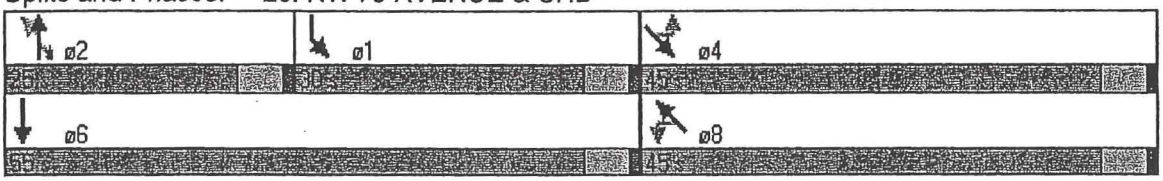
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: NW 79 AVENUE & SRD



Lane Group	SET	SER	NWL	NWT	NEL	NER						
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800						
Lane Width (ft)	11	11	11	11	11	11						
Grade (%)	0%			0%	0%							
Storage Length (ft)		0	75		0	0						
Storage Lanes		0	2		1	1						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0						
Leading Detector (ft)	50		50	50	50	50						
Trailing Detector (ft)	0		0	0	0	0						
Turning Speed (mph)		9	15		15	9						
Lane Util. Factor	0.95	1.00	0.97	0.95	1.00	1.00						
Ped Bike Factor												
Frt						0.850						
Flt Protected			0.950		0.950							
Satd. Flow (prot)	3005	0	2915	3005	1503	1345						
Flt Permitted			0.950		0.950							
Satd. Flow (perm)	3005	0	2915	3005	1503	1345						
Right Turn on Red		Yes				Yes						
Satd. Flow (RTOR)						13						
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04						
Link Speed (mph)	30			30	30							
Link Distance (ft)	980			822	645							
Travel Time (s)	22.3			18.7	14.7							
Volume (vph)	799	0	1078	771	413	574						
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92						
Growth Factor	100%	100%	100%	100%	100%	100%						
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%						
Bus Blockages (#/hr)	0	0	0	0	0	0						
Parking (#/hr)												
Mid-Block Traffic (%)	0%			0%	0%							
Adj. Flow (vph)	868	0	1172	838	449	624						
Lane Group Flow (vph)	868	0	1172	838	449	624						
Turn Type			Prot			pm+ov						
Protected Phases	6		5	2	4	5						
Permitted Phases						4						
Detector Phases	6		5	2	4	5						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0						
Minimum Split (s)	21.0		9.0	21.0	21.0	9.0						
Total Split (s)	31.0	0.0	39.0	70.0	30.0	39.0						
Total Split (%)	31%	0%	39%	70%	30%	39%						
Maximum Green (s)	26.0		34.0	65.0	25.0	34.0						
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0						
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0						
Lead/Lag	Lead		Lag			Lag						
Lead-Lag Optimize?	Yes		Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0						
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0						

Lane Group	SET	SER	NWL	NWT	NEL	NER
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		None	Coord	None	None
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
Act Effct Green (s)	27.0		35.0	66.0	26.0	65.0
Actuated g/C Ratio	0.27		0.35	0.66	0.26	0.65
v/c Ratio	1.07		1.15	0.42	1.15	0.71
Uniform Delay, d1	36.5		32.5	8.0	37.0	11.1
Delay	45.4		95.9	8.2	106.2	11.9
LOS	D		F	A	F	B
Approach Delay	45.4			59.3	51.4	
Approach LOS	D			E	D	
90th %ile Green (s)	26.0		34.0	65.0	25.0	34.0
90th %ile Term Code	Coord		Hold	Coord	Max	Hold
70th %ile Green (s)	26.0		34.0	65.0	25.0	34.0
70th %ile Term Code	Coord		Hold	Coord	Max	Hold
50th %ile Green (s)	26.0		34.0	65.0	25.0	34.0
50th %ile Term Code	Coord		Hold	Coord	Max	Hold
30th %ile Green (s)	26.0		34.0	65.0	25.0	34.0
30th %ile Term Code	Coord		Hold	Coord	Max	Hold
10th %ile Green (s)	26.0		34.0	65.0	25.0	34.0
10th %ile Term Code	Coord		Hold	Coord	Max	Hold
Stops (vph)	796		1563	339	614	362
Fuel Used(gal)	18		37	8	14	6
CO Emmisions (g/hr)	1250		2558	566	1007	439
NOx Emmisions (g/hr)	243		498	110	196	85
VOC Emmisions (g/hr)	290		593	131	233	102
Dilemma Vehicles (#)	0		0	0	0	0
Queue Length 50th (ft)	317		455	118	338	229
Queue Length 95th (ft)	m#272		#583	156	#529	372
Internal Link Dist (ft)	900			742	565	
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)			75			
50th Bay Block Time %			56%	15%		
95th Bay Block Time %			60%	20%		
Queuing Penalty (veh)			242	206		

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 4 (4%), Referenced to phase 2:NWT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.15

Intersection Signal Delay: 54.1 Intersection LOS: D

Intersection Capacity Utilization 96.9% ICU Level of Service E

~ Volume exceeds capacity, queue is theoretically infinite.

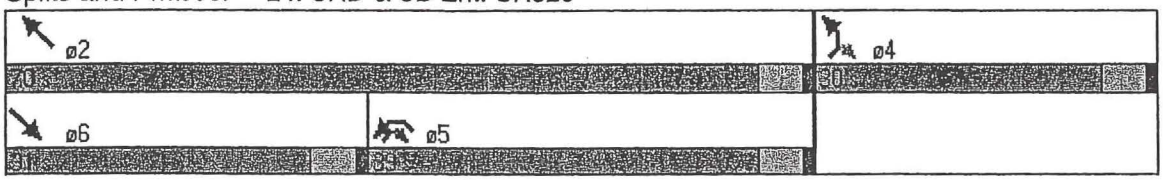
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

