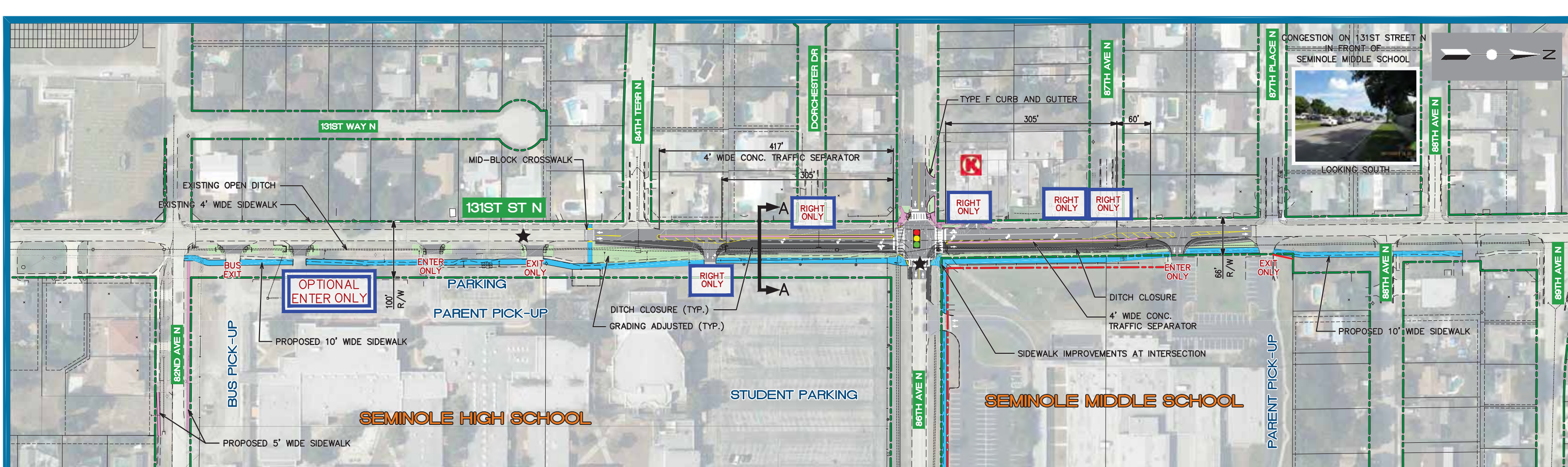
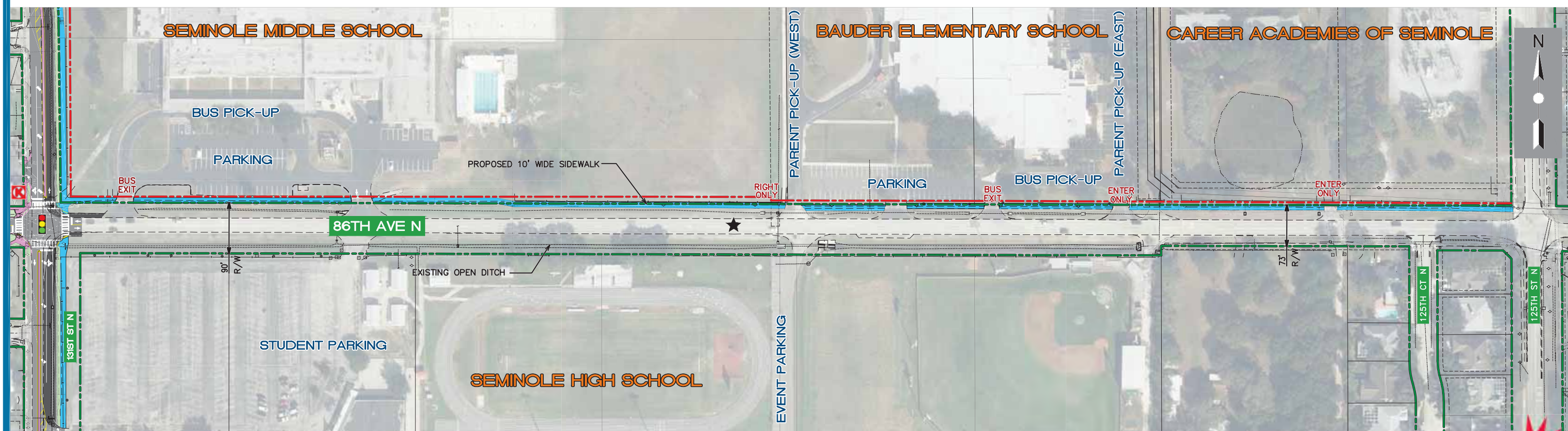


Appendix A

Build Alternatives



131ST STREET NORTH IMPROVEMENTS



86TH AVENUE NORTH IMPROVEMENTS

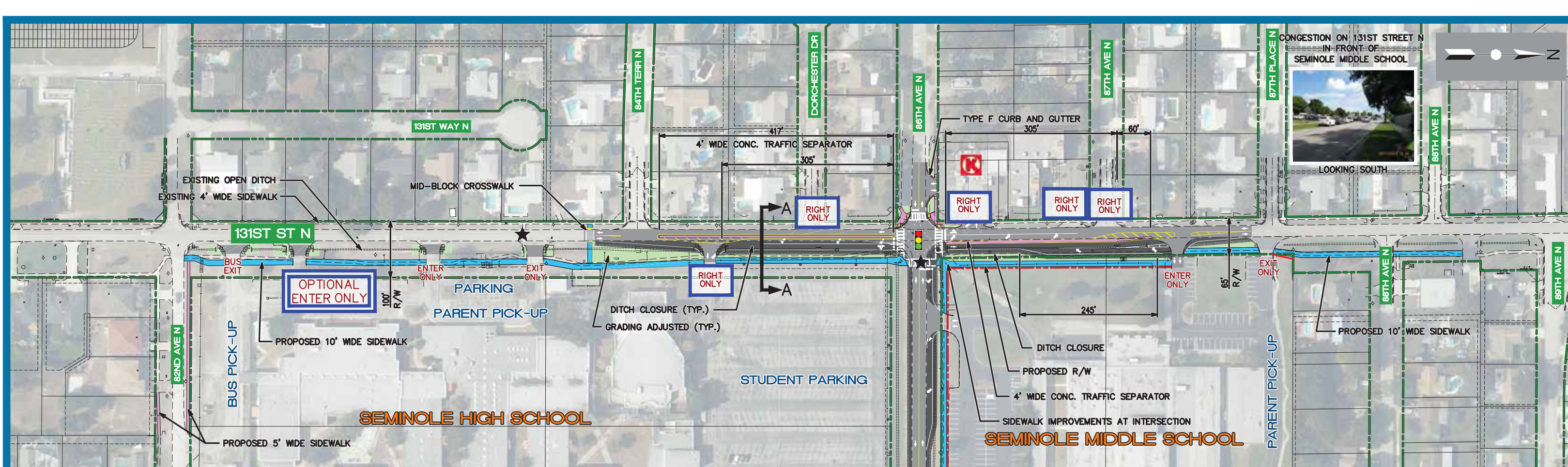
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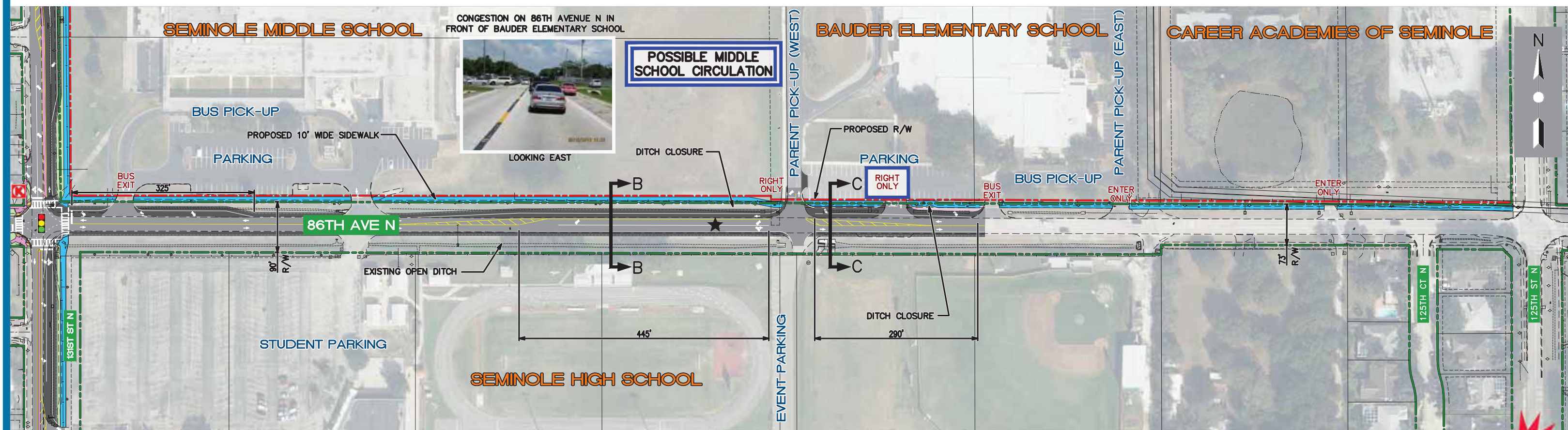
CIRCULATION MODIFICATIONS

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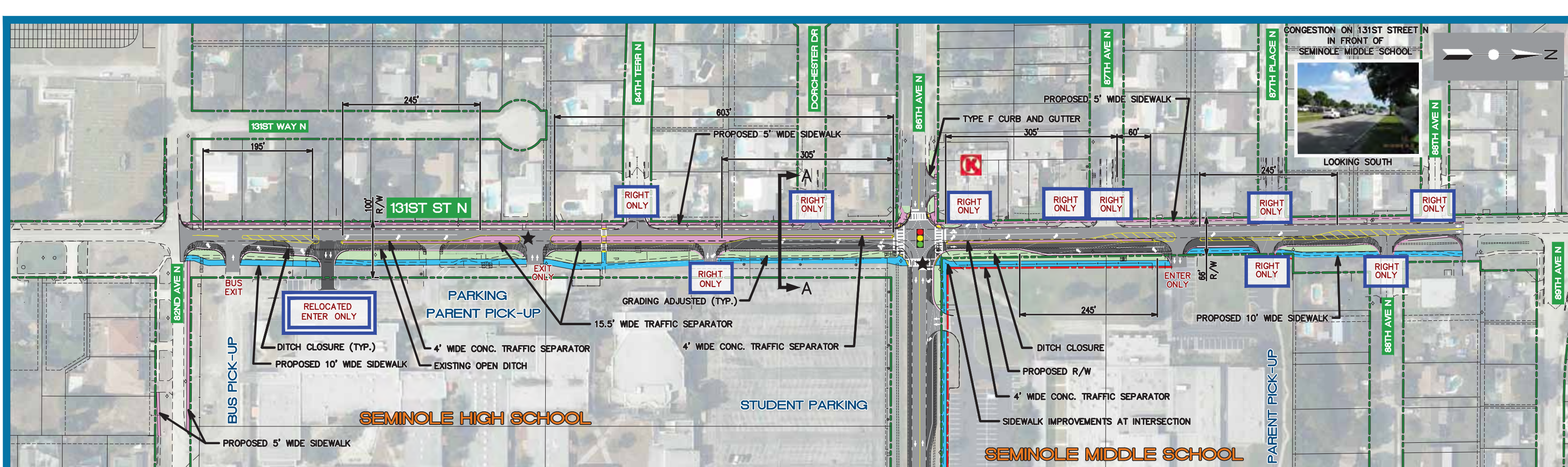




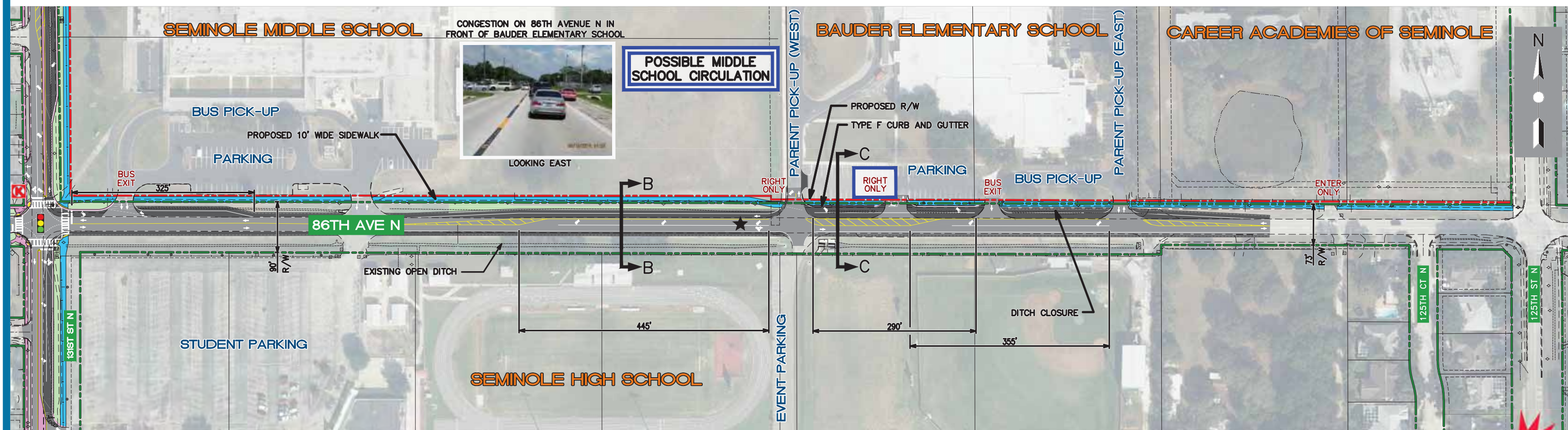
131ST STREET NORTH IMPROVEMENTS



86TH AVENUE NORTH IMPROVEMENTS ALTERNATIVE 2



131ST STREET NORTH IMPROVEMENTS




86TH AVENUE NORTH IMPROVEMENTS

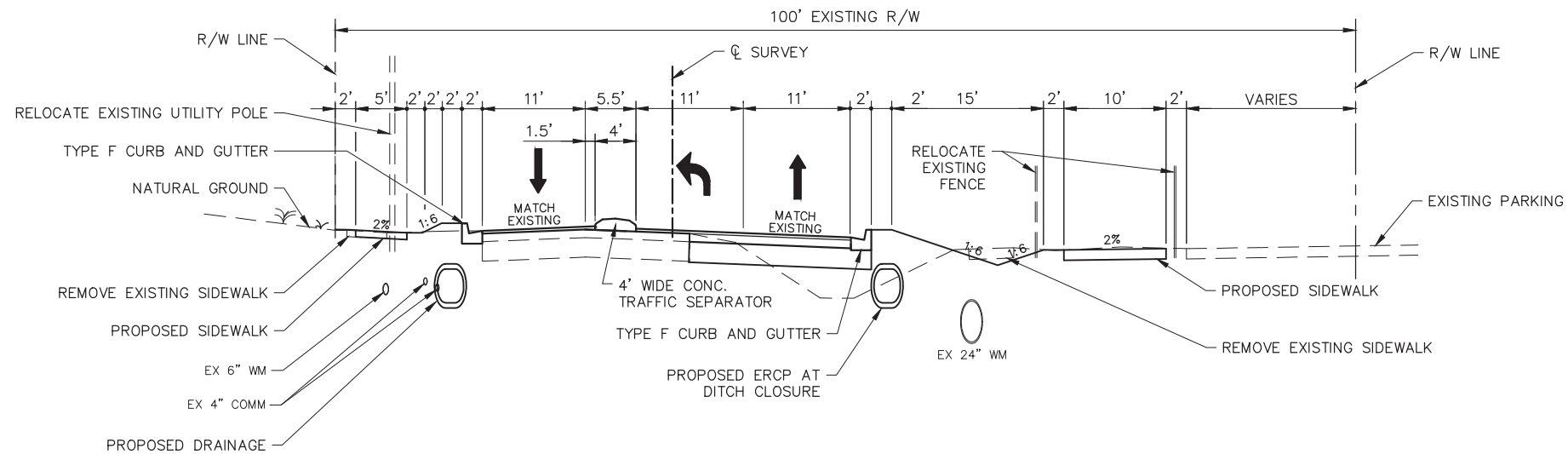
ALTERNATIVE 3

TYPICAL SECTION BB
86TH AVENUE N
ALTERNATIVE 2 AND 3

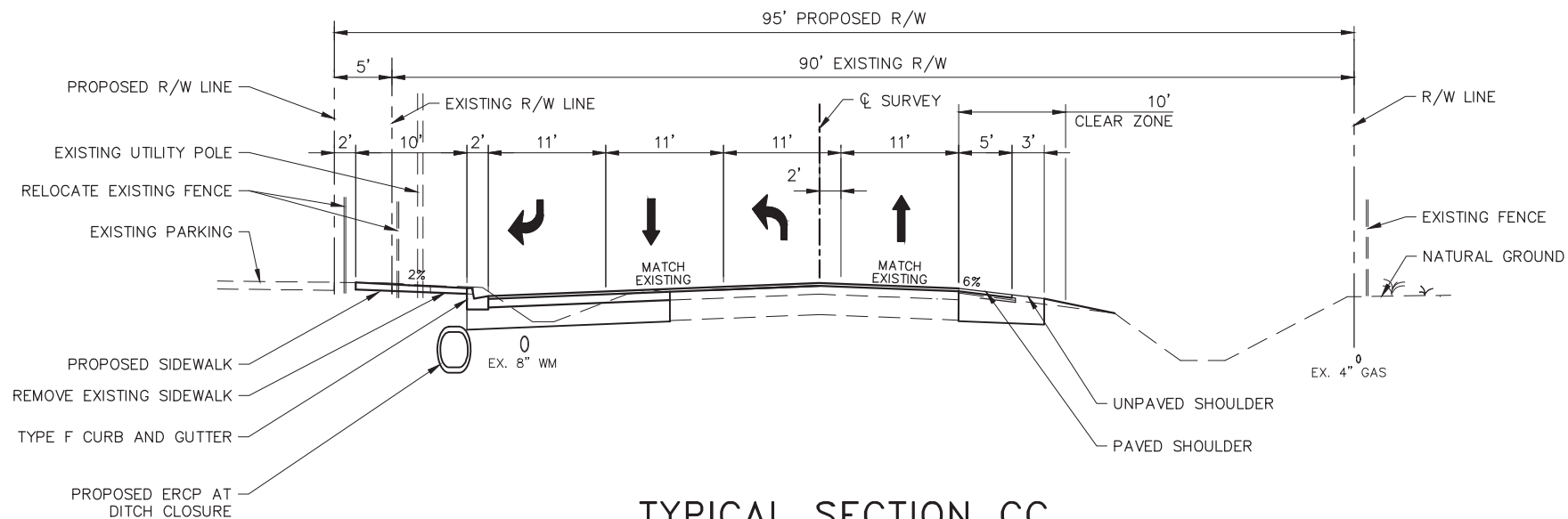
TYPICAL SECTION AA
131ST STREET N
ALTERNATIVE 1 AND 2

DESIGNED	TAH	 <div> <div>DIVISION OF ENGINEERING AND TECHNICAL SUPPORT</div> <div>14 S. FT. HARRISON AVE., CLEARWATER, FL 33756</div> </div>	PROJECT: INTERSECTION IMPROVEMENTS at 131ST STREET N AT 82ND AVENUE N, 131ST STREET N AT 86TH AVENUE N and 125TH STREET N AT 86TH AVENUE N	DESCRIPTION: TYPICAL SECTIONS	APPROVED BY:	DATE: 5/27/2015
DRAWN	TAH					PROJECT NO. 001023A
CHECKED	BK					SHEET: 4 OF 5 NICOLE HARRIS, P.E. FLA. LIC. NO 74351

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TYPICAL SECTION AA
131ST STREET N
ALTERNATIVE 3



TYPICAL SECTION CC
86TH AVENUE N
ALTERNATIVE 2 AND 3

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED	TAH
DRAWN	TAH
CHECKED	BK



DIVISION OF ENGINEERING
AND TECHNICAL SUPPORT
14 S. FT. HARRISON AVE., CLEARWATER, FL 33756

PROJECT:
INTERSECTION IMPROVEMENTS at
131ST STREET N AT 82ND AVENUE N,
131ST STREET N AT 86TH AVENUE N and
125TH STREET N AT 86TH AVENUE N

DESCRIPTION:
TYPICAL SECTIONS

APPROVED BY:	DATE
NICOLE HARRIS, P.E. FLA. LIC. NO 74351	

DATE:	5/27/2015
PROJECT NO.	001023A
SHEET:	5 OF 5

Appendix B

Design Criteria

Design Criteria for Intersection Improvements



Design Category	131 st Street N		86 th Avenue N		Source
	Standard	Existing Conditions	Standard	Existing Conditions	
Posted Speed		35		30	
Recommended Minimum Design Speed (DS) (mph)	35 Original Design Speed or Posted or 30 min.		35 Original Design Speed or Posted or 30 min.		Florida Green Book Table 3-1 Chapter 3 FDOT PPM Volume 1 Table 25.4.4.1
AADT (vpd)	-	9,002	-	6,867	Design Traffic Memorandum
Design Vehicle	Single Unit Truck (SU) Conventional School Bus (S-Bus-36)	-	Single Unit Truck (SU) Conventional School Bus (S-Bus-36)	-	Florida Green Book Table 3-2 Chapter 3 AASHTO Green Book, 2004 Edition, Exhibit 2-8
ROADWAY ELEMENTS					
Lane Width (ft.)	11	11+/-	11	11+/-	Florida Green Book Table 3-7 Chapter 3
Turn Lane Width (ft.)	11	N/A	11	N/A	FDOT PPM Volume 1, Table 2.1.1
Cross Slope (Travel Lanes)	0.02 Standard 0.015-0.030 Allowable Range		0.02 Standard 0.015-0.030 Allowable Range		FDOT PPM Volume 1, Table 25.4.6
Shoulder Width (ft.)	Minimum 6	-	Minimum 6	-	Florida Green Book Chapter 3 and Table 3-8
Shoulder Grade (ft. per ft.)	>0.03 & <0.08	-	>0.03 & <0.08	-	Florida Green Book Section C.7.c.2 Chapter 3
Front Slope	1:6 Desirable to 1:4 Steepest in CZ 1:3 Outside CZ Steeper 1:3 in CZ to be Shielded	-	1:6 Desirable to 1:3 Outside CZ 1:4 Steepest in CZ Steeper 1:3 in CZ to be Shielded	-	FDOT PPM Volume 1 Section 25.4.9
Back Slope	1:4 Desirable to 1:3 Steepest in CZ Steeper 1:3 in CZ to be Shielded	-	1:4 Desirable to 1:3 Steepest in CZ Steeper 1:3 in CZ to be Shielded	-	FDOT PPM Volume 1 Section 25.4.9
Border Width (ft.)	33 (No Curb)/12 (With Curb) DS < or = 40 mph	-	33 (No Curb)/10 (With Curb) DS < or = 30 mph	-	FDOT PPM Volume 1 Table 2.5.1 and Table 2.5.2
Minimum Turning Radii (ft.)	25 40 (For S-Bus-36) and 42 (For SU)	20-30	25 40 (For S-Bus-36) and 42 (For SU)	20-30	Florida Green Book Section C.9.e.1 AASHTO Green Book Exhibit 2-4 and 2-7
Length of Pavement Reduction (Taper)	$L=W(DS)^2/60$ Where DS = 35	-	$L=W(DS)^2/60$ Where DS = 30	-	FDOT Index 526
VERTICAL ALIGNMENT					
Minimum Grade (%) (Curb & Gutter Sections Only)	0.3	-	0.3	-	FDOT PPM Volume 1 Table 2.6.4
Minimum Distance Between VPI's (ft.) (Curb & Gutter Sections Only)	250	-	250	-	FDOT PPM Volume 1 Table 2.6.4

HORIZONTAL ALIGNMENT					
Maximum Deflection for Through lanes @ Intersections	6.0° (35 mph)	0°	8.0° (30 mph)	0°	FDOT PPM Volume 1 Table 2.8.1b
Driveway Radii (ft.)	Low Vol-Med Vol 15 Min. - 25 Min. 25 Std. – 50 Std. 50 Max. – 75 Max.		Low Vol-Med Vol 15 Min. - 25 Min. 25 Std. – 50 Std. 50 Max. – 75 Max.		FDOT Index 515
HORIZONTAL CLEARANCE					
Clear Zone (ft.)	4' Urban (Curbed)/ 10' Rural (shoulder)	-	4' Urban (Curbed)/ 10' Rural (shoulder)	-	Florida Green Book Table 3-12 Chapter 3
Traffic Control Signs	4' (From Face of Curb)/ Frangible Sign Posts	-	4' (From Face of Curb)/ Frangible Sign Posts		FDOT PPM Volume 1 Table 25.4.14.2
Light Poles	4' (From Face of Curb) 20' (Edge of Travel Lane) or 14' (From Aux. Lane)	N/A	4 (From Face of Curb)/ 20 (Edge of Travel Lane) or 14' (From Aux. Lane)	12.5' Curbed Section	FDOT PPM Volume 1 Table 25.4.14.3
Existing Above-Ground Fixed Utilities (AFUs)	Min. 1.5' (From Face of Curb)/ Outside of CZ	2.5' Min. Exist. 4.75' Min. Exist.	Min 1.5' (From Face of Curb)/ Outside of CZ	N/A 4.5' Min. Exist.	FDOT PPM Volume 1 Table 25.4.14.4
Signal Poles and Controller Cabinets	4' (From Face of Curb)/ Outside of CZ	17.5' N/A	4 '(From Face of Curb)/ Outside of CZ	8.1' and 20' 20'	FDOT PPM Volume 1 Table 25.4.14.5
Trees (ft.)	1.5' (From Face of Curb)/ 16' (Edge of Travel Lane)	15.3' Min. Exist.	1.5' (From Face of Curb)/ 16' (Edge of Travel Lane)	31.7' Min. Exist.	FDOT PPM Volume 1 Table 25.4.14.5
PEDESTRIAN & BICYCLE FACILITIES					
Sidewalk Width (ft.)	5 min(4 With Constraints)/ 6 min (adjacent to curb)	4 West 5 East	5 min(4 With Constraints)/ 6 min (adjacent to curb)	4 North 0 South	Florida Green Book Section C.7.d Chapter 3
Bicycle Lanes (ft.)	4 (Urban) 4-5 Paved Shoulders (Rural)	None	4 (Urban) 4-5 Paved Shoulders (Rural)	None	Florida Green Book C.10.b Chapter 3
Midblock Crosswalks	Midblock crossings may be used however, should be well signed and marked 1) No if intersection spacing is < 660 ft. 2) Must be > 330 ft. from an intersection 3)No if crossing distance > 60 ft.	Distance between intersections = 1329' Distance from intersection: 780' north; 550' south Width of street = 20'	N/A	1) No if intersection spacing is < 660 ft. 2) Must be > 330 ft. from an intersection 3)No if crossing distance > 60 ft.	Florida Green Book Chapter 8, F.1.b FDOT PPM Volume 1 Section 8.3.3.2
ACCESS MANAGEMENT					
Left Turn Lane Length	145' + Queue Length from Synchro Analysis (Includes 50' Taper) (305')	-	145' + Queue Length (Includes 50' Taper) (Used 350' for 15 cars)	-	FDOT Index 301
Right Turn Lane Length	145' + 100' Queue Length (4 cars) (Includes 50' Taper) (245')	-	145' + 100' Queue Length (4 cars) (Includes 50' Taper) (245')	-	FDOT Index 301 & FDOT PPM Volume 1 Section 2.13.2
Median Opening Spacing (ft.)	660 Directional 1320 Full 1320 Signal Spacing	-	660 Directional 1320 Full 1320 Signal Spacing	-	FDOT PPM Volume 1 Table 1.8.3
Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways, FHWA, May 2011; (referred to as the Florida Green Book) Plans Preparation Manual, Volume 1, Design Criteria and Process, FDOT, January 2015; (referred to as the FDOT PPM) Design Standards for Construction Operations on the State Highway System, FDOT, 2015 Edition (referred to as the FDOT Index) AASHTO Geometric Design and Highways and Streets, 2004 Edition; (referred to as the AASHTO Green Book)					

Appendix C

Design Traffic Memorandum

Design Traffic Memorandum
for
Intersection Improvements
at
131st Street N at 82nd Avenue N,
131st Street N at 86th Avenue N and
125th Street N at 86th Avenue N

County PID: 001023A

Prepared for:



Pinellas County
Engineering & Technical Support Division
14 S. Fort Harrison Avenue
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Prepared by:

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1408 N. Westshore Boulevard,
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Tampa, Florida 33607

February 2015

Design Traffic Memorandum
for
Intersections Improvements at
131st Street N. at 82nd Avenue N., 131st Street N. at 86th Avenue N. & 125th Street N.
at 86th Avenue N.

Table of Contents

Executive Summary	1
1.0 Objective	3
1.1 Purpose.....	3
1.2 Capacity	3
1.3 Safety	3
2.0 Existing Conditions.....	4
2.1 Roadway Facility Information	4
2.2 Pedestrian and Bicycle Facilities	4
2.3 Crash Data.....	4
2.4 Intersections and Signalization	11
2.5 Posted Speed Limits.....	12
3.0 Traffic	12
3.1 Turning Movements.....	12
3.2 Design Traffic Criteria Memorandum – Peak Hour And 2035 Traffic	12
3.3 Multimodal Transportation System Considerations	13
3.4 Intersection Level of Service	13
3.5 Recommended Intersection Modifications for Study	13
3.6 Intersection Alternatives Level of Service.....	17
3.7 Recommended Intersection Modifications	18
3.8 Traffic Signal Reconstruction	19
4.0 Roadway Analysis/Components	19
5.0 School Zones and School Safety.....	21
6.0 Possible Design Options on School Property	33

LIST OF TABLES

Table 1 – Roadway Facility Information.....	4
Table 2 – Crash Data by Type of Crash.....	5
Table 3 – Crash Data by Location.....	5
Table 4 – Crash Data by Severity.....	6
Table 5 – Crash Data by Number of Injuries.....	6
Table 6 – Crash Data by Month of Year.....	6
Table 7 – Crash Data by Day of Week.....	7
Table 8 – Crash Data by Time of Day.....	7
Table 9 – Crash Data by Driver Age.....	7
Table 10 – Crash Data by Driver at Fault Actions.....	8
Table 11 – Intersection Level of Service (2014 No Build & 2035 No Build).....	13
Table 12 – 131 st Street & 86 th Avenue N, Intersection Alternatives Level of Service.....	18

APPENDICES

A	Traffic Count Memorandum
B	Design Traffic Criteria Memorandum
C	Intersection Analysis Summary
D	Intersection Synchro Results
E	Intersection Alternatives Analysis Summary
F	Intersection Year 2014 Alternatives Synchro Results
G	Intersection Year 2035 Alternatives Synchro Results

Executive Summary

This Design Traffic Memorandum is prepared as a component of the Preliminary Engineering Report for Intersection Improvements at 131st Street N at 82nd Avenue N, 131st Street N at 86th Avenue N and 125th Street N at 86th Avenue N. These three intersections provide access to four Pinellas School District public schools (Bauder Elementary School, Seminole Middle School, Seminole Vocational School and Seminole High School) and for the numerous school-age children who walk/bicycle through the intersections on their way to and from school.

A traffic analysis was conducted to:

- Determine the existing level of service at the three study intersections, and
- Identify modifications that would improve the Level of Service (LOS) for existing (2014) traffic conditions and future (2035) traffic conditions.

In addition, the issue of establishment of school zones and school safety was analyzed in order to enhance safety for the numerous school-age children who traverse the three intersections.

The following traffic data was collected:

- At the three intersections, school driveways and the Circle K driveways (counts collected manually) 15 minute turning movement counts were obtained.
- Pedestrian/bicycle counts at the three intersections,
- Determination of the AM and PM peak hours for the traffic analysis,
- Determination of the 2035 traffic volumes at the three intersections, and
- Crash data at the three intersections and along 131st Street N and 86th Avenue.

The existing (2014) level of service for the three intersections were either B (good) or C (average) and is documented in Section 3.4. The level of service is a measurement of the efficiency of vehicular traffic flow through the intersection. The future (2035) level of service for the three intersections were either B (good), C (average) or D (poor). The poor level of service was at the 131st Street N and 86th Avenue intersection in the 2035 PM peak hour. The 2035 level of service is documented in Section 4.6. Based on the level of service analysis, it was determined that intersection improvements are required at 131st Street N & 86th Avenue to maintain an acceptable level of service. Intersection improvements were not required at the intersections of 86th Avenue N & 125th Street N and 131st Street N & 82nd Avenue. Three alternatives were developed to address the issue

of intersection improvements at the 131st Street N and 86th Avenue N. These alternatives consisted of two components:

- Adding left and right turn lanes and left turn traffic signal phasing to improve vehicular traffic flow and safety.
- Adding pedestrian safety enhancements to the traffic signal operation that would significantly improve the safety for the school children who traverse this intersection. These enhancements were the addition of an exclusive pedestrian phase and NO TURN ON RED signs that would be in operation when the elementary school and middle school children were at the intersection.

The three alternatives that were developed for the intersection of 131st Street N & 86th Avenue N are:

- Alternative 1 – Add left turn lanes and left turn traffic signal phasing on 131st Street N.
- Alternative 2 – Add left turn lanes and left turn phasing on 131st Street N and add an exclusive pedestrian traffic signal phase with NO TURN ON RED signs that would be operational when the elementary school and middle school children were at the intersection.
- Alternative 3 – Same as Alternative 2 but add a westbound right turn lane on 86th Avenue N at the intersection.

The three alternatives are described in Section 3.5

The traffic analysis of the three alternatives documented that all three alternatives improved the level of service for vehicular traffic. Since Alternative 1 did not have the added improvements to enhance pedestrian safety, it was not recommended for approval. Alternatives 2 and 3 produced similar results for the level of service, with Alternative 3 providing slightly better results. Based on the level of service analysis and since both Alternatives 2 and 3 significantly enhance pedestrian safety, Alternative 3 is recommended for approval. If physical constraints (right of way, utilities, drainage, etc.) made the construction of the westbound right turn lane on 86th Avenue N in Alternative 3 not feasible, then Alternative 2 is recommended for approval. The analysis of the alternatives and the recommended intersection modifications are described in Sections 4.6 and 4.7.

The issue of school zones and school safety were also reviewed. The establishment of school zones with a 15 MPH speed limit and school flashers is recommended at each school. It is recommended that the school zones be established as soon as possible (a short school zone currently exists on 131st Street N in front of the high school; it is

recommended this school zone be expanded.) The details of the recommended school zones and associated safety details are described in Section 5.0.

The final item reviewed was possible design options that could be constructed on school property that would reduce the existing traffic congestion. Several options are described in Section 6.0.

1.0 Objective

The primary objective of this report is to:

- Provide alternatives and recommendations for improving the vehicular operations (level of service) at the three study intersections, and
- Make recommendations to improve pedestrian/bicycle safety at the three intersections and on the County roads that provide access to the four schools in the study area.

1.1 Purpose

The Design Traffic Memorandum is being prepared in conjunction with the County's interest in making roadway improvements to 131st Street N between 82nd Avenue N (just south of Seminole High School) and 87th Place N (just north of Seminole Middle School).

1.2 Capacity

The intersection of 131st Street N and 86th Avenue N experiences significant traffic congestion during the times students are arriving for the start of and dismissal of the three schools in the study area. This congestion extends north, south and east of the intersection on 131st Street N and 86th Avenue. The level of congestion is documented in this report.

1.3 Safety

The congestion at the 131st Street N and 86th Avenue N intersection and along 131st Street N and 86th Avenue N in front of the three schools creates significant safety concerns for the hundreds of school students who walk/bike/drive to and from school. Discussions with the principals at the four schools all revealed significant concerns from the school's and parent's perspectives. This report will address these safety concerns.

2.0 Existing Conditions

2.1 Roadway Facility Information

The roadway facility information for 86th Avenue N, 125th Street N and 131st Street N in the study area is provided in the following Table 1.

Table 1 – Roadway Facility Information			
Item	86 th Avenue N.	125 th Street N	131 st Street N
Government Jurisdiction	Pinellas County Road	Pinellas County Road	Pinellas County Road
Functional Classification	Collector	Collector	Collector
Facility Type (Designation)	SMC (Signalized Collector Major)	SC (Signalized Collector)	SMC (Signalized Major Collector)
Road Type	2 Lane – Undivided	2 Lane – Undivided	2 Lane – Undivided
Level of Service Standard	Level of Service Standard = D	Level of Service Standard = D	Level of Service Standard = D
Level of Service Methodology	FDOT Generalized Tables	FDOT Generalized Tables	FDOT Generalized Tables
Average Annual Daily Traffic (vehicle/day)	6,867	4,243	9,002
Volume/Capacity Ratio	0.628	0.388	0.822
Facility Level of Service	C	B	C

Source of roadway facility information:

- Pinellas County Metropolitan Planning Organization Report titled “2014 Level of Service Report, Adopted September 10, 2014”.
- Pinellas County Comprehensive Plan, Functional Classification Pinellas County, Figure 3-2.

2.2 Pedestrian and Bicycle Facilities

There is an existing five foot sidewalk on the north side of 86th Avenue N from the east end to the west end of the study area. There are five foot sidewalks on the east and west side of 131st Street N from the south end to the north end of the study area. There are also sidewalks on both sides of 125th Street N. There are no bicycle lanes on 86th Avenue N, 125th Street N or 131st Street N.