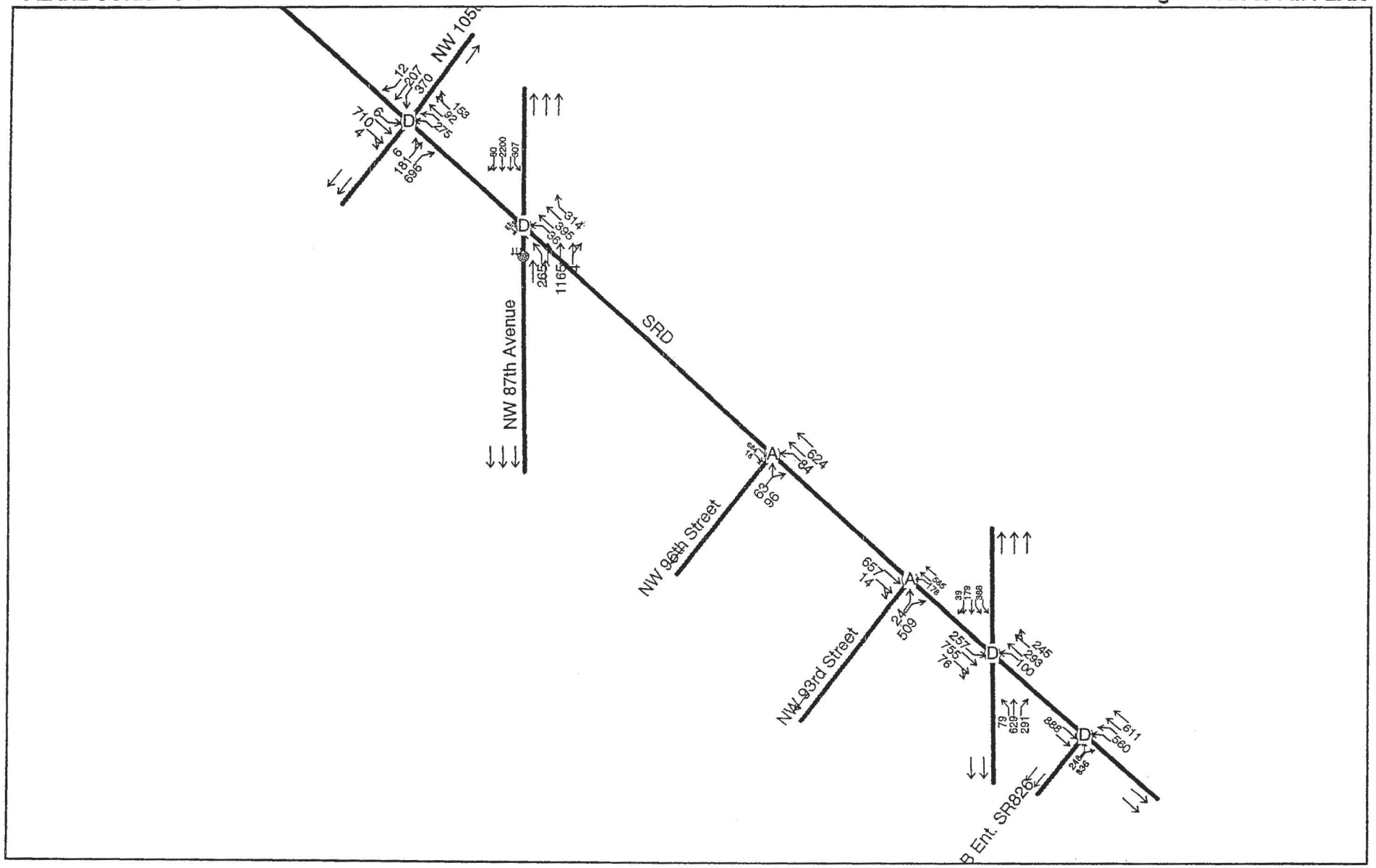
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: SRD & SB Ent. SR826



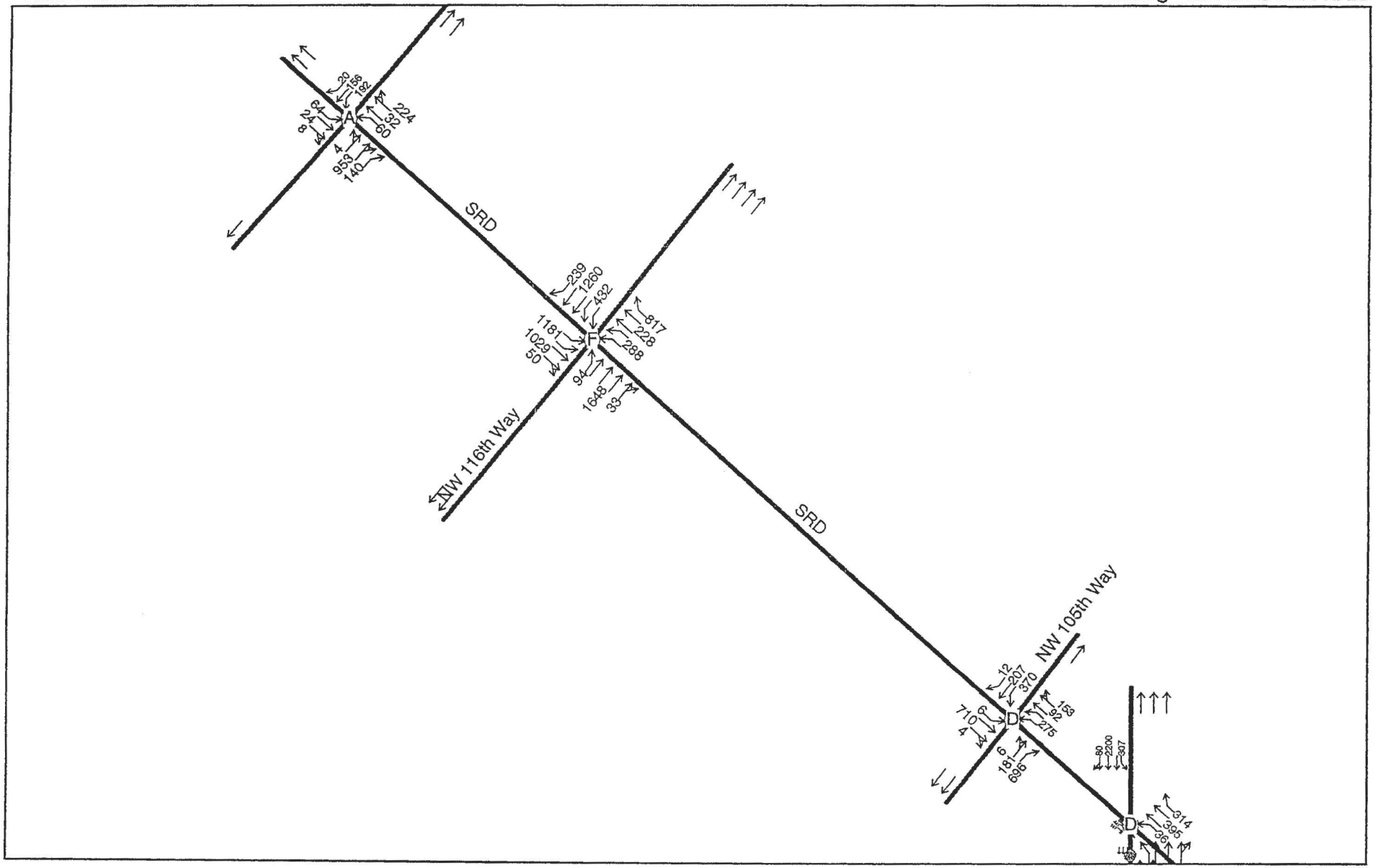
SRD PROPOSED GEOMETRY
4-LANE CORRIDOR

Timing Plan: 2028 PM PEAK



SRD PROPOSED GEOMETRY
4-LANE CORRIDOR

Timing Plan: 2028 PM PEAK



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	1		0	0		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.91	0.91	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.961			0.869				0.850			0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1621	3115	0	1621	2817	0	0	3105	1320	1621	1706	1450
Flt Permitted	0.553			0.733				0.954		0.222		
Satd. Flow (perm)	943	3115	0	1250	2817	0	0	2962	1320	379	1706	1450
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			136				152			22
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		768			2020			1486			1322	
Travel Time (s)		17.5			45.9			33.8			30.0	
Volume (vph)	64	24	8	60	32	224	4	953	140	192	156	20
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	70	26	9	65	35	243	4	1036	152	209	170	22
Lane Group Flow (vph)	70	35	0	65	278	0	0	1040	152	209	170	22
Turn Type	Perm			Perm			Perm		Perm	Perm		Perm
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4		4	8		8
Detector Phases	6	6		2	2		4	4	4	8	8	8
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	50.0	50.0	50.0	50.0	50.0	50.0
Total Split (%)	29%	29%	0%	29%	29%	0%	71%	71%	71%	71%	71%	71%
Maximum Green (s)	16.0	16.0		16.0	16.0		46.0	46.0	46.0	46.0	46.0	46.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	10.0	10.0		10.0	10.0			34.4	34.4	34.4	34.4	34.4
Actuated g/C Ratio	0.19	0.19		0.19	0.19			0.64	0.64	0.64	0.64	0.64
v/c Ratio	0.40	0.06		0.28	0.44			0.55	0.17	0.86	0.15	0.02
Uniform Delay, d1	18.5	12.8		18.1	9.2			4.8	0.0	6.9	3.4	0.0
Delay	23.8	18.1		22.9	12.1			5.1	0.9	25.2	3.8	1.8
LOS	C	B		C	B			A	A	C	A	A
Approach Delay		21.9			14.2			4.6			14.8	
Approach LOS		C			B			A			B	
90th %ile Green (s)	15.9	15.9		15.9	15.9		46.0	46.0	46.0	46.0	46.0	46.0
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold	Hold	Max	Max	Max
70th %ile Green (s)	12.3	12.3		12.3	12.3		46.0	46.0	46.0	46.0	46.0	46.0
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold	Hold	Max	Max	Max
50th %ile Green (s)	10.0	10.0		10.0	10.0		45.3	45.3	45.3	45.3	45.3	45.3
50th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold	Hold	Gap	Gap	Gap
30th %ile Green (s)	6.6	6.6		6.6	6.6		25.7	25.7	25.7	25.7	25.7	25.7
30th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold	Hold	Gap	Gap	Gap
10th %ile Green (s)	5.5	5.5		5.5	5.5		14.2	14.2	14.2	14.2	14.2	14.2
10th %ile Term Code	Gap	Gap		Gap	Gap		Hold	Hold	Hold	Gap	Gap	Gap
Stops (vph)	54	28		50	107			418	10	149	46	4
Fuel Used(gal)	1	0		2	5			14	2	4	2	0
CO Emmisions (g/hr)	69	32		105	367			1006	119	265	139	16
NOx Emmisions (g/hr)	13	6		20	71			196	23	52	27	3
VOC Emmisions (g/hr)	16	8		24	85			233	28	61	32	4
Dilemma Vehicles (#)	0	0		0	0			0	0	0	0	0
Queue Length 50th (ft)	25	0		23	24			73	0	39	16	0
Queue Length 95th (ft)	60	0		54	54			153	17	#199	44	6
Internal Link Dist (ft)		688			1940			1406			1242	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)												
50th Bay Block Time %												
95th Bay Block Time %												
Queuing Penalty (veh)												

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 53.5

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 9.1 Intersection LOS: A

Intersection Capacity Utilization 71.0% ICU Level of Service C

90th %ile Actuated Cycle: 69.9
70th %ile Actuated Cycle: 66.3
50th %ile Actuated Cycle: 63.3
30th %ile Actuated Cycle: 40.3
10th %ile Actuated Cycle: 27.7
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: SRD &