2.3 Crash Data

The County provided crash data for the study area for the three year period from November 29, 2011 through October 17, 2014. This included intersection and

mid-block crashes. Forty-three (43) crashes occurred in the study area with the two most predominant crash types being “Rear End” (23 crashes) and “Angle” (12 crashes). There were three crashes in the Seminole High School student parking lot during the three year period. These three crashes were all property damage only crashes with no injuries. Since these three crashes did not occur on the roadway right of way, they were excluded from the crash data analysis.

Table 2 – Crash Data by Type of Crash							
Time Period	Number of Crashes	Rear End	Angle	Angle at Circle K Driveways	Angle With Pedestrian	Sideswipe	Wet Ran Off Road
Nov 29, 2011 thru Dec 31, 2011	2	2	0	0	0	0	0
Jan 1, 2012 thru Dec 31, 2012	16	8	5	2	0	1	0
Jan 1, 2013 thru Dec 31, 2013	16	7	6	2	0	0	1
Jan 1, 2014 thru Oct 17, 2014	9	6	1	0	2	0	0
Totals	43	23	12	4	2	1	1

Table 3 – Crash Data by Location						
Location	Number of Crashes	Rear End	Angle	Angle With Pedestrian	Sideswipe	Wet Ran Off Road
125/86 Intersection	13	10	2	0	0	1
131/86 Intersection	10	7	1	1	1	0
131/82 Intersection	5	1	4	0	0	0
Circle K Store	4	0	4	0	0	0
86 Ave Mid-block 125 St N – 131 St N	3	3	0	0	0	0
86 Ave Mid-block Just west of 131 St N	1	1	0	0	0	0
86 Ave at High School Student Parking Lot	2	0	2	0	0	0
131 St Midblock 82 Ave - 84 Terrace	2	1	0	1	0	0
131 St at High School Student Pkg. Lot	3	0	3	0	0	0
Totals	4	23	16	2	1	1

Intersection Improvements
Design Traffic Memorandum
February 2015

Table 4 – Crash Data by Severity (Type of Crash)					
Time Period	No Injury	Possible Injury	Injury –Non-Incapacitating	Injury Incapacitating	Fatal
Nov 29, 2011 thru Dec 31, 2011	1	1	0	0	0
Jan 1, 2012 thru Dec 31, 2012	11	4	1	0	0
Jan 1, 2013 Thru Dec 31, 2013	8	6	1	1	0
Jan 1, 2014 thru Oct 17, 2014	5	2	1	1	0
Totals	25	13	3	2	0

Table 5 – Crash Data by Number of Injuries					
Time Period	Total	Possible Injury	Injury –Non-Incapacitating	Injury Incapacitating	Fatal
Nov 29, 2011 thru Dec 31, 2011	2	2	0	0	0
Jan 1, 2012 thru Dec 31, 2012	8	7	1	0	0
Jan 1, 2013 thru Dec 31, 2013	14	9	4	1	0
Jan 1, 2014 thru Oct 17, 2014	4	2	1	1	0
Totals	28	20	6	2	0

Table 6 – Crash Data by Month of Year													
Time Period	Total	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
11/29/11 thru 12/31/11	2	0	0	0	0	0	0	0	0	0	0	1	1
1/1/12 thru 12/31/12	16	0	0	1	3	5	2	0	1	3	0	0	1
1/1/13 thru 12/31/13	16	2	3	1	0	3	0	0	1	1	2	2	1
1/1/14 thru 10/17/14	9	2	1	0	0	0	0	1	2	2	1	0	0
Total	43	4	4	2	3	8	2	1	4	6	3	3	3

Intersection Improvements
Design Traffic Memorandum
February 2015

Table 7 – Crash Data by Day of Week								
Time Period	Total	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
11/29/11 thru 12/31/11	2	1	1	0	0	0	0	0
1/1/12 thru 12/31/12	16	1	0	4	8	2	1	0
1/1/13 thru 12/21/13	16	1	3	3	6	2	1	0
1/1/14 thru 10/17/14	9	0	2	3	3	1	0	0
Total	43	3	6	10	17	5	2	0

Table 8 – Crash Data by Time of Day													
Time Period	Total	00:00 06:00	06:00 07:00	07:00 08:00	08:00 11:00	11:00 12:00	12:00 13:00	13:00 14:00	14:00 15:00	15:00 16:00	16:00 17:00	17:00 18:00	18:00 24:00
11/29/11 thru 12/31/11	2	0	0	0	0	0	0	0	1	1	0	0	0
1/1/12 thru 12/31/12	16	0	2	3	2	0	1	0	5	1	0	1	1
1/1/13 thru 12/31/13	16	0	2	0	1	1	1	3	5	2	1	0	0
1/1/14 thru 10/17/14	9	0	2	2	0	1	0	0	1	1	2	0	0
Total	43	0	6	5	3	2	2	3	12	5	3	1	1

Table 9 – Crash Data by Driver Age													
Time Period	Total	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	No Data
11/29/11 thru 12/31/11	2	1	0	1	0	0	0	0	0	0	0	0	0
1/1/12 thru 12/31/12	16	6	4	0	0	0	1	1	1	1	1	1	0
1/1/13 thru 12/31/13	16	5	4	0	1	0	1	0	1	1	0	1	2
1/1/14 thru 10/17/14	9	2	2	0	0	2	1	1	0	1	0	0	0
Total	43	14	10	1	1	2	3	2	2	3	1	2	2

Table 10 – Crash Data by Driver at Fault Actions								
Time Period	Total	Careless Driving	Failure to Yield R/W	Follow to Closely	Improper Turn	Distracted	Improper Passing	None
11/29/11 thru 12/31/11	2	0	0	1	0	1	0	0
1/1/12 thru 12/31/12	16	6	5	1	2	0	1	1
1/1/13 thru 12/21/13	16	6	6	0	1	2	0	1
1/1/14 thru 10/17/14	9	5	1	1	0	0	0	2
Total	43	17	12	3	3	3	1	4

Traffic Crash Data Key Observations:

- Type of crashes:
 - Rear end crashes (23) accounted for 53% of the total crashes
 - Angle crashes (12) accounted for 28% of the total crashes
 - All other crashes (8) accounted for 19% of the total crashes
- Crash locations:
 - Thirteen (13) crashes occurred at the intersection of 125th Street N & 86th Avenue N (30%)
 - Ten of the crashes were rear end crashes. All the rear end crashes were eastbound vehicles on 86th Avenue N at or approaching the traffic signal at 125th Street N
 - There was one wet weather crash involving an eastbound vehicle on 86th Avenue N that was turning left to go northbound on 125th Street N. The driver lost control, slid off the road and struck the pedestrian signal pole on the northeast corner
 - Ten (10) crashes occurred at the intersection of 131st Street N & 86th Avenue (23%)
 - Seven of the crashes were rear end crashes
 - There was one (1) angle with a pedestrian crash at this intersection. The pedestrian sustained a non-incapacitating injury
 - Five (5) crashes occurred at the intersection of 131st Street N & 82nd Avenue (12%)
 - Four of these crashes were angle crashes

- Four (4) crashes occurred at the driveways at the Circle K convenience store (9%)
 - All four of these crashes involved a vehicle exiting the Circle K and colliding with a vehicle on either 86th Avenue (2 crashes) or 131st Street N (2 crashes)
- Eleven (11) crashes occurred throughout the remainder of the study area (26%)
 - There was one (1) angle with a pedestrian crash at the crosswalk on 131st Street N in front of Seminole High School. The pedestrian sustained an incapacitating injury
- Crash severity (classified as the most severe injury occurring in the crash):
 - Twenty five (25) crashes with no reported injury (58%)
 - Thirteen (13) crashes with a possible injury (30%)
 - Three (3) crashes with a non-incapacitating injury (7%)
 - Two (2) crashes with an incapacitating injury (5%)
 - There were no fatal crashes
- Number of injuries for the 43 crashes:
 - Possible injuries = 20
 - Non-incapacitating injuries = 6
 - Incapacitating injuries = 2
 - Fatalities = 0
- Crashes by month of the year:
 - The two months with the highest number of crashes were May (8) and September (6)
 - The month with the lowest number of crashes was July (1)
- Crashes by day of the week:
 - The two days with the most crashes were Thursday (17) and Wednesday (10)
- Crashes by time of day:
 - The one hour period with the most crashes was 2:00 – 3:00 PM
 - The one hour period with the second most number of crashes was 6:00 – 7:00 AM
- Crashes by driver age (driver cited for causing the crash):
 - Ages 15 – 19 accounted for 14 crashes (33%)
 - Ages 20 – 24 accounted for 10 crashes (23%)
 - All remaining ages accounted for 19 crashes (44%)
- Crash actions by driver at fault:
 - Careless driving, 17 crashes (40%)

- Failure to yield the right of way, 12 crashes (28%)
- All other driver actions, 14 crashes (32%)

There were two crashes in the study area involving pedestrians. The details of these crashes are summarized below.

Crash that occurred on January 16, 2014 (Thursday) at 4:28 PM.

- Pedestrian was a twelve year old female crossing 131st Street N east to west in the marked crosswalk located at the parent loop exit driveway in front of Seminole High School.
- Northbound traffic on 131st Street N was at a standstill in the vicinity of the crosswalk.
- Pedestrian attempted to run across the roadway in the crosswalk.
- Pedestrian was struck by a southbound vehicle on 131st Street N, sustaining an incapacitating injury.
- No traffic citations were issued in conjunction with this traffic crash.

Crash that occurred on October 17, 2014 (Friday) at 7:03 AM.

- Pedestrian was a sixteen year old female, walking southbound in the sidewalk on the east side of 131st Street N, approaching the traffic signal at the intersection of 131st Street N & 86th Avenue.
- Motorist was traveling southbound on 131st Street N making a southbound left turn from 131st Street N to eastbound on 86th Avenue N (the traffic signal would be displaying a green arrow/green ball for the motorists, giving the motorist the right of way).
- The pedestrian entered the crosswalk on the east side of the intersection, in violation of a DONT WALK pedestrian traffic signal.
- The pedestrian was struck by the left turning vehicle, sustaining a non-incapacitating injury.
- The pedestrian action/circumstance was listed as “failure to obey traffic signs, signals or officer”.
- No traffic citations were issued in conjunction with this traffic crash.

Traffic Crash Discussion

The number and type of crashes and the low number of injuries for the three year crash period in the study area is consistent with what would be expected on two lane collector roadways with moderate speeds (less than 40 mph) in an urban area. The high number of rear end crashes is not surprising given the traffic backups at the two traffic signals on 86th Avenue N during the afternoon dismissal of Bauder Elementary School and Seminole Middle School. The low number of left turn crashes at the traffic signals can be attributed to the left turn phasing at these signals.

2.4 Intersections and Signalization

There are three intersections in the study area.

131st Street N and 82nd Avenue N: This intersection is a stop controlled intersection; 82nd Avenue stops east/west at 131st Street N.

131st Street N and 86th Avenue N: This intersection is signalized with a diagonal span (northeast corner to southwest corner) utilizing concrete strain poles. There are no left turn lanes at the intersection. There are pedestrian signals on all four corner sides of the intersection. Due to the heavy volume of turning traffic from 131st Street N to 86th Avenue, the north/south traffic signal phasing is “split phasing”; first northbound traffic receives a green arrow/green ball indication which allows protected left turns from northbound to west bound. Then southbound traffic receives a green arrow/green ball indication which allows protected left turns from southbound to eastbound. East/west traffic on 86th Avenue N has no left turn phasing; all left turns are permissive left turns (must yield to oncoming traffic). During the start and dismissal of Bauder Elementary School and Seminole Middle School, there are Pinellas County school crossing guards at the intersection to assist children crossing the intersection.

86th Avenue N and 125th Street N: This intersection is signalized with a diagonal span (northwest corner to southeast corner) utilizing concrete strain poles. There are no left turn lanes at the intersection. There are pedestrian signals on all four corner sides of the intersection. Due to the heavy volume of left turning traffic from eastbound 86th Avenue N to northbound 125th Street N, there is an advanced protected left turn phase (green arrow/green ball) for eastbound traffic on 86th Avenue. The other three approaches do not have any left turn phasing. During the start and dismissal of Bauder Elementary School and Seminole Middle School, there are Pinellas County school crossing guards at the intersection to assist children crossing the intersection.

2.5 Posted Speed Limits

The posted speed limits on 86th Avenue N and 125th Street N are 30 mph. The posted speed limit on 131st Street N is 35 mph.

3.0 Traffic

3.1 Turning Movements

Turning movement counts (TMC), vehicle and pedestrian/bicycle, were obtained at the three intersections (86th Avenue N at 125th Street N & 131st Street N and 82nd Avenue & 131st Street N) as well as the school driveways at Bauder Elementary School, Seminole Middle School and Seminole High School on 86th Avenue N and 131st Street N. In addition, TMCs were obtained at the Circle K convenience store driveways on the northwest corner of 131st Street N and 86th Avenue N. All the TMCs were obtained manually in fifteen (15) minute increments.

The turning movement count information is detailed in Appendix A, “Traffic Count Memorandum”.

3.2 Design Traffic Criteria Memorandum – Peak Hour And 2035 Traffic

The three schools in the study area have different start and dismissal times. These different times have a major impact on determining what the peak hours are in the study area for the traffic analysis. A comprehensive peak hour study was performed to examine the peak hour issues. Based on this study, the peak hours for the traffic analysis are 7:45 – 8:45 AM and 3:30 – 4:30 PM.

The 2035 traffic in the study area consists of two components; school traffic and background traffic. For school traffic, the Pinellas County School Board facilities staff advised that there are no anticipated additions (physical facilities) at the three schools in the study area; therefore the school traffic will not have a growth component for 2035 traffic. For background traffic, Volkert worked with the Pinellas County Metropolitan Planning Organization with respect to what traffic growth factor should be utilized to obtain 2035 background traffic volumes. A one percent per year growth factor was agreed upon. This growth factor was added to the 2014 traffic to obtain 2035 traffic volumes.

The peak hour study and 2035 traffic volumes are detailed in Appendix B, “Design Traffic Criteria Memorandum”.

3.3 Multimodal Transportation System Considerations

The predominant mode of travel on the roads in the study area consists of motorized vehicular traffic and pedestrian/bicycles. Sidewalks are on both sides of 131st Street N and 125th Street N and there is a sidewalk on the north side of 86th Avenue N in the study area. There are no bike lanes on any of the roadways. The nearest Pinellas Suncoast Transit Authority (PSTA) facility is Route 74 on Park Blvd/78th Avenue North, just south of the study area. The Pinellas Trail intersects 86th Avenue N at 119th Street N, east of the study area.

3.4 Intersection Level of Service

The AM and PM peak hour level of service for the three study intersections for 2014 No Build and 2035 No Build (existing intersection geometry) was analyzed by using the Synchro 8 traffic model. The results are shown in Table 11.

Table 11 – Intersection Level of Service (2014 No Build & 2035 No Build)					
Intersection	Traffic Control	2014 AM Peak Hour No Build	2014 PM Peak Hour No Build	2035 AM Peak Hour No Build	2035 PM Peak Hour No Build
131st St & 86 th Ave N	Traffic Signal	C	C	C	D
125 th St & 86 th Ave N	Traffic Signal	B	B	B	B
131 st St & 82 nd Ave - Eastbound	Stop Sign	B	B	B	B
131 st St & 82 nd Avenue - WB	Stop Sign	B	B	B	C

The detailed results that document the (1) level of service, 95% queue and delay and (2) Synchro inputs are included in Appendix C, “Intersection Analysis Summary” and Appendix D, “Intersection Synchro Results”.

3.5 Recommended Intersection Modifications for Study

The intersection level of service analysis documented that for the 2014 No Build and 2035 No Build conditions (existing geometry) the intersections of 131st Street N & 82nd Avenue N and 125th Street N & 86th Avenue N were operating at a good level of service (LOS B) except the 2035 PM Peak Hour westbound approach at 131st Street N & 82nd Avenue (level of service C – average). Based on these findings, no modifications are recommended for these two intersections.

At the 131st Street N & 86th Avenue N intersection, the level of service was C (average), except the 2035 PM peak hour, which was level of service D (poor). Based on this analysis, three alternatives were developed that would improve the level of service, particularly in the PM peak hour. In addition to improving the

level of service for vehicular traffic, modifications are also recommended to enhance pedestrian safety at the intersection. There are heavy volumes of pedestrians/bicyclists (primarily school children) crossing at the 131st Street N & 86th Avenue N intersection. The crossing guards assigned at this intersection have a challenge with monitoring turning traffic and assisting children crossing the street. The three alternatives to improve the vehicular level of service and also enhance pedestrian safety at 131st Street N & 86th Avenue N are described as follows:

1. Alternative 1: Add north/south left turn lanes and left turn traffic signal phasing on 131st Street N: This alternative would add north/south left turn lanes on 131st Street N at 86th Avenue N. The left turn phasing would be the standard protective/permissive phasing (green arrow followed by green ball). The left turn lanes and phasing would result in a more efficient intersection operation by eliminating the current north/south split traffic signal phasing on 131st Street N. The protected/permissive signal phasing would create conflicts between pedestrian crossings and vehicles turning left on the green ball. This alternative would improve vehicular operation but would not improve pedestrian safety.
2. Alternative 2: Add north/south left turn lanes and left turn traffic signal phasing on 131st Street N (same as Alternative 1) and provide an exclusive pedestrian only phase at the intersection with illuminated NO TURN ON RED signs during the hours the crossing guards are stationed at the intersection and/or a school zone with reduced speed limit is in operation for the start and dismissal of Bauder Elementary School and Seminole Middle School. Alternative 2 is the same as Alternative 1 with the addition of an exclusive pedestrian traffic signal phase and NO TURN ON RED signs that are in operation only when the crossing guards are at the intersection. Even with the protected/permissive left turn phasing on 131st Street N, there will still be left turn conflicts with children crossing the intersection. There will also be pedestrian/right turning vehicle conflicts with Alternative 1. Alternative 2 provides an exclusive pedestrian traffic signal phase during which only pedestrians have the right of way to enter the intersection. To prohibit right turning traffic from conflicting with the pedestrians crossing the intersection, NO TURN ON RED signs would be illuminated that prohibit vehicles from making a right turn on red. This feature guarantees that only pedestrians would be allowed to legally enter the intersection during the exclusive pedestrian phase. This provides the maximum protection for the pedestrian crossings. When the crossing guards are not on duty at the intersection, the NO TURN ON RED signs would not be in operation and right turns on red would be permitted. Due to the size of the NO TURN ON RED signs and the condition of the existing traffic signal overhead infrastructure, a new traffic signal with

mast arm poles or a box span with four new concrete strain poles would be required in order to install and operate the NO TURN ON RED signs.

3. Alternative 3: Add north/south left turn lanes and left turn traffic signal phasing on 131st Street N (same as Alternative 1); provide an exclusive pedestrian only phase at the intersection with illuminated NO TURN ON RED signs during the hours the crossing guards are stationed at the intersection and/or a school zone with a reduced speed limit is in operation for the start and dismissal of Bauder Elementary School and Seminole Middle School (same as Alternative 2) and add a westbound right turn lane. This alternative is the same as Alternative 2 with the addition of the westbound right turn lane. Both the AM and PM peak hours have significant volumes of westbound traffic that turns right to go north on 131st Street N. The addition of the westbound right turn lane would further improve the flow of vehicular traffic at the intersection. The exclusive pedestrian phase with the NO TURN ON RED signs will provide the maximum safety for pedestrians crossing the intersection when the crossing guards are present. As with Alternative 2, the NO TURN ON RED signs would require a new traffic signal infrastructure with mast arm poles or a box span with four new concrete strain poles. Due to a conflict between the NO TURN ON RED signs and a right turn overlap green arrow, a right turn overlap green arrow for the westbound right turn lane would not be permitted in the traffic signal phasing.

The three alternatives described above will be modeled in the Synchro program to determine the intersection level of service for each alternative.

Below are photos of an exclusive pedestrian phase in operation and a NO TURN ON RED sign mounted on a mast arm installation.



Exclusive Pedestrian Traffic Signal Phase



Exclusive Pedestrian Traffic Signal Phase



Traffic Signal Mast Arm Installation with the NO TURN ON RED Sign



Close Up View of NO TURN ON RED Sign

3.6 Intersection Alternatives Level of Service

Alternatives 1, 2 and 3 for the 131st Street N and 86th Avenue N intersection were modeled for the 2014 and 2035 AM and PM peak hours using the Synchro 8 program. The results are shown in Table 12. The results of the 2014 No Build and 2035 No Build analysis are included for reference.

Table 12 – 131st Street & 86th Avenue Intersection Alternatives Level of Service					
Intersection	Traffic Control	2014 AM Peak Hour No Build	2014 PM Peak Hour No Build	2035 AM Peak Hour No Build	2035 PM Peak Hour No Build
No Build Alternative	Traffic Signal	C	C	C	D
Alternative 1	Traffic Signal	A	B	B	B
Alternative 2	Traffic Signal	B	B	B	C
Alternative 3	Traffic Signal	B	B	B	B

The detailed results that document the (1) level of service, 95% queue and delay and (2) Synchro inputs are included in Appendix E, “Intersection Alternatives Analysis Summary”, Appendix F, “Intersection Year 2014 Alternatives Synchro Results” and Appendix G, “Intersection Year 2035 Alternatives Synchro Results”.

3.7 Recommended Intersection Modifications

All three alternatives provide an improved level of service for the 131st Street N and 86th Avenue N intersection, particularly in the PM peak hour for 2035 traffic. However, as was discussed in Section 3.5, Alternative 1 does not provide for enhanced pedestrian safety. Therefore, Alternative 1 is not recommended for approval.

The levels of service for Alternatives 2 and 3 are similar, except Alternative 3 provides a better level of service for the 2035 PM peak hour traffic. This is to be expected since Alternative 3 has the addition of a westbound right turn lane. Both Alternatives 2 and 3 provide significantly enhanced safety for pedestrians with the exclusive pedestrian traffic signal phase and the NO TURN ON RED signs.

Alternative 3 is recommended for approval. This alternative provides the most improved level of service for 2014 and 2035 vehicular traffic and provides enhanced safety for pedestrians. If physical constraints (right of way, drainage, utilities, etc.) create a condition where the construction of the westbound right turn lane in Alternative 3 is very challenging and/or expensive, then Alternative 2 is recommended for approval.

The traffic signal timings were also examined. Optimizing the signal timings may slightly decrease the delay at the intersection, but not enough to change the level of service. Therefore, changing the traffic signal timings will not result in a noticeable improvement in vehicular operations at the intersection.

3.8 Traffic Signal Reconstruction

The construction of a three lane roadway section on 131st Street N from just south of 82nd Avenue N to just north of Seminole Middle School will require reconstruction of the traffic signal at 131st Street N & 86th Avenue N. This traffic signal reconstruction should consist of the following components:

- Mast arm poles or a box span wire design.
- Pedestrian signalization on all approaches,
- Left turn phasing for 131st Street N (protected/permissive phasing),
- An exclusive pedestrian phase that would be operational with the start and dismissal of Bauder Elementary School and Seminole Middle School,
- NO TURN ON RED signs (LED/internally illuminated) that are operational only in conjunction with the exclusive pedestrian phase, and
- Signal to contain all equipment necessary for compatibility/operation with the Pinellas County Traffic Management System.

4.0 Roadway Analysis/Components

The three lane roadway section on 131st Street N should include the following features to reduce traffic congestion and enhance pedestrian safety:

- Left turn lanes at 86th Avenue N: The left turn lanes on 131st Street N will reduce the need for the current north/south split traffic signal phasing which is very inefficient and contributes to the delays and traffic congestion at this intersection during peak travel periods. With north/south left turn lanes, the standard left turn phasing (protected/permissive) can be utilized on 131st Street N at 86th Avenue N.
- Traffic separator: A concrete traffic separator five to six foot in width should be installed along the majority of the length of the three lane section of 131st Street N. The traffic separator will provide the following benefits:
 - Will provide a refuge island for pedestrians crossing 131st Street N, both at marked crosswalks and for the numerous pedestrians that jaywalk across 131st Street N.
 - Provide a location for a rectangular rapid flashing beacon (RRFB) installation that is either pedestrian and/or time clock actuated at the marked crosswalk in front of Seminole High School. This RRFB would provide enhanced protection for pedestrians crossing in a marked crosswalk.

- Channelize left turns from 131st Street N to the middle school and high school driveways and to the residential streets on the west side of 131st Street N.
 - The traffic separator would prohibit northbound left turns into and northbound left turns out of the Circle K convenience store driveway on 131st Street N. The store driveway on 131st Street N would become a right in/right out driveway. This would help to reduce congestion on 131st Street N at the Circle K driveway.
- Sidewalks: Sidewalks should be provided on both sides of 131st Street N. Due to heavy pedestrian volumes, the sidewalk on the east side of 131st Street N should be extra wide (seven to eight feet). The sidewalk on the west side of 131st Street N should be the standard five feet in width.
- Pedestrian landings at the intersection of 131st Street N and 86th Avenue. During the start and dismissal hours for the three schools in the study area, there are large numbers of pedestrians who wait on the corners of the 131st Street N/86th Avenue N intersection to cross the street. To accommodate these large numbers of pedestrians, the sidewalk landings on the corners should be oversized. This will impact the design of the ADA ramps at the intersection and the width of the crosswalks.
- Bike lanes on 131st Street N: The inclusion of bike lanes on the new three lane section of 131st Street N warrants discussion with the County. Since future construction of bike lanes on 131st Street N outside the study area is unlikely, a solid case can be made to not construct bike lanes on 131st Street N. In addition, in street bike lanes may encourage younger children to ride in the street. Younger children are not familiar with the standard rules of the road and may not adequately anticipate vehicle movements or right of way laws. Based on these factors, bike lanes are not recommended for the three lane section of 131st Street N.

During the course of the study, it was noted that major congestion occurs in the afternoon on 86th Avenue N at Bauder Elementary School; and especially at the west parent loop driveway. Eastbound traffic waiting to enter the west parent loop driveway queues in the eastbound travel lane on 86th Avenue N (queues of fifteen vehicles or more were observed). This forces eastbound through traffic to travel on the eastbound roadway shoulder to bypass the waiting school traffic. Westbound traffic waiting to enter the west parent loop driveway queues partially on the roadway shoulder and partially in the westbound travel lane. Westbound through traffic barely has sufficient room to bypass the queueing traffic. This congestion creates visibility issues for motorists, pedestrians and bicyclists in front of the school. Any emergency vehicle having to travel in front of or having to access the school property would be delayed. 86th Avenue N should be widened to three lanes in front of Bauder Elementary School. The three lane section needs to be of sufficient length to allow all left turning traffic that queues at the two

parent loop driveways to be accommodated in the center (left) turn lane. The construction of right turn lanes into the two parent loop driveways should also be explored to keep right turning traffic from blocking the westbound through lane.

5.0 School Zones and School Safety

During the afternoon school dismissal hours there is major congestion on 131st Street N at Seminole Middle School and Seminole High School and on 86th Avenue N at Bauder Elementary School. Traffic has difficulty passing through the area due to vehicles parking on the roadway shoulders and in the through travel lanes. The congestion is compounded by the vehicles entering/exiting the school driveways. Photos showing typical congestion that was observed are as follows:



Congestion on 86th Avenue N in Front of Bauder Elementary School



**Congestion on 86th Avenue N in Front of Bauder Elementary School
Note through Traffic Having to Drive on Roadway Shoulder**



Bauder Students Running Across 86th Avenue through Traffic Congestion



Congestion on 131st Street N in Front of Seminole Middle School



**Congestion on 131st Street N in Front of Seminole Middle School
Note Northbound Traffic Having to Drive Into Southbound Travel Lanes to Avoid
Vehicles Parked on Shoulder Waiting to Enter School Driveway**



Congestion of 131st Street N in Front of Seminole High School



Seminole High Students Not Crossing at Marked Crosswalk

To address the traffic congestion and the associated safety issues, school zones with school flashers/reduced speed limits are recommended on the street in front on each of the three schools in the study area. The reduced speed limit will provide additional protection for pedestrians and bicyclists of all ages during the start and dismissal hours for the three schools. Volkert recommends the school zones be established immediately. The school flasher locations on the new three lane section of 131st Street N will be located during the roadway design process. The details of the school zones are as follows:

- Bauder Elementary School: A school zone with a 15 MPH speed limit (regulatory speed limit that is enforceable by law enforcement) should be established on 86th Avenue N in front of the school. The school flasher for westbound traffic on 86th Avenue N should be located approximately 50 to 100 feet east of the school's east property line. The school flasher for eastbound traffic on 86th Avenue N should be located approximately 50 to 100 feet west of the school's west property line.
- Seminole Middle School: A school zone with a 15 MPH speed limit (regulatory speed limit that is enforceable by law enforcement) should be established on 131st Street N in front of the school. The school flasher for northbound traffic on 131st Street N should be located approximately one hundred feet north of 86th Avenue. The school flasher for southbound traffic on 131st Street N should be located approximately 50 to 100 feet north of the school's north property line.
- Seminole High School: The existing school zone on 131st Street N in front of the high school should be expanded in length (school zone currently established by signage). The school flasher for northbound traffic on 131st Street N should be located mid-way between the staff enter only driveway and the parent loop enter only driveway. The school flasher for southbound traffic on 131st Street N should be located mid-way between Dorchester Drive and the driveway to the high school student parking lot. This will focus the section of the roadway with the reduced 15 MPH speed limit to the area of the highest vehicle and pedestrian activity. School zones that are too long lead to higher vehicle speeds and reduce the effectiveness of the school zone. The vast majority of high schools do not have school zones. Florida Department of Transportation criteria states that when special circumstances occur, school zones at high schools should be addressed on a case-by-case basis, only used when needed and justified by an engineering study. Due to the heavy concentration of vehicle and pedestrian interaction along 131st Street N in front of the high school and a school zone is already established in front of the school, the expanded school zone on 131st Street N is justified.
- Hours of school zone operation: State Statute 316.1895 (5) states that the school speed limit should be in force only during those times thirty minutes before, during and thirty minutes after the periods of time when pupils are arriving at a regularly scheduled breakfast program or a regularly scheduled school session and leaving a regularly scheduled school session. The start and dismissal times for the three schools and the recommended times for the school flashers with the reduced 15 MPH speed limit are follows. Whether or not to operate the school zones for a breakfast session should be discussed between the Pinellas School District staff and Pinellas County Traffic Engineering staff.

- Bauder Elementary School: 8:35 AM – 2:35 PM.
 - School zone times: 8:05 – 9:05 AM and 2:05 – 3:05 PM.
 - Seminole Middle School: 9:30 AM – 4:00 PM.
 - School zone times: 9:00 – 10:00 AM and 3:30 – 4:30 PM.
 - Seminole High School: 7:05 AM – 1:35 PM.
 - School zone times: 6:35 – 7:35 AM and 1:05 – 2:05 PM.
- School flashers: School flashers that utilize the standard yellow flashing beacon and the reverse yellow flashing beacon should be utilized at each of the three school zones. The END SCHOOL ZONE sign is always aligned with the school flasher installation. Therefore the reverse flashing yellow beacon denotes the end of the school zone. The advantages of the reverse beacon are:
 - It clearly signifies to motorists where the school zone ends.
 - If there are any streets and/or driveways within the school zone, the reverse beacon reminds motorists they have entered a school zone.
 - The reverse beacons aids law enforcement with enforcing the school zone because the limits of the school zone are clearly established by the standard and reverse beacon.

Photos of a school flasher with standard and reverse flashing yellow beacons are shown below.



School Flasher with Standard and Reverse Flashing Beacons



Reverse Flashing Beacon on a School Flasher Installation



Close Up View of the Standard and Reverse Flashing Beacons on a School Flasher Installation

There is an existing marked crosswalk across 131st Street N in front of the high school. Volkert recommends that the existing flashing warning beacons at this location be replaced with a rectangular rapid flashing beacon assembly (RRFB), one beacon in each direction. The RRFB will increase driver awareness of the pedestrian crossing and enhance pedestrian safety. The RRFB has a light bar similar to an emergency vehicle and is very visible to motorists. The RRFB can either be actuated by a time clock or pedestrian actuated. Volkert recommends the RRFB be actuated at the same time the school zone flashers are actuated to increase motorist awareness of the pedestrians in the immediate area of the RRFB. The RRFB should be installed immediately. When 131st Street N is widened to a three lane section and if a traffic separator is installed, a STOP HERE FOR PEDESTRIAN sign (R1-5bL) should be installed on the right hand side of the road before the marked crosswalk and the IN STREET PEDESTRIAN sign (R1-6a) should be installed on the traffic separator at the crosswalk location in both travel directions.

A vendor's advertisement sheet showing a RRFB is on the following page.



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R920_{SERIES}

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Pedestrian-actuated warning system for uncontrolled marked crosswalks

RRFBs have been found to provide vehicle yielding rates between 72 and 96 percent for crosswalk applications, including 4 lane roadways with average daily traffic (ADT) exceeding 12,000*.

Superior Design and Technology

The R920 utilizes a self-contained solar engine integrating the energy management system with an on-board user interface, housed in a compact enclosure together with the batteries and solar panel. In low light conditions, the ambient auto-adjust option provides over-lighting protection and system efficiency.

Easy Installation

With its highly efficient and compact design, installation is quick and uncomplicated, dramatically reducing installation costs. Retro-fitting can be done where existing sign bases are used to enhance existing marked crosswalks in minutes, and new installations can be completed without the cost of larger poles and bases.

Advanced User-Interface

The R920 is the first RRFB with an on-board user interface and display for quick configuration and status monitoring. It allows for simple in-the-field set-up adjustment to flash duration, ambient settings, and night intensity. Settings are broadcasted automatically to all units in the system.

Reliable

Designed with Carmanah's industry leading solar modeling tools to provide dependable year-after-year operation.

Trusted

With thousands of installations in the field, Carmanah solar beacons and solar LED lights have become the benchmark in traffic applications and other transportation applications worldwide.

The R920 is the new benchmark for Rectangular Rapid Flashing Beacons (RRFBs):

- Ultra-efficient optical and Energy Management Systems (EMS)
- Compact design to simplify installation
- Proven technology platform
- Exceeds FHWA standards



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* U.S. Department of Transportation Federal Highways Administration, Publication No. FHWA-HRT-10-043 - "Effects of Yellow Rectangular Rapid-Flashing Beacons on Yielding at Multilane Uncontrolled Crosswalks"

Photos of the pedestrian signs that would be used in conjunction with the RRFB are shown below.



**Stop Here for Pedestrians Sign in Advance
Of a Marked School Crosswalk**



Close Up of the Stop Here for Pedestrians Sign



In Street Pedestrian Crossing Signs at a Marked School Crosswalk



Marked School Crosswalk with In Street Pedestrian Crossing Signs



In Street Pedestrian Crossing Sign at a Recreational Trail Street Crossing



Recreational Trail Street Crossing with Stop Here for Pedestrians Sign and In Street Pedestrian Crossing Signs. Photo Shows How the Signs Would be installed at a Marked School Crosswalk

The combination of school zones with a reduced speed limit of 15 MPH and the RRFB assembly with pedestrian signs at the marked crosswalk across 131st Street N in front of the high school will provide a significant increase in safety for pedestrians and bicyclists in the study area.

6.0 Possible Design Options on School Property

During the course of the study, several design options on school property were noted that would address the current traffic congestion and school safety issues.

1. At the west parent loop driveway at Bauder Elementary School, the inbound travel lane could be widened to two inbound lanes to accommodate additional traffic on school property. This widening would also impact the driveway connection to 86th Avenue N and the drainage ditch. Any additional storage space that can be created on school property will reduce the vehicles that currently queue on 86th Avenue in the afternoon.
2. At the parent loop driveway entrance at Seminole Middle School, a right turn lane could be constructed on 131st Street to keep traffic from parking partially in the northbound travel on 131st Street. School traffic is currently parking on the roadway shoulder and the shoulder could be paved.
3. The student parking lot at Seminole High School is a large facility with driveway access onto both 131st Street N and 86th Avenue N. This facility could be converted to a one way ingress/egress operation (enter via 131st Street N and exit on 86th Avenue N) with two lanes for entering traffic that is waiting to pick up students in the afternoon. This one way operation would reduce congestion on 131st Street N. The interior traffic circulation in the facility would remain unchanged, only the points of ingress/egress would be affected.
4. The existing parent loop driveway on 131st Street at Seminole High School could be expanded to the south into the parking area. This would provide more on site stacking room. To guarantee this option would work, the existing enter driveway at the parent loop would need to be closed.
5. When 131st Street N is widened to a curb and gutter, three lane roadway section, the motorists who currently park on the east and west shoulders of 131st Street N will be forced to park somewhere else. Parking in the northbound/southbound travel lanes is not allowed and jumping the curb would result in vehicles parking on the sidewalks, creating new safety issues. The issue of where the vehicles that currently park on the shoulders of 131st Street N in front of the high school for the afternoon school dismissal will need to be addressed as a component of the 131st Street N design effort. The two options to address this issue would be number 3 and 4 as described above.

Appendix A

Traffic Count Memorandum

October 8, 2014

Gregory J. Cutrone, PE, Unit Supervisor
Civil & Structural Systems Unit of the Planning & Design Section
Pinellas County DEI Engineering and Technical Support
14 S. Ft. Harrison Ave., 6th Floor
Clearwater, Florida 33756

Reference: **131st Street N at 86th Avenue N & 86th Avenue N at 125th Street N & 131st Street N at 82nd Avenue N Intersections Improvements**

Pinellas County PID: **001023A**

Subject: **Traffic Count Memorandum**

Dear Mr. Cutrone:

Transmitted herewith, for the County's review and approval, is the Traffic Count Memorandum and field sheets for the above referenced project. The memorandum summarizes the traffic counts taken May 13 - 15 and September 16, 17 & 22, 2014.

The counts were taken at the following locations:

- 131st Street N/86th Avenue N,
- 86th Avenue N/125th Street N,
- 131st Street N/82nd Avenue N,
- Bauder Elementary,
- Seminole Middle School,
- Seminole High School, and
- Circle K.