ø2	ø4
20	50
ø6	ø8
20	50

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	2		0	2		1	1		0	2		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.86	0.86	0.97	0.95	1.00
Ped Bike Factor												
Frt		0.993				0.850		0.997				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2915	2984	0	2915	3005	1345	1503	5425	0	2915	3005	1345
Flt Permitted	0.950			0.950			0.089			0.950		
Satd. Flow (perm)	2915	2984	0	2915	3005	1345	141	5425	0	2915	3005	1345
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				168		3				207
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2020			6120			2022			1982	
Travel Time (s)		45.9			139.1			46.0			43.9	
Volume (vph)	1181	1029	50	288	228	817	94	1648	33	462	1260	239
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	1284	1118	54	313	248	888	102	1791	36	470	1370	260
Lane Group Flow (vph)	1284	1172	0	313	248	888	102	1827	0	470	1370	260
Turn Type	Prot			Prot		Perm	Perm			Prot		Perm
Protected Phases	1	6		5	2			4		3	8	
Permitted Phases						2	4					8
Detector Phases	1	6		5	2	2	4	4		3	8	8
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		20.0	20.0	20.0	20.0	20.0		8.0	20.0	20.0
Total Split (s)	29.0	42.0	0.0	23.0	36.0	36.0	49.0	49.0	0.0	16.0	65.0	65.0
Total Split (%)	22%	32%	0%	18%	28%	28%	38%	38%	0%	12%	50%	50%
Maximum Green (s)	25.0	38.0		19.0	32.0	32.0	45.0	45.0		12.0	61.0	61.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lead/Lag	Lag	Lead		Lag	Lead	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Recall Mode	Max	Max		Max	Max	Max	Max	Max		Max	Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	25.0	38.0		19.0	32.0	32.0	45.0	45.0		12.0	61.0	61.0
Actuated g/C Ratio	0.19	0.29		0.15	0.25	0.25	0.35	0.35		0.09	0.47	0.47
v/c Ratio	2.29	1.84		0.73	0.84	1.94	2.08	0.97		1.75	0.97	0.35
Uniform Delay, d1	52.5	45.8		53.1	40.3	31.0	42.6	41.8		59.0	33.7	3.9
Delay	312.8	164.2		54.2	40.4	269.5	289.2	51.8		249.8	45.6	5.1
LOS	F	F		D	D	F	F	D		F	D	A
Approach Delay		241.9			183.8			63.9			86.2	
Approach LOS		F			F			E			F	
90th %ile Green (s)	25.0	38.0		19.0	32.0	32.0	45.0	45.0		12.0	61.0	61.0
90th %ile Term Code	MaxR	Coord		MaxR	Coord	Coord	MaxR	MaxR		MaxR	MaxR	MaxR
70th %ile Green (s)	25.0	38.0		19.0	32.0	32.0	45.0	45.0		12.0	61.0	61.0
70th %ile Term Code	MaxR	Coord		MaxR	Coord	Coord	MaxR	MaxR		MaxR	MaxR	MaxR
50th %ile Green (s)	25.0	38.0		19.0	32.0	32.0	45.0	45.0		12.0	61.0	61.0
50th %ile Term Code	MaxR	Coord		MaxR	Coord	Coord	MaxR	MaxR		MaxR	MaxR	MaxR
30th %ile Green (s)	25.0	38.0		19.0	32.0	32.0	45.0	45.0		12.0	61.0	61.0
30th %ile Term Code	MaxR	Coord		MaxR	Coord	Coord	MaxR	MaxR		MaxR	MaxR	MaxR
10th %ile Green (s)	25.0	38.0		19.0	32.0	32.0	45.0	45.0		12.0	61.0	61.0
10th %ile Term Code	MaxR	Coord		MaxR	Coord	Coord	MaxR	MaxR		MaxR	MaxR	MaxR
Stops (vph)	3124	2188		270	182	2023	233	1648		959	1217	37
Fuel Used(gal)	111	65		18	14	95	8	53		34	37	4
CO Emmisions (g/hr)	7764	4550		1287	962	6640	580	3716		2358	2615	283
NOx Emmisions (g/hr)	1511	885		250	187	1292	113	723		459	509	55
VOC Emmisions (g/hr)	1799	1055		298	223	1539	135	861		546	606	66
Dilemma Vehicles (#)	0	0		0	0	0	0	0		0	0	0
Queue Length 50th (ft)	~905	~496		131	90	~1150	~136	438		302	580	24
Queue Length 95th (ft)	#1042	#704		184	130	#1406	#255	#528		#412	#752	80
Internal Link Dist (ft)		1940			6040			1942			1852	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)												
50th Bay Block Time %												
95th Bay Block Time %												
Queuing Penalty (veh)												

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 46 (35%), Referenced to phase 2:NWT, Start of Green

Natural Cycle: 150

Control Type: Pretimed

Maximum v/c Ratio: 2.29

Intersection Signal Delay: 146.8 Intersection LOS: F

Intersection Capacity Utilization 134.7% ICU Level of Service H

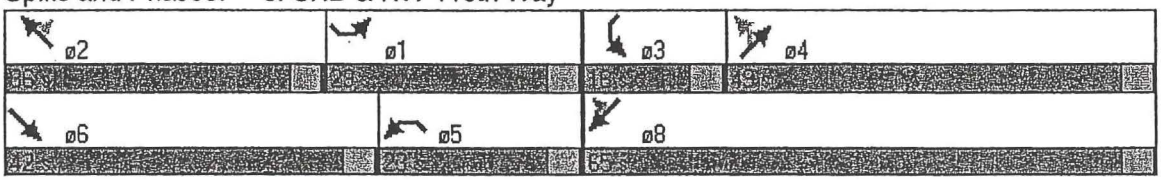
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: SRD & NW 116th Way



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	2		0	0		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.906				0.850			0.850
Flt Protected	0.950			0.950				0.998		0.950		
Satd. Flow (prot)	1503	3002	0	2915	2723	0	0	1579	1345	1503	1582	1345
Flt Permitted	0.588			0.190				0.989		0.559		
Satd. Flow (perm)	930	3002	0	583	2723	0	0	1564	1345	884	1582	1345
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			166				56			13
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		6120			1490			906			916	
Travel Time (s)		139.1			33.9			20.6			20.8	
Volume (vph)	6	710	4	275	92	153	6	181	696	370	207	12
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	7	772	4	299	100	166	7	197	757	402	225	13
Lane Group Flow (vph)	7	776	0	299	266	0	0	204	757	402	225	13
Turn Type	Perm			pm+pt			Perm		pm+ov	pm+pt		Perm
Protected Phases		6		5	2			4	5	3	8	
Permitted Phases	6			2			4		4	8		8
Detector Phases	6	6		5	2		4	4	5	3	8	8
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		8.0	20.0		20.0	20.0	8.0	8.0	20.0	20.0
Total Split (s)	21.0	21.0	0.0	14.0	35.0	0.0	20.0	20.0	14.0	10.0	30.0	30.0
Total Split (%)	32%	32%	0%	22%	54%	0%	31%	31%	22%	15%	46%	46%
Maximum Green (s)	17.0	17.0		10.0	31.0		16.0	16.0	10.0	6.0	26.0	26.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lag	Lag		Lead			Lead	Lead	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	Coord	Coord		Max	Coord		Max	Max	Max	Max	Max	Max
Walk Time (s)					5.0							
Flash Dont Walk (s)					11.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	17.0	17.0		31.0	31.0		16.0	26.0	26.0	26.0	26.0	
Actuated g/C Ratio	0.26	0.26		0.48	0.48		0.25	0.40	0.40	0.40	0.40	
v/c Ratio	0.03	0.99		0.47	0.19		0.53	1.32	0.98	0.86	0.02	
Uniform Delay, d1	17.9	23.9		9.9	3.5		21.2	9.8	20.6	13.6	0.0	
Delay	11.8	19.2		10.1	4.0		22.0	181.5	52.2	14.1	6.6	
LOS	B	B		B	A		C	F	D	B	A	
Approach Delay		19.2			7.2		108.3			37.9		
Approach LOS		B			A		F			D		
90th %ile Green (s)	17.0	17.0		10.0	31.0		16.0	16.0	10.0	6.0	26.0	26.0
90th %ile Term Code	Coord	Coord		MaxR	Coord		MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
70th %ile Green (s)	17.0	17.0		10.0	31.0		16.0	16.0	10.0	6.0	26.0	26.0
70th %ile Term Code	Coord	Coord		MaxR	Coord		MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
50th %ile Green (s)	17.0	17.0		10.0	31.0		16.0	16.0	10.0	6.0	26.0	26.0
50th %ile Term Code	Coord	Coord		MaxR	Coord		MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
30th %ile Green (s)	17.0	17.0		10.0	31.0		16.0	16.0	10.0	6.0	26.0	26.0
30th %ile Term Code	Coord	Coord		MaxR	Coord		MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
10th %ile Green (s)	17.0	17.0		10.0	31.0		16.0	16.0	10.0	6.0	26.0	26.0
10th %ile Term Code	Coord	Coord		MaxR	Coord		MaxR	MaxR	MaxR	MaxR	MaxR	MaxR
Stops (vph)	5	670		149	54		159	1634	396	139	6	
Fuel Used(gal)	0	41		5	3		3	33	9	3	0	
CO Emmisions (g/hr)	23	2836		320	234		213	2278	613	199	9	
NOx Emmisions (g/hr)	4	552		62	45		41	443	119	39	2	
VOC Emmisions (g/hr)	5	657		74	54		49	528	142	46	2	
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	
Queue Length 50th (ft)	2	112		33	10		70	276	126	60	0	
Queue Length 95th (ft)	m1	m48		54	28		130	#599	#319	110	8	
Internal Link Dist (ft)		6040			1410		826			836		
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)												
50th Bay Block Time %												
95th Bay Block Time %												
Queuing Penalty (veh)												

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 0 (0%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.32

Intersection Signal Delay: 50.0 Intersection LOS: D

Intersection Capacity Utilization 105.6% ICU Level of Service F

~ Volume exceeds capacity, queue is theoretically infinite.

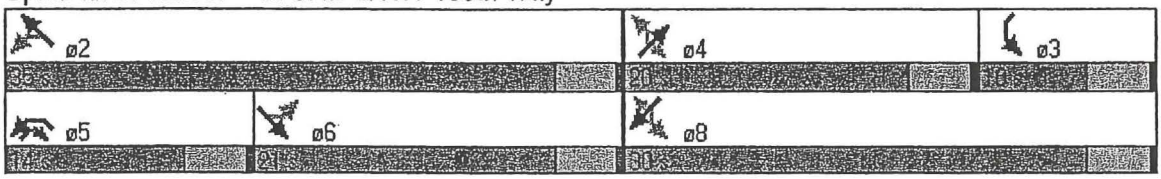
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: SRD & NW 105th Way



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
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	1.00
Ped Bike Factor												
Frt					0.995			0.971				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1503	4318	0	1503	4297	0	1503	2918	0	1503	3005	1345
Flt Permitted	0.100			0.109			0.286			0.222		
Satd. Flow (perm)	158	4318	0	172	4297	0	452	2918	0	351	3005	1345
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			9			26				341
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		257			1181			1345			2936	
Travel Time (s)		5.8			26.8			30.6			66.7	
Volume (vph)	265	1165	4	307	2200	80	65	441	107	36	395	314
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	288	1266	4	334	2391	87	71	479	116	39	429	341
Lane Group Flow (vph)	288	1270	0	334	2478	0	71	595	0	39	429	341
Turn Type	pm+pt			pm+pt			Perm			Perm		Perm
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		8
Detector Phases	5	2		1	6		4	4		8	8	8
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0		20.0	20.0		20.0	20.0	20.0
Total Split (s)	18.0	44.0	0.0	34.0	60.0	0.0	22.0	22.0	0.0	22.0	22.0	22.0
Total Split (%)	18%	44%	0%	34%	60%	0%	22%	22%	0%	22%	22%	22%
Maximum Green (s)	14.0	40.0		30.0	56.0		18.0	18.0		18.0	18.0	18.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	54.0	40.0		74.0	56.0		18.0	18.0		18.0	18.0	18.0
Actuated g/C Ratio	0.54	0.40		0.74	0.56		0.18	0.18		0.18	0.18	0.18
v/c Ratio	1.05	0.73		0.63	1.03		0.88	1.09		0.62	0.79	0.65
Uniform Delay, d1	30.8	25.4		16.8	21.9		39.8	39.1		37.8	39.2	0.0
Delay	84.1	25.8		17.7	43.7		94.8	88.6		56.2	37.9	7.5
LOS	F	C		B	D		F	F		E	D	A
Approach Delay		36.6			40.6			89.3			26.0	
Approach LOS		D			D			F			C	
90th %ile Green (s)	14.0	40.0		30.0	56.0		18.0	18.0		18.0	18.0	18.0
90th %ile Term Code	MaxR	Coord		MaxR	Coord		MaxR	MaxR		MaxR	MaxR	MaxR
70th %ile Green (s)	14.0	40.0		30.0	56.0		18.0	18.0		18.0	18.0	18.0
70th %ile Term Code	MaxR	Coord		MaxR	Coord		MaxR	MaxR		MaxR	MaxR	MaxR
50th %ile Green (s)	14.0	40.0		30.0	56.0		18.0	18.0		18.0	18.0	18.0
50th %ile Term Code	MaxR	Coord		MaxR	Coord		MaxR	MaxR		MaxR	MaxR	MaxR
30th %ile Green (s)	14.0	40.0		30.0	56.0		18.0	18.0		18.0	18.0	18.0
30th %ile Term Code	MaxR	Coord		MaxR	Coord		MaxR	MaxR		MaxR	MaxR	MaxR
10th %ile Green (s)	14.0	40.0		30.0	56.0		18.0	18.0		18.0	18.0	18.0
10th %ile Term Code	MaxR	Coord		MaxR	Coord		MaxR	MaxR		MaxR	MaxR	MaxR
Stops (vph)	338	1199		183	3090		82	708		37	365	151
Fuel Used(gal)	11	32		5	58		2	20		1	14	8
CO Emmisions (g/hr)	754	2243		345	4080		167	1364		101	986	594
NOx Emmisions (g/hr)	147	436		67	794		33	265		20	192	116
VOC Emmisions (g/hr)	175	520		80	946		39	316		23	229	138
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	0
Queue Length 50th (ft)	158	246		123	212		44	218		24	143	0
Queue Length 95th (ft)	#324	302		221	#382		#131	#331		#76	#197	105
Internal Link Dist (ft)		177			1101			1265			2856	
50th Up Block Time (%)		17%										
95th Up Block Time (%)	53%	23%										
Turn Bay Length (ft)												
50th Bay Block Time %												
95th Bay Block Time %												
Queuing Penalty (veh)												