We trust that this memorandum meets the County's requirements. Should you have any questions or require additional information, please contact me at (813) 868-1954 or nicole.harris@volkert.com.

Sincerely,

VOLKERT, INC.

Nicole B. Harris, PE
Project Manager

Enclosures

NH/nh

Office Locations:

Birmingham, Foley, Mobile, Montgomery, Alabama • Gainesville, Pensacola, Tampa, Florida • Atlanta, Georgia
Collinsville, Illinois • Baton Rouge, New Orleans, Slidell, Louisiana • Biloxi, Jackson, Mississippi • Jefferson City, Missouri
Raleigh, North Carolina • Columbia, South Carolina • Chattanooga, Tennessee • Alexandria, Virginia • Washington, D.C.



MEMORANDUM

Date: October 8, 2014

To: Daniel Glaser, PE
Senior Engineer

From: Nicole Harris, PE
Project Manager

Project: 131st Street N at 86th Avenue N & 86th Avenue N at 125th Street N & 131st Street N at 82nd Avenue N
Intersection Improvements

Subject: Traffic Count Memorandum

This memorandum details the traffic counts that were obtained at the above referenced intersections and at the driveways accessing the three Pinellas County public schools in the immediate vicinity. The traffic counts were obtained on May 13-15 and September 16, 17 & 22, 2014. A team of five obtained the traffic counts by manually counting vehicles, pedestrians and bicyclists. All traffic counts were obtained in fifteen minute increments. The traffic count parameters are as follows:

- Intersections:
 - 131st Street N at 86th Avenue N (6:30 AM to 6:00 PM),
 - Vehicles, and
 - Pedestrians and bicyclists crossing the intersection in the crosswalks.
 - 86th Avenue N at 125th Street N
 - Vehicles (6:30 AM to 6:00 PM), and
 - Pedestrians and bicyclists (7:30 to 10:00 AM and 2:15 to 5:00 PM).
 - 131st Street N at 82nd Avenue N (6:30 AM to 6:00 PM), and
 - Vehicles (6:30 AM to 6:00 PM),
 - Pedestrians and bicyclists (6:30 to 7:30 AM and 1:00 to 2:00 PM).
- Circle K Convenience Store driveways at 131st Street N & 86th Avenue N (6:30 AM to 6:00 PM),
 - Vehicles using the driveway on 131st Street N immediately north of the intersection, and
 - Vehicles using the driveway on 86th Avenue N immediately west of the intersection.
- For the vehicular, pedestrian & bicyclist and Circle K driveway counts at the intersections, the peak hour traffic volumes are recorded two ways; (1) by traditional AM, noon and PM peak hours, and (2) by volume only for the AM, noon and PM periods of the day. Peak hour traffic is always the four consecutive fifteen minute periods that occurred during the period of the day being examined. Due to the different start and dismissal times for the three schools, there are differences in the peak hours between the two methods of recording the peak hour traffic. For the traditional peak hour method, the times of day were:

Office Locations:

Birmingham, Foley, Mobile, Montgomery, Alabama • Gainesville, Pensacola, Tampa, Florida • Atlanta, Georgia
Collinsville, Illinois • Baton Rouge, New Orleans, Slidell, Louisiana • Biloxi, Jackson, Mississippi • Jefferson City, Missouri
Raleigh, North Carolina • Columbia, South Carolina • Chattanooga, Tennessee • Alexandria, Virginia • Washington, D.C.

- AM Peak Hour, 6:30 AM to 9:00 AM,
- Mid-Day Peak Hour, 11:30 AM to 1:30 PM, and
- PM Peak Hour, 4:00 PM to 6:00 PM.

For the volume only method, the peak hour times vary and are listed in the summary for each intersection traffic count.

- Schools:
 - Seminole High School (school hours are 7:05 AM to 1:35 PM),
 - Vehicles at the one school driveway on 86th Avenue N,
 - Vehicles at the five school driveways on 131st Street N,
 - AM count hours, 6:30 to 7:30 AM, and
 - PM count hours, 1:00 to 2:00 PM.
 - Seminole Middle School (school hours are 9:30 AM to 4:00 PM),
 - Vehicles at the two school driveways on 86th Avenue N,
 - Vehicles at the two school driveways on 131st Street N,
 - AM count hours, 7:30 to 10:00 AM, and
 - PM count hours, 3:15 to 4:30 PM.
 - Bauder Elementary School (school hours are 8:35 AM to 2:35 PM),
 - Vehicles at the four school driveways on 86th Avenue N,
 - AM count times, 7:30 to 10:00 AM, and
 - PM count times, 1:30 to 3:00 PM.

The traffic count data with key observations is summarized below:

131st Street N at 86th Avenue N Intersection (Traffic Signal Control)

- Data collection hours: 6:30 AM to 6:00 PM.
- Total count = 9,614 vehicles.
- 131st Street N (north/south) = 5,902 vehicles (61%).
- 86th Avenue N (east/west) = 3,712 vehicles (39%).
- Peak hour traffic:
 - Traditional peak hours:
 - AM peak hour is 7:45 to 8:45 AM, 1,098 vehicles,
 - Mid-Day peak hour is 11:45 AM to 12:45 PM, 673 vehicles, and
 - PM peak hour is 4:15 to 5:15 PM, 996 vehicles.
 - Peak hours by volume:
 - AM peak hour is 7:45 to 8:45 AM, 1,098 vehicles,
 - Mid-Day peak hour is 1:45 to 2:45 PM, 973 vehicles, and
 - PM peak hour is 4:15 to 5:15 PM, 996 vehicles.
- Key observations:
 - In the AM peak hour, the highest volume movement was from the northwest corner to the northeast corner, 68 pedestrians and bicyclists (53%) and the second highest volume movement was from the northeast corner to the northwest corner, 23 pedestrians and bicyclists (18%).
 - In the PM peak hour, the highest volume movement was from the northeast corner to the northwest corner, 181 pedestrians and bicyclists (52%) and the second highest volume movement was from the northeast corner to the southeast corner, 138 pedestrians and bicyclists (40%).
 - On the northbound approach, 32% of the traffic turned right or left. In the AM peak hour, 32% of the traffic turned right.

- On the southbound approach, 34% of the traffic turned left in the AM peak hour.
- On the northbound and southbound approaches, 18% of the traffic turned left in the PM peak hour.
- On the westbound approach, 49% of the traffic made a right or left turn during the AM and PM peak hours.

86th Avenue N at 125th Street N Intersection (Traffic Signal Control)

- Data collection hours: 6:30 AM to 6:00 PM.
- Total count = 7,253 vehicles.
- 125th Street N (north/south) = 2,993 vehicles (41%).
- 86th Avenue N (east/west) = 4,260 vehicles (59%).
- Peak hour traffic:
 - Traditional peak hours:
 - AM peak hour is 8:00 to 9:00 AM, 804 vehicles,
 - Mid-Day peak hour is 11:45 AM to 12:45 PM, 489 vehicles, and
 - PM peak hour is 4:00 to 5:00 PM, 749 vehicles.
 - Peak hours by volume:
 - AM peak hour is 8:00 to 9:00 AM, 804 vehicles,
 - Mid-Day peak hour is 1:30 to 2:30 PM, 823 vehicles, and
 - PM peak hour is 3:30 to 4:30 PM, 799 vehicles.
- Key observations:
 - In the AM peak hour, 59% of southbound traffic turned right and 60% of northbound traffic turned left.
 - In the PM peak hour, 32% of southbound traffic turned right and 28% of northbound traffic turned left.
 - On the northbound approach, 32% of the traffic turned left.
 - On the southbound approach, 42% of the traffic turned right.
 - On the eastbound approach, 42% of the traffic turned right or left.
 - On the westbound approach, 21% of the traffic turned right or left.

131st Street N at 82nd Avenue N Intersection (Stop Sign Control at 82nd Avenue)

- Data collection hours: 6:30 AM to 6:00 PM.
- Total count = 6,608 vehicles.
- 131st Street N (north/south) = 5,627 vehicles (85%).
- 82nd Avenue N (east/west) = 981 vehicles (15%).
- Peak hour traffic:
 - Traditional peak hours:
 - AM peak hour is 7:45 to 8:45 AM, 642 vehicles,
 - Mid-Day peak hour is 12:30 to 1:30 PM, 490 vehicles, and
 - PM peak hour is 4:00 to 5:00 PM, 736 vehicles.
 - Peak hours by volume:
 - AM peak hour is 7:45 to 8:45, 642 vehicles,
 - Mid-Day peak hour is 1:30 to 2:30 PM, 668 vehicles, and
 - PM peak hour is 4:00 to 5:00 PM, 736 vehicles.
- Key observations:
 - On the northbound and southbound approaches, 88% of the traffic is straight through traffic (do not turn right or left).
 - On the eastbound and westbound approaches, 87% of the traffic makes a left or right turn.
 - On the eastbound approach, 63% of the traffic turns right.
 - On the westbound approach, 56% of the traffic turns right.

131st Street N at 86th Avenue N Intersection, Pedestrian and Bicycle Counts

- Data collection hours: 6:30 AM to 6:00 PM.
- Total count = 1,192 pedestrians and bicyclists.
- 131st Street N (north/south) = 526 pedestrians and bicyclists (44%).
- 86th Avenue N (east/west) = 666 pedestrians and bicyclists (56%).
- Peak hour traffic:
 - Traditional peak hours:
 - AM peak hour is 8:00 to 9:00 AM, 129 pedestrians and bicyclists,
 - Mid-day peak hour is 12:15 to 1:15 PM, 11 pedestrians and bicyclists, and
 - PM peak hour is 4:00 to 5:00 PM, 349 pedestrians and bicyclists.
 - Peak hours by volume:
 - AM peak hour is 8:30 to 9:30 AM, 182 pedestrians & bicyclists,
 - Mid-Day peak hour is 1:30 to 2:30 PM, 248 pedestrians & bicyclists, and
 - PM peak hour is 3:45 to 4:45 PM, 353 pedestrians & bicyclists.
- Key observations:
 - The highest volume movement, 534 pedestrians and bicyclist (45%), was east/west between the northeast and northwest corners. The vast majority of this movement were students going to and coming from Seminole Middle School and Bauder Elementary School.
 - The second highest movement, 341 pedestrians and bicyclist (29%), was north/south between the northeast and southeast corners. There were two components to this movement:
 - Students from Seminole High School who were headed northbound in the afternoon, and
 - Students from Seminole Middle School who were headed southbound to meet their parents who were parked in the high school parking lot.
 - The lowest movement, 132 pedestrians and bicyclists (11%), was east/west between the southeast and southwest corners.
 - There was a very high rate of compliance with the pedestrian signals, even when the school crossing guards were not present.
 - In the afternoon, many parents parked in the Circle K parking lot to pick up elementary and middle school students.

86th Avenue N at 125th Street N Intersection, Pedestrian and Bicycle Counts

- Data collection hours: 7:30 to 10:00 AM and 2:15 to 5:00 PM.
- Total count = 236 pedestrians and bicyclists.
- 125th Street N (north/south) = 78 pedestrians and bicyclists (33%).
- 86th Avenue N (east/west) = 158 pedestrians and bicyclists (67%).
- Peak hour traffic:
 - Traditional peak hours:
 - AM peak hour is 8:00 to 9:00 AM, 59 pedestrians and bicyclists,
 - PM peak hour is 4:00 to 5:00 PM, 57 pedestrians and bicyclists.
 - Peak hours by volume:
 - AM peak hour is 8:15 to 9:15 AM, 63 pedestrians and bicyclists,
 - PM peak hour is 2:15 to 3:15 PM, 77 pedestrians and bicyclists.
- Key observations:
 - The highest volume movement, 154 pedestrians and bicyclists (65%), was east/west between the northeast and northwest corners. The vast majority of this movement was students going to and from Bauder Elementary School and Seminole Middle School.

- The second highest movement, 45 pedestrians and bicyclists (19%), was north/south between the southeast and northeast corners. The vast majority of this movement was students going to and from Bauder Elementary School and Seminole Middle School.
- The lowest movement, 4 pedestrians and bicyclists (2%), was east/west between the southeast and southwest corners.
- There was a very high rate of compliance with the pedestrian signals, even when the school crossing guards were not present.

131st Street N at 82nd Avenue N Intersection, Pedestrian and Bicycle Counts

- Data collection hours: 6:30 to 7:30 AM and 1:00 to 2:00 PM.
- Total count = 112 pedestrians and bicyclists.
- 131st Street N (north/south) = 85 pedestrians and bicyclists (33%).
- 82nd Avenue N (east/west) = 27 pedestrians and bicyclists (67%).
- Per the agreement with the County, the pedestrian and bicyclist counts at this intersection were for only one hour in the morning and one hour in the afternoon. Therefore there are no peak hour counts. The count data is as follows:
 - 6:30 to 7:30 AM; 59 pedestrians and bicyclists,
 - 1:00 to 2:00 PM, 53 pedestrians and bicyclists.
- Key observations:
 - The highest volume movement, 57 pedestrians and bicyclists (51%), was north/south between the northeast and southeast corners. The vast majority of this movement was students going to and from Seminole High School.
 - The second highest movement, 28 pedestrians and bicyclists (25%), was north/south between the southwest and northwest corners. The vast majority of this movement was students going to and from Seminole High School.
 - The lowest movement, 4 pedestrians and bicyclists (4%), was east/west between the southeast and southwest corners.
 - Many high school students crossed 131st Street N between the school bus exit driveway and the parent loop driveways (jaywalking).
 - There were no crossing guards at this intersection.
 - Students crossing the intersection did not experience any delays.

Circle K Driveways at 131st Street N at 86th Avenue N Intersection, Inbound and Outbound Vehicle Counts

- Data collection hours: 6:30 AM to 6:00 PM.
- Total count = 978 vehicles.
- 131st Street N driveway inbound/outbound = 342 vehicles (35%).
- 86th Avenue N driveway inbound/outbound = 636 vehicles (65%).
- Peak hour traffic:
 - Traditional peak hours:
 - AM peak hour is 8:00 to 9:00 AM, 77 vehicles,
 - Mid-Day peak hour is 11:30 AM to 12:30 PM, 96 vehicles, and
 - PM peak hour is 5:00 to 6:00 PM, 83 vehicles.
 - Peak hours by volume:
 - AM peak hour is 9:00 to 10:00 AM, 118 vehicles,
 - Mid-Day peak hour is 1:45 to 2:45 PM, 108 vehicles, and
 - PM peak hour is 3:15 to 4:15 PM, 95 vehicles.

- Key observations:
 - The two highest volume movements were (1) the westbound right turns inbound at the 86th Avenue N driveway, 192 vehicles (20%), and (2) the westbound right turn outbound at the 86th Avenue N driveway, 174 vehicles (18%).
 - The two lowest volume movements were (1) the northbound left turn inbound at the 131st Street N driveway, 25 vehicles (2.5%), and (2) the northbound left turn outbound at the 131st Street N driveway, 50 vehicles (5%).
 - Many of the vehicles in the afternoon were parents picking up students from the elementary and middle school.
 - Northbound vehicles on 131st Street N preferred to make the left turn at the traffic signal and then the right turn into the Circle K at the 86th Avenue driveway versus the northbound left turn into the 131st Street N driveway. This is due to the north/south split traffic signal phasing.

Seminole High School, Intersection of 131st Street N & 86th Avenue N, Southeast Quadrant

- Data collection hours; 6:30 to 7:30 AM and 1:00 to 2:00 PM.
- Traffic counts were obtained at six driveways on 131st Street N and 86th Avenue N that provide access to the school. These driveways are:
 - Student parking lot and loop driveway on 86th Avenue N.
 - Student parking lot and loop driveway on 131st Street N.
 - Parent loop and parking lot driveways on 131st Street N; one driveway enter only and one driveway exit only.
 - Staff driveway on 131st Street N, enter only.
 - School bus exit driveway on 131st Street N.
- Total count = 1,705 vehicles.
- AM count = 1,182 vehicles.
- PM count = 523 vehicles.
- Key observations:
 - Student parking lot and loop driveway on 86th Avenue N:
 - AM period; enter = 335 vehicles, exit = 145 vehicles, total = 480 vehicles.
 - PM period; enter = 52 vehicles; exit = 193 vehicles, total = 245 vehicles.
 - Vehicle operations at this driveway experienced only minor congestion and delays due to its distance from the traffic signal at 131st Street N & 86th Avenue N.
 - Student parking lot and loop driveway on 131st Street N:
 - AM period; enter = 167 vehicles, exit = 44 vehicles, total = 211 vehicles.
 - PM period; enter = 32 vehicles, exit = 71 vehicles, total = 103 vehicles.
 - Vehicle operations at this driveway experienced moderate to significant congestion and delays due to its close proximity to the traffic signal at 131st Street N & 86th Avenue N.
 - Parent loop and parking lot driveways on 131st Street N:
 - AM period; enter = 233 vehicles, exit = 213 vehicles, total = 446 vehicles.
 - PM period; enter = 69 vehicles, exit = 80 vehicles, total = 149 vehicles.
 - Vehicle operations at these driveways experienced moderate to significant congestion and delays due to close proximity to the traffic signal at 131st Street N & 86th Avenue.
 - To avoid the congestion and delays associated with these driveways, many parents park on the shoulders of 131st Street N in the PM period to pick-up their child. This resulted in numerous students crossing 131st Street N during the congested PM period. The vehicles that were parked on the roadway shoulders created significant sight issues which lead to motorists on 131st Street N with limited opportunities to see students walking across 131st Street.
 - School bus driveway on 131st Street N, exit only:

- AM period = 23 vehicles.
- PM period = 21 vehicles.
- Total = 44 vehicles.
- Staff driveway on 131st Street N, enter only:
 - AM period = 22 vehicles.
 - PM period = 5 vehicles.
 - Total = 27 vehicles.

Seminole Middle School, Intersection of 131st Street N & 86th Avenue N, Northeast Quadrant

- Data collection hours: 7:30 to 10:00 AM and 3:15 to 4:30 PM.
- Traffic counts were obtained at the four driveways on 131st Street N and 86th Avenue N that provide access to the school. These driveways are:
 - Parent loop and parking lot driveways on 131st Street N; one driveway enter only and one driveway exit only.
 - Two driveways on 86th Avenue N that provide access to the large parking lot and school bus access.
- Total count = 1,153 vehicles.
- AM count = 791 vehicles.
- PM traffic = 362 vehicles.
- Key observations:
 - Parent loop and parking lot driveways on 131st Street:
 - AM period; enter = 334 vehicles, exit = 329 vehicles, total = 663 vehicles, and
 - PM period; enter = 113 vehicles, exit = 146 vehicles, total = 259 vehicles.
 - There was significant traffic congestion and delays on 131st Street N in the PM period. These delays were due to traffic entering and exiting the parent loop driveways and congestion at the traffic signal at 131st Street N & 86th Avenue N. The southbound congestion on 131st Street N extended several hundred feet north of the middle school property.
 - The school bus and large parking lot driveways on 86th Avenue N had the following traffic counts;
 - East driveway; AM period = 108 vehicles, PM period = 82 vehicles, and
 - West driveway; AM period = 20 vehicles, PM period = 21 vehicles.
 - During the PM period, many parents waited in the high school student parking lot to pick up their child. This operation did not create an issue because the high school dismissal is earlier than the middle school dismissal.

Bauder Elementary School, 86th Avenue North

- Data collection hours: 7:30 to 10:00 AM and 1:30 to 3:00 PM.
- Traffic counts were obtained at the four driveways on 86th Avenue N that provide access to the school. Proceeding east to west on 86th Avenue N these driveways are:
 - Parent loop driveway on the east side of the school.
 - Exit only driveway in front of the school that serves the east parking lot, school buses and connects to the parent loop driveway on the east side of the school.
 - West parking lot driveway.
 - Parent loop driveway on the west side of the school.
- Total count = 1,383 vehicles.
- AM count = 905 vehicles.
- PM count = 478 vehicles.

- Key observations:
 - Parent loop driveways:
 - East parent loop and east parking lot exit driveway:
 - ◇ AM period; enter = 243 vehicles, exit = 223 vehicles, total = 466 vehicles, and
 - ◇ PM period; enter = 113 vehicles, exit = 109 vehicles, total = 222 vehicles.
 - West parent loop:
 - ◇ AM period; enter = 153 vehicles, exit = 165 vehicles, total = 318 vehicles, and
 - ◇ PM period; enter = 85 vehicles, exit = 86 vehicles, total = 171 vehicles.
 - Due to insufficient on site vehicular queuing space for the west loop driveway, there were significant eastbound and westbound vehicle queues on 86th Avenue N in the PM period waiting to enter the driveway. Eastbound through traffic on 86th Avenue had to travel on the roadway shoulder to bypass the eastbound traffic queue (left turn inbound). The westbound traffic queue (right turn inbound) were partially parked on the roadway shoulder and the travel lane. The through traffic on 86th Avenue N had significant difficulty bypassing the traffic queues waiting to enter the west loop driveway.

Recommendations

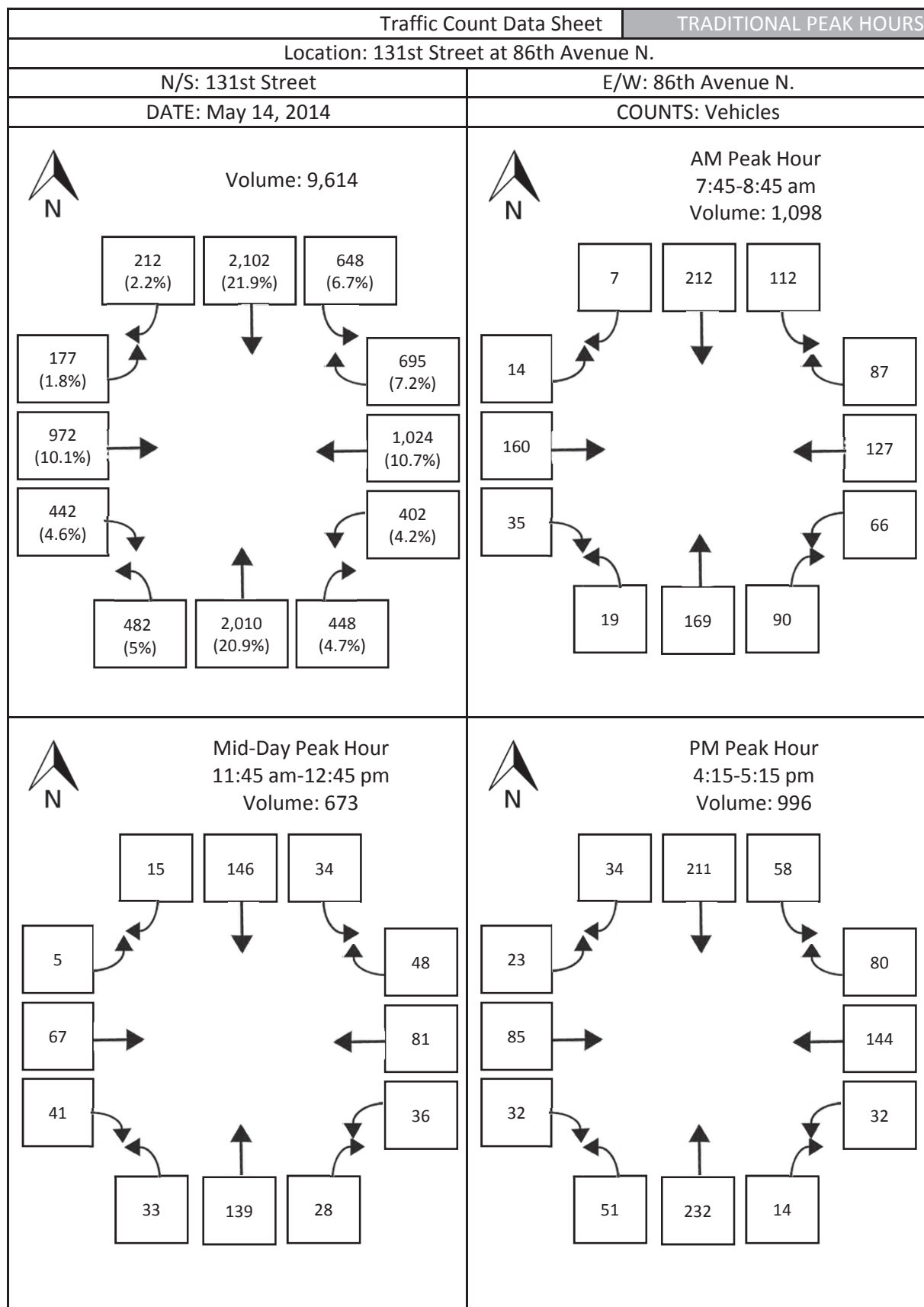
This memorandum is a summary of the field data and key observations; our recommendation is to complete a detailed analysis of each intersection and school driveway. The complete analysis will be prepared in conjunction with the engineering phase of this project.

Attachments:

- Appendix A: Traffic Count Data Sheets
- Appendix B: Vehicle Turning Movements Data Sheets
- Appendix C: Meeting minutes

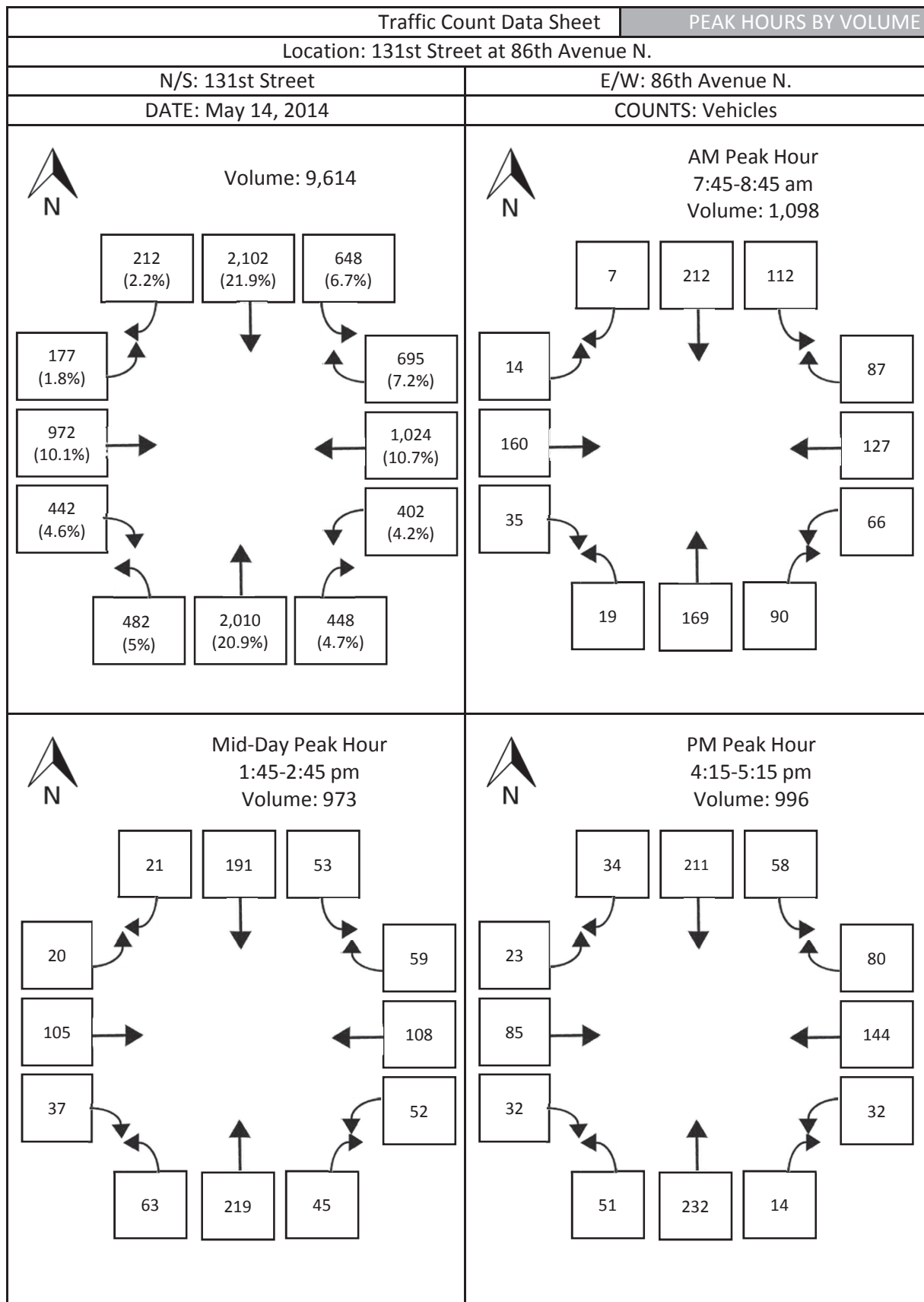
Appendix A

Traffic Count Data Sheets



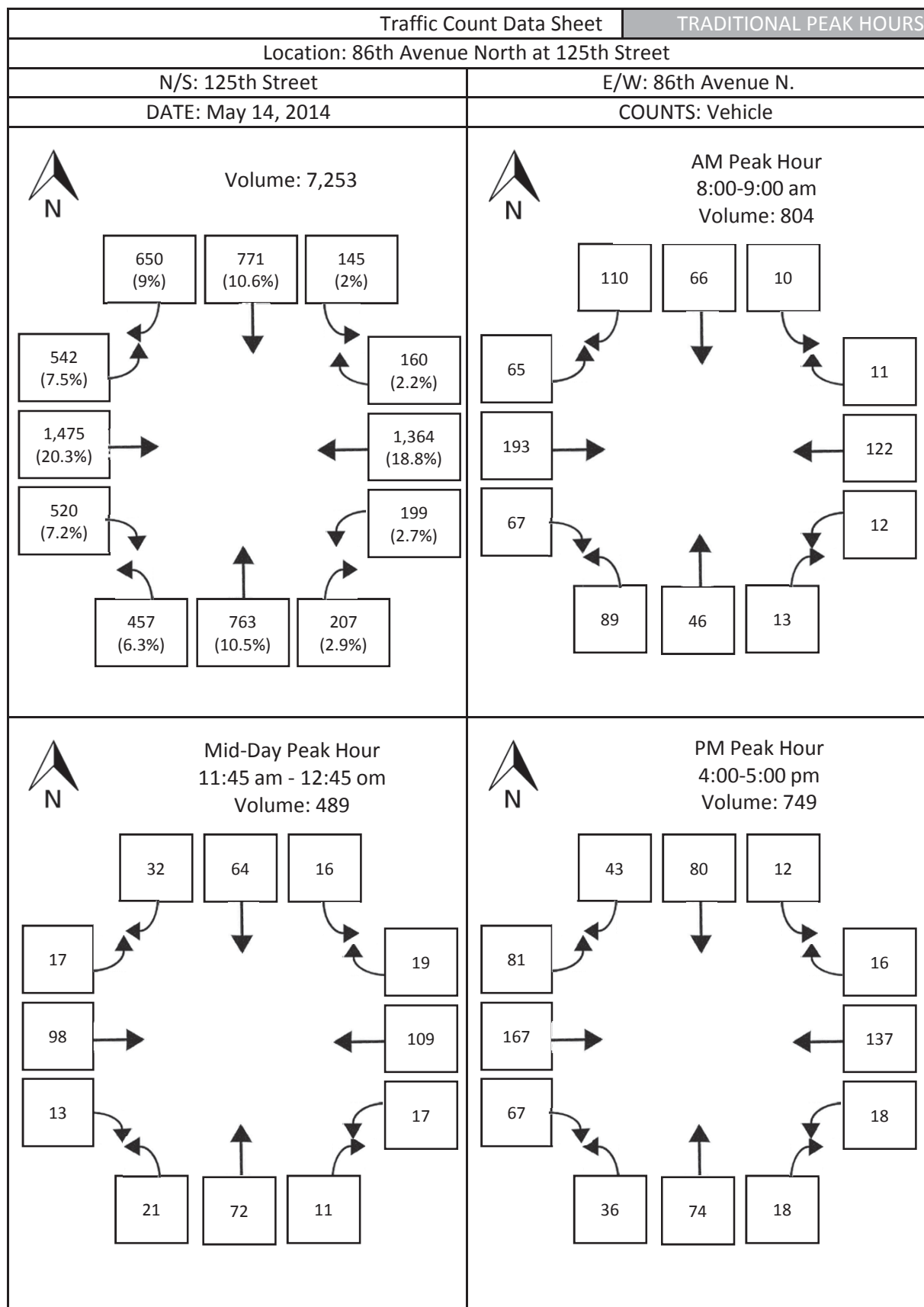
NOTES: 1. Count hours: 6:30 am to 6:00 pm

2. Traffic signal control



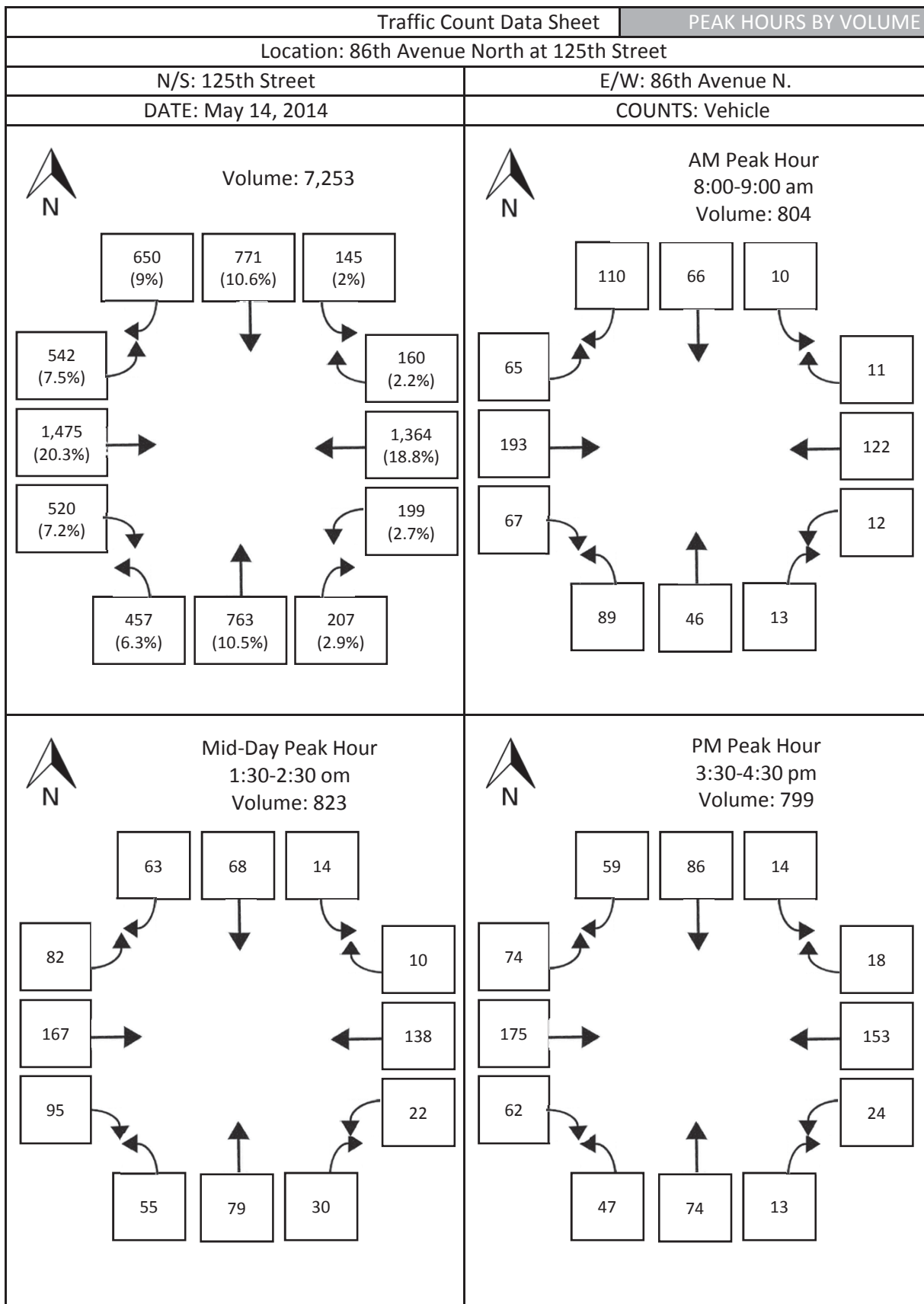
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2. Traffic signal control