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 40 (40%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 100

Control Type: Pretimed

Maximum v/c Ratio: 1.09

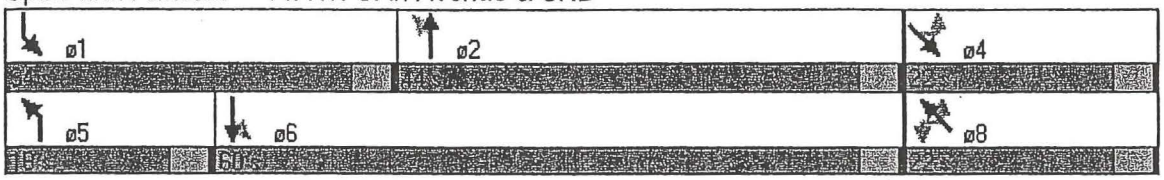
Intersection Signal Delay: 43.1 Intersection LOS: D

Intersection Capacity Utilization 102.2% ICU Level of Service F

~ 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.

Splits and Phases: 14: NW 87th Avenue & SRD



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	1		1	0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50		50	50	50	
Trailing Detector (ft)	0		0	0	0	
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.996				0.918	
Flt Protected			0.950		0.981	
Satd. Flow (prot)	2993	0	1503	3005	1425	0
Flt Permitted			0.303		0.981	
Satd. Flow (perm)	2993	0	479	3005	1425	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	7				104	
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)	30			30	30	
Link Distance (ft)	2680			1600	1320	
Travel Time (s)	60.9			36.4	30.0	
Volume (vph)	684	18	84	624	63	96
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	743	20	91	678	68	104
Lane Group Flow (vph)	763	0	91	678	172	0
Turn Type			Perm			
Protected Phases	6			2	4	
Permitted Phases			2			
Detector Phases	6		2	2	4	
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	20.0		20.0	20.0	20.0	
Total Split (s)	27.0	0.0	27.0	27.0	23.0	0.0
Total Split (%)	54%	0%	54%	54%	46%	0%
Maximum Green (s)	23.0		23.0	23.0	19.0	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	0.5		0.5	0.5	0.5	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Minimum Gap (s)	3.0		3.0	3.0	3.0	

Lane Group	SET	SER	NWL	NWT	NEL	NER
Time Before Reduce (s)	0.0		0.0	0.0	0.0	
Time To Reduce (s)	0.0		0.0	0.0	0.0	
Recall Mode	Coord		Coord	Coord	None	
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
Act Effct Green (s)	36.5		36.5	36.5	8.2	
Actuated g/C Ratio	0.73		0.73	0.73	0.16	
v/c Ratio	0.35		0.26	0.31	0.54	
Uniform Delay, d1	3.0		2.8	2.9	7.7	
Delay	4.4		3.4	2.3	8.5	
LOS	A		A	A	A	
Approach Delay	4.4			2.4	8.5	
Approach LOS	A			A	A	
90th %ile Green (s)	29.5		29.5	29.5	12.5	
90th %ile Term Code	Coord		Coord	Coord	Gap	
70th %ile Green (s)	32.5		32.5	32.5	9.5	
70th %ile Term Code	Coord		Coord	Coord	Gap	
50th %ile Green (s)	34.4		34.4	34.4	7.6	
50th %ile Term Code	Coord		Coord	Coord	Gap	
30th %ile Green (s)	36.2		36.2	36.2	5.8	
30th %ile Term Code	Coord		Coord	Coord	Gap	
10th %ile Green (s)	46.0		46.0	46.0	0.0	
10th %ile Term Code	Coord		Coord	Coord	Skip	
Stops (vph)	293		23	133	64	
Fuel Used(gal)	17		1	9	2	
CO Emmisions (g/hr)	1182		86	616	157	
NOx Emmisions (g/hr)	230		17	120	31	
VOC Emmisions (g/hr)	274		20	143	36	
Dilemma Vehicles (#)	0		0	0	0	
Queue Length 50th (ft)	0		6	23	18	
Queue Length 95th (ft)	m166		45	74	56	
Internal Link Dist (ft)	2600			1520	1240	
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)						
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)						

Intersection Summary

Area Type: Other

Cycle Length: 50

Actuated Cycle Length: 50

Offset: 12 (24%), Referenced to phase 2:NWTL and 6:SET, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