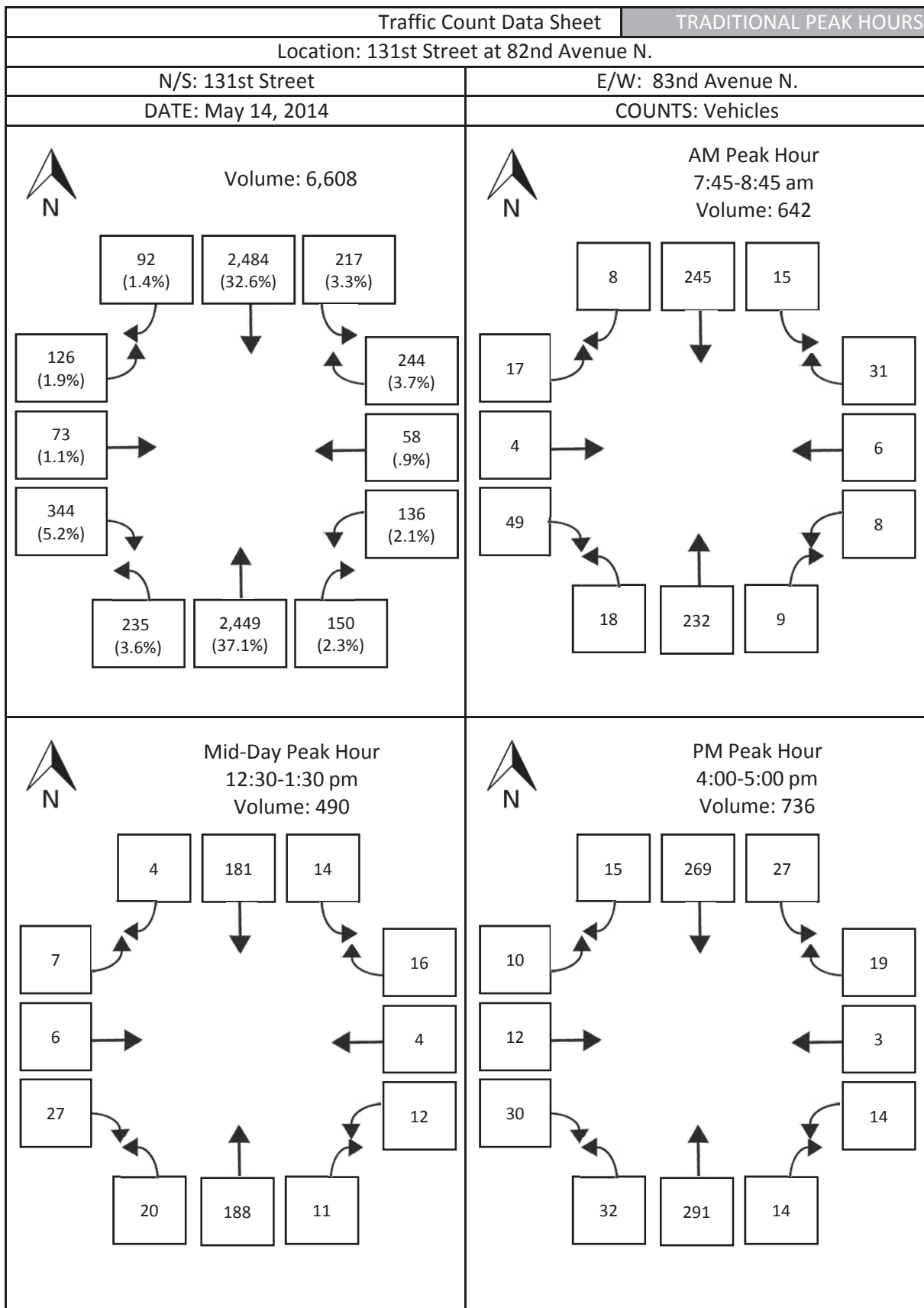
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2. Traffic signal control



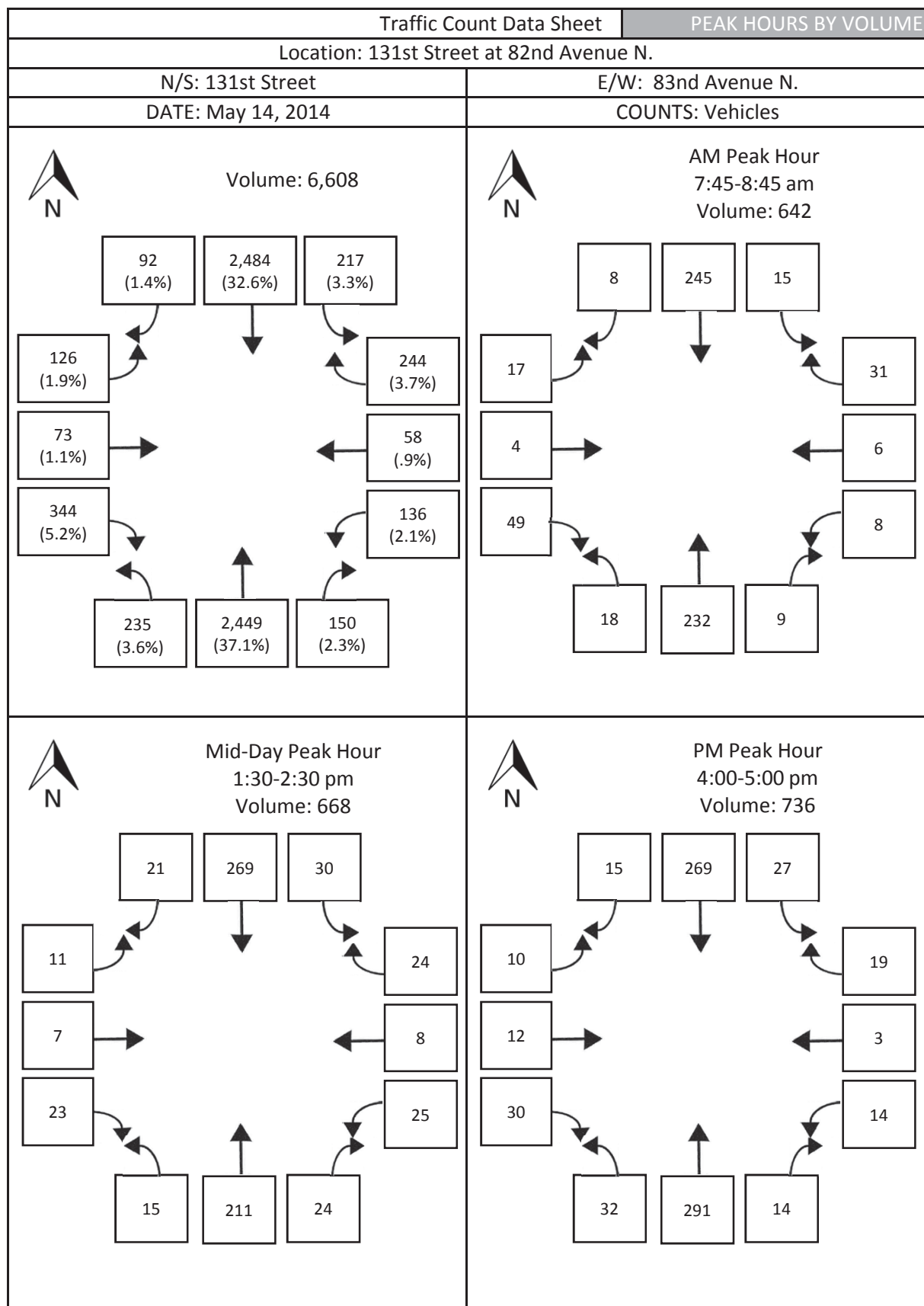
NOTES: 1. Count hours: 6:30 am - 6:00 pm

2. Traffic signal control



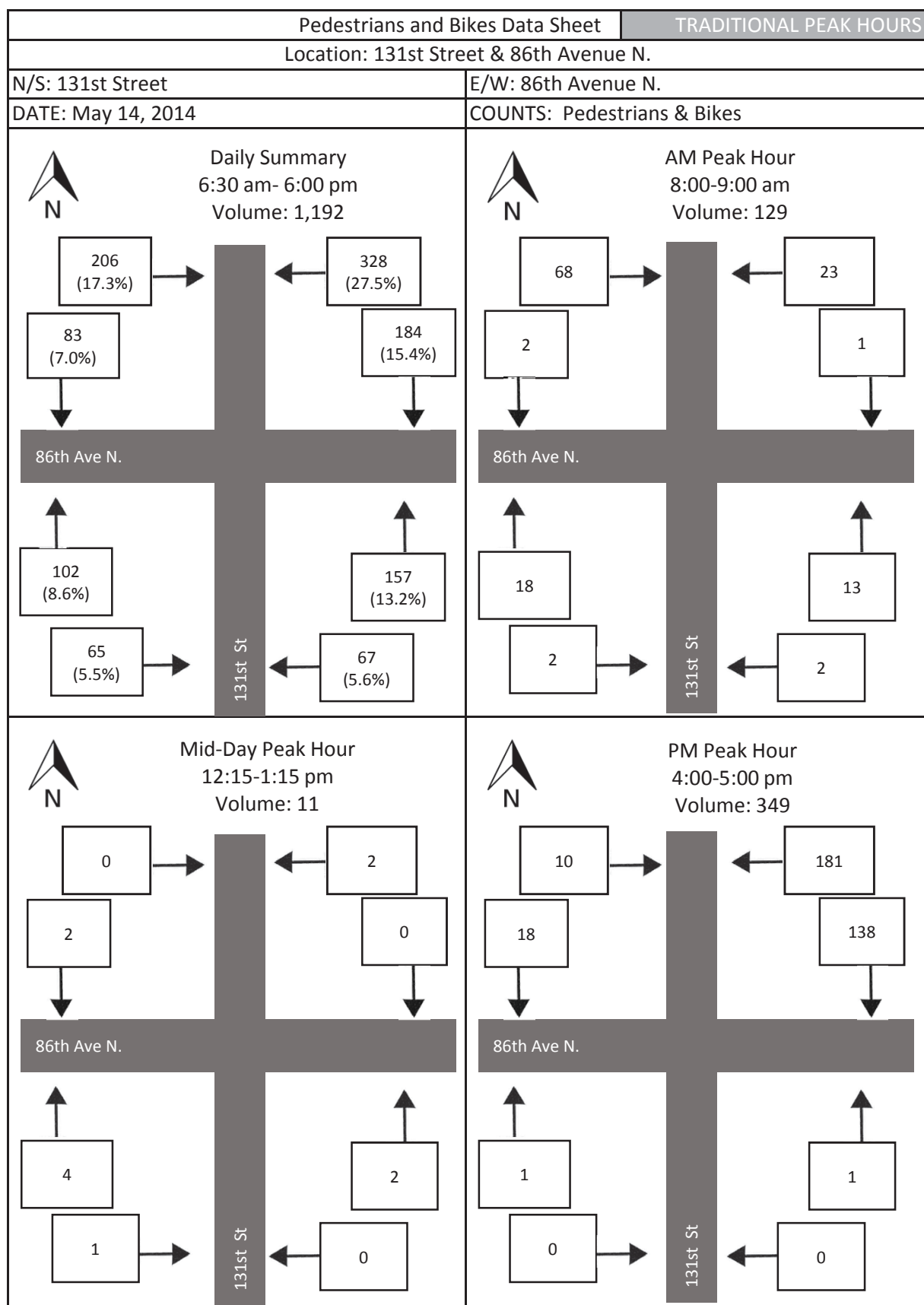
NOTES: 1. Count Hours: 6:30 am - 6:00 pm

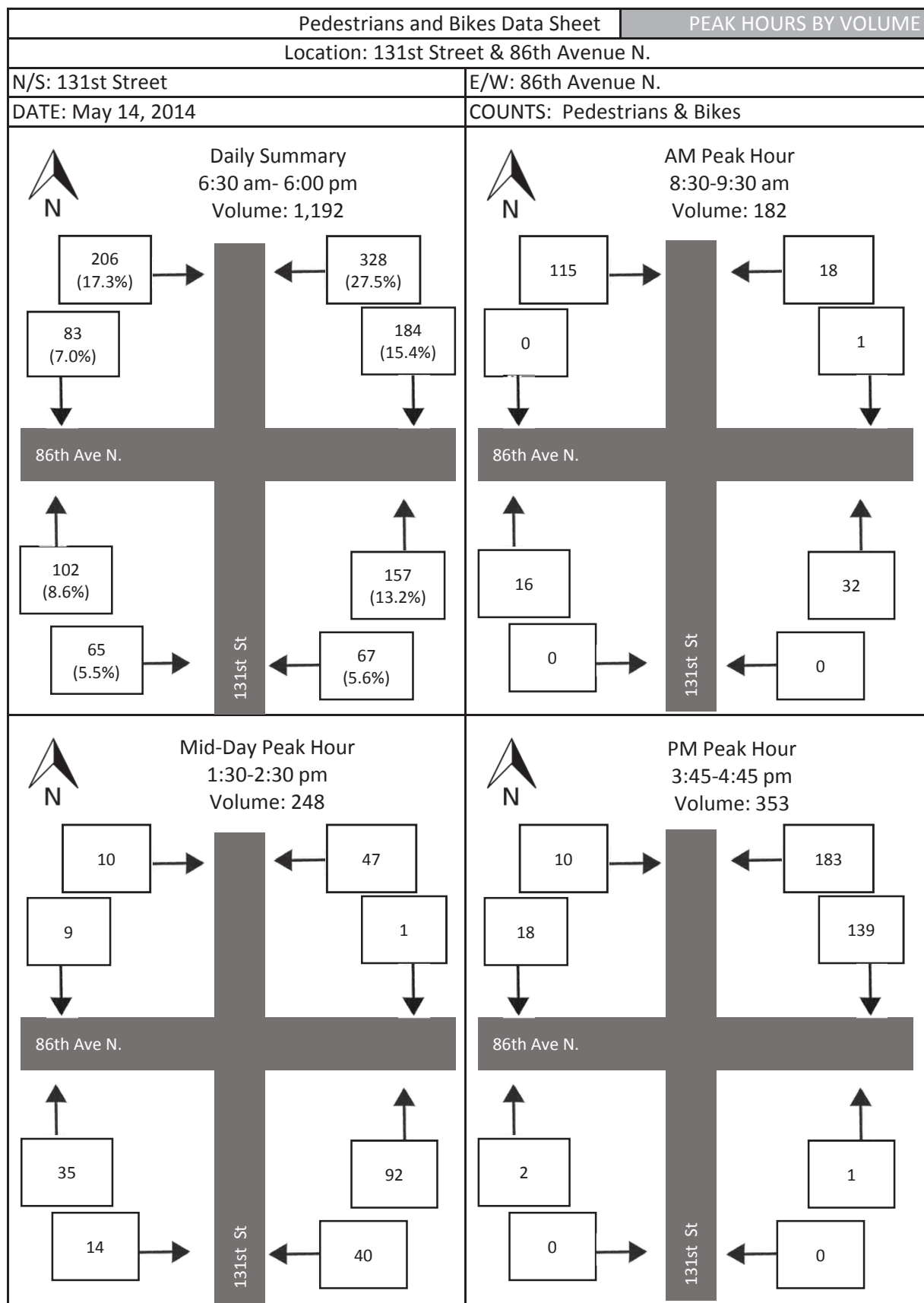
2. Stop sign control at 82nd Avenue

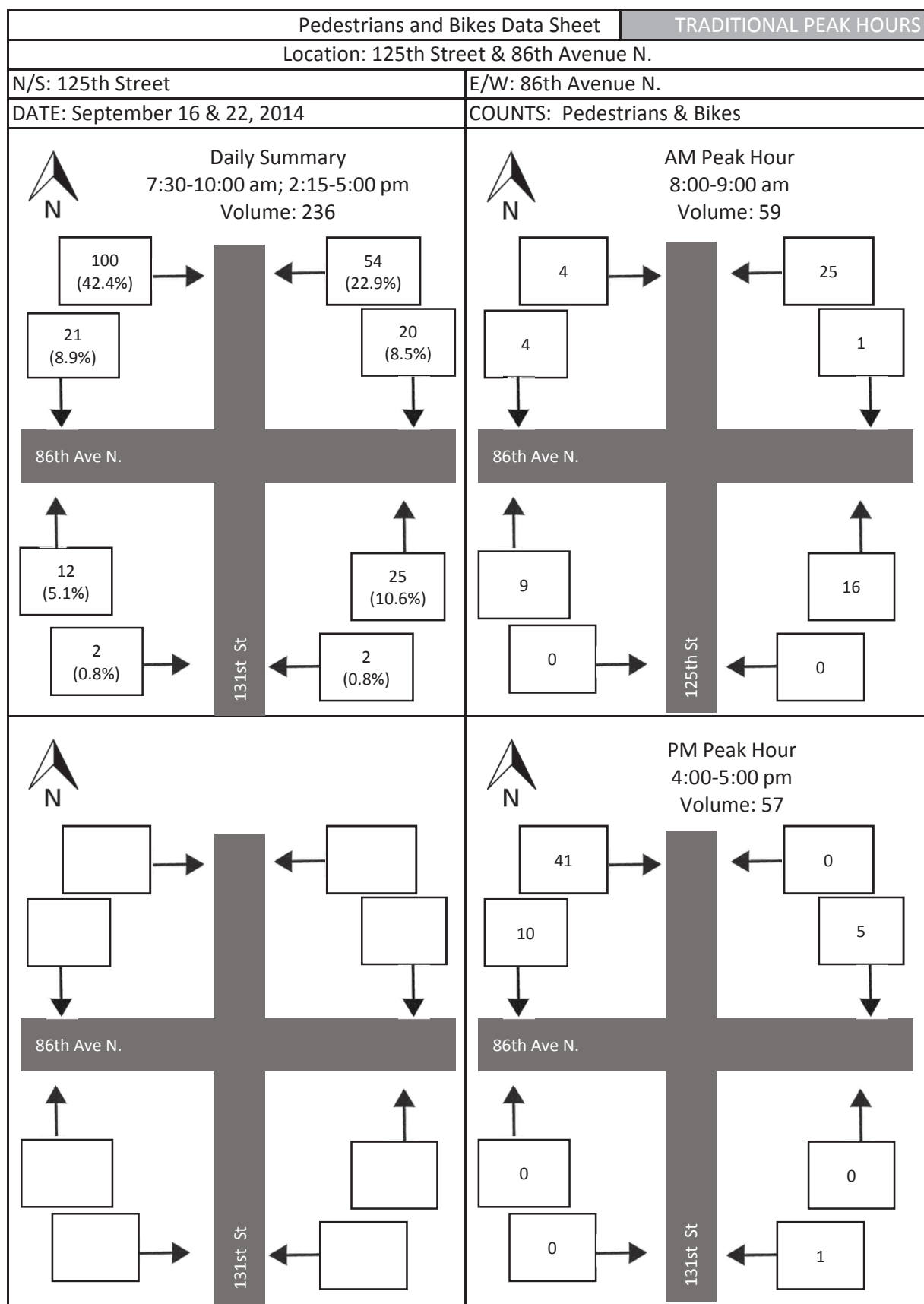


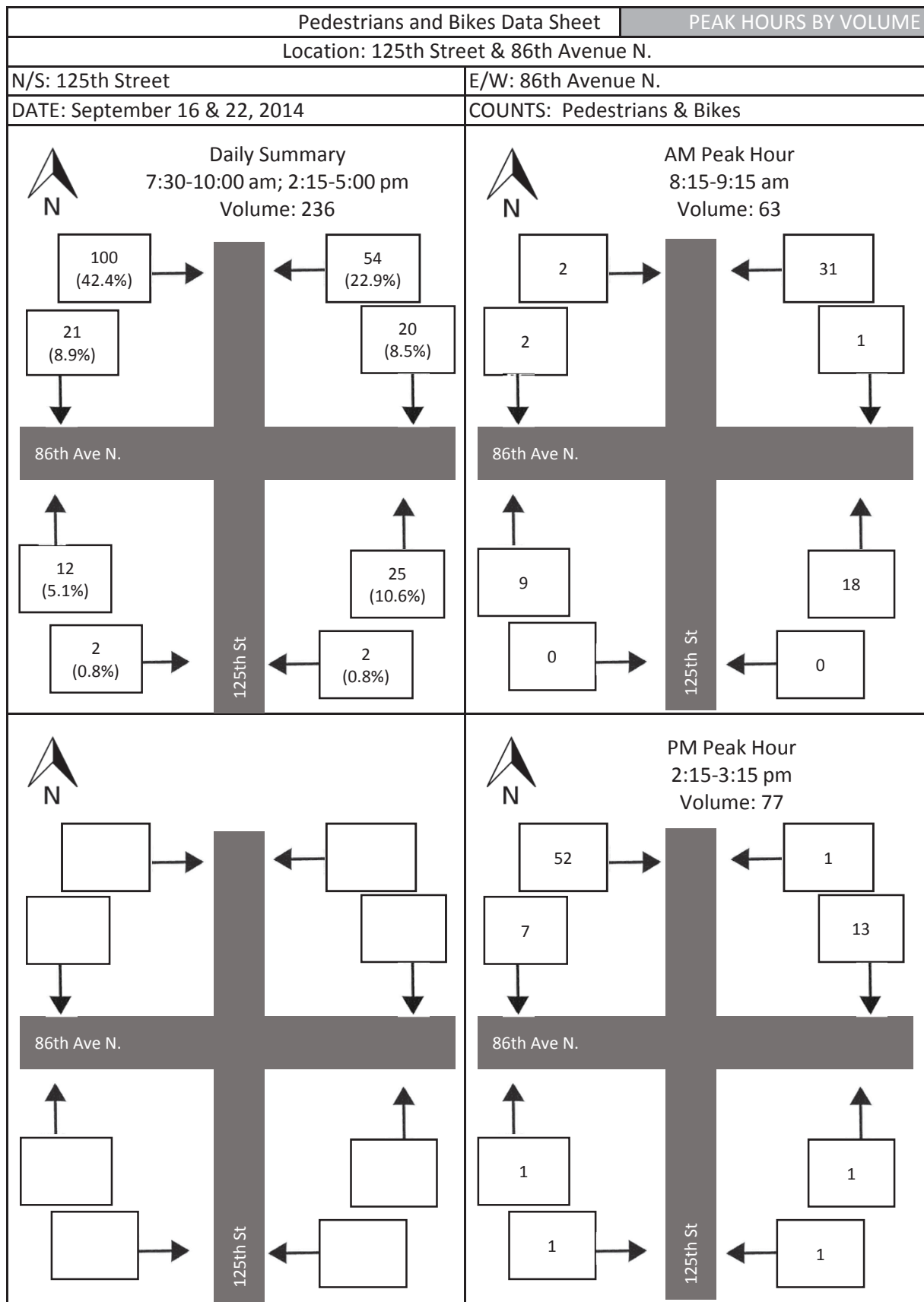
NOTES: 1. Count Hours: 6:30 am - 6:00 pm