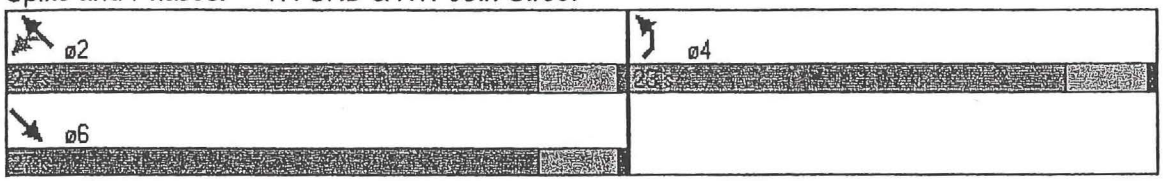
Maximum v/c Ratio: 0.54

Intersection Signal Delay: 3.9 Intersection LOS: A

Intersection Capacity Utilization 48.5% ICU Level of Service A

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: SRD & NW 96th Street



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	50		0	50
Storage Lanes		0	1		1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50		50	50	50	50
Trailing Detector (ft)	0		0	0	0	0
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.997					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	2996	0	1503	3005	1503	1345
Flt Permitted			0.231		0.950	
Satd. Flow (perm)	2996	0	365	3005	1503	1345
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	2					382
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)	30			30	30	
Link Distance (ft)	1600			980	1540	
Travel Time (s)	36.4			22.3	35.0	
Volume (vph)	657	14	178	585	24	509
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	714	15	193	636	26	553
Lane Group Flow (vph)	729	0	193	636	26	553
Turn Type			pm+pt			Perm
Protected Phases	6		5	2	4	
Permitted Phases			2			4
Detector Phases	6		5	2	4	4
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	20.0		8.0	20.0	20.0	20.0
Total Split (s)	37.0	0.0	19.0	56.0	44.0	44.0
Total Split (%)	37%	0%	19%	56%	44%	44%
Maximum Green (s)	33.0		15.0	52.0	40.0	40.0
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	0.5		0.5	0.5	0.5	0.5
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0

Lane Group	SET	SER	NWL	NWT	NEL	NER
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	Coord		Min	Coord	Min	Min
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
Act Effct Green (s)	50.9		69.9	69.9	22.1	22.1
Actuated g/C Ratio	0.51		0.70	0.70	0.22	0.22
v/c Ratio	0.48		0.45	0.30	0.08	0.93
Uniform Delay, d1	15.9		9.6	5.7	30.8	11.4
Delay	8.4		15.8	7.9	24.3	10.3
LOS	A		B	A	C	B
Approach Delay	8.4			9.8	10.9	
Approach LOS	A			A	B	
90th %ile Green (s)	83.0		15.0	52.0	40.0	40.0
90th %ile Term Code	Coord		Hold	Coord	Max	Max
70th %ile Green (s)	43.1		15.0	62.1	29.9	29.9
70th %ile Term Code	Coord		Hold	Coord	Gap	Gap
50th %ile Green (s)	51.8		15.0	70.8	21.2	21.2
50th %ile Term Code	Coord		Hold	Coord	Gap	Gap
30th %ile Green (s)	59.0		15.0	78.0	14.0	14.0
30th %ile Term Code	Coord		Hold	Coord	Gap	Gap
10th %ile Green (s)	67.5		15.0	86.5	5.5	5.5
10th %ile Term Code	Coord		Hold	Coord	Gap	Gap
Stops (vph)	388		87	224	18	243
Fuel Used(gal)	12		2	7	1	9
CO Emmisions (g/hr)	815		169	465	35	596
NOx Emmisions (g/hr)	159		33	90	7	116
VOC Emmisions (g/hr)	189		39	108	8	138
Dilemma Vehicles (#)	0		0	0	0	0
Queue Length 50th (ft)	43		36	66	13	120
Queue Length 95th (ft)	111		108	163	27	224
Internal Link Dist (ft)	1520			900	1460	
50th Up Block Time (%)						
95th Up Block Time (%)						
Turn Bay Length (ft)			50			50
50th Bay Block Time %				13%		29%
95th Bay Block Time %			35%	37%		36%
Queuing Penalty (veh)			55	48		16

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 85 (85%), Referenced to phase 2:NWTL and 6:SET, Start of Green

Natural Cycle: 50

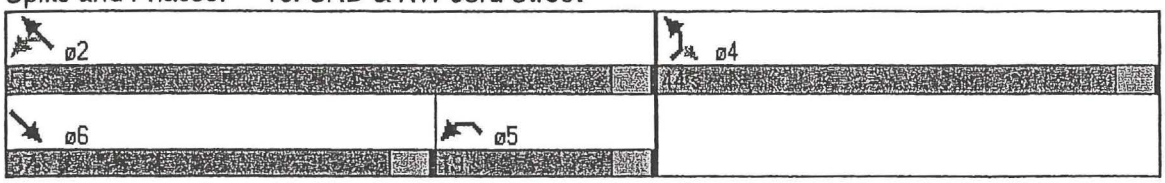
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 9.6 Intersection LOS: A

Intersection Capacity Utilization 64.2% ICU Level of Service B

Splits and Phases: 18: SRD & NW 93rd Street



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	150		0	150		0
Storage Lanes	1		1	2		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850		0.973			0.986			0.932	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1503	1582	1345	2915	2924	0	1503	2963	0	1503	2801	0
Flt Permitted	0.604			0.095			0.350			0.189		
Satd. Flow (perm)	955	1582	1345	292	2924	0	554	2963	0	299	2801	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			69		36			13			262	
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1122			1086			980			980	
Travel Time (s)		25.5			24.7			22.3			22.3	
Volume (vph)	79	629	291	388	179	39	257	755	76	100	293	245
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	86	684	316	422	195	42	279	821	83	109	318	266
Lane Group Flow (vph)	86	684	316	422	237	0	279	904	0	109	584	0
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		2		1	6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phases	2	2	2	1	6		4	4		8	8	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	8.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	42.0	42.0	42.0	12.0	54.0	0.0	46.0	46.0	0.0	46.0	46.0	0.0
Total Split (%)	42%	42%	42%	12%	54%	0%	46%	46%	0%	46%	46%	0%
Maximum Green (s)	38.0	38.0	38.0	8.0	50.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	Coord	Coord	Coord	Max	Coord		Max	Max		Max	Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	38.0	38.0	38.0	50.0	50.0		42.0	42.0		42.0	42.0	
Actuated g/C Ratio	0.38	0.38	0.38	0.50	0.50		0.42	0.42		0.42	0.42	
v/C Ratio	0.24	1.14	0.57	1.19	0.16		1.20	0.72		0.87	0.44	
Uniform Delay, d1	21.1	31.0	18.6	20.2	11.4		29.0	23.7		26.4	10.6	
Delay	21.8	94.4	19.4	104.8	11.5		111.1	12.1		41.7	4.8	
LOS	C	F	B	F	B		F	B		D	A	
Approach Delay		66.8			71.2			35.5			10.6	
Approach LOS		E			E			D			B	
90th %ile Green (s)	38.0	38.0	38.0	8.0	50.0		42.0	42.0		42.0	42.0	
90th %ile Term Code	Coord	Coord	Coord	MaxR	Coord		MaxR	MaxR		MaxR	MaxR	
70th %ile Green (s)	38.0	38.0	38.0	8.0	50.0		42.0	42.0		42.0	42.0	
70th %ile Term Code	Coord	Coord	Coord	MaxR	Coord		MaxR	MaxR		MaxR	MaxR	
50th %ile Green (s)	38.0	38.0	38.0	8.0	50.0		42.0	42.0		42.0	42.0	
50th %ile Term Code	Coord	Coord	Coord	MaxR	Coord		MaxR	MaxR		MaxR	MaxR	
30th %ile Green (s)	38.0	38.0	38.0	8.0	50.0		42.0	42.0		42.0	42.0	
30th %ile Term Code	Coord	Coord	Coord	MaxR	Coord		MaxR	MaxR		MaxR	MaxR	
10th %ile Green (s)	38.0	38.0	38.0	8.0	50.0		42.0	42.0		42.0	42.0	
10th %ile Term Code	Coord	Coord	Coord	MaxR	Coord		MaxR	MaxR		MaxR	MaxR	
Stops (vph)	52	898	184	506	98		403	567		89	84	
Fuel Used(gal)	1	23	5	14	3		10	12		2	5	
CO Emmisions (g/hr)	93	1576	329	1004	203		699	807		147	356	
NOx Emmisions (g/hr)	18	307	64	195	39		136	157		29	69	
VOC Emmisions (g/hr)	22	365	76	233	47		162	187		34	82	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	37	~512	122	~124	34		~217	146		50	30	
Queue Length 95th (ft)	75	#730	212	#223	56		m#368	140		m#140	m46	
Internal Link Dist (ft)		1042			1006			900			900	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)							150			150		
50th Bay Block Time %							22%					
95th Bay Block Time %							64%	3%				
Queuing Penalty (veh)							193	4				

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 56 (56%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.20

Intersection Signal Delay: 46.6 Intersection LOS: D

Intersection Capacity Utilization 98.7% ICU Level of Service E

~ Volume exceeds capacity, queue is theoretically infinite.

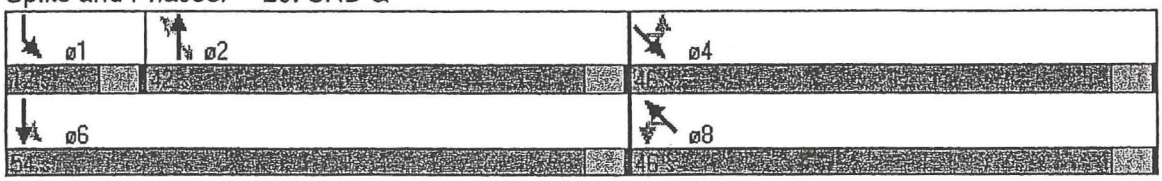
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: SRD &



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	75		0	0
Storage Lanes		0	2		1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50		50	50	50	50
Trailing Detector (ft)	0		0	0	0	0
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	1.00	0.97	0.95	1.00	1.00
Ped Bike Factor						
Frt						0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3005	0	2915	3005	1503	1345
Flt Permitted			0.114		0.950	
Satd. Flow (perm)	3005	0	350	3005	1503	1345
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						16
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)	30			30	30	
Link Distance (ft)	980			822	645	
Travel Time (s)	22.3			18.7	14.7	
Volume (vph)	888	0	560	611	248	836
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	965	0	609	664	270	909
Lane Group Flow (vph)	965	0	609	664	270	909
Turn Type			pm+pt			pm+ov
Protected Phases	6		5	2	4	5
Permitted Phases			2			4
Detector Phases	6		5	2	4	5
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	20.0		8.0	20.0	20.0	8.0
Total Split (s)	35.0	0.0	44.0	79.0	21.0	44.0
Total Split (%)	35%	0%	44%	79%	21%	44%
Maximum Green (s)	31.0		40.0	75.0	17.0	40.0
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	0.5		0.5	0.5	0.5	0.5
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0

Lane Group	SET	SER	NWL	NWT	NEL	NER
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	Max		Max	Coord	Max	Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
Act Effct Green (s)	31.0		75.0	75.0	17.0	61.0
Actuated g/C Ratio	0.31		0.75	0.75	0.17	0.61
v/c Ratio	1.04		0.47	0.29	1.05	1.10
Uniform Delay, d1	34.5		11.5	4.0	41.5	19.1
Delay	52.9		11.8	4.1	95.9	70.9
LOS	D		B	A	F	E
Approach Delay	52.9			7.8	76.6	
Approach LOS	D			A	E	
90th %ile Green (s)	31.0		40.0	75.0	17.0	40.0
90th %ile Term Code	Coord		MaxR	Coord	MaxR	MaxR
70th %ile Green (s)	31.0		40.0	75.0	17.0	40.0
70th %ile Term Code	Coord		MaxR	Coord	MaxR	MaxR
50th %ile Green (s)	31.0		40.0	75.0	17.0	40.0
50th %ile Term Code	Coord		MaxR	Coord	MaxR	MaxR
30th %ile Green (s)	31.0		40.0	75.0	17.0	40.0
30th %ile Term Code	Coord		MaxR	Coord	MaxR	MaxR
10th %ile Green (s)	31.0		40.0	75.0	17.0	40.0
10th %ile Term Code	Coord		MaxR	Coord	MaxR	MaxR
Stops (vph)	903		268	176	332	1056
Fuel Used(gal)	21		6	5	8	22
CO Emmisions (g/hr)	1492		449	377	554	1546
NOx Emmisions (g/hr)	290		87	73	108	301
VOC Emmisions (g/hr)	346		104	87	128	358
Dilemma Vehicles (#)	0		0	0	0	0
Queue Length 50th (ft)	~300		93	58	~190	~659
Queue Length 95th (ft)	m#401		142	79	#349	#900
Internal Link Dist (ft)	900			742	565	
50th Up Block Time (%)						18%
95th Up Block Time (%)						48%
Turn Bay Length (ft)			75			
50th Bay Block Time %			12%			
95th Bay Block Time %			23%	6%		
Queuing Penalty (veh)			58	18		

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:NWTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 44.3 Intersection LOS: D

Intersection Capacity Utilization 94.2% ICU Level of Service E

~ 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.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: SRD & SB Ent. SR826