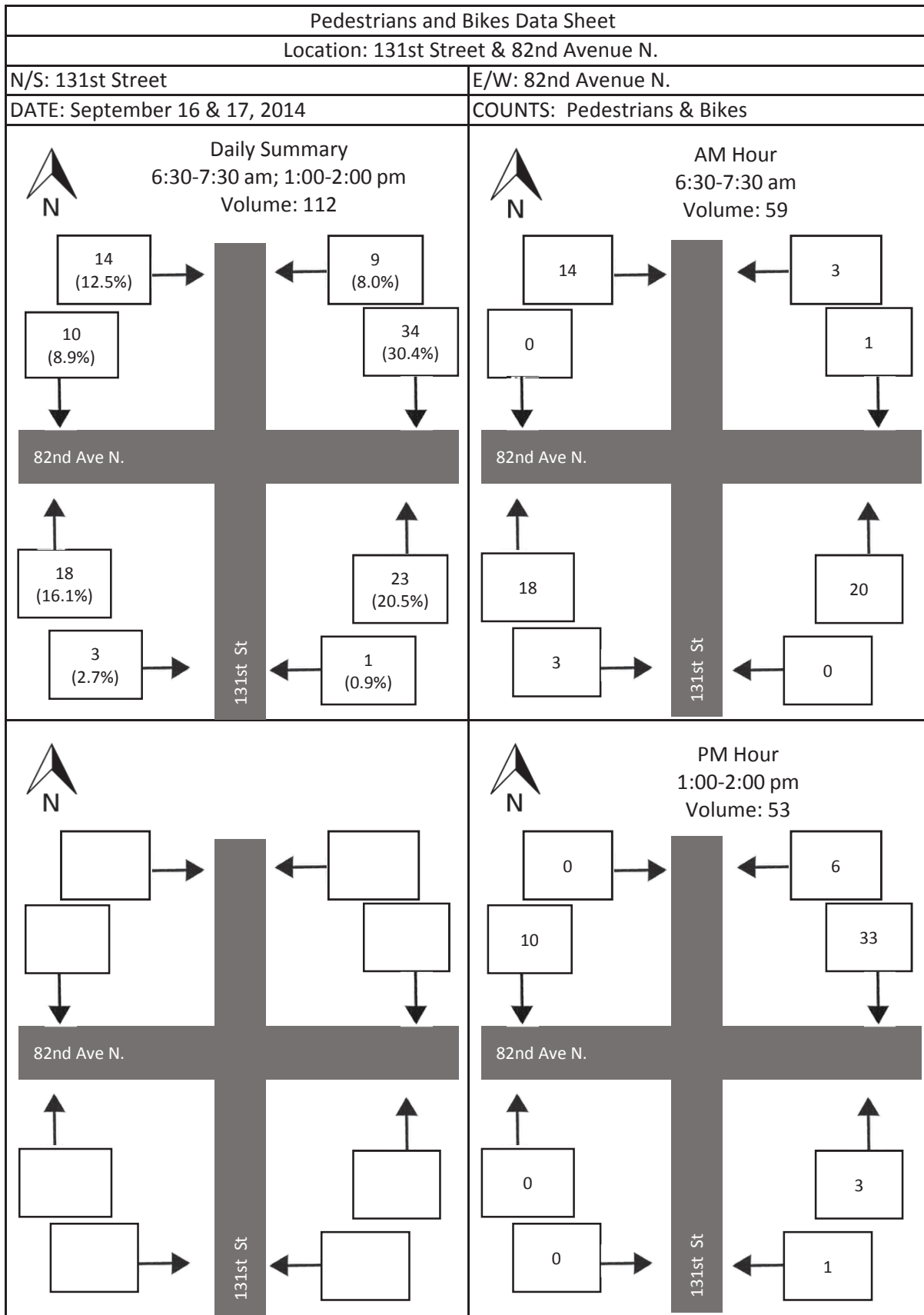
2. Stop sign control at 82nd Avenue

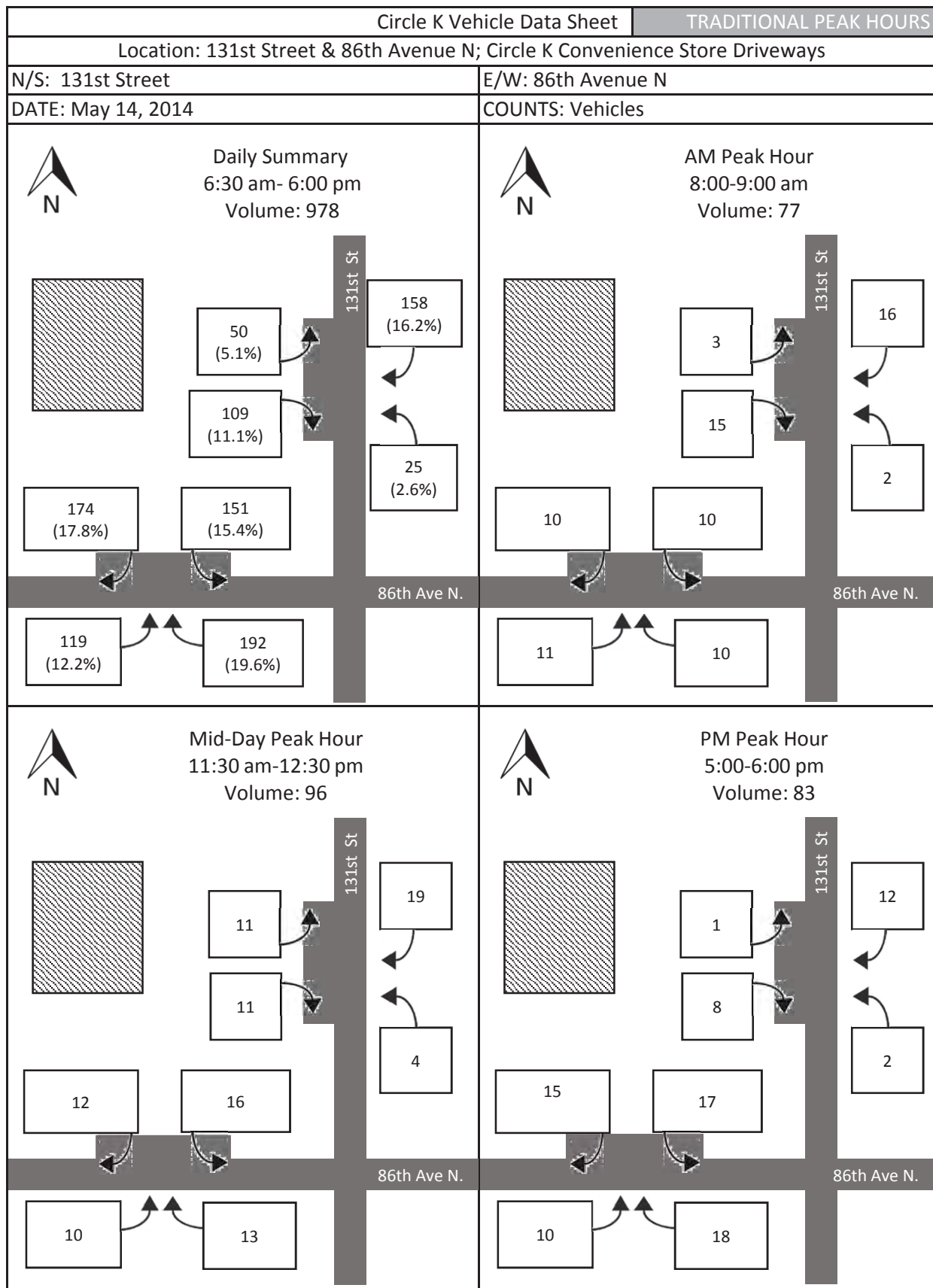


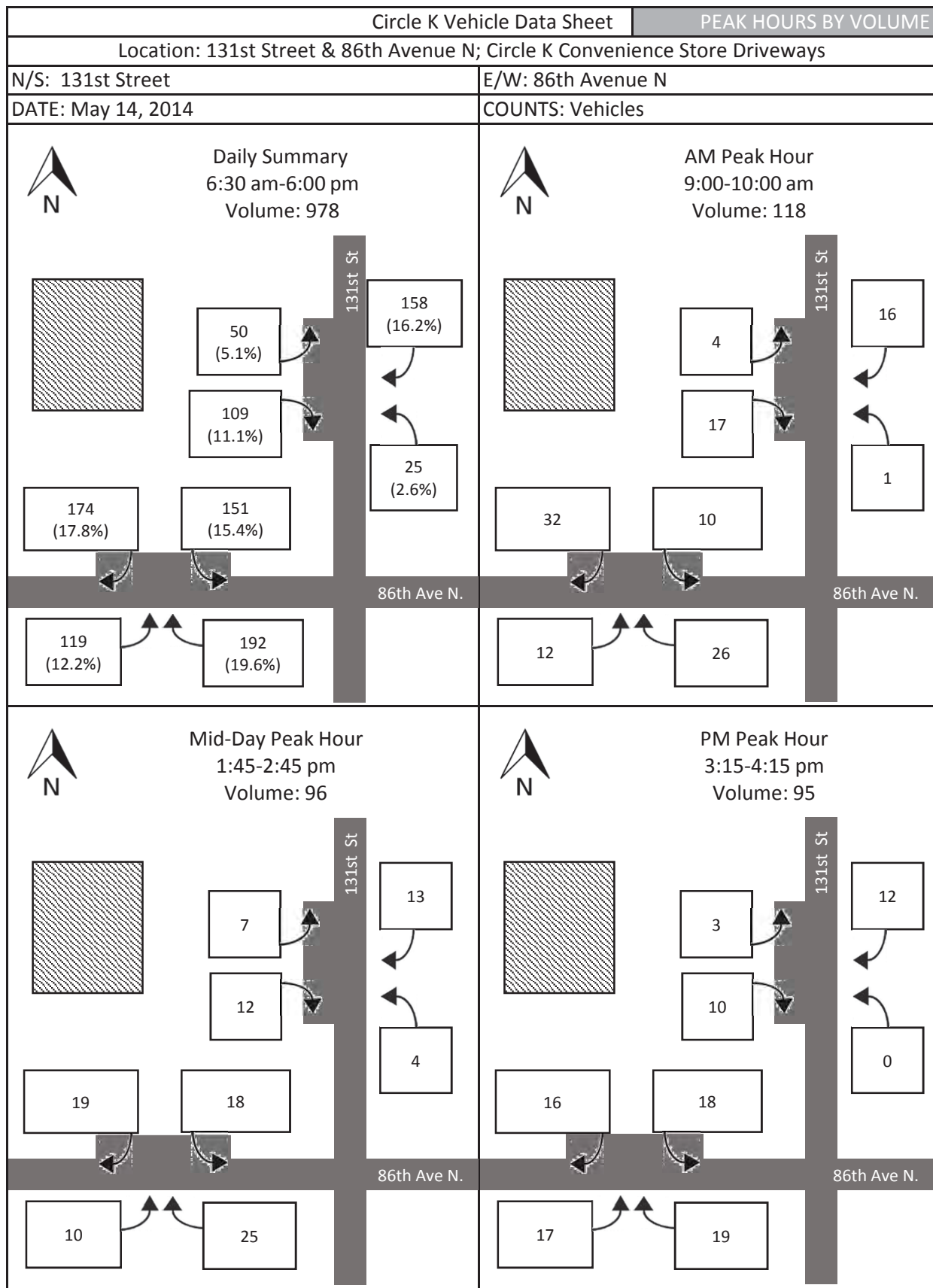


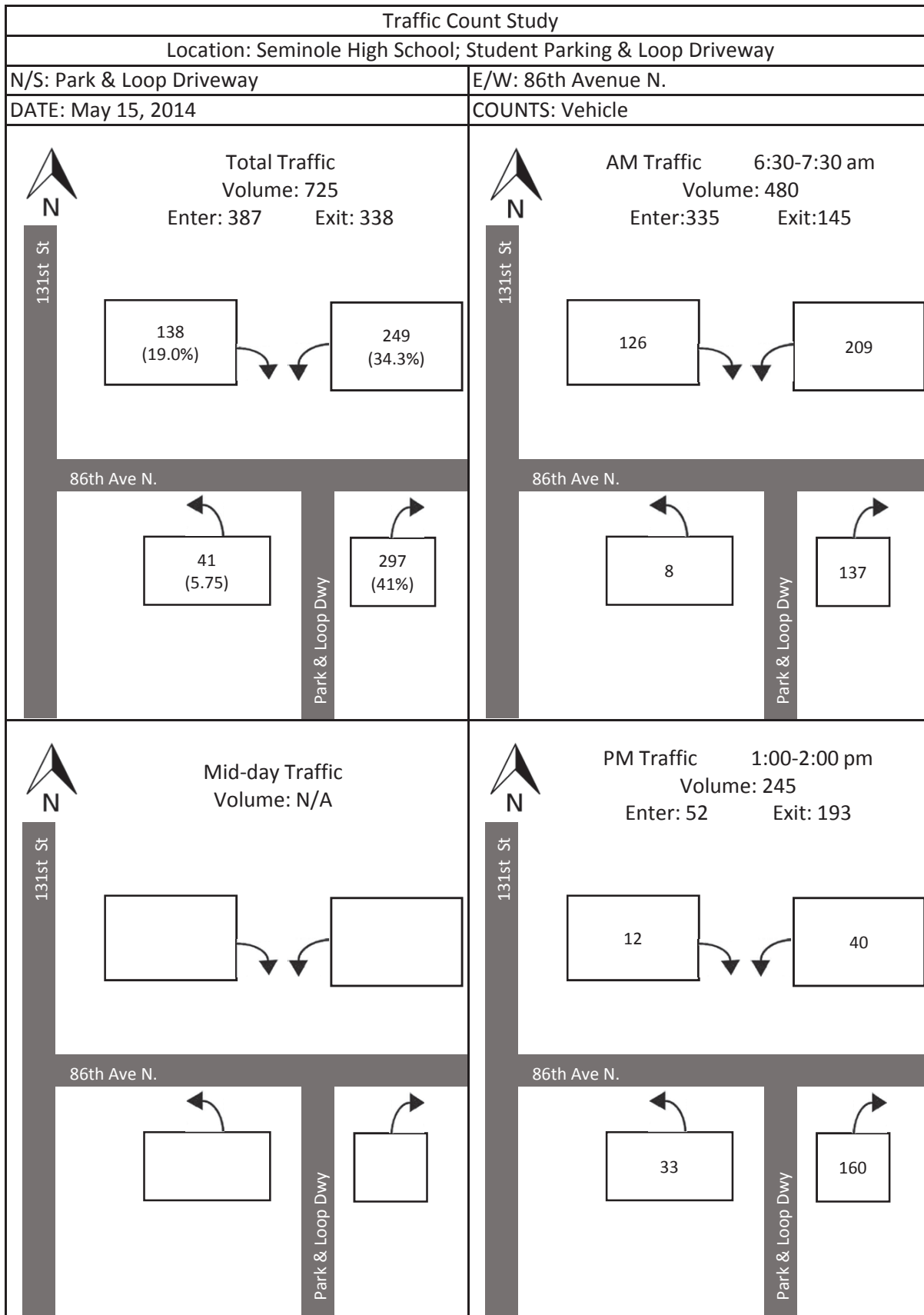


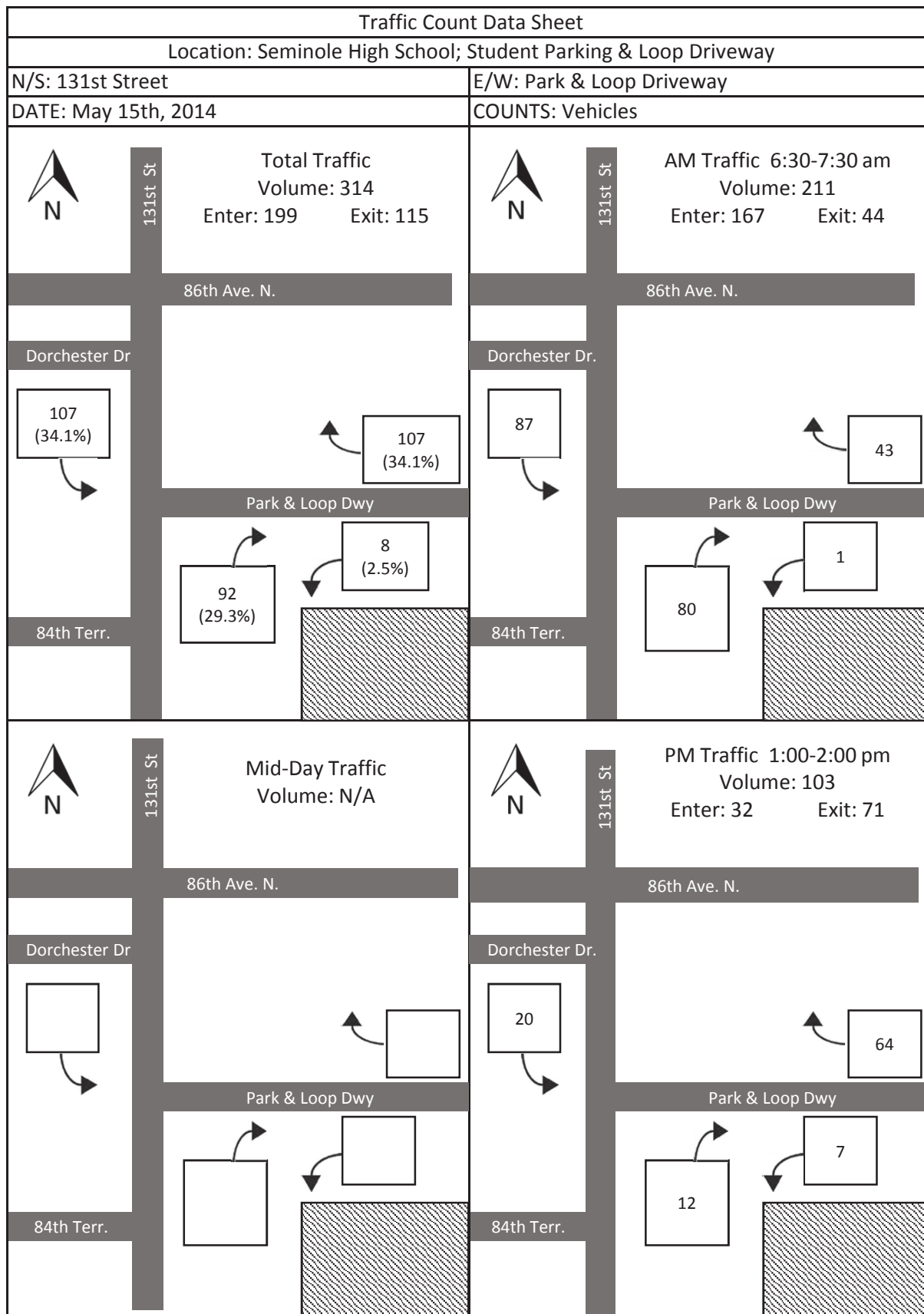


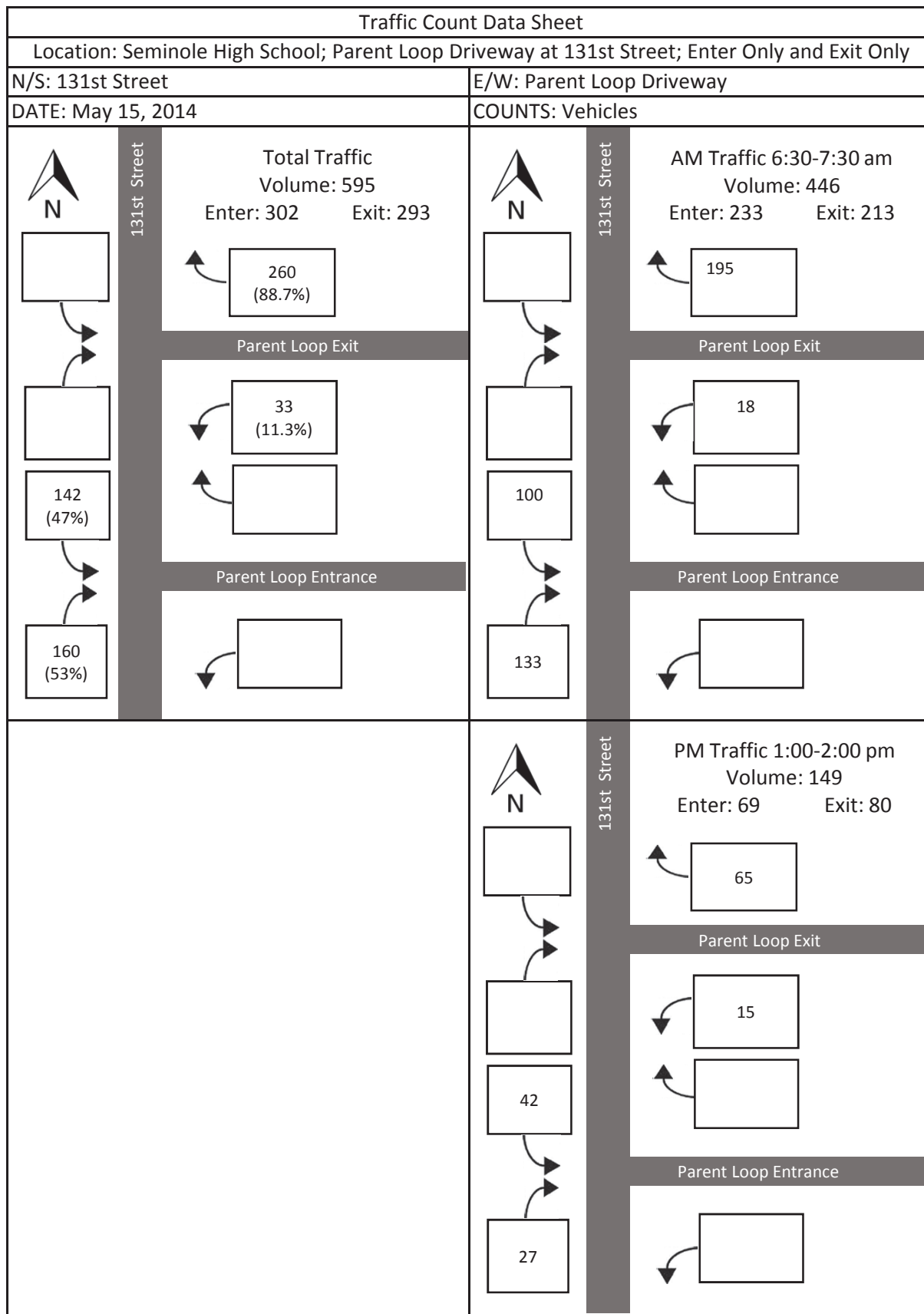


















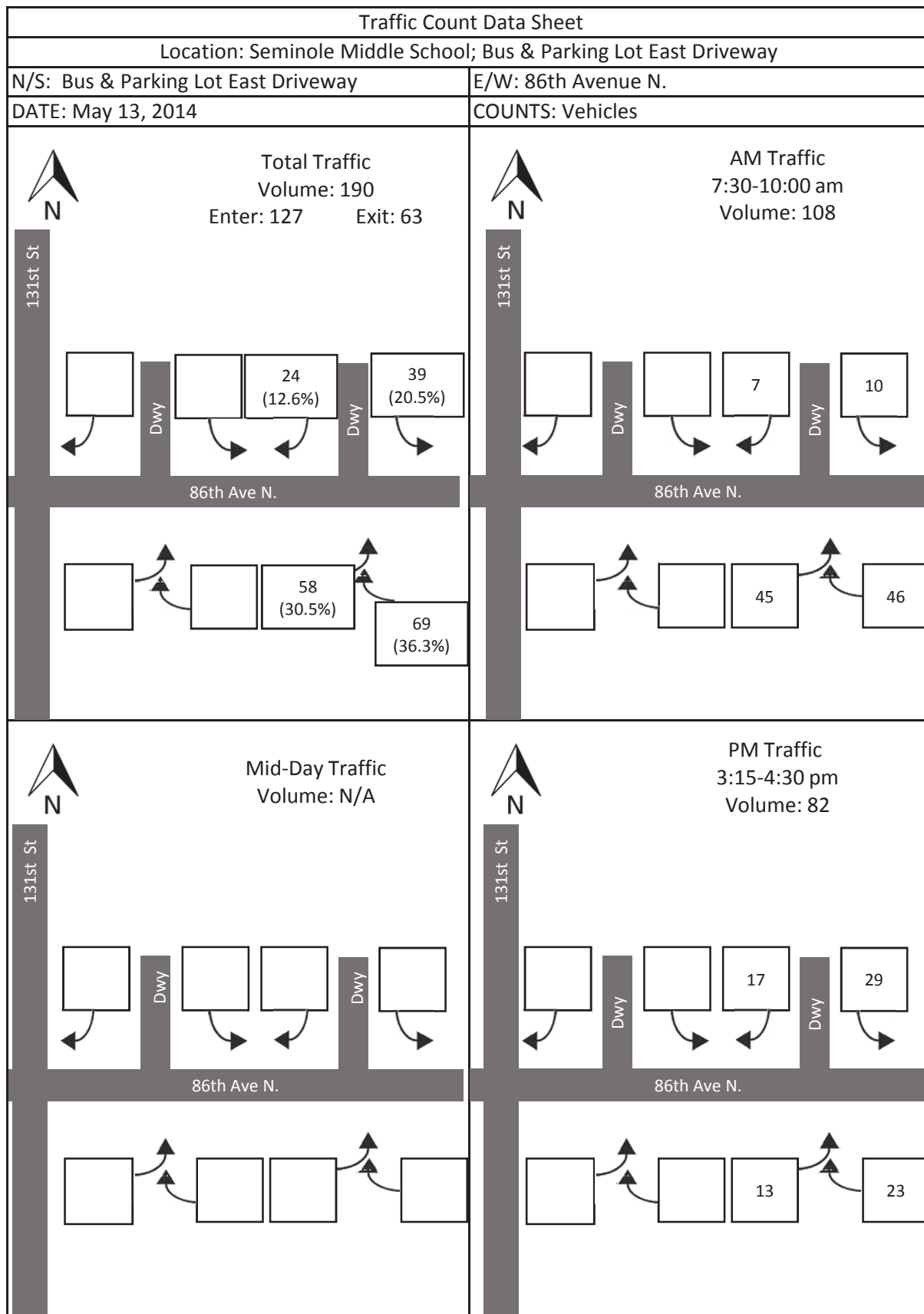


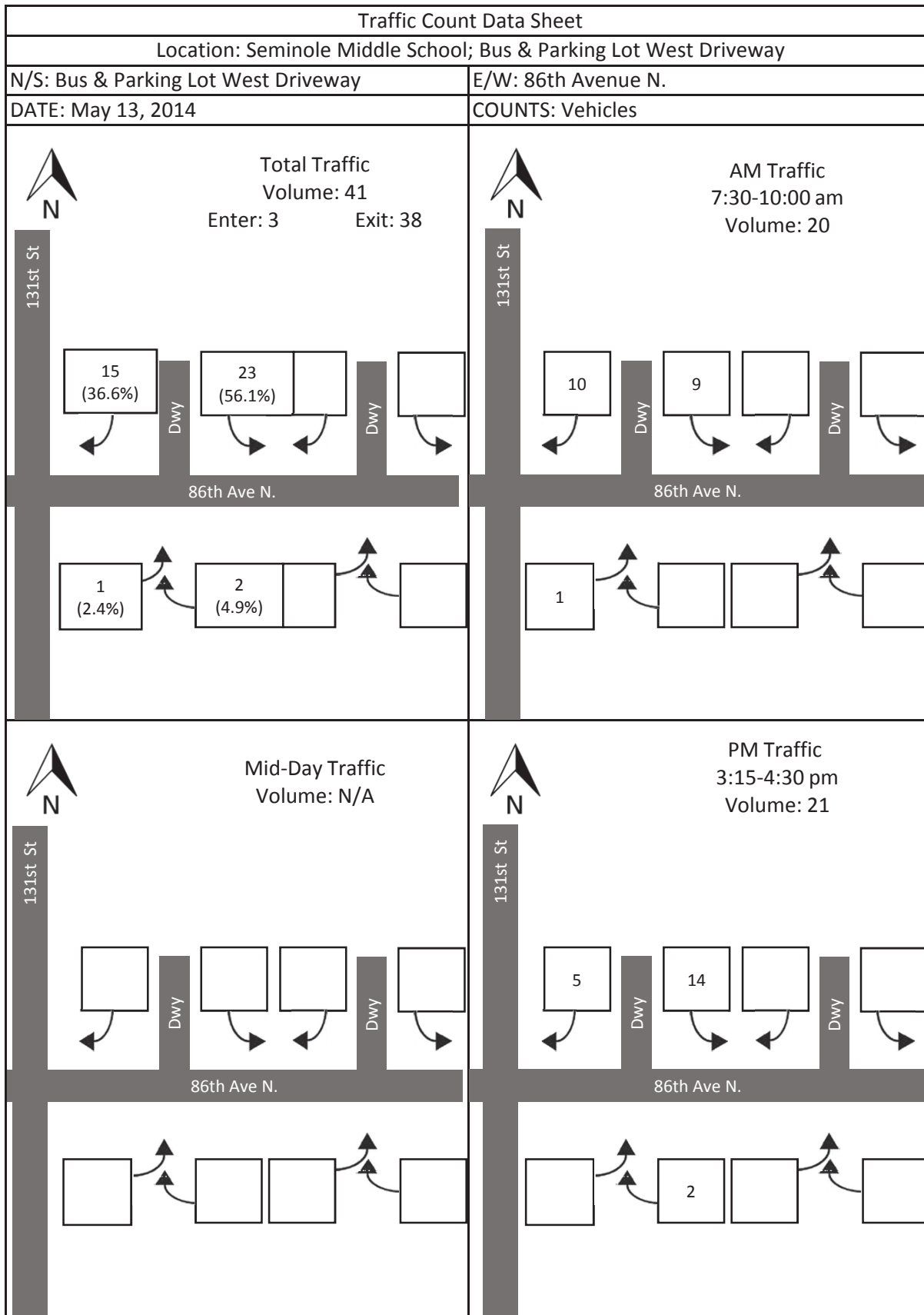


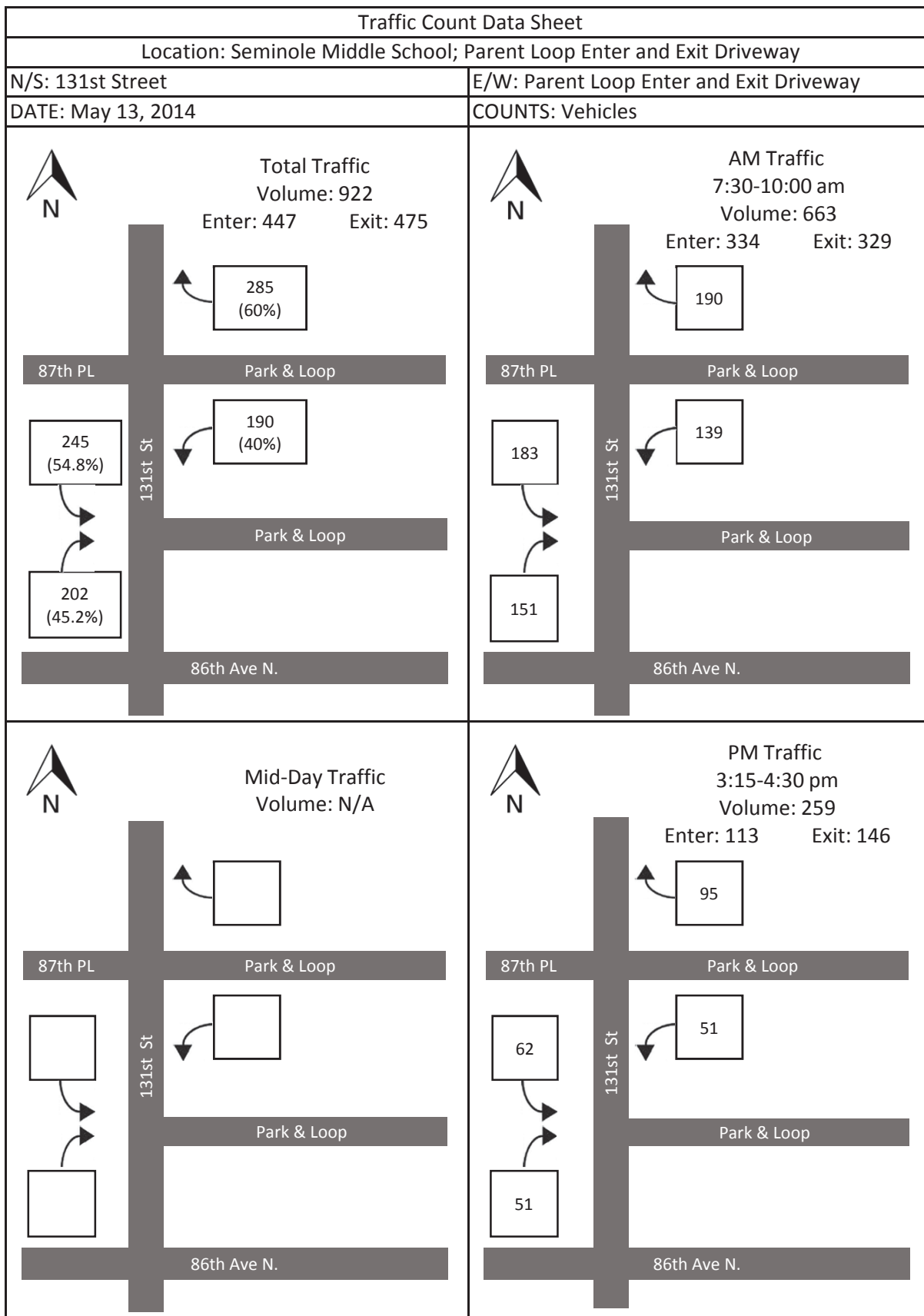


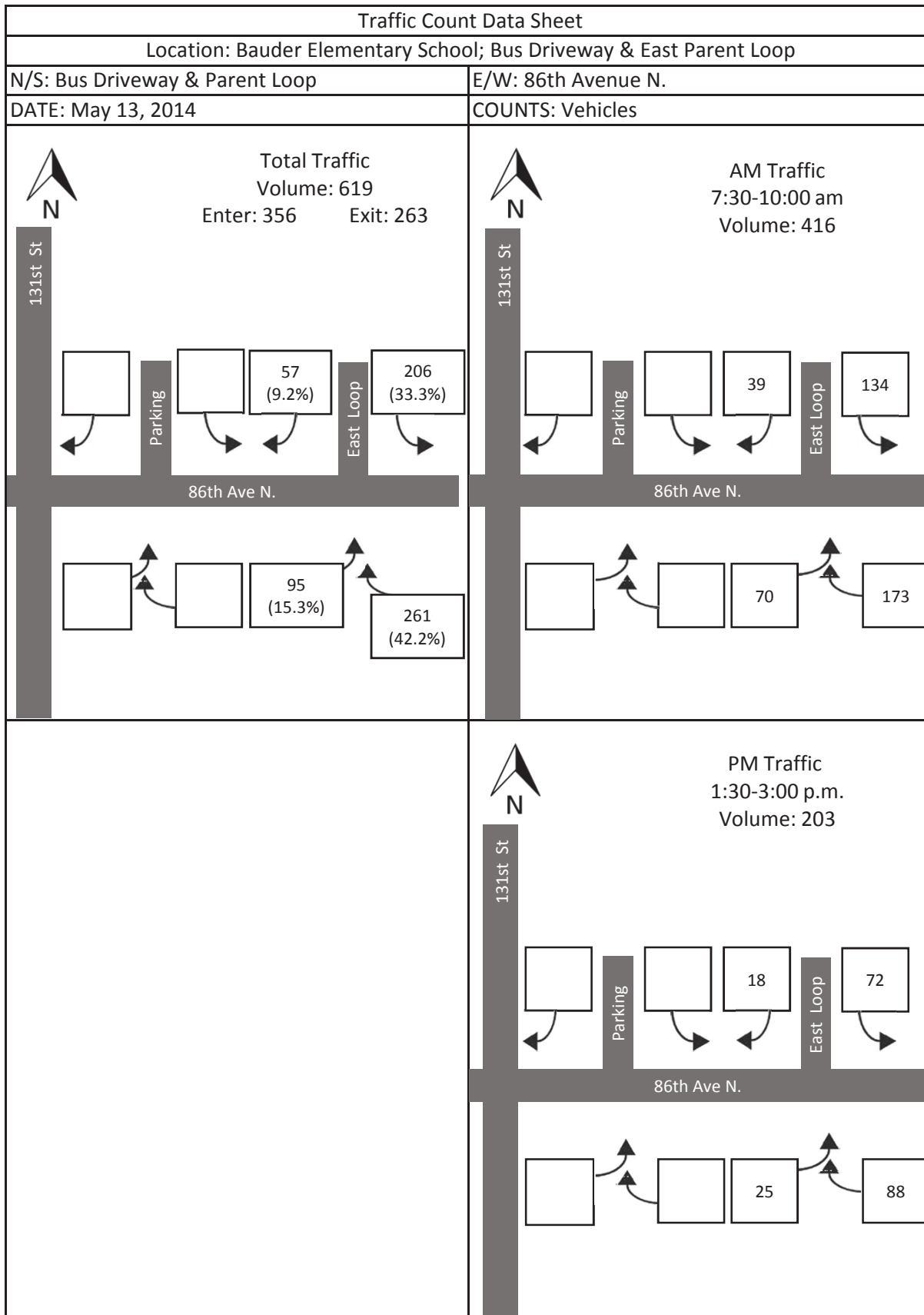
Traffic Count Data Sheet			
Location: Seminole High School Staff Driveway at 131st Street			
N/S: 131st Street		E/W: Staff Driveway	
DATE: May 15, 2014		COUNTS: Vehicles	
 131st St Total Traffic Volume: 27 <div> <div>3 (11.1%)</div> <div>24 (88.9%)</div> </div>		 131st St AM Traffic 6:30-7:30 am Volume: 22 <div> <div>1</div> <div>21</div> </div>	
<div> <div>South Staff & Visitor Parking Lot Dwy</div> <div> <div></div> <div></div> </div> </div>		<div> <div>South Staff & Visitor Parking Lot Dwy</div> <div> <div></div> <div></div> </div> </div>	
<div> <div>School Bus Exit Dwy</div> <div></div> </div>		<div> <div>School Bus Exit Dwy</div> <div></div> </div>	
82nd Ave N.		82nd Ave N.	
 131st St Mid-Day Traffic Volume: N/A <div> <div></div> <div></div> </div>		 131st St PM Traffic 1:00-2:00 pm Volume: 5 <div> <div>2</div> <div>3</div> </div>	
<div> <div>South Staff & Visitor Parking Lot Dwy</div> <div> <div></div> <div></div> </div> </div>		<div> <div>South Staff & Visitor Parking Lot Dwy</div> <div> <div></div> <div></div> </div> </div>	
<div> <div>School Bus Exit Dwy</div> <div></div> </div>		<div> <div>School Bus Exit Dwy</div> <div></div> </div>	
82nd Ave N.		82nd Ave N.	

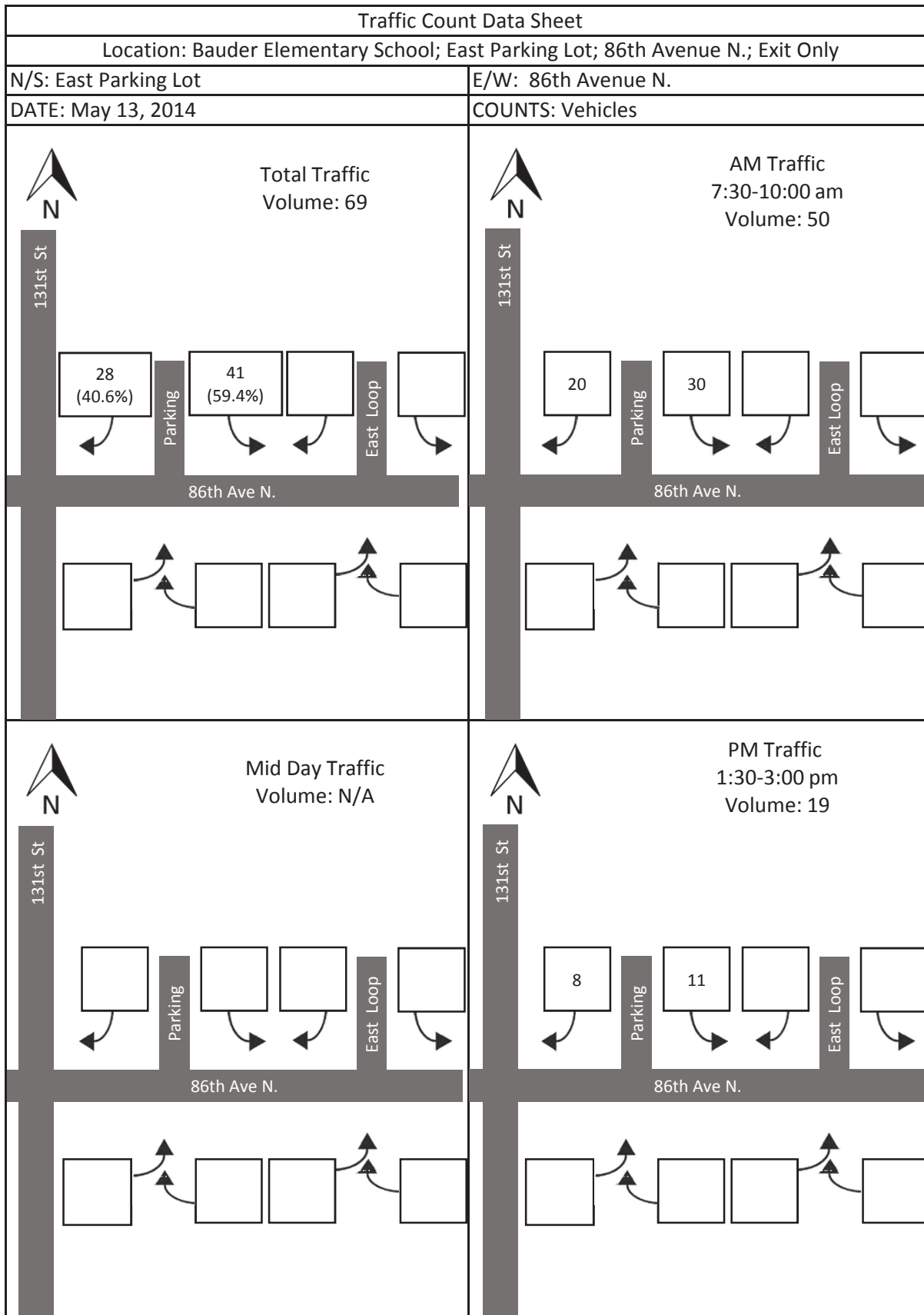
Traffic Count Data Sheet			
Location: Seminole High School Bus Exit Driveway			
N/S: 131st Street		E/W: School Bus Exit Driveway	
DATE: May 15, 2014		COUNTS: Vehicles	
  <p>131st St</p> <p>Total Traffic Volume: 44</p> <p>South Staff & Visitor Parking Lot Dwy</p> <p>School Bus Exit Dwy</p> <p>82nd Ave N.</p>		  <p>131st St</p> <p>AM Traffic 6:30-7:30 am Volume: 23</p> <p>South Staff & Visitor Parking Lot Dwy</p> <p>School Bus Exit Dwy</p> <p>82nd Ave N.</p>	
  <p>131st St</p> <p>Mid-Day Traffic Volume: N/A</p> <p>South Staff & Visitor Parking Lot Dwy</p> <p>School Bus Exit Dwy</p> <p>82nd Ave N.</p>		  <p>131st St</p> <p>PM Traffic 1:00-2:00 pm Volume: 21</p> <p>South Staff & Visitor Parking Lot Dwy</p> <p>School Bus Exit Dwy</p> <p>82nd Ave N.</p>	

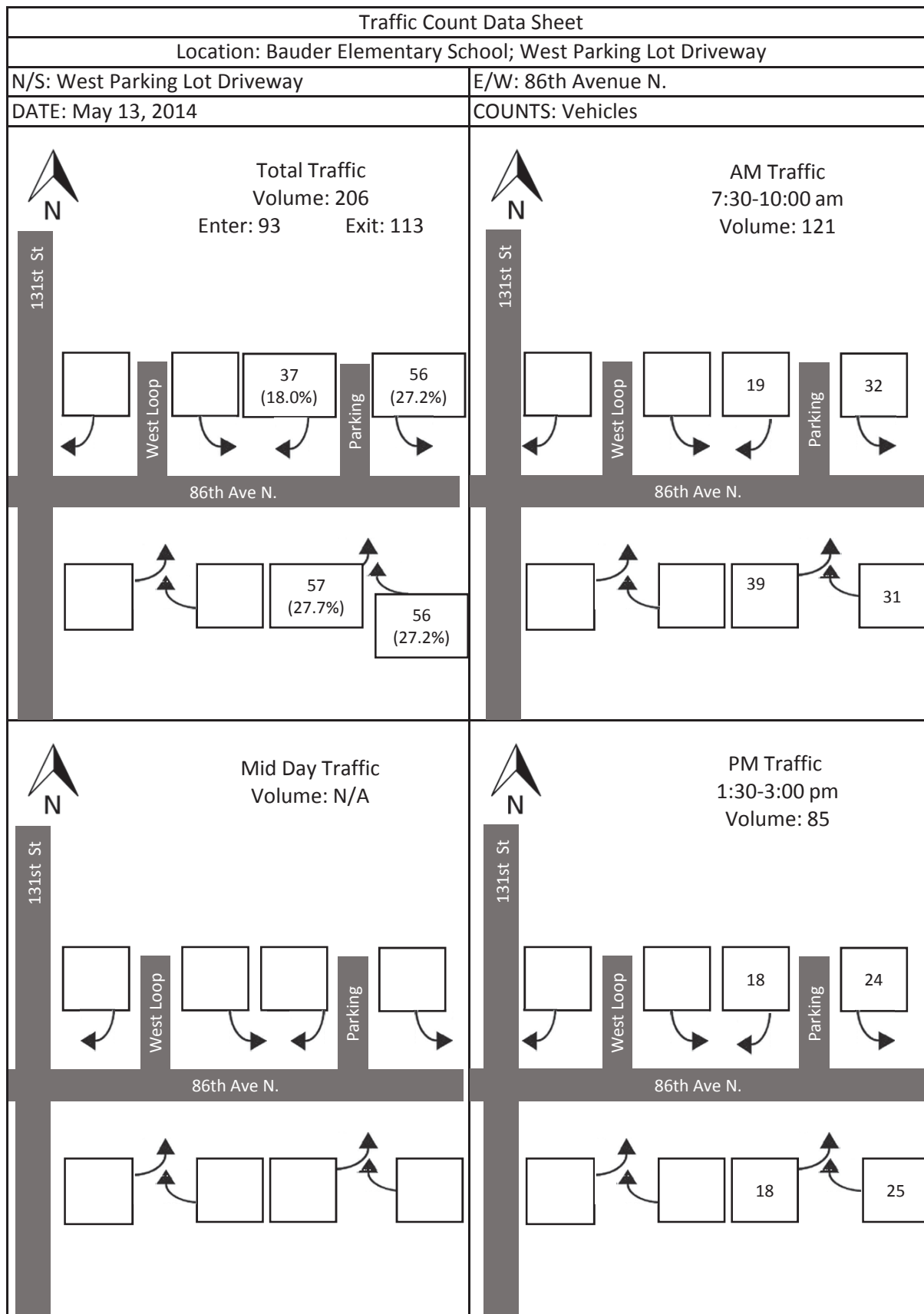


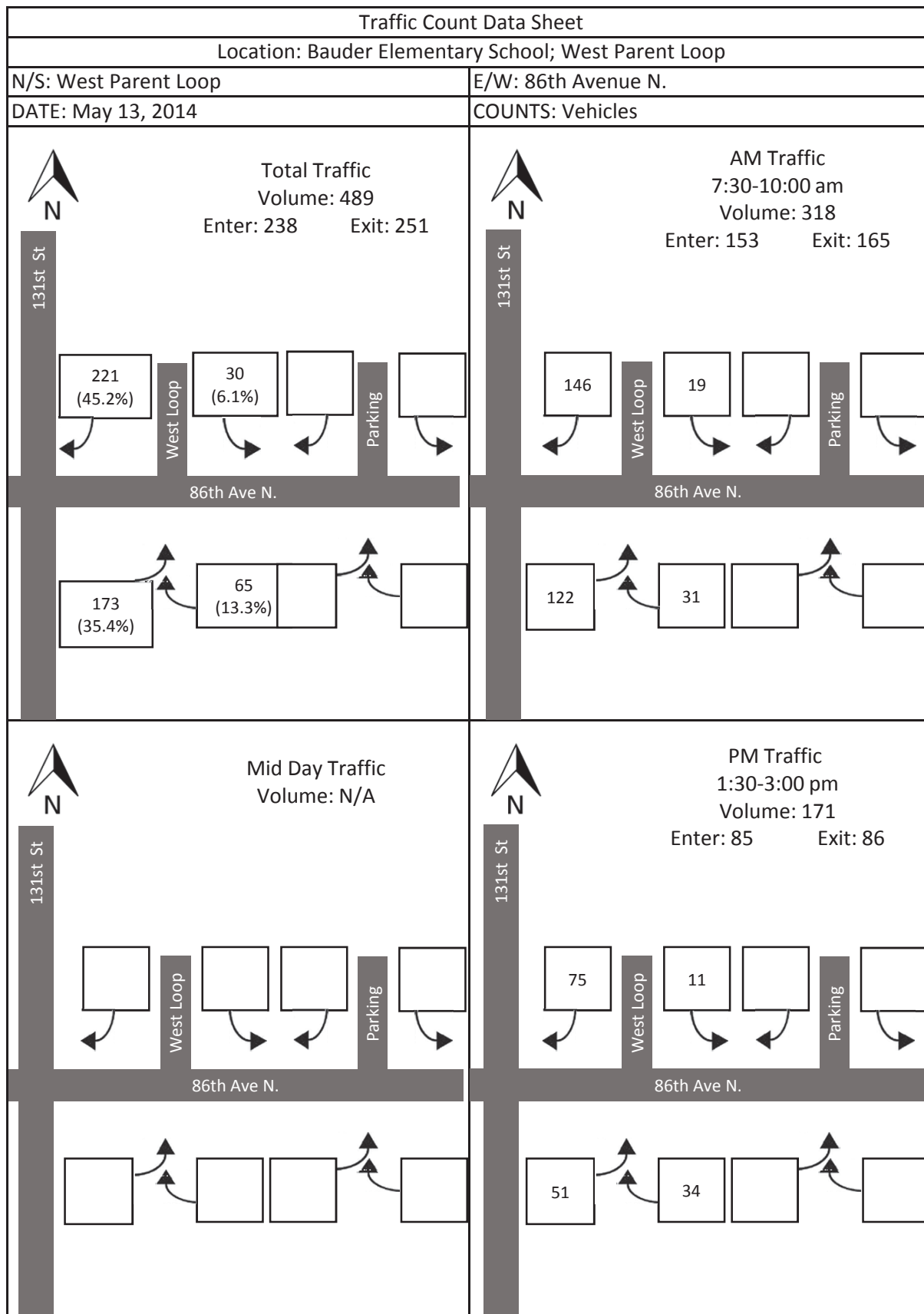












Appendix B

Vehicle Turning Movements Data Sheets

Vehicle Turning Movements Data Sheet

Location: 131st Street & 86th Avenue N. (traffic signal control)

Date: May 14, 2014 (6:30 AM to 6:00 PM)

Weather: Clear Morning & Afternoon Thunderstorms

Observers: Marcio Resendes & Shannon Bolesta

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM	13	33	17	23	21	2	2	57	19	0	8	3	198
6:45 - 7:00 AM	36	49	23	42	69	1	1	54	36	0	2	2	315
Total	49	82	40	65	90	3	3	111	55	0	10	5	513

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM	25	54	15	19	11	5	0	60	18	6	12	5	230
7:15 - 7:30 AM	5	23	4	7	14	2	2	42	13	8	5	3	128
7:30 - 7:45 AM	7	24	7	8	28	6	1	57	18	5	6	10	177
7:45 - 8:00 AM	14	53	6	14	25	3	1	60	17	3	15	6	217
Total	51	154	32	48	78	16	4	219	66	22	38	24	752

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM	30	34	8	7	52	3	3	55	38	29	42	18	319
8:15 - 8:30 AM	35	40	4	7	58	4	2	48	35	23	41	14	311
8:30 - 8:45 AM	11	42	1	7	25	4	1	49	22	32	29	28	251
8:45 - 9:00 AM	11	41	5	4	16	4	1	45	16	27	18	9	197
Total	87	157	18	25	151	15	7	197	111	111	130	69	1078

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM	3	56	8	4	21	9	8	60	29	35	16	5	254
9:15 - 9:30 AM	5	54	7	6	17	5	5	58	26	39	19	5	246
9:30 - 9:45 AM	8	26	5	9	17	3	2	38	5	9	19	10	151
9:45 - 10:00 AM	7	33	4	9	18	7	1	33	6	7	15	5	145
Total	23	169	24	28	73	24	16	189	66	90	69	25	796

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
10:00 - 10:15 AM	11	40	10	8	14	1	5	52	9	8	20	11	189
10:15 - 10:30 AM	3	16	3	5	9	1	3	25	2	12	12	7	98
10:30 - 10:45 AM	24	49	9	3	12	4	5	34	8	3	12	11	174
10:45 - 11:00 AM	5	20	5	9	18	1	4	26	5	9	22	15	139
Total	43	125	27	25	53	7	17	137	24	32	66	44	600

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
11:00 - 11:15 AM	6	35	10	10	12	2	4	28	12	6	17	6	148
11:15 - 11:30 AM	17	45	10	6	19	3	1	27	5	8	13	6	160
11:30 - 11:45 AM	6	24	9	8	17	2	6	42	4	10	11	7	146
11:45 AM-12:00 PM	13	32	10	8	13	2	5	43	6	16	22	12	182
Total	42	136	39	32	61	9	16	140	27	40	63	31	636

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
12:00 - 12:15 PM	6	29	16	9	21	1	4	27	17	23	21	11	185
12:15 - 12:30 PM	2	33	3	12	13	1	3	39	7	5	26	4	148
12:30 - 12:45 PM	7	45	4	12	20	1	3	37	4	4	12	9	158
12:45 - 1:00 PM	3	35	17	14	17	2	5	31	4	8	23	2	161
Total	18	142	40	47	71	5	15	134	32	40	82	26	652

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
1:00 - 1:15 PM	7	22	9	10	7	2	1	32	6	7	10	8	121
1:15 - 1:30 PM	5	36	14	11	11	4	6	50	12	9	24	9	191
1:30 - 1:45 PM	16	53	30	15	12	4	6	49	8	23	25	10	251
1:45 - 2:00 PM	6	64	21	16	23	6	6	52	9	19	39	19	280
Total	34	175	74	52	53	16	19	183	35	58	98	46	843

Location: 131st Street & 86th Avenue N.

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM	14	43	15	11	39	7	7	51	13	10	18	10	238
2:15 - 2:30 PM	11	51	11	5	18	3	4	43	14	10	23	6	199
2:30 - 2:45 PM	14	61	16	5	25	4	4	45	17	20	28	17	256
2:45 - 3:00 PM	7	41	7	6	25	4	3	54	12	17	45	17	238
Total	46	196	49	27	107	18	18	193	56	57	114	50	931

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM	7	57	7	7	21	4	4	52	13	28	33	6	239
3:15 - 3:30 PM	1	55	13	6	20	7	9	31	8	20	18	7	195
3:30 - 3:45 PM	3	53	16	4	20	3	7	37	15	19	27	7	211
3:45 - 4:00 PM	12	47	11	10	20	4	7	56	18	11	22	3	221
Total	23	212	47	27	81	18	27	176	54	78	100	23	866

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM	4	33	13	10	23	6	6	54	20	24	26	8	227
4:15 - 4:30 PM	2	57	18	11	33	10	8	63	21	38	50	13	324
4:30 - 4:45 PM	4	56	12	5	11	2	6	56	13	11	26	2	204
4:45 - 5:00 PM	4	67	10	6	23	6	7	47	10	13	33	13	239
Total	14	213	53	32	90	24	27	220	64	86	135	36	994

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
5:00 - 5:15 PM	4	52	11	10	18	5	13	45	14	18	35	4	229
5:15 - 5:30 PM	2	78	10	8	13	6	6	56	13	25	26	6	249
5:30 - 5:45 PM	8	68	7	9	14	7	13	48	17	22	33	7	253
5:45 - 6:00 PM	4	51	11	7	19	4	11	54	14	16	25	6	222
Total	18	249	39	34	64	22	43	203	58	81	119	23	953

Grand Total	448	2010	482	442	972	177	212	2102	648	695	1024	402	9614
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% on each Approach	15%	68%	17%	28%	61%	11%	7%	71%	22%	33%	48%	19%
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% of Total Traffic	4.7%	20.9%	5.0%	4.6%	10.1%	1.8%	2.2%	21.9%	6.7%	7.2%	10.7%	4.2%	100.0%
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Location: 131st Street & 86th Avenue N.

AM Peak Hour													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
7:45 - 8:00 AM	14	53	6	14	25	3	1	60	17	3	15	6	217
8:00 - 8:15 AM	30	34	8	7	52	3	3	55	38	29	42	18	319
8:15 - 8:30 AM	35	40	4	7	58	4	2	48	35	23	41	14	311
8:30 - 8:45 AM	11	42	1	7	25	4	1	49	22	32	29	28	251
Total	90	169	19	35	160	14	7	212	112	87	127	66	1098

Mid Day Peak Hour													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
11:45 AM-12:00 PM	13	32	10	8	13	2	5	43	6	16	22	12	182
12:00 - 12:15 PM	6	29	16	9	21	1	4	27	17	23	21	11	185
12:15 - 12:30 PM	2	33	3	12	13	1	3	39	7	5	26	4	148
12:30 - 12:45 PM	7	45	4	12	20	1	3	37	4	4	12	9	158
Total	28	139	33	41	67	5	15	146	34	48	81	36	673

PM Peak Hour													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:15 - 4:30 PM	2	57	18	11	33	10	8	63	21	38	50	13	324
4:30 - 4:45 PM	4	56	12	5	11	2	6	56	13	11	26	2	204
4:45 - 5:00 PM	4	67	10	6	23	6	7	47	10	13	33	13	239
5:00 - 5:15 PM	4	52	11	10	18	5	13	45	14	18	35	4	229
Total	14	232	51	32	85	23	34	211	58	80	144	32	996

Prepared by: Brian Kanely

Date: June 8, 2014

Notes:

AM Traffic

6:30 - 7:30:	871	7:45 - 8:45:	1,098
6:45 - 7:45:	850	8:00 - 9:00:	1,078
7:00 - 8:00:	752	8:15 - 9:15:	1,013
7:15 - 8:15:	841	8:30 - 9:30:	948
7:30 - 8:30:	1024	8:45 - 9:45:	848

Mid-Day Traffic

11:30-12:30:	661	12:30 - 1:30:	631
11:45-12:45:	673		
12:00 - 1:00:	652		
12:15 - 1:15:	588		

PM Traffic

4:00 - 5:00:	994	5:00 - 6:00:	953
4:15 - 5:15:	996		
4:30 - 5:30:	921		
4:45 - 5:45:	970		

Vehicle Turning Movements Data Sheet

Location: 125th Street & 86th Avenue N. (traffic signal control)

Date: May 14, 2014 (6:30 AM - 6:00 PM)

Weather: Clear Morning & Afternoon Thunderstorms

Observers: Bob Bischof

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM	1	7	11	9	27	8	37	22	0	1	34	7	164
6:45 - 7:00 AM	6	9	11	40	55	21	60	30	2	1	71	7	313
Total	7	16	22	49	82	29	97	52	2	2	105	14	477

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM	10	16	10	22	35	14	18	22	2	2	20	2	173
7:15 - 7:30 AM	4	7	11	5	19	6	13	15	1	3	10	1	95
7:30 - 7:45 AM	8	12	6	7	34	4	7	14	1	3	15	1	112
7:45 - 8:00 AM	6	18	17	3	26	7	13	18	2	2	21	1	134
Total	28	53	44	37	114	31	51	69	6	10	66	5	514

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM	5	11	26	16	42	20	36	16	0	4	26	2	204
8:15 - 8:30 AM	3	12	37	19	60	21	44	21	3	2	37	0	259
8:30 - 8:45 AM	3	11	13	28	52	17	15	11	5	2	27	6	190
8:45 - 9:00 AM	2	12	13	4	39	7	15	18	2	3	32	4	151
Total	13	46	89	67	193	65	110	66	10	11	122	12	804

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM	2	15	17	8	33	9	32	21	2	0	29	3	171
9:15 - 9:30 AM	5	16	8	9	28	10	14	20	4	4	25	1	144
9:30 - 9:45 AM	0	13	2	9	15	3	10	7	1	1	28	2	91
9:45 - 10:00 AM	4	11	5	4	24	8	5	11	3	4	13	2	94
Total	11	55	32	30	100	30	61	59	10	9	95	8	500

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
10:00 - 10:15 AM	4	17	4	5	29	0	5	17	3	3	22	2	111
10:15 - 10:30 AM	5	14	5	3	18	4	7	9	2	3	17	5	92
10:30 - 10:45 AM	7	18	6	8	32	9	6	18	2	5	20	1	132
10:45 - 11:00 AM	5	17	6	5	20	5	7	7	1	3	39	3	118
Total	21	66	21	21	99	18	25	51	8	14	98	11	453

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
11:00 - 11:15 AM	1	12	5	4	22	5	8	16	4	2	15	2	96
11:15 - 11:30 AM	1	7	6	11	30	10	7	12	4	1	22	6	117
11:30 - 11:45 AM	2	17	6	5	20	6	6	10	3	6	24	4	109
11:45 AM-12:00 PM	4	25	11	3	17	6	11	14	4	5	19	4	123
Total	8	61	28	23	89	27	32	52	15	14	80	16	445

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
12:00 - 12:15 PM	3	14	2	6	27	5	10	17	5	4	41	6	140
12:15 - 12:30 PM	1	12	4	1	23	5	4	12	1	5	30	3	101
12:30 - 12:45 PM	3	21	4	3	31	1	7	21	6	5	19	4	125
12:45 - 1:00 PM	6	16	4	7	25	14	7	12	3	3	13	4	114
Total	13	63	14	17	106	25	28	62	15	17	103	17	480

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
1:00 - 1:15 PM	6	6	7	2	22	4	9	10	3	5	17	3	94
1:15 - 1:30 PM	7	20	7	5	23	2	11	12	6	2	25	0	120
1:30 - 1:45 PM	6	19	11	37	50	34	12	16	7	1	32	4	223
1:45 - 2:00 PM	13	18	12	42	62	28	12	16	1	3	35	11	259
Total	32	63	37	86	157	68	44	54	17	11	109	18	696

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM	6	20	11	10	35	17	12	22	4	2	33	3	175
2:15 - 2:30 PM	5	22	21	6	20	3	27	14	2	4	38	4	166
2:30 - 2:45 PM	5	26	12	14	31	22	19	18	4	7	40	3	201
2:45 - 3:00 PM	3	11	16	35	50	27	21	14	5	7	20	11	220
Total	19	79	60	65	136	69	79	68	15	20	131	21	762

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM	8	29	6	8	31	19	4	22	5	0	25	10	167
3:15 - 3:30 PM	7	22	6	3	24	10	6	11	3	0	33	4	129
3:30 - 3:45 PM	4	24	11	4	38	13	15	23	5	3	41	6	187
3:45 - 4:00 PM	2	14	17	7	31	11	18	21	4	5	51	9	190
Total	21	89	40	22	124	53	43	77	17	8	150	29	673

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM	3	16	10	36	38	20	18	24	2	6	33	5	211
4:15 - 4:30 PM	4	20	9	15	68	30	8	18	3	4	28	4	211
4:30 - 4:45 PM	3	18	12	8	34	15	12	16	2	4	36	5	165
4:45 - 5:00 PM	8	20	5	8	27	16	5	22	5	2	40	4	162
Total	18	74	36	67	167	81	43	80	12	16	137	18	749

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
5:00 - 5:15 PM	1	20	9	15	21	4	10	18	6	10	38	9	161
5:15 - 5:30 PM	9	20	9	8	32	10	7	22	8	5	47	6	183
5:30 - 5:45 PM	3	29	7	5	27	17	13	23	2	6	49	6	187
5:45 - 6:00 PM	3	29	9	8	28	15	7	18	2	7	34	9	169
Total	16	98	34	36	108	46	37	81	18	28	168	30	700

Grand Total	207	763	457	520	1475	542	650	771	145	160	1364	199	7253
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% on each Approach	14%	54%	32%	21%	58%	21%	42%	49%	9%	9%	79%	12%
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% of Total Traffic	2.9%	10.5%	6.3%	7.2%	20.3%	7.5%	9.0%	10.6%	2.0%	2.2%	18.8%	2.7%	100.0%
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Location: 125th Street & 86th Avenue N.

AM Peak Hour													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
8:00 - 8:15 AM	5	11	26	16	42	20	36	16	0	4	26	2	204
8:15 - 8:30 AM	3	12	37	19	60	21	44	21	3	2	37	0	259
8:30 - 8:45 AM	3	11	13	28	52	17	15	11	5	2	27	6	190
8:45 - 9:00 AM	2	12	13	4	39	7	15	18	2	3	32	4	151
Total	13	46	89	67	193	65	110	66	10	11	122	12	804

Mid Day Peak Hour													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
11:45AM-12:00PM	4	25	11	3	17	6	11	14	4	5	19	4	123
12:00 - 12:15 PM	3	14	2	6	27	5	10	17	5	4	41	6	140
12:15 - 12:30 PM	1	12	4	1	23	5	4	12	1	5	30	3	101
12:30 - 12:45 PM	3	21	4	3	31	1	7	21	6	5	19	4	125
Total	11	72	21	13	98	17	32	64	16	19	109	17	489

PM Peak Hour													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM	3	16	10	36	38	20	18	24	2	6	33	5	211
4:15 - 4:30 PM	4	20	9	15	68	30	8	18	3	4	28	4	211
4:30 - 4:45 PM	3	18	12	8	34	15	12	16	2	4	36	5	165
4:45 - 5:00 PM	8	20	5	8	27	16	5	22	5	2	40	4	162
Total	18	74	36	67	167	81	43	80	12	16	137	18	749

Prepared by: Brian Kanely

Date: June 8, 2014

Notes:

AM Traffic

6:30 - 7:30:	745	7:45 - 8:45:	787
6:45 - 7:45:	693	8:00 - 9:00:	804
7:00 - 8:00:	514	8:15 - 9:15:	771
7:15 - 8:15:	545	8:30 - 9:30:	656
7:30 - 8:30:	709	8:45 - 9:45:	557

Mid-Day Traffic

11:30-12:30	473	12:30 - 1:30	453
11:45-12:45	489		
12:00 - 1:00	480		
12:15 - 1:15	434		

PM Traffic

4:00 - 5:00:	749	5:00 - 6:00:	700
4:15 - 5:15:	699		
4:30 - 5:30:	671		
4:45 - 5:45:	693		

Vehicle Turning Movements Data Sheet

Location: 131st Street & 82nd Avenue N. (stop sign control; 82nd Avenue stops)

Date: May 14, 2014 (6:30 AM to 6:00 PM)

Weather: Clear Morning & Afternoon Thunderstorms

Observers: Aaron Bischof

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM	11	60	1	7	0	3	0	34	5	11	1	2	135
6:45 - 7:00 AM	15	115	1	9	8	11	1	36	4	17	4	8	229
Total	26	175	2	16	8	14	1	70	9	28	5	10	364

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM	3	47	1	12	2	5	4	59	2	8	3	6	152
7:15 - 7:30 AM	3	21	1	8	0	3	0	57	2	5	0	3	103
7:30 - 7:45 AM	1	28	3	7	1	5	1	49	3	2	1	2	103
7:45 - 8:00 AM	2	57	3	8	1	4	1	52	5	7	0	4	144
Total	9	153	8	35	4	17	6	217	12	22	4	15	502

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM	2	55	4	11	0	2	4	57	3	12	2	1	153
8:15 - 8:30 AM	4	61	6	19	3	7	1	57	5	9	2	1	175
8:30 - 8:45 AM	1	59	5	11	0	4	2	79	2	3	2	2	170
8:45 - 9:00 AM	0	45	2	10	0	1	4	47	2	7	1	1	120
Total	7	220	17	51	3	14	11	240	12	31	7	5	618

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM	1	60	5	8	4	4	0	63	3	5	1	0	154
9:15 - 9:30 AM	1	55	3	11	4	5	1	68	3	7	1	1	160
9:30 - 9:45 AM	2	29	6	9	0	1	0	50	3	1	1	5	107
9:45 - 10:00 AM	1	25	0	7	0	4	0	50	3	4	1	2	97
Total	5	169	14	35	8	14	1	231	12	17	4	8	518

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
10:00 - 10:15 AM	1	41	7	8	2	6	1	46	2	2	0	1	117
10:15 - 10:30 AM	2	37	4	10	1	1	0	49	4	3	0	1	112
10:30 - 10:45 AM	2	39	5	3	2	2	2	53	5	2	0	2	117
10:45 - 11:00 AM	3	36	5	6	2	3	2	37	2	0	0	2	98
Total	8	153	21	27	7	12	5	185	13	7	0	6	444

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
11:00 - 11:15 AM	0	35	3	3	0	2	0	38	4	5	0	1	91
11:15 - 11:30 AM	5	46	5	5	0	2	2	50	5	2	0	4	126
11:30 - 11:45 AM	3	32	1	10	0	1	2	50	4	4	1	2	110
11:45 AM-12:00 PM	3	54	8	7	0	2	2	45	5	6	1	1	134
Total	11	167	17	25	0	7	6	183	18	17	2	8	461

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
12:00 - 12:15 PM	4	35	12	6	2	0	4	32	5	6	2	3	111
12:15 - 12:30 PM	5	35	10	10	1	2	1	40	7	5	0	1	117
12:30 - 12:45 PM	3	44	4	7	0	3	0	47	3	4	2	6	123
12:45 - 1:00 PM	3	40	5	6	3	0	1	51	4	6	1	3	123
Total	15	154	31	29	6	5	6	170	19	21	5	13	474

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
1:00 - 1:15 PM	4	48	5	9	3	3	1	42	2	3	1	2	123
1:15 - 1:30 PM	1	56	6	5	0	1	2	41	5	3	0	1	121
1:30 - 1:45 PM	9	57	3	8	3	0	11	55	15	6	2	6	175
1:45 - 2:00 PM	5	48	5	6	2	7	4	85	6	2	2	8	180
Total	19	209	19	28	8	11	18	223	28	14	5	17	599

Location: 131st Street & 82nd Avenue N.

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM	5	58	5	6	0	1	3	69	4	5	1	3	160
2:15 - 2:30 PM	5	48	2	3	2	3	3	60	5	11	3	8	153
2:30 - 2:45 PM	1	60	6	7	2	1	0	50	8	4	1	3	143
2:45 - 3:00 PM	1	46	7	8	3	1	5	82	8	8	5	4	178
Total	12	212	20	24	7	6	11	261	25	28	10	18	634

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM	1	58	6	5	1	2	0	63	8	2	1	1	148
3:15 - 3:30 PM	3	66	9	4	1	1	4	46	6	12	3	3	158
3:30 - 3:45 PM	1	70	4	9	2	3	0	50	4	0	2	3	148
3:45 - 4:00 PM	4	74	5	5	1	3	2	56	2	6	2	2	162
Total	9	268	24	23	5	9	6	215	20	20	8	9	616

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM	5	75	5	13	3	6	8	60	13	7	1	2	198
4:15 - 4:30 PM	1	65	14	7	4	1	3	84	5	3	1	3	191
4:30 - 4:45 PM	4	60	8	4	3	2	3	64	4	5	0	5	162
4:45 - 5:00 PM	4	91	5	6	2	1	1	61	5	4	1	4	185
Total	14	291	32	30	12	10	15	269	27	19	3	14	736

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
5:00 - 5:15 PM	3	69	6	5	3	1	1	46	5	4	2	3	148
5:15 - 5:30 PM	2	68	10	6	1	2	2	56	8	5	3	3	166
5:30 - 5:45 PM	2	73	8	4	1	3	1	53	6	5	0	3	159
5:45 - 6:00 PM	8	68	6	6	0	1	2	65	3	6	0	4	169
Total	15	278	30	21	5	7	6	220	22	20	5	13	642

Grand Total	150	2449	235	344	73	126	92	2484	217	244	58	136	6608
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% on each Approach	5%	87%	8%	64%	13%	23%	3%	89%	8%	56%	13%	31%
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% of Total Traffic	2.3%	37.1%	3.6%	5.2%	1.1%	1.9%	1.4%	37.6%	3.3%	3.7%	0.9%	2.1%	100.0%
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Location: 131st Street & 82nd Avenue N.

AM Peak Hour													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
7:45 - 8:00 AM	2	57	3	8	1	4	1	52	5	7	0	4	144
8:00 - 8:15 AM	2	55	4	11	0	2	4	57	3	12	2	1	153
8:15 - 8:30 AM	4	61	6	19	3	7	1	57	5	9	2	1	175
8:30 - 8:45 AM	1	59	5	11	0	4	2	79	2	3	2	2	170
Total	9	232	18	49	4	17	8	245	15	31	6	8	642

Mid Day Peak Hour													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
12:30 - 12:45 PM	3	44	4	7	0	3	0	47	3	4	2	6	123
12:45 - 1:00 PM	3	40	5	6	3	0	1	51	4	6	1	3	123
1:00 - 1:15 PM	4	48	5	9	3	3	1	42	2	3	1	2	123
1:15 - 1:30 PM	1	56	6	5	0	1	2	41	5	3	0	1	121
Total	11	188	20	27	6	7	4	181	14	16	4	12	490

PM Peak Hour													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM	5	75	5	13	3	6	8	60	13	7	1	2	198
4:15 - 4:30 PM	1	65	14	7	4	1	3	84	5	3	1	3	191
4:30 - 4:45 PM	4	60	8	4	3	2	3	64	4	5	0	5	162
4:45 - 5:00 PM	4	91	5	6	2	1	1	61	5	4	1	4	185
Total	14	291	32	30	12	10	15	269	27	19	3	14	736

Prepared by: Brian Kanely

Date: June 8, 2014

Notes:

AM Traffic

6:30 - 7:30:	619	7:45 - 8:45:	642
6:45 - 7:45:	587	8:00 - 9:00:	618
7:00 - 8:00:	502	8:15 - 9:15:	619
7:15 - 8:15:	503	8:30 - 9:30:	604
7:30 - 8:30:	575	8:45 - 9:45:	541

Mid -Day Traffic

11:30-12:30	472	12:30 - 1:30	490
11:45-12:45	485		
12:00 - 1:00	474		
12:15 - 1:15	486		

PM Traffic

4:00 - 5:00:	736	5:00 - 6:00:	642
4:15 - 5:15:	686		
4:30 - 5:30:	661		
4:45 - 5:45:	658		

Pedestrians & Bicycles Turning Movements Data Sheet

Location: 131st Street & 86th Avenue N. (traffic signal control); Pedestrians and Bicyclists Traffic Count

Date: May 14, 2014 (6:30 AM to 6:00 PM)

Weather: Clear Morning & Afternoon Thunderstorms

Observers: Brian Kanely

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

	From the Southwest Corner to			From the Northwest Corner to			From the Northeast Corner to			From the Southeast Corner to			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM	4		0	4		3	2		9	2		0	24
6:45 - 7:00 AM	15		5	14		5	5		15	4		5	68
Total	19		5	18		8	7		24	6		5	92

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
7:00 - 7:15 AM	8		5	3		2	0		3	0		4	25
7:15 - 7:30 AM	0		0	1		0	0		1	0		1	3
7:30 - 7:45 AM	5		0	0		2	3		1	0		0	11
7:45 - 8:00 AM	1		2	2		14	0		0	1		0	20
Total	14		7	6		18	3		5	1		5	59

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
8:00 - 8:15 AM	2		12	2		17	3		0	3		2	41
8:15 - 8:30 AM	0		2	0		8	5		0	3		0	18
8:30 - 8:45 AM	0		3	0		13	6		0	5		0	27
8:45 - 9:00 AM	0		1	0		30	9		1	2		0	43
Total	2		18	2		68	23		1	13		2	129

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
9:00 - 9:15 AM	0		10	0		31	3		0	14		0	58
9:15 - 9:30 AM	0		2	0		41	0		0	11		0	54
9:30 - 9:45 AM	0		0	1		0	0		0	0		0	1
9:45 - 10:00 AM	0		1	0		0	0		1	2		1	5
Total	0		13	1		72	3		1	27		1	118

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
10:00 - 10:15 AM	1		2	0		0	0		0	0		2	5
10:15 - 10:30 AM	2		0	2		0	1		0	0		0	5
10:30 - 10:45 AM	0		3	0		0	7		0	2		3	15
10:45 - 11:00 AM	9		0	9		2	2		2	2		0	26
Total	12		5	11		2	10		2	4		5	51

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
11:00 - 11:15 AM	1		0	0		2	1		1	1		1	7
11:15 - 11:30 AM	0		0	0		0	0		0	0		0	0
11:30 - 11:45 AM	1		1	1		0	0		0	0		1	4
11:45 AM-12:00 PM	1		1	1		0	0		0	0		1	4
Total	3		2	2		2	1		1	1		3	15

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
12:00 - 12:15 PM	0		0	0		0	0		0	0		0	0
12:15 - 12:30 PM	1		1	0		0	1		0	0		0	3
12:30 - 12:45 PM	0		0	0		0	0		0	0		0	0
12:45 - 1:00 PM	0		1	0		0	0		0	2		0	3
Total	1		2	0		0	1		0	2		0	6

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
1:00 - 1:15 PM	0		2	2		0	1		0	0		0	5
1:15 - 1:30 PM	0		0	0		0	0		0	0		1	1
1:30 - 1:45 PM	0		21	0		0	15		0	56		35	127
1:45 - 2:00 PM	8		5	4		6	26		0	29		0	78
Total	8		28	6		6	42		0	85		36	211

Location: 131st Street & 86th Avenue N; Pedestrians and Bicyclists

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
2:00 - 2:15 PM	6		3	5		1	6		1	7		4	33
2:15 - 2:30 PM	0		6	0		3	0		0	0		1	10
2:30 - 2:45 PM	0		0	0		2	3		3	3		2	13
2:45 - 3:00 PM	0		1	8		1	35		1	3		0	49
Total	6		10	13		7	44		5	13		7	105

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
3:00 - 3:15 PM	0		1	3		0	5		0	2		0	11
3:15 - 3:30 PM	0		3	0		9	0		2	2		1	17
3:30 - 3:45 PM	0		0	0		0	1		0	0		0	1
3:45 - 4:00 PM	0		2	0		1	2		1	0		0	6
Total	0		6	3		10	8		3	4		1	35

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
4:00 - 4:15 PM	0		0	17		0	165		137	0		0	319
4:15 - 4:30 PM	0		0	1		3	7		1	1		0	13
4:30 - 4:45 PM	0		0	0		6	9		0	0		0	15
4:45 - 5:00 PM	0		1	0		1	0		0	0		0	2
Total	0		1	18		10	181		138	1		0	349

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
5:00 - 5:15 PM	0		4	0		0	0		0	0		1	5
5:15 - 5:30 PM	0		1	1		0	0		3	0		1	6
5:30 - 5:45 PM	0		0	0		3	4		1	0		0	8
5:45 - 6:00 PM	0		0	2		0	1		0	0		0	3
Total	0		5	3		3	5		4	0		2	22

Grand Total	65		102	83		206	328		184	157		67	1192
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% of Total Traffic	5.5%		8.6%	7.0%		17.3%	27.5%		15.4%	13.2%		5.6%	100.0%
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Location: 131st Street & 86th Avenue N; Pedestrians & Bicyclists

AM Peak Hour													
	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
8:00 - 8:15 AM	2		12	2		17	3		0	3		2	41
8:15 - 8:30 AM	0		2	0		8	5		0	3		0	18
8:30 - 8:45 AM	0		3	0		13	6		0	5		0	27
8:45 - 9:00 AM	0		1	0		30	9		1	2		0	43
Total	2		18	2		68	23		1	13		2	129

Mid Day Peak Hour													
	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
12:15 - 12:30 PM	1		1	0		0	1		0	0		0	3
12:30 - 12:45 PM	0		0	0		0	0		0	0		0	0
12:45 - 1:00 PM	0		1	0		0	0		0	2		0	3
1:00 - 1:15 PM	0		2	2		0	1		0	0		0	5
Total	1		4	2		0	2		0	2		0	11

PM Peak Hour													
	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
4:00 - 4:15 PM	0		0	17		0	165		137	0		0	319
4:15 - 4:30 PM	0		0	1		3	7		1	1		0	13
4:30 - 4:45 PM	0		0	0		6	9		0	0		0	15
4:45 - 5:00 PM	0		1	0		1	0		0	0		0	2
Total	0		1	18		10	181		138	1		0	349

Prepared by: Brian Kanelly

Date: June 8, 2014

Notes:

AM Traffic

6:30 - 7:30:	120	7:45 - 8:45:	106
6:45 - 7:45:	107	8:00 - 9:00:	129
7:00 - 8:00:	59		
7:15 - 8:15:	75		
7:30 - 8:30:	90		

Mid-Day Traffic

11:30-12:30	11	12:30 - 1:30	9
11:45-12:45	7		
12:00 - 1:00	6		
12:15 - 1:15	11		

PM Traffic

4:00 - 5:00:	349	5:00 - 6:00:	22
4:15 - 5:15:	35		
4:30 - 5:30:	28		
4:45 - 5:45:	21		

Pedestrians & Bicycles Traffic Count Data Sheet

Location: 125th Street & 86th Avenue N. (traffic signal control)

Date: Sept 16/22, 2014 (7:30 - 10:00 AM and 2:15 - 5:00 PM)

Weather: Cloudy/Cloudy

Observers: Brian Kanely

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

	From the Southwest Corner to			From the Northwest Corner to			From the Northeast Corner to			From the Southeast Corner to			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM													0
6:45 - 7:00 AM													0
Total	0		0	0		0	0		0	0		0	0

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
7:00 - 7:15 AM													0
7:15 - 7:30 AM													0
7:30 - 7:45 AM	0		0	0		0	1		0	0		0	1
7:45 - 8:00 AM	0		2	0		0	11		1	1		0	15
Total	0		2	0		0	12		1	1		0	16

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
8:00 - 8:15 AM	0		0	2		2	6		0	5		0	15
8:15 - 8:30 AM	0		6	0		1	5		1	2		0	15
8:30 - 8:45 AM	0		1	2		1	5		0	4		0	13
8:45 - 9:00 AM	0		2	0		0	9		0	5		0	16
Total	0		9	4		4	25		1	16		0	59

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
9:00 - 9:15 AM	0		0	0		0	12		0	7		0	19
9:15 - 9:30 AM	0		0	0		0	2		0	0		0	2
9:30 - 9:45 AM	0		0	0		0	1		0	0		0	1
9:45 - 10:00 AM	1		0	0		0	0		0	0		0	1
Total	1		0	0		0	15		0	7		0	23

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
10:00 - 10:15 AM													0
10:15 - 10:30 AM													0
10:30 - 10:45 AM													0
10:45 - 11:00 AM													0
Total	0		0	0		0	0		0	0		0	0

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
11:00 - 11:15 AM													0
11:15 - 11:30 AM													0
11:30 - 11:45 AM													0
11:45 AM-12:00 PM													0
Total	0		0	0		0	0		0	0		0	0

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
12:00 - 12:15 PM													0
12:15 - 12:30 PM													0
12:30 - 12:45 PM													0
12:45 - 1:00 PM													0
Total	0		0	0		0	0		0	0		0	0

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
1:00 - 1:15 PM													0
1:15 - 1:30 PM													0
1:30 - 1:45 PM													0
1:45 - 2:00 PM													0
Total	0		0	0		0	0		0	0		0	0

Location: 125th Street & 86th Avenue N. peds & bikes

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
2:00 - 2:15 PM													0
2:15 - 2:30 PM	1		0	0		6	0		0	0		0	7
2:30 - 2:45 PM	0		1	0		5	0		1	0		0	7
2:45 - 3:00 PM	0		0	6		37	0		11	0		1	55
Total	1		1	6		48	0		12	0		1	69

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
3:00 - 3:15 PM	0		0	1		4	1		1	1		0	8
3:15 - 3:30 PM	0		0	0		2	0		0	0		0	2
3:30 - 3:45 PM	0		0	0		1	1		0	0		0	2
3:45 - 4:00 PM	0		0	0		0	0		0	0		0	0
Total	0		0	1		7	2		1	1		0	12

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
4:00 - 4:15 PM	0		0	4		17	0		0	0		0	21
4:15 - 4:30 PM	0		0	6		17	0		3	0		0	26
4:30 - 4:45 PM	0		0	0		3	0		1	0		0	4
4:45 - 5:00 PM	0		0	0		4	0		1	0		1	6
Total	0		0	10		41	0		5	0		1	57

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
5:00 - 5:15 PM													0
5:15 - 5:30 PM													0
5:30 - 5:45 PM													0
5:45 - 6:00 PM													0
Total	0		0	0		0	0		0	0		0	0

Grand Total	2		12	21		100	54		20	25		2	236
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% of Total Traffic	0.8%		5.1%	8.9%		42.4%	22.9%		8.5%	10.6%		0.8%	100.0%
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Location: 125th Street & 86th Avenue N. peds & bikes

AM Peak Hour													
	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
8:15 - 8:30 AM	0		6	0		1	5		1	2		0	15
8:30 - 8:45 AM	0		1	2		1	5		0	4		0	13
8:45 - 9:00 AM	0		2	0		0	9		0	5		0	16
9:00 - 9:15 AM	0		0	0		0	12		0	7		0	19
Total	0		9	2		2	31		1	18		0	63

Mid Day Peak Hour (N/A)													
	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
													0
													0
													0
													0
Total	0		0	0		0	0		0	0		0	0

PM Peak Hour													
	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
2:15 - 2:30 PM	1		0	0		6	0		0	0		0	7
2:30 - 2:45 PM	0		1	0		5	0		1	0		0	7
2:45 - 3:00 PM	0		0	6		37	0		11	0		1	55
3:00 - 3:15 PM	0		0	1		4	1		1	1		0	8
Total	1		1	7		52	1		13	1		1	77

Prepared by:

Date:

Notes:

AM Traffic

6:30 - 7:30:	0	7:45 - 8:45:	58
6:45 - 7:45:	1	8:00 - 9:00:	59
7:00 - 8:00:	16	8:15 - 9:15:	63
7:15 - 8:15:	31	8:30 - 9:30:	50
7:30 - 8:30:	46	8:45 - 9:45:	38
		9:00 - 10:00:	23

PM Traffic

1:00 - 2:00:	0	2:00 - 3:00:	69	3:00 - 4:00:	12	4:00 - 5:00:	57
1:15 - 2:15:	0	2:15 - 3:15:	77	3:15 - 4:15:	25		
1:30 - 2:30:	7	2:30 - 3:30:	72	3:30 - 4:30:	49		
1:45 - 2:45:	14	2:45 - 3:45:	67	3:45 - 4:45:	51		

Pedestrians & Bicycles Traffic Count Data Sheet

Location: 131st Street & 82nd Avenue N. (stop sign control)

Date: Sept 16/17, 2014 (6:30 - 7:30 AM and 1:00 - 2:00 PM)

Weather: Cloudy/Cloudy

Observers: Brian Kanely

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

	From the Southwest Corner to			From the Northwest Corner to			From the Northeast Corner to			From the Southeast Corner to			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM	0		5	0		6	0		0	1		0	12
6:45 - 7:00 AM	3		9	0		6	0		0	16		0	34
Total	3		14	0		12	0		0	17		0	46

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
7:00 - 7:15 AM	0		3	0		2	0		0	3		0	8
7:15 - 7:30 AM	0		1	0		0	3		1	0		0	5
7:30 - 7:45 AM													0
7:45 - 8:00 AM													0
Total	0		4	0		2	3		1	3		0	13

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
8:00 - 8:15 AM													0
8:15 - 8:30 AM													0
8:30 - 8:45 AM													0
8:45 - 9:00 AM													0
Total	0		0	0		0	0		0	0		0	0

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
9:00 - 9:15 AM													0
9:15 - 9:30 AM													0
9:30 - 9:45 AM													0
9:45 - 10:00 AM													0
Total	0		0	0		0	0		0	0		0	0

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
10:00 - 10:15 AM													0
10:15 - 10:30 AM													0
10:30 - 10:45 AM													0
10:45 - 11:00 AM													0
Total	0		0	0		0	0		0	0		0	0

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
11:00 - 11:15 AM													0
11:15 - 11:30 AM													0
11:30 - 11:45 AM													0
11:45 AM-12:00 PM													0
Total	0		0	0		0	0		0	0		0	0

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
12:00 - 12:15 PM													0
12:15 - 12:30 PM													0
12:30 - 12:45 PM													0
12:45 - 1:00 PM													0
Total	0		0	0		0	0		0	0		0	0

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	
1:00 - 1:15 PM	0		0	0		0	0		1	1		0	2
1:15 - 1:30 PM	0		0	0		0	0		0	0		0	0
1:30 - 1:45 PM	0		0	8		0	2		22	0		1	33
1:45 - 2:00 PM	0		0	2		0	4		10	2		0	18
Total	0		0	10		0	6		33	3		1	53

Location: 131st Street & 82nd Avenue N. peds & bikes

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
2:00 - 2:15 PM													0
2:15 - 2:30 PM													0
2:30 - 2:45 PM													0
2:45 - 3:00 PM													0
Total	0		0	0		0	0		0	0		0	0

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
3:00 - 3:15 PM													0
3:15 - 3:30 PM													0
3:30 - 3:45 PM													0
3:45 - 4:00 PM													0
Total	0		0	0		0	0		0	0		0	0

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
4:00 - 4:15 PM													0
4:15 - 4:30 PM													0
4:30 - 4:45 PM													0
4:45 - 5:00 PM													0
Total	0		0	0		0	0		0	0		0	0

	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
5:00 - 5:15 PM													0
5:15 - 5:30 PM													0
5:30 - 5:45 PM													0
5:45 - 6:00 PM													0
Total	0		0	0		0	0		0	0		0	0

Grand Total	3		18	10		14	9		34	23		1	112
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% of Total Traffic	2.7%		16.1%	8.9%		12.5%	8.0%		30.4%	20.5%		0.9%	100.0%
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Location: 131st Street & 82nd Avenue N. peds & bikes

AM Peak Hour													
	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
6:30 - 6:45 AM	0		5	0		6	0		0	1		0	12
6:45 - 7:00 AM	3		9	0		6	0		0	16		0	34
7:00 - 7:15 AM	0		3	0		2	0		0	3		0	8
7:15 - 7:30 AM	0		1	0		0	3		1	0		0	5
Total	3		18	0		14	3		1	20		0	59

Mid Day Peak Hour (N/A)													
	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
													0
													0
													0
													0
Total	0		0	0		0	0		0	0		0	0

PM Peak Hour													
	From the Southwest Corner To			From the Northwest Corner To			From the Northeast Corner To			From the Southeast Corner To			Total
Time	SE Corner		NW Corner	SW Corner		NE Corner	NW Corner		SE Corner	NE Corner		SW Corner	Total
1:00 - 1:15 PM	0		0	0		0	0		1	1		0	2
1:15 - 1:30 PM	0		0	0		0	0		0	0		0	0
1:30 - 1:45 PM	0		0	8		0	2		22	0		1	33
1:45 - 2:00 PM	0		0	2		0	4		10	2		0	18
Total	0		0	10		0	6		33	3		1	53

Prepared by: Brian Kanely

Date: September 19, 2014

Notes:

Circle K Driveways Vehicle Turning Movements Data Sheet

Location: 131st Street & 86th Avenue N; Circle K Convenience Store Driveways

Date: May 14, 2014 (6:30 AM to 6:00 PM)

Weather: Clear Morning & Afternoon Thunderstorms

Observers: Brian Kanely

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

	131st Street Driveway - Inbound			131st Street Driveway-Outbound			86th Ave. N Driveway - Inbound			86th Ave. N Driveway - Outbound			Total
Time	NB Left Turn		SB Rt Turn	NB Left Turn		SB Rt Turn	EB Left Turn		WB Rt Turn	EB Left Turn		WB Rt Turn	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM	0		2	1		2	4		5	6		4	24
6:45 - 7:00 AM	0		6	0		1	4		1	2		3	17
Total	0		8	1		3	8		6	8		7	41

	131st Street Driveway - Inbound			131st Street Driveway-Outbound			86th Ave. N Driveway - Inbound			86th Ave. N Driveway - Outbound			Total
Time	NB Left Turn		SB Rt Turn	NB Left Turn		SB Rt Turn	EB Left Turn		WB Rt Turn	EB Left Turn		WB Rt Turn	
7:00 - 7:15 AM	1		5	0		3	3		1	3		3	19
7:15 - 7:30 AM	2		1	1		2	0		2	3		1	12
7:30 - 7:45 AM	0		5	0		0	1		4	3		2	15
7:45 - 8:00 AM	0		4	3		2	3		4	2		2	20
Total	3		15	4		7	7		11	11		8	66

	131st Street Driveway - Inbound			131st Street Driveway-Outbound			86th Ave. N Driveway - Inbound			86th Ave. N Driveway - Outbound			Total
Time	NB Left Turn		SB Rt Turn	NB Left Turn		SB Rt Turn	EB Left Turn		WB Rt Turn	EB Left Turn		WB Rt Turn	
8:00 - 8:15 AM	0		4	0		3	2		0	4		2	15
8:15 - 8:30 AM	0		7	1		7	1		5	0		4	25
8:30 - 8:45 AM	0		3	0		1	2		1	2		1	10
8:45 - 9:00 AM	2		2	2		4	6		4	4		3	27
Total	2		16	3		15	11		10	10		10	77

	131st Street Driveway - Inbound			131st Street Driveway-Outbound			86th Ave. N Driveway - Inbound			86th Ave. N Driveway - Outbound			Total
Time	NB Left Turn		SB Rt Turn	NB Left Turn		SB Rt Turn	EB Left Turn		WB Rt Turn	EB Left Turn		WB Rt Turn	
9:00 - 9:15 AM	0		1	1		2	1		3	1		6	15
9:15 - 9:30 AM	1		4	0		4	2		10	0		9	30
9:30 - 9:45 AM	0		4	3		6	5		6	2		9	35
9:45 - 10:00 AM	0		7	0		5	4		7	7		8	38
Total	1		16	4		17	12		26	10		32	118

	131st Street Driveway - Inbound			131st Street Driveway-Outbound			86th Ave. N Driveway - Inbound			86th Ave. N Driveway - Outbound			Total
Time	NB Left Turn		SB Rt Turn	NB Left Turn		SB Rt Turn	EB Left Turn		WB Rt Turn	EB Left Turn		WB Rt Turn	
10:00 - 10:15 AM	0		1	4		0	1		1	1		5	13
10:15 - 10:30 AM	2		4	2		3	4		7	3		2	27
10:30 - 10:45 AM	2		5	3		5	6		6	5		3	35
10:45 - 11:00 AM	1		5	0		1	1		3	2		1	14
Total	5		15	9		9	12		17	11		11	89

	131st Street Driveway - Inbound			131st Street Driveway-Outbound			86th Ave. N Driveway - Inbound			86th Ave. N Driveway - Outbound			Total
Time	NB Left Turn		SB Rt Turn	NB Left Turn		SB Rt Turn	EB Left Turn		WB Rt Turn	EB Left Turn		WB Rt Turn	
11:00 - 11:15 AM	1		3	2		0	3		1	5		3	18
11:15 - 11:30 AM	1		4	0		2	0		0	4		0	11
11:30 - 11:45 AM	1		3	3		4	4		2	4		2	23
11:45 AM-12:00 PM	1		4	3		1	2		3	1		3	18
Total	4		14	8		7	9		6	14		8	70

	131st Street Driveway - Inbound			131st Street Driveway-Outbound			86th Ave. N Driveway - Inbound			86th Ave. N Driveway - Outbound			Total
Time	NB Left Turn		SB Rt Turn	NB Left Turn		SB Rt Turn	EB Left Turn		WB Rt Turn	EB Left Turn		WB Rt Turn	
12:00 - 12:15 PM	2		3	1		3	2		6	7		5	29
12:15 - 12:30 PM	0		9	4		3	2		2	4		2	26
12:30 - 12:45 PM	0		4	1		0	1		1	3		3	13
12:45 - 1:00 PM	0		3	1		0	1		5	3		3	16
Total	2		19	7		6	6		14	17		13	84

	131st Street Driveway - Inbound			131st Street Driveway-Outbound			86th Ave. N Driveway Inbound			86th Ave. N Driveway - Outbound			Total
Time	NB Left Turn		SB Rt Turn	NB Left Turn		SB Rt Turn	EB Left Turn		WB Rt Turn	EB Left Turn		WB Rt Turn	
1:00 - 1:15 PM	0		3	1		2	1		6	0		4	17
1:15 - 1:30 PM	0		1	0		1	0		5	3		3	13
1:30 - 1:45 PM	0		1	1		0	3		7	3		1	16
1:45 - 2:00 PM	0		2	2		1	3		8	4		6	26
Total	0		7	4		4	7		26	10		14	72

Location: 131st Street & 86th Avenue N. Circle K Dwys

	131st Street Driveway - Inbound			131st Street Driveway-Outbound			86th Ave. N Driveway - Inbound			86th Ave. N Driveway - Outbound			Total
Time	NB Left Turn		SB Rt Turn	NB Left Turn		SB Rt Turn	EB Left Turn		WB Rt Turn	EB Left Turn		WB Rt Turn	Total
2:00 - 2:15 PM	1		6	1		3	5		6	5		5	32
2:15 - 2:30 PM	0		3	3		6	1		7	7		5	32
2:30 - 2:45 PM	3		2	1		2	1		4	2		3	18
2:45 - 3:00 PM	0		2	0		2	8		3	0		5	20
Total	4		13	5		13	15		20	14		18	102

	131st Street Driveway - Inbound			131st Street Driveway-Outbound			86th Ave. N Driveway - Inbound			86th Ave. N Driveway - Outbound			Total
Time	NB Left Turn		SB Rt Turn	NB Left Turn		SB Rt Turn	EB Left Turn		WB Rt Turn	EB Left Turn		WB Rt Turn	Total
3:00 - 3:15 PM	1		1	1		4	2		3	4		9	25
3:15 - 3:30 PM	0		3	0		1	3		4	4		3	18
3:30 - 3:45 PM	0		4	2		4	4		7	3		4	28
3:45 - 4:00 PM	0		3	0		4	3		4	6		3	23
Total	1		11	3		13	12		18	17		19	94

	131st Street Driveway - Inbound			131st Street Driveway-Outbound			86th Ave. N Driveway - Inbound			86th Ave. N Driveway - Outbound			Total
Time	NB Left Turn		SB Rt Turn	NB Left Turn		SB Rt Turn	EB Left Turn		WB Rt Turn	EB Left Turn		WB Rt Turn	Total
4:00 - 4:15 PM	0		2	1		1	7		4	5		6	26
4:15 - 4:30 PM	1		3	0		1	2		4	2		2	15
4:30 - 4:45 PM	0		4	0		4	1		7	4		6	26
4:45 - 5:00 PM	0		3	0		1	0		5	1		5	15
Total	1		12	1		7	10		20	12		19	82

	131st Street Driveway - Inbound			131st Street Driveway-Outbound			86th Ave. N Driveway - Inbound			86th Ave. N Driveway - Outbound			Total
Time	NB Left Turn		SB Rt Turn	NB Left Turn		SB Rt Turn	EB Left Turn		WB Rt Turn	EB Left Turn		WB Rt Turn	Total
5:00 - 5:15 PM	0		2	0		1	3		5	4		3	18
5:15 - 5:30 PM	0		2	0		2	1		5	4		5	19
5:30 - 5:45 PM	2		1	1		0	4		3	4		3	18
5:45 - 6:00 PM	0		7	0		5	2		5	5		4	28
Total	2		12	1		8	10		18	17		15	83

Grand Total	25		158	50		109	119		192	151		174	978
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% of Total Traffic	2.6%		16.2%	5.1%		11.1%	12.2%		19.6%	15.4%		17.8%	100.0%
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Total Traffic Inbound:	494
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Total Traffic Outbound:	484
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Location: 131st Street & 86th Avenue N. Circle K Dwys

AM Peak Hour													
	131st Street Driveway - Inbound			131st Street Driveway-Outbound			86th Ave. N. Driveway - Inbound			86th Ave. N Driveway - Outbound			Total
Time	NB Left Turn		SB Rt Turn	NB Left Turn		SB Rt Turn	EB Left Turn		WB Rt Turn	EB Left Turn		WB Rt Turn	Total
8:00 - 8:15 AM	0		4	0		3	2		0	4		2	15
8:15 - 8:30 AM	0		7	1		7	1		5	0		4	25
8:30 - 8:45 AM	0		3	0		1	2		1	2		1	10
8:45 - 9:00 AM	2		2	2		4	6		4	4		3	27
Total	2		16	3		15	11		10	10		10	77

Mid Day Peak Hour													
	131st Street Driveway - Inbound			131st Street Driveway-Outbound			86th Ave. N Driveway - Inbound			86th Ave. N Driveway - Outbound			Total
Time	NB Left Turn		SB Rt Turn	NB Left Turn		SB Rt Turn	EB Left Turn		WB Rt Turn	EB Left Turn		WB Rt Turn	Total
11:30 - 11:45 AM	1		3	3		4	4		2	4		2	23
11:45 AM-12:00 PM	1		4	3		1	2		3	1		3	18
12:00 - 12:15 PM	2		3	1		3	2		6	7		5	29
12:15 - 12:30 PM	0		9	4		3	2		2	4		2	26
Total	4		19	11		11	10		13	16		12	96

PM Peak Hour													
	131st Street Driveway - Inbound			131st Street Driveway-Outbound			86th Ave. N Driveway - Inbound			86th Ave. N Driveway - Outbound			Total
Time	NB Left Turn		SB Rt Turn	NB Left Turn		SB Rt Turn	EB Left Turn		WB Rt Turn	EB Left Turn		WB Rt Turn	Total
5:00 - 5:15 PM	0		2	0		1	3		5	4		3	18
5:15 - 5:30 PM	0		2	0		2	1		5	4		5	19
5:30 - 5:45 PM	2		1	1		0	4		3	4		3	18
5:45 - 6:00 PM	0		7	0		5	2		5	5		4	28
Total	2		12	1		8	10		18	17		15	83

AM Traffic

6:30 - 7:30:	72	7:45 - 8:45:	70
6:45 - 7:45:	63	8:00 - 9:00:	77
7:00 - 8:00:	66		
7:15 - 8:15:	62		
7:30 - 8:30:	75		

Mid-Day Traffic

11:30-12:30	96	12:30 - 1:30	59
11:45-12:45	86		
12:00 - 1:00	84		
12:15 - 1:15	72		

PM Traffic

4:00 - 5:00:	82	5:00 - 6:00:	83
4:15 - 5:15:	74		
4:30 - 5:30:	78		
4:45 - 5:45:	70		

Vehicle Turning Movements Data Sheet

Location: Seminole High School; School Bus Dwy on 131st Street, Exit Only Driveway

Date: May 15, 2014 (6:30 - 7:30 AM & 1:00 - 2:00 PM)

Weather: Clear

Observers: Aaron Bischof

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM										2		1	3
6:45 - 7:00 AM										4		11	15
Total										6		12	18

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM										2		2	4
7:15 - 7:30 AM										1		0	1
7:30 - 7:45 AM													
7:45 - 8:00 AM													
Total										3		2	5

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM													
8:15 - 8:30 AM													
8:30 - 8:45 AM													
8:45 - 9:00 AM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM													
9:15 - 9:30 AM													
9:30 - 9:45 AM													
9:45 - 10:00 AM													
Total													

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Morning Total										9		14	23
% of Traffic										39.1%		60.9%	100.0%

(Continued on Next Page)

Location: Seminole High School; School Bus Dwy on 131st Street; Exit Only

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
1:00 - 1:15 PM										0		0	0
1:15 - 1:30 PM										0		0	0
1:30 - 1:45 PM										0		21	21
1:45 - 2:00 PM										0		0	0
Total										0		21	21

	Northbound			Eastbound			Southbound			Westbound			
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM													
2:15 - 2:30 PM													
2:30 - 2:45 PM													
2:45 - 3:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM													
3:15 - 3:30 PM													
3:30 - 3:45 PM													
3:45 - 4:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM													
4:15 - 4:30 PM													
4:30 - 4:45 PM													
4:45 - 5:00 PM													

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Afternoon Traffic										0	0	21	21
% of Traffic										0.0%		100.0%	100.0%

Total Traffic													
	Northbound			Eastbound			Southbound			Westbound			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Total Traffic										9		35	44
% of Total Traffic										20.5%		79.5%	100.0%

Prepared by: Brian Kanely
Date: June 8, 2014

Vehicle Turning Movements Data Sheet

Location: Seminole High School; Parent Loop Dwy on 131st Street; Enter Only

Date: May 15, 2014 (6:30 - 7:30 AM & 1:00 - 2:00 PM)

Weather: Clear

Observers: Aaron Bischof

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM	37								25				62
6:45 - 7:00 AM	68								44				112
Total	105								69				174

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM	24								27				51
7:15 - 7:30 AM	4								4				8
7:30 - 7:45 AM													0
7:45 - 8:00 AM													0
Total	28								31				59

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM													
8:15 - 8:30 AM													
8:30 - 8:45 AM													
8:45 - 9:00 AM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM													
9:15 - 9:30 AM													
9:30 - 9:45 AM													
9:45 - 10:00 AM													
Total													

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Morning Total	133								100				233
% of Traffic	57.1%								42.9%				100.0%

(Continued on Next Page)

Location: Seminole High School; Parent Loop Dwy on 131st Street; Enter Only

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
1:00 - 1:15 PM	3								7				10
1:15 - 1:30 PM	2								8				10
1:30 - 1:45 PM	12								15				27
1:45 - 2:00 PM	10								12				22
Total	27								42				69

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM													
2:15 - 2:30 PM													
2:30 - 2:45 PM													
2:45 - 3:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM													
3:15 - 3:30 PM													
3:30 - 3:45 PM													
3:45 - 4:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM													
4:15 - 4:30 PM													
4:30 - 4:45 PM													
4:45 - 5:00 PM													
Total													

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Afternoon Traffic	27								42				69
% of Traffic	39.1%								60.9%				100.0%

Total Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Total Traffic	160								142				302
% of Total Traffic	53.0%								47.0%				100.0%

Prepared by: Brian Kanely
Date: June 8, 2014

Vehicle Turning Movements Data Sheet

Location: Seminole High School; Parent Loop Dwy on 131st Street; Exit Only

Date: May 15, 2014 (6:30 - 7:30 AM & 1:00 - 2:00 PM)

Weather: Clear

Observers: Aaron & Bob Bischof

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM										39		2	41
6:45 - 7:00 AM										83		8	91
Total										122		10	132

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM										64		7	71
7:15 - 7:30 AM										9		1	10
7:30 - 7:45 AM													
7:45 - 8:00 AM													
Total										73		8	81

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM													
8:15 - 8:30 AM													
8:30 - 8:45 AM													
8:45 - 9:00 AM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM													
9:15 - 9:30 AM													
9:30 - 9:45 AM													
9:45 - 10:00 AM													
Total													

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Morning Total										195		18	213
% of Traffic										91.5%		8.5%	100.0%

(Continued on Next Page)

Location: Seminole High School; Parent Loop Dwy on 131st Street; Exit Only

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
1:00 - 1:15 PM										3		3	6
1:15 - 1:30 PM										6		2	8
1:30 - 1:45 PM										26		7	33
1:45 - 2:00 PM										30		3	33
Total										65		15	80

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM													
2:15 - 2:30 PM													
2:30 - 2:45 PM													
2:45 - 3:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM													
3:15 - 3:30 PM													
3:30 - 3:45 PM													
3:45 - 4:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM													
4:15 - 4:30 PM													
4:30 - 4:45 PM													
4:45 - 5:00 PM													
Total													

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Afternoon Traffic										65		15	80
% of Traffic										81.3%		18.8%	100.0%

Total Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Total Traffic										260		33	293
% of Total Traffic										88.7%		11.3%	100.0%

Prepared by: Brian Kanely
Date: June 8, 2014

Vehicle Turning Movements Data Sheet

Location: Seminole High School; Staff Dwy on 131st Street; Enter Only

Date: May 15, 2014 (6:30 - 7:30 AM & 1:00 - 2:00 PM)

Weather: Clear

Observers: Aaron Bischof

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM	9								0				9
6:45 - 7:00 AM	8								0				8
Total	17								0				17

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM	4								0				4
7:15 - 7:30 AM	0								1				1
7:30 - 7:45 AM													0
7:45 - 8:00 AM													0
Total	4								1				5

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM													
8:15 - 8:30 AM													
8:30 - 8:45 AM													
8:45 - 9:00 AM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM													
9:15 - 9:30 AM													
9:30 - 9:45 AM													
9:45 - 10:00 AM													
Total													

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Morning Total	21								1				22
% of Traffic	95.5%								4.5%				100.0%

(Continued on Next Page)

Location: Seminole High School; Staff Dwy on 131st Street; Enter Only

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
1:00 - 1:15 PM	1								0				1
1:15 - 1:30 PM	1								1				2
1:30 - 1:45 PM	1								1				2
1:45 - 2:00 PM	0								0				0
Total	3								2				5

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM													
2:15 - 2:30 PM													
2:30 - 2:45 PM													
2:45 - 3:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM													
3:15 - 3:30 PM													
3:30 - 3:45 PM													
3:45 - 4:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM													
4:15 - 4:30 PM													
4:30 - 4:45 PM													
4:45 - 5:00 PM													
Total													

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Afternoon Traffic	3								2				5
% of Traffic	60.0%								40.0%				100.0%

Total Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Total Traffic	24								3				27
% of Total Traffic	88.9%								11.1%				100.0%

Prepared by: Brian Kanely
Date: June 8, 2014

Vehicle Turning Movements Data Sheet

Location: Seminole High School; Student Parking & Loop Dwy on 86th Avenue N.

Date: May 15, 2014 (6:30 - 7:30 AM & 1:00 - 2:00 PM)

Weather: Clear

Observers: Marcio Resendes

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM	23		3	19								52	97
6:45 - 7:00 AM	81		0	77								125	283
Total	104		3	96								177	380

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM	33		5	30								32	100
7:15 - 7:30 AM	0		0	0								0	0
7:30 - 7:45 AM												0	0
7:45 - 8:00 AM												0	0
Total	33		5	30								32	100

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM													
8:15 - 8:30 AM													
8:30 - 8:45 AM													
8:45 - 9:00 AM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM													
9:15 - 9:30 AM													
9:30 - 9:45 AM													
9:45 - 10:00 AM													
Total													

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Morning Total	137		8	126								209	480
% of Traffic	28.5%		1.7%	26.3%								43.5%	100.0%

Note: Parking lot gate was closed at 7:17 AM

(Continued on Next Page)

Location: Seminole High School; Student Parking & Loop Dwy on 86th Avenue N

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
1:00 - 1:15 PM	1		0	0								3	4
1:15 - 1:30 PM	0		0	2								8	10
1:30 - 1:45 PM	116		24	7								20	167
1:45 - 2:00 PM	43		9	3								9	64
Total	160		33	12								40	245

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM													
2:15 - 2:30 PM													
2:30 - 2:45 PM													
2:45 - 3:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM													
3:15 - 3:30 PM													
3:30 - 3:45 PM													
3:45 - 4:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM													
4:15 - 4:30 PM													
4:30 - 4:45 PM													
4:45 - 5:00 PM													
Total													

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Afternoon Traffic	160		33	12								40	245
% of Traffic	65.3%		13.5%	4.9%								16.3%	100.0%

Total Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Total Traffic	297		41	138								249	725
% of Total Traffic	41.0%		5.7%	19.0%								34.3%	100.0%

Prepared by: Brian Kanely
Dte: June 8, 2014

Vehicle Turning Movements Data Sheet

Location: Seminole High School; Student Parking & Loop Dwy on 131st Street

Date: May 15, 2014 (6:30 - 7:30 AM & 1:00 - 2:00 PM)

Weather: Clear

Observers: Shannon Bolesta

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM	13								31	12		0	56
6:45 - 7:00 AM	51								41	15		1	108
Total	64								72	27		1	164

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM	13								12	15		0	40
7:15 - 7:30 AM	3								3	1		0	7
7:30 - 7:45 AM													0
7:45 - 8:00 AM													0
Total	16								15	16		0	47

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM													
8:15 - 8:30 AM													
8:30 - 8:45 AM													
8:45 - 9:00 AM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM													
9:15 - 9:30 AM													
9:30 - 9:45 AM													
9:45 - 10:00 AM													
Total													

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Morning Total	80								87	43		1	211
% of Traffic	37.9%								41.2%	20.4%		0.5%	100.0%

(Continued on Next Page)

Location: Seminole High School; Student Parking & Loop Dwy on 131st Street

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
1:00 - 1:15 PM	1								0	1		1	3
1:15 - 1:30 PM	3								7	0		1	11
1:30 - 1:45 PM	6								11	29		3	49
1:45 - 2:00 PM	2								2	34		2	40
Total	12								20	64		7	103

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM													
2:15 - 2:30 PM													
2:30 - 2:45 PM													
2:45 - 3:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM													
3:15 - 3:30 PM													
3:30 - 3:45 PM													
3:45 - 4:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM													
4:15 - 4:30 PM													
4:30 - 4:45 PM													
4:45 - 5:00 PM													
Total													

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Afternoon Traffic	12								20	64		7	103
% of Traffic	11.7%								19.4%	62.1%		6.8%	100.0%

Total Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Total Traffic	92								107	107		8	314
% of Total Traffic	29.3%								34.1%	34.1%		2.5%	100.0%

Prepared by: Brian Kanely
Date: June 8, 2014

Vehicle Turning Movements Data Sheet

Location: Seminole Middle School; Bus & Pkg Lot East Dwy 86th Avenue N

Date: May 13, 2014 (7:30 - 10:00 AM & 3:15 - 4:30 PM)

Weather: Clear

Observers: Mario Resendes

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM													
6:45 - 7:00 AM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM													0
7:15 - 7:30 AM													0
7:30 - 7:45 AM						1	1		0	2			4
7:45 - 8:00 AM						2	0		0	7			9
Total						3	1		0	9			13

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM						7	0		0	9			16
8:15 - 8:30 AM						15	0		1	7			23
8:30 - 8:45 AM						5	2		2	12			21
8:45 - 9:00 AM						2	1		3	1			7
Total						29	3		6	29			67

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM						7	0		0	7			14
9:15 - 9:30 AM						5	0		3	1			9
9:30 - 9:45 AM						0	2		0	0			2
9:45 - 10:00 AM						1	1		1	0			3
Total						13	3		4	8			28

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Morning Total						45	7		10	46			108
% of Traffic						41.7%	6.5%		9.3%	42.6%			100.0%

(Continued on Next Page)

Location: Seminole Middle School, Bus & Pkg Lot East Dwy 86th Avenue N

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
1:00 - 1:15 PM													
1:15 - 1:30 PM													
1:30 - 1:45 PM													
1:45 - 2:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM													
2:15 - 2:30 PM													
2:30 - 2:45 PM													
2:45 - 3:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM													0
3:15 - 3:30 PM						2	1		0	4			7
3:30 - 3:45 PM						5	3		2	3			13
3:45 - 4:00 PM						4	1		4	10			19
Total						11	5		6	17			39

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM						1	6		17	5			29
4:15 - 4:30 PM						1	6		6	1			14
4:30 - 4:45 PM													0
4:45 - 5:00 PM													0
Total						2	12		23	6			43

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Afternoon Traffic						13	17		29	23			82
% of Traffic						15.9%	20.7%		35.4%	28.0%			100.0%

Total Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Total Traffic						58	24		39	69			190
% of Total Traffic						30.5%	12.6%		20.5%	36.3%			100.0%

Prepared by: Brian Kanely
Date: June 9, 2014

Vehicle Turning Movements Data Sheet

Location: Seminole Middle School; Bus & Pkg Lot West Dwy 86th Avenue N

Date: May 13, 2014 (7:30 - 10:00 AM & 3:15 - 4:30 PM)

Weather: Clear

Observers: Marcio Resendes

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM													
6:45 - 7:00 AM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM													
7:15 - 7:30 AM													
7:30 - 7:45 AM						1	1		0	0			2
7:45 - 8:00 AM						0	2		0	0			2
Total						1	3	0	0	0			4

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM						0	1		0	0			1
8:15 - 8:30 AM						0	0		0	0			0
8:30 - 8:45 AM						0	1		0	0			1
8:45 - 9:00 AM						0	0		0	0			0
Total						0	2		0	0			2

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM						0	1		5	0			6
9:15 - 9:30 AM						0	4		4	0			8
9:30 - 9:45 AM						0	0		0	0			0
9:45 - 10:00 AM						0	0		0	0			0
Total						0	5		9	0			14

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Morning Total						1	10		9			0	20
% of Traffic						5.0%	50.0%		45.0%			0.0%	100.0%

(Continued on Next Page)

Location: Seminole Middle School; Bus & Pkg Lot West Dwy 86th Avenue N

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
1:00 - 1:15 PM													
1:15 - 1:30 PM													
1:30 - 1:45 PM													
1:45 - 2:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM													
2:15 - 2:30 PM													
2:30 - 2:45 PM													
2:45 - 3:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM													0
3:15 - 3:30 PM						0	0		0	2			2
3:30 - 3:45 PM						0	0		0	0			0
3:45 - 4:00 PM						0	0		0	0			0
Total						0	0		0	2			2

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM						0	4		14	0			18
4:15 - 4:30 PM						0	1		0	0			1
4:30 - 4:45 PM													0
4:45 - 5:00 PM													0
Total						0	5		14	0			19

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Afternoon Traffic						0	5	0	14	2	0	0	21
% of Traffic						0.0%	23.8%		66.7%	9.5%		0.0%	100.0%

Total Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Total Traffic						1	15		23	2			41
% of Total Traffic						2.4%	36.6%		56.1%	4.9%			100.0%

Prepared by: Brian Kanely
Date: June 9, 2014

Vehicle Turning Movements Data Sheet

Location: Seminole Middle School; Parent Loop Enter Dwy 131st Street

Date: May 13, 2014 (7:30 - 10:00 AM & 3:15 - 4:30 PM)

Weather: Clear

Observers: Shannon Bolesta

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM													
6:45 - 7:00 AM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM													0
7:15 - 7:30 AM													0
7:30 - 7:45 AM	0								1				1
7:45 - 8:00 AM	0								2				2
Total	0								3				3

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM	3								5				8
8:15 - 8:30 AM	11								14				25
8:30 - 8:45 AM	16								16				32
8:45 - 9:00 AM	16								29				45
Total	46								64				110

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM	52								68				120
9:15 - 9:30 AM	50								45				95
9:30 - 9:45 AM	3								3				6
9:45 - 10:00 AM	0								0				0
Total	105								116				221

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Morning Total	151								183				334
% of Traffic	45.2%								54.8%				100.0%

(Continued on Next Page)

Location: Seminole Middle School, Parent Loop Enter Dwy 131st Street

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
1:00 - 1:15 PM													
1:15 - 1:30 PM													
1:30 - 1:45 PM													
1:45 - 2:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM													
2:15 - 2:30 PM													
2:30 - 2:45 PM													
2:45 - 3:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM													
3:15 - 3:30 PM	8								3				11
3:30 - 3:45 PM	7								16				23
3:45 - 4:00 PM	9								19				28
Total	24								38				62

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM	17								16				33
4:15 - 4:30 PM	10								8				18
4:30 - 4:45 PM													0
4:45 - 5:00 PM													0
Total	27								24				51

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Afternoon Traffic	51								62				113
% of Traffic	45.1%								54.9%				100.0%

Total Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Total Traffic	202								245				447
% of Total Traffic	45.2%								54.8%				100.0%

Prepared by: Brian Kanely
Date: June 9, 2014

Vehicle Turning Movements Data Sheet

Location: Seminole Middle School; Parent Loop Exit Dwy 131st Street

Date: May 13, 2014 (7:30 - 10:00 AM & 3:15 - 4:30 PM)

Weather: Clear

Observers: Shannon Bolesta

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM													
6:45 - 7:00 AM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM													
7:15 - 7:30 AM													
7:30 - 7:45 AM										0		0	0
7:45 - 8:00 AM										2		0	2
Total										2		0	2

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM										1		3	4
8:15 - 8:30 AM										9		4	13
8:30 - 8:45 AM										6		13	19
8:45 - 9:00 AM										19		18	37
Total										35		38	73

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM										72		39	111
9:15 - 9:30 AM										72		51	123
9:30 - 9:45 AM										8		11	19
9:45 - 10:00 AM										1		0	1
Total										153		101	254

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Morning Total										190		139	329
% of Traffic										57.8%		42.2%	100.0%

(Continued on Next Page)

Location: Seminole Middle School; Parent Loop Exit Dwy 131st Street

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
1:00 - 1:15 PM													
1:15 - 1:30 PM													
1:30 - 1:45 PM													
1:45 - 2:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM													
2:15 - 2:30 PM													
2:30 - 2:45 PM													
2:45 - 3:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM													0
3:15 - 3:30 PM										4		3	7
3:30 - 3:45 PM										3		1	4
3:45 - 4:00 PM										0		2	2
Total										7		6	13

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM										65		27	92
4:15 - 4:30 PM										23		18	41
4:30 - 4:45 PM													0
4:45 - 5:00 PM													0
Total										88		45	133

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Afternoon Traffic										95		51	146
% of Traffic										65.1%		34.9%	100.0%

Total Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Total Traffic										285		190	475
% of Total Traffic										60.0%		40.0%	100.0%

Prepared by: Brian Kanely
Date: June 9, 2014

Vehicle Turning Movements Data Sheet

Location: Bauder Elementary School: East Parent Loop; 86th Avenue N

Date: May 13, 2014 (7:30 - 10:00 AM & 1:30 - 3:00 PM)

Weather: Clear

Observers: Aaron Bischof

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM													
6:45 - 7:00 AM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM													0
7:15 - 7:30 AM													0
7:30 - 7:45 AM						13	1		5	13			32
7:45 - 8:00 AM						14	2		5	14			35
Total						27	3		10	27			67

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM						19	13		33	41			106
8:15 - 8:30 AM						20	14		59	80			173
8:30 - 8:45 AM						3	7		30	16			56
8:45 - 9:00 AM						1	0		1	3			5
Total						43	34		123	140			340

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM						0	0		0	3			3
9:15 - 9:30 AM						0	2		0	1			3
9:30 - 9:45 AM						0	0		0	2			2
9:45 - 10:00 AM						0	0		1	0			1
Total						0	2		1	6			9

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Morning Total						70	39		134	173			416
% of Traffic						16.8%	9.4%		32.2%	41.6%			100.0%

(Continued on Next Page)

Location: Bauder Elementary School; East Parent Loop

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
1:00 - 1:15 PM													0
1:15 - 1:30 PM													0
1:30 - 1:45 PM						1	1		0	6			8
1:45 - 2:00 PM						1	0		0	1			2
Total						2	1		0	7			10

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM						10	1		3	12			26
2:15 - 2:30 PM						7	1		2	27			37
2:30 - 2:45 PM						1	9		42	15			67
2:45 - 3:00 PM						5	6		25	27			63
Total						23	17		72	81			193

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM													
3:15 - 3:30 PM													
3:30 - 3:45 PM													
3:45 - 4:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM													
4:15 - 4:30 PM													
4:30 - 4:45 PM													
4:45 - 5:00 PM													
Total													

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Afternoon Traffic						25	18	0	72	88			203
% of Traffic						12.3%	8.9%		35.5%	43.3%			100.0%

Total Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Total Traffic	0	0	0	0	0	95	57	0	206	261	0	0	619
% of Total Traffic	0.0%	0.0%	0.0%	0.0%	0.0%	15.3%	9.2%	0.0%	33.3%	42.2%	0.0%	0.0%	100.0%

Prepared by: Brian Kanely
Date: June 9, 2014

Vehicle Turning Movements Data Sheet

Location: Bauder Elementary School; East Parking Lot; 86th Avenue N; Exit Only

Date: May 13, 2014 (7:30 - 10:00 AM & 1:30 - 3:00 PM)

Weather: Clear

Observers: Aaron Bischof

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM													
6:45 - 7:00 AM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM													0
7:15 - 7:30 AM													0
7:30 - 7:45 AM							1		6				7
7:45 - 8:00 AM							5		6				11
Total							6		12				18

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM							6		6				12
8:15 - 8:30 AM							3		5				8
8:30 - 8:45 AM							0		5				5
8:45 - 9:00 AM							2		1				3
Total							11		17				28

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM							2		1				3
9:15 - 9:30 AM							0		0				0
9:30 - 9:45 AM							1		0				1
9:45 - 10:00 AM							0		0				0
Total							3		1				4

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Morning Total							20		30				50
% of Traffic							40.0%		60.0%				100.0%

(Continued on Next Page)

Location: Bauder Elementary School; East Parking Lot; Exit Only

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
1:00 - 1:15 PM													0
1:15 - 1:30 PM													0
1:30 - 1:45 PM							2		1				3
1:45 - 2:00 PM							0		1				1
Total							2		2				4

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM							1		0				1
2:15 - 2:30 PM							0		0				0
2:30 - 2:45 PM							1		2				3
2:45 - 3:00 PM							4		7				11
Total							6		9				15

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM													
3:15 - 3:30 PM													
3:30 - 3:45 PM													
3:45 - 4:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM													
4:15 - 4:30 PM													
4:30 - 4:45 PM													
4:45 - 5:00 PM													
Total													

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Afternoon Traffic							8		11				19
% of Traffic	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	42.1%	0.0%	57.9%	0.0%	0.0%	0.0%	100.0%

Total Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Total Traffic							28		41				69
% of Total Traffic	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	40.6%	0.0%	59.4%	0.0%	0.0%	0.0%	100.0%

Prepared by: Brian Kanely
Date: June 9, 2014

Vehicle Turning Movements Data Sheet

Location: Bauder Elementary School; West Parent Loop; 86th Avenue N

Date: May 13, 2014 (7:30 - 10:00 AM & 1:30 - 3:00 PM)

Weather: Clear

Observers: Bob Bischof

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM													
6:45 - 7:00 AM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM													
7:15 - 7:30 AM													
7:30 - 7:45 AM						0	0		0	0			0
7:45 - 8:00 AM						3	1		0	0			4
Total						3	1		0	0			4

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM						54	52		2	8			116
8:15 - 8:30 AM						50	63		11	18			142
8:30 - 8:45 AM						13	25		5	2			45
8:45 - 9:00 AM						1	2		1	0			4
Total						118	142		19	28			307

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM						0	3		0	3			6
9:15 - 9:30 AM						0	0		0	0			0
9:30 - 9:45 AM						1	0		0	0			1
9:45 - 10:00 AM						0	0		0	0			0
Total						1	3		0	3			7

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Morning Total						122	146		19	31			318
% of Traffic						38.4%	45.9%		6.0%	9.7%		0.0%	100.0%

(Continued on Next Page)

Location: Bauder Elementary School; West Parent Loop

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
1:00 - 1:15 PM													
1:15 - 1:30 PM													
1:30 - 1:45 PM						0	0		1	1			2
1:45 - 2:00 PM						2	0		0	4			6
Total						2	0		1	5			8

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM						8	0		0	4			12
2:15 - 2:30 PM						16	2		0	8			26
2:30 - 2:45 PM						14	40		0	12			66
2:45 - 3:00 PM						11	33		10	5			59
Total						49	75		10	29			163

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM													
3:15 - 3:30 PM													
3:30 - 3:45 PM													
3:45 - 4:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM													
4:15 - 4:30 PM													
4:30 - 4:45 PM													
4:45 - 5:00 PM													
Total													

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Afternoon Traffic						51	75		11	34			171
% of Traffic						29.8%	43.9%		6.4%	19.9%			100.0%

Total Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Total Traffic						173	221		30	65			489
% of Total Traffic						35.4%	45.2%		6.1%	13.3%			100.0%

Prepared by: Brian Kanely
Date: June 9, 2014

Vehicle Turning Movements Data Sheet

Location: Bauder Elementary School, West Parking Lot; 86th Avenue N

Date: May 13, 2014 (7:30 - 10:00 AM & 1:30 - 3:00 PM)

Weather: Clear

Observers: Bob Bischof

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM													
6:45 - 7:00 AM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM													0
7:15 - 7:30 AM													0
7:30 - 7:45 AM						6	0		0	3			9
7:45 - 8:00 AM						7	0		3	4			14
Total						13	0		3	7			23

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM						9	10		7	14			40
8:15 - 8:30 AM						11	1		11	5			28
8:30 - 8:45 AM						3	2		7	0			12
8:45 - 9:00 AM						2	3		2	2			9
Total						25	16		27	21			89

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM						0	2		0	0			2
9:15 - 9:30 AM						0	0		1	0			1
9:30 - 9:45 AM						0	0		1	2			3
9:45 - 10:00 AM						1	1		0	1			3
Total						1	3		2	3			9

Morning Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Morning Total						39	19		32	31			121
% of Traffic						32.2%	15.7%		26.4%	25.6%			100.0%

(Continued on Next Page)

Location: Bauder Elementary School; West Parking Lot

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
1:00 - 1:15 PM													0
1:15 - 1:30 PM													0
1:30 - 1:45 PM						0	2		1	2			5
1:45 - 2:00 PM						1	1		1	2			5
Total						1	3		2	4			10

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM						6	1		0	6			13
2:15 - 2:30 PM						2	2		3	2			9
2:30 - 2:45 PM						5	7		5	9			26
2:45 - 3:00 PM						4	5		14	4			27
Total						17	15		22	21			75

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM													
3:15 - 3:30 PM													
3:30 - 3:45 PM													
3:45 - 4:00 PM													
Total													

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM													
4:15 - 4:30 PM													
4:30 - 4:45 PM													
4:45 - 5:00 PM													
Total													

Afternoon Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Afternoon Traffic						18	18		24	25			85
% of Traffic						21.2%	21.2%		28.2%	29.4%			100.0%

Total Traffic													
	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
Total Traffic						57	37		56	56			206
% of Total Traffic						27.7%	18.0%		27.2%	27.2%			100.0%

Prepared by: Brian Kanely
Date: June 9, 2014

Appendix C

Meeting Minutes

**Traffic Count Study
for
131st Street at 86th Avenue N & 86th Avenue N at 125th Street & 131st Street
at 82nd Avenue N Intersections Improvements**

September 3, 2014

**To: Project File
From: Brian Kanely, P.E.
Senior Traffic Engineer**

Re: Meetings Minutes

The following are meeting minutes held with the principals/director at Bauder Elementary School, Seminole Middle School, Seminole High School and Seminole Vocation Education Center concerning the school traffic safety project.

**Bauder Elementary School
12755 86th Avenue N.
Seminole, FL 33776
Principal: Ms. Lisa Bultmann
Meeting date: Thursday, May 15, 2014**

A field meeting field was conducted with Ms. Bultmann in the morning while students were arriving for the start of classes (8:35 AM) and in the afternoon during school dismissal (2:35 PM).

OBSERVATIONS:

The morning school traffic flowed smoothly with only minimal delays as motorists waited for gaps in traffic to enter/exit the school driveways on the east and west side of the school property. The parents were only dropping off students, parents did not have to wait/queue in the school driveways or on 86th Avenue. This is the reason for only observing the minimal delays.

In the afternoon, there were major delays and traffic safety issues on 86th Avenue at the west parent drop off/pick up driveway. The east parent drop off/pick up driveway did not experience the delay and safety issues observed at the west driveway.

The following traffic and safety issues were observed at the west driveway as parents were picking up their children at the end of the school day:

- The west driveway did not have adequate stacking space and motorists queued out of the driveway and onto 86th Avenue. The eastbound traffic headed into the school had to wait in the 86th Avenue eastbound through lane, forcing eastbound through traffic to drive on the roadway shoulder to bypass traffic waiting to turn left into the school.
- Westbound traffic headed into the school stopped partially on the roadway shoulder and partially in the 86th Avenue westbound through lane, making it difficult for westbound through traffic to bypass the traffic waiting to turn into the school driveway.
- Traffic waiting to enter the west driveway blocked the sidewalk on the north side of 86th Avenue, forcing students on the sidewalk to walk between cars that were stopped waiting to enter and exit the driveway.
- Even though students have been instructed not to walk across 86th Avenue, several students were observed jay walking across 86th Avenue at the west driveway. Due to this congestion, motorists had a difficult time detecting the crossing students.

The westbound traffic congestion on 86th Avenue extended from the traffic signal at 131st Street/86th Avenue to the west school driveway and lasted approximately twenty to thirty minutes. The congestion for eastbound traffic on 86th Avenue extended from the traffic signal at 125th Street/86th Avenue to the east school driveway and lasted approximately fifteen to twenty minutes.

Ms. Bultmann expressed significant concern about the congestion and safety issues at the west driveway. Additional discussion regarding improving/modifications to the roadway and several driveways that would significantly reduce the observed problems. Ms. Bultmann expressed significant interest in addressing the afternoon congestion and safety issues and remarked that the parents had been requesting a school safety study for several years. We also discussed the project website could be created so parents and school staff can stay informed as things progress.

Also discussed with Ms. Bultmann, in the afternoon many students walk out of the school, headed west on the sidewalk on the north side of 86th Avenue, cross at the 131st Street/86th Avenue intersection at the traffic signal (crossing guards present) and were picked up by parents waiting at the Circle K convenience store. This activity is partially responsible for the significant difference in the morning and afternoon traffic volumes at the school; however, the parents waiting at the Circle K add to the congestion at the 131st Street/86th Avenue intersection during the dismissal time for the elementary school.

While observing the afternoon traffic at Bauder Elementary School on Tuesday, May 13, 2014, many parents who were waiting on 86th Avenue to enter the school driveway discussed with me their concern about the safety issues and were encouraged that a school safety study was underway.

Seminole Middle School

8701 131st Street N.

Seminole, FL 33776

Principal: Wendy Bryan

Meeting date: Tuesday, May 13, 2014

Field meetings were conducted with Ms. Bryan in the morning when students were arriving for the start of classes (9:30 AM) and in the afternoon during school dismissal (4:00 PM).

OBSERVATIONS:

The parent drop off/pick up loop driveway entrance for the middle school on 131st Street is approximately three hundred and fifty (350) feet from the 131st Street/86th Avenue signalized intersection. The close proximity of the school driveways on 131st Street to the signalized intersection creates congestion on 131st Street in front of the school and at the traffic signal with even moderate traffic volumes dropping off and picking up students at the middle school. The congestion in the morning was not significant because parents were only dropping off students and did not have to wait /queue in the school driveways.

In the afternoon, we observed significant congestion at the parent drop off/pick up loop driveway that accesses 131st Street and on 131st Street. The drop off/pick up driveway has significant on site stacking room; however, vehicles queued out of the entrance driveway and onto 131st Street.

The following traffic and safety issues were observed at the parent drop off/pick up driveway and 131st Street as parents were picking up their children at the end of the school day:

- Significant congestion on southbound 131st Street due to the school's driveway entrance and limited roadway right of way. The existing utility poles and trees on the west side of 131st Street constrains the vehicles to remain in the travel lane queuing and does not provide adequate space for through traffic to pass. Southbound traffic on 131st Street queued from the traffic signal to several hundred feet north of the middle school property.

- The vehicles northbound on 131st Street use the roadway shoulder to pull off and wait in the pick-up line. Even though there is sufficient room for northbound through traffic to bypass the waiting traffic, traffic moved very slowly, which created additional congestion for northbound traffic on 131st Street.
- Several parents parked on the east shoulder of 131st Street and waited for their child to walk to the vehicle. The parked vehicles created sight obstructions for traffic exiting the driveway on 131st Street.

The children walking, exited the school at the traffic signal and then crossed under the supervision of the school crossing guards. This included children who eventually headed north on the sidewalk on the west side of 131st Street.

Many parents whom are picking up their child parked in the high school parking lot in the southeast quadrant of the intersection of 131st Street/86th Avenue. Children exited the school, crossed at the traffic signal and walked to their parent's vehicle. This did not create an issue for the high school because the high school dismissal was several hours before the middle school dismissal.

Due to the low traffic volumes at these school driveways on 86th Avenue, no traffic or safety problems were observed. The driveways provide access to a parking lot and the school buses.

Several possible roadway modifications that would ease the traffic congestion on 131st Street were discussed. Ms. Bryan was very interested in how to communicate the traffic study process to the parents and keep everyone informed. I explained that a website would be created for this purpose

Seminole High School
8401 131st Street N.
Seminole, FL 33776
Principal: Dr. Thomas Brittain
Meeting date: Thursday, May 15, 2014

Field meetings were conducted with Dr. Brittain in the morning when students were arriving for the start of classes (7:05 AM) and in the afternoon during school dismissal (1:35 PM).

OBSERVATIONS:

In the morning, traffic arrived at the school between 6:45 and 7:05 AM with minimal delays. The majority of students that parked in the student parking lot entered via the driveway on 86th Avenue. The high school has parent drop off/pick

up driveways on both 131st Street and 86th Avenue; this helps to distribute the traffic flow into the school.

In the afternoon there were major delays and safety issues on 131st Street and delays at the traffic signal at 131st Street/86th Avenue that Dr. Brittain and I observed:

- The parent drop off/pick up driveway on 131st Street has a short queuing distance on school property. As a result, many parents parked on the east and west shoulders of 131st Street and the students walk to the parked cars. This created several safety issues:
 - The parked cars created sight obstructions for motorists exiting the drop off/pick up driveway on 131st Street.
 - Many students did not cross at the crosswalk on 131st Street to reach their parent's vehicle. The students crossed in an area bounded by the entrance driveway and the driveway into the student parking lot on 131st Street.
 - Limited visibility for students and drivers on 131st Street. Due to the vehicles parked on the shoulders of 131st Street and students not using designated cross walks.
- On 131st Street, the driveway into the student parking lot is two hundred fifty (250) feet south of the traffic signal. The drop off/pick up driveways on 131st Street are approximately five hundred (500) feet south of the traffic signal. The traffic signal at 131st Street/86th Avenue operates with a split phase for north/south traffic on 131st Street. The combination of the traffic signal phasing and the close proximity of the driveways to the traffic signal create significant congestion on 131st Street in front of the high school during the afternoon high school dismissal.
- The lack of right turn lanes into the school driveways for northbound traffic on 131st Street added to the congestion observed.

The staff driveway and school bus exit driveway on 131st Street have very low volumes and did not experience any operational issues or add to the congestion on 131st Street.

At the student parking lot driveway on 86th Avenue, the majority of vehicles turned right upon exiting. It took approximately ten to fifteen minutes for the student parking lot to empty after school was dismissed, no operational problems were observed.

Possible improvements to 131st Street and the traffic signal at 131st Street/86th Avenue that would ease the congestion in front of the high school was discussed with Dr. Brittain. The potential for adding a third lane on 131st Street that would provide queuing storage for southbound left turns into the school driveways and possibly one or two northbound right turn lanes that would help to reduce the number of vehicles parked on the shoulders on 131st Street. Another major concern was the number of students that crossed 131st Street and the need for additional warning devices to assist pedestrians with crossing. Dr. Brittain was also very interested in the website and communicating the school safety project to the parents and school staff.

Seminole Vocation Education Center

12611 86th Avenue N.

Seminole, FL 33776

Director: Barbara Clare

Telephone Conversation: Wednesday, September 3, 2014

A telephone conversation with Ms. Clare concerning any school traffic safety issues for the Education Center was conducted. Her main concern was the use of their driveways to avoid 125th Street/86th Ave intersection during the afternoon dismissal of other schools. When the problem becomes significant, the Education Center closes the gate on 86th Avenue for approximately 30 minutes. The downside of closing the gate is it blocks access to the Center. Ms. Clare's other concern was the general congestion on 125th Street and 86th Avenue in the morning. Other than these two issues, she did not have any other school traffic safety concerns.

Additional Comment

All three principals and Ms. Clare expressed concern for the middle school student that was hit by a vehicle as she was crossing 131st Street in front of the high school early in 2014. They all expressed a need for additional warning devices and school zones with reduced speed to improve the safety on 131st Street and 86th Avenue for everyone. They also supported the creation of a website as a means to communicate with the parents and school staff the progress of the school study and its recommendations.

Prepared by:

Brian Kanely, P.E.

Senior Traffic Engineer

Volkert, Inc.

September 3, 2014

Appendix B

Design Traffic Criteria Memorandum

Design Traffic Criteria Memorandum

for

Intersection Improvements

at

131st Street N. at 82nd Avenue N.,
131st Street N. at 86th Avenue N. and
125th Street N. at 86th Avenue N.

County PID: 001023A

Prepared for:

Pinellas County
Engineering & Technical Support Division
14 S. Fort Harrison Avenue
Clearwater, Florida 33756

Prepared by:

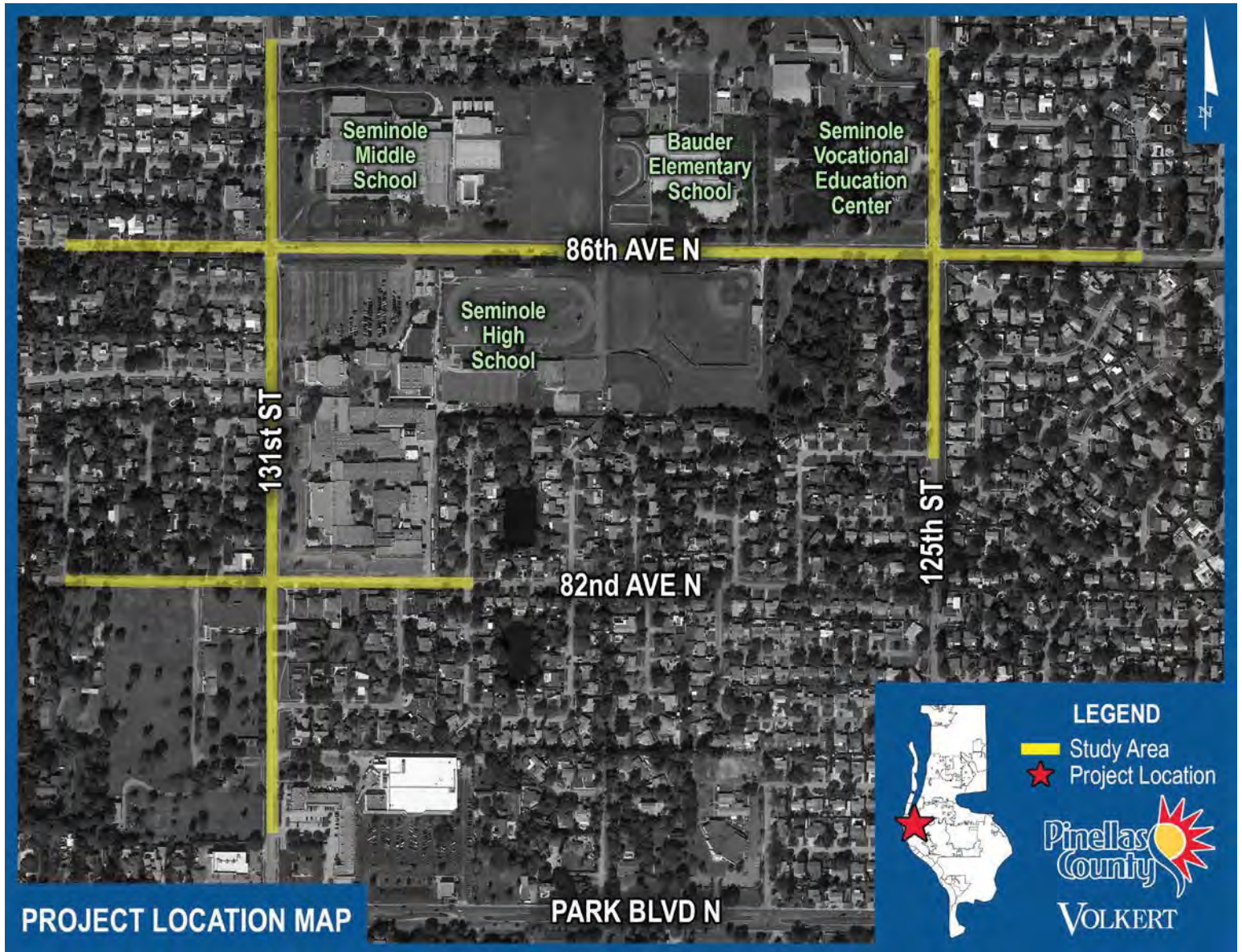
Volkert, Inc.
1408 N. Westshore Boulevard,
Suite 600
Tampa, Florida 33607

December 5, 2014

Design Traffic Criteria Memorandum
for
Intersections Improvements at
131st Street N. at 82nd Avenue N., 131st Street N. at 86th Avenue N. & 125th Street N. at 86th
Avenue N.

Table of Contents

PROJECT LOCATION MAP.....	1
PEAK HOUR AND GROWTH RATE RECOMMENDATIONS	2
APPENDICES	4
APPENDIX A: PEAK HOUR RECOMMENDATION MEMORANDUM	5
A1: Peak Hour Tables	8
A2: Screen Line Analysis Traffic Counts	25
A3: Screen Line Analysis Graphics	37
APPENDIX B: GROWTH RATE FOR 2035 DESIGN TRAFFIC MEMORANDUM	41
B1: 2014 & 2035 AM/PM Peak Hour Intersection Turning Movement Counts	44
B2: 2014 Intersection Count Data Sheets	56
B3: MPO Correspondence Emails	62
B4: 2014 Am & Pm Peak Hour Traffic Drawings	70





Date: December 5, 2014

To: Daniel Glaser, PE
Senior Engineer

From: Nicole Harris, PE
Project Manager

Project: 131st Street N at 86th Avenue N, 86th Avenue N at 125th Street N and 131st Street N at 82nd Avenue N
Intersection Improvements

Subject: Design Traffic Criteria Memorandum - Peak Hour and Growth Rate Recommendations

This memorandum provides the recommended peak hours and growth rate to determine the 2035 design traffic for the above referenced project. We request the County's approval and concurrence on the two items below. This information will be incorporated in the Design Traffic Report that will be submitted at a later date. Additional information has been provided as appendices for your use.

Peak Hours:

A summary of the intersections peak hours are in the table below:

Intersection	Traditional Peak Hours		Volume Peak Hours	
	AM	PM	AM	PM
131st Street N at 86th Avenue N	7:45-8:45	4:15-5:15	7:45-8:45	4:15-5:15
86th Avenue N at 125th Street N	8:00-9:00	4:00-5:00	8:00-9:00	3:30-4:30
131st Street N at 82nd Avenue N	7:45-8:45	4:00-5:00	7:45-8:45	4:00-5:00

	Option A		Option B		Option C		Option D	
	AM	PM	AM	PM	AM	PM	AM	PM
Study Area (3 intersections included)	7:45-8:45	4:00-5:00	8:15-9:15	3:30-4:30	7:45-8:45	3:30-4:30	8:15-9:15	3:30-4:30

We recommend the following peak hours for the study area:

- Morning (AM) Peak Hour: 7:45 – 8:45 AM
- Afternoon (PM) Peak Hour: 3:30 – 4:30 PM

Office Locations:

Birmingham, Foley, Mobile, Montgomery, Alabama • Gainesville, Pensacola, Tampa, Florida • Atlanta, Georgia
Collinsville, Illinois • Baton Rouge, New Orleans, Slidell, Louisiana • Biloxi, Jackson, Mississippi • Jefferson City, Missouri
Raleigh, North Carolina • Columbia, South Carolina • Chattanooga, Tennessee • Alexandria, Virginia • Washington, D.C.

Growth Rate for 2035 Design Traffic:

The Pinellas County Metropolitan Planning Organization (MPO) supplied the previous fifteen years historical traffic counts from three count stations within close proximity to this study area. The numbers have sustained throughout this time period (no increase or decrease). To provide for modest future traffic growth, the MPO concurred with our recommendation that a one percent (1%) per year growth rate was reasonable. Therefore, we recommend that the background traffic (non-school traffic) for 2014 be increased by twenty percent (20%) to obtain 2035 background traffic volumes.

We trust that this study meets the County's requirements. Should you have any questions or require additional information, please contact me at (813) 868-1954 or nicole.harris@volkert.com.

Enclosed:

Appendix A Peak Hour Recommendation Memorandum

- A1: Peak Hour Tables
- A2: Screen Line Analysis Traffic Counts
- A3: Screen Line Analysis Graphics

Appendix B Growth Rate for 2035 Design Traffic Memorandum

- B1: 2014 & 2035 AM & PM Peak Hour Intersection Turning Movement Counts
- B2: 2014 Intersection Count Data Sheets
- B3: MPO Correspondence Emails
- B4: 2014 AM & PM Peak Hour Traffic Drawings

APPENDIX A

Peak Hour Recommendation Memorandum

MEMORANDUM

December 5, 2014

From: Nicole Harris, PE
Project Manager

To: File

Project: 131st Street N at 86th Avenue N, 86th Avenue N at 125th Street N and 131st Street N at 82nd Avenue N
Intersection Improvements

Re: Peak Hour Recommendations Memorandum

A key component of the Design Traffic Report is the traffic operational analysis for the intersections within the study area. The intersections include:

- 131st Street N at 86th Avenue N (traffic signal control)
- 86th Avenue N at 125th Street N (traffic signal control)
- 131st Street N at 82nd Avenue N (stop sign control)

The first step in conducting the traffic operational analysis is to establish the morning (AM) and afternoon (PM) peak hours. This is typically a straight forward task based on an analysis of the traffic counts at the intersection. However, establishing the peak hours for analysis in the Design Traffic Report is complicated by the following factors:

1. The process of evaluating the three intersections with one peak hour or evaluating each intersection with its individual peak hour volumes per the traffic counts previously collected.
2. There are three schools in the study area with different start and dismissal times. These varying school times significantly impact when the peak hours occur at the intersections. The school start and dismissal times are:
 - Bauder Elementary School: 8:35 AM – 2:35 PM
 - Seminole Middle School: 9:30 AM – 4:00 PM
 - Seminole High School: 7:05 AM – 1:35 PM
3. The AM peak hours at the three intersections occur in a time period that can be called a traditional AM peak period (6:30 – 9:00 AM). The PM peak hour at one of the intersections (86th Avenue N & 125th Street N) occurs at a time period that would typically not be defined as a PM peak period (3:30 – 4:30 PM).

Office Locations:

Birmingham, Foley, Mobile, Montgomery, Alabama • Gainesville, Pensacola, Tampa, Florida • Atlanta, Georgia
Collinsville, Illinois • Baton Rouge, New Orleans, Slidell, Louisiana • Biloxi, Jackson, Mississippi • Jefferson City, Missouri
Raleigh, North Carolina • Columbia, South Carolina • Chattanooga, Tennessee • Alexandria, Virginia • Washington, D.C.

4. Impacts to the traffic north of the intersection of 131st Street N and 86th Avenue N, due to the parent loop driveway for Seminole Middle School. The southbound school traffic on 131st Street N entering this driveway could impact the traffic signal, even if the traffic does not travel through the intersection.
5. Traffic entering the Circle K driveways could impact the traffic signal at 131st Street N & 86th Avenue N due to the close proximity to the intersection, even if that traffic does not travel through the intersection.

To determine the AM and PM peak hours for the traffic analysis, two analysis techniques were considered:

1. Individual approach: A comparison of each intersection's peak hour with the peak hours at the other intersections.
2. Network approach: The screen line analysis includes the traffic entering the study area at the three intersections, the southbound traffic on 131st Street N that enters the middle school parent loop driveway, and the traffic entering the Circle K driveways.

The results of the two analysis techniques are shown on Tables 1 and 2 at the end of this memorandum.

Comparison of Intersection Peak Hours

Individual Approach: In the AM period, all the intersection peak hours fall into a time range that can be classified as a traditional AM peak hour period (6:30 to 9:00 AM). The 131/86 and 131/82 intersections have an AM peak hour of 7:45 to 8:45 AM while the 125/86 intersection has an AM peak hour of 8:00 to 9:00 AM.

In the PM period, the intersections have different peak hours. The 131/86 PM peak hour is 4:15 to 5:15 PM and the 131/82 PM peak hour is 4:00 to 5:00 PM. The 125/86 intersection has different peak hours for the traditional PM period (4:00 to 5:00 PM) versus the actual highest volume peak hour (3:30 to 4:30 PM).

Based on the comparison of the peak hours, the recommended AM peak hours would be 7:45 to 8:45 AM for the 131/86 and 131/82 intersections and 8:00 to 9:00 AM for the 125/86 intersection. The recommended PM peak hours would be 4:15 to 5:15 PM for the 131/86 intersection and 4:00 to 5:00 PM for the 131/82 intersection.

Screen Line Analysis of Peak Hours

Network Approach: This analysis includes the traffic entering the study area at all three study intersections plus analyzes the impact of southbound traffic on 131st Street N that enters the middle school parent loop driveway and southbound traffic on 131st Street N and eastbound traffic on 86th Avenue N that enters the Circle K driveways that are very close to the intersection of 131/86. Therefore, a four screen line analysis was performed:

- Option A: This option measures only the traffic entering the study area at the three intersections and is the most viable approach to determining the peak hours.
- Option B: Includes Option A traffic plus southbound traffic on 131st Street N entering the middle school parent loop driveway north of the 131/86 intersection. The southbound traffic entering the middle school driveway has minimal impact on the 131/86 intersection but was included as an additional analysis tool.
- Option C: Includes Option A traffic plus traffic on 131st Street N and 86th Avenue N that enters the Circle K driveways. The added traffic entering the study due to the Circle K has minimal impact on the 131/86 intersection but was included as an additional analysis tool.

- Option D: Includes traffic from Option A, B and C. The traffic from Option B and C were added as an additional analysis tool.

In the AM period, the peak hours for Option A and C were the same (7:45 to 8:45 AM). This peak hour is also the same as the peak hours for the 131/86 and 131/82 intersections. There is a fifteen minute difference from the peak hour at the 125/86 intersection. The extent of the impact on the screen line analysis from the southbound traffic on 131st Street N that enters the middle school driveway is subject to question. Since the traffic is coming from the north, it would be expected that most of the traffic would exit to the north. Therefore, Option A is the most viable indicator of the peak hour traffic.

In the PM period, all four options had the same peak hour, 3:30 to 4:30. This is the same as the peak hour volume for the 125/86 intersection but the other intersection's peak hour differ.

Another method to further compare would be to evaluate the actual traffic volumes and percent of turns on each intersection approach for each of the options discussed above. This analysis shows that the difference in the traffic volumes and percent of turns on each approach for the various peak hours is very minimal (Table 3-6). For example, at the 125/86 intersection in the AM period (Table 4), the difference between the 7:45 to 8:45 AM peak hour and the 8:00 to 9:00 AM peak hour is minimal. Therefore using the 7:45 to 8:45 AM peak hour traffic is virtually the same as using the 8:00 to 9:00 AM peak hour traffic.

Based on the screen line analysis, the recommended AM peak hour for the study area (network) is 7:45 to 8:45 AM for all three intersections. The recommended PM peak hour for the study area (network) is 3:30 to 4:30 PM for all three intersections.

Conclusion

In conclusion, the screen line analysis is the preferred method for determining the peak hours for the three intersections in the study area for the Design Traffic Report for the following reasons:

- The screen line method takes into account the different start and dismissals times for the three schools in the study area.
- A comparison of the different peak hours at each intersection has demonstrated that the difference in traffic volumes and percent of traffic on each approach for the different peak hours at each intersection is minimal and will not have a substantial impact on the level of service and delay analysis.

Recommendation

As part of the traffic analysis for the Design Traffic Report, we recommend the following peak hours:

- Morning (AM) Peak Hour: 7:45 – 8:45 AM
- Afternoon (PM) Peak Hour: 3:30 – 4:30 PM

Attachments:

- A1: Peak Hour Tables
- A2: Screen Line Analysis Traffic Counts
- A3: Drawings of Screen Line Analysis Options

Table 1

Time (AM Peak Hour)	131 & 86 Traditional Peak Hour	131 & 86 Volume Peak Hour	125 & 86 Traditional Peak Hour	125 & 86 Volume Peak Hour	131 & 82 Traditional Peak Hour	131 & 82 Volume Peak Hour	Study Area Option A Peak Hour	Study Area Option B Peak Hour	Study Area Option C Peak Hour	Study Area Option D Peak Hour
6:30 – 7:30	871	871	745	745	619	619	<u>1,132</u>	1,132	1,157	1,157
6:45 – 7:45	850	850	693	693	587	587	1,033	1,034	1,058	1,059
7:00 – 8:00	752	752	514	514	502	502	784	787	806	809
7:15 – 8:15	841	841	545	545	503	503	878	886	898	906
7:30 – 8:30	1,024	1,024	709	709	575	575	1,084	1,106	1,111	1,133
7:45 – 8:45	1,098	1,098	787	787	642	642	1,132	1,169	1,158	1,195
8:00 – 9:00	1,078	1,078	804	804	618	618	1,092	1,156	1,119	1,183
8:15 – 9:15	n/a	1,013	n/a	771	n/a	619	1,055	1,182	1,078	1,205
8:30 – 9:30	n/a	948	n/a	656	n/a	604	937	1,095	958	1,116

Notes:

1. Traditional AM Peak Hour is defined as 6:30 – 9:00 AM for the purposes of this study.
2. Yellow shaded hour is the recommended AM peak hour.

Table 2

Time (PM Peak Hour)	131 & 86 Traditional Peak Hour	131 & 86 Volume Peak Hour	125 & 86 Traditional Pk. Hr.	125 & 86 Volume Peak Hour	131 & 82 Traditional Peak Hour	131 & 82 Volume Peak Hour	Study Area Option A Peak Hour	Study Area Option B Peak Hour	Study Area Option C Peak Hour	Study Area Option D Peak Hour
3:00 – 4:00	n/a	866	n/a	673	n/a	616	913	951	936	974
3:15 – 4:15	n/a	854	n/a	717	n/a	666	983	1,037	1,012	1,066
3:30 – 4:30	n/a	983	n/a	799	n/a	699	1,038	1,097	1,066	1,125
3:45 – 4:45	n/a	976	n/a	777	n/a	713	1,032	1,075	1,057	1,100
4:00 – 5:00	994	994	749	749	736	736	993	1,017	1,015	1,039
4:15 – 5:15	996	996	699	699	686	686	961	969	979	987
4:30 – 5:30	921	921	671	671	661	661	941	941	957	957
4:45 – 5:45	970	970	693	693	658	658	979	979	995	995
5:00 – 6:00	953	953	700	700	642	642	968	968	990	990

Notes:

1. Traditional PM Peak Hour is defined as 4:00 – 6:00 PM for the purposes of this study.
2. Yellow shaded hour is the recommended PM peak hour.

Table 3

131 st Street & 86 th Avenue N – PM Peak Hour Traffic Volume/Percentage/Percentage per Approach Comparison													
Traditional PM Peak Hour and PM Peak Hour by Volume: 4:15 – 5:15 PM													
	NB Right	NB Thru	NB Left	EB Right	EB Thru	EB Left	SB Right	SB Thru	SB Left	WB Right	WB Thru	WB Left	Total
Volume	14	232	51	32	85	23	34	211	58	80	144	32	996
% Total	1.4%	23.3%	5.1%	3.2%	8.6%	2.3%	3.4%	21.2%	5.8%	8.0%	14.5%	3.2%	100%
%/Approach	4.7%	78.1%	17.2%	22.9%	60.7%	16.4%	11.2%	69.6%	19.2%	31.3%	56.3%	12.4%	n/a
PM Peak Hour for 3:30 – 4:30 PM (Recommended PM Peak Hour)													
	NB Right	NB Thru	NB Left	EB Right	EB Thru	EB Left	SB Right	SB Thru	SB Left	WB Right	WB Thru	WB Left	Total
Volume	21	190	58	35	96	23	28	210	74	92	125	31	983
% Total	2.1%	19.3%	5.9%	3.6%	9.8%	2.3%	2.8%	21.4%	7.5%	9.4%	12.7%	3.2%	100%
%/Approach	7.8%	70.6%	21.6%	22.7%	62.3%	15.0%	9.0%	67.3%	23.7%	37.1%	50.4%	12.5%	n/a

Table 4

Table 4													
125 st Street & 86 th Avenue N – AM Peak Hour Traffic Volume/Percentage/Percentage per Approach Comparison													
Traditional AM Peak Hour and AM Peak Hour by Volume: 8:00 – 9:00 AM													
	NB Right	NB Thru	NB Left	EB Right	EB Thru	EB Left	SB Right	SB Thru	SB Left	WB Right	WB Thru	WB Left	Total
Volume	13	46	89	67	193	65	110	66	10	11	122	12	804
% Total	1.6%	5.7%	11.1%	8.3%	24.0%	8.1%	13.7%	8.2%	1.2%	1.4%	15.2%	1.5%	100%
%/Approach	8.8%	31.1%	60.1%	20.6%	59.4%	20.0%	59.1%	35.5%	5.4%	7.6%	84.1%	8.3%	n/a
AM Peak Hour for 7:45 – 8:45 AM (Recommended AM Peak Hour Volume)													
	NB Right	NB Thru	NB Left	EB Right	EB Thru	EB Left	SB Right	SB Thru	SB Left	WB Right	WB Thru	WB Left	Total
Volume	17	52	93	66	180	65	108	66	10	10	111	9	787
% Total	2.2%	6.6%	11.7%	8.4%	22.9%	8.3%	13.7%	8.4%	1.3%	1.3%	14.1%	1.1%	100%
%/Approach	10.5%	32.1%	57.4%	21.2%	57.9%	20.9%	58.7%	35.9%	5.4%	7.7%	85.4%	6.9%	n/a

Table 5

Table 5													
125 st Street & 86 th Avenue N – PM Peak Hour Traffic Volume/Percentage/Percentage per Approach Comparison													
Traditional PM Peak Hour Volume: 4:00 – 5:00 PM													
	NB Right	NB Thru	NB Left	EB Right	EB Thru	EB Left	SB Right	SB Thru	SB Left	WB Right	WB Thru	WB Left	Total
Volume	18	74	36	67	167	81	43	80	12	16	137	18	749
% Total	2.4%	9.9%	4.8%	8.9%	22.4%	10.8%	5.7%	10.7%	1.6%	2.1%	18.3%	2.4%	100%
%/Approach	14.1%	57.8%	28.1%	21.3%	53.0%	25.7%	31.9%	59.2%	8.9%	9.4%	80.1%	10.5%	n/a
PM Peak Hour by Volume 3:30 – 4:30 PM (Recommended PM Peak Hour Volume)													
	NB Right	NB Thru	NB Left	EB Right	EB Thru	EB Left	SB Right	SB Thru	SB Left	WB Right	WB Thru	WB Left	Total
Volume	13	74	47	62	175	74	59	86	14	18	153	24	799
% Total	1.6%	9.3%	5.9%	7.8%	21.8%	9.3%	7.4%	10.8%	1.8%	2.3%	19.0%	3.0%	100%
%/Approach	9.7%	55.2%	35.1%	20.0%	56.2%	23.8%	37.1%	54.1%	8.8%	9.2%	78.5%	12.3%	n/a

Table 6

Table 6													
131 st Street & 82 nd Avenue N – PM Peak Hour Traffic Volume/Percentage/Percentage per Approach Comparison													
Traditional PM Peak Hour and PM Peak Hour Volume: 4:00 – 5:00 PM													
	NB Right	NB Thru	NB Left	EB Right	EB Thru	EB Left	SB Right	SB Thru	SB Left	WB Right	WB Thru	WB Left	Total
Volume	14	291	32	30	12	10	15	269	27	19	3	14	736
% Total	1.9%	39.6%	4.3%	4.1%	1.6%	1.4%	2.0%	36.5%	3.7%	2.6%	0.4%	1.9%	100%
%/Approach	4.2%	86.4%	9.4%	57.7%	23.1%	19.2%	4.8%	86.5%	8.7%	52.8%	8.3%	38.9%	n/a
PM Peak Hour 3:30 – 4:30 PM (Recommended PM Peak Hour Volume)													
	NB Right	NB Thru	NB Left	EB Right	EB Thru	EB Left	SB Right	SB Thru	SB Left	WB Right	WB Thru	WB Left	Total
Volume	11	284	28	34	10	13	13	250	24	16	6	10	699
% Total	1.6%	40.5%	4.0%	4.9%	1.4%	1.9%	1.9%	35.8%	3.4%	2.3%	0.9%	1.4%	100%
%/Approach	3.4%	88.0%	8.6%	59.7%	17.5%	22.8%	4.5%	87.1%	8.4%	50.0%	18.8%	31.2%	n/a

Pinellas County Schools Peak Hour Analysis - Option A

Location: 131st Street/125th Street/86th Avenue N

Date of Count: May 14, 2014 (6:30 AM to 6:00 PM)

Weather: Clear Morning & Afternoon Thunderstorms

Note: Option A is traffic entering the study area at the three study intersections. Option A excludes the SB traffic on 131st St. that turns left into the middle school driveway and right into the Circle K and EB traffic on 86th Ave that turns left into the Circle K.

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Time	SB on 131st St at 86th Ave			EB on 86th Ave at 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM	2	19	57	23	21	2	11	60	3	37	34	11	280
6:45 - 7:00 AM	1	36	54	42	69	1	17	115	11	60	71	11	488
Total	3	55	111	65	90	3	28	175	14	97	105	22	768

Time	SB on 131st St at 86th Ave			EB on 86th Ave at 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	
7:00 - 7:15 AM	0	18	60	19	11	5	8	47	5	18	20	10	221
7:15 - 7:30 AM	2	13	42	7	14	2	5	21	3	13	10	11	143
7:30 - 7:45 AM	1	18	57	8	28	6	2	28	5	7	15	6	181
7:45 - 8:00 AM	1	17	60	14	25	3	7	57	4	13	21	17	239
Total	4	66	219	48	78	16	22	153	17	51	66	44	784

Time	SB on 131st St at 86th Ave			EB on 86th Ave at 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	
8:00 - 8:15 AM	3	38	55	7	52	3	12	55	2	36	26	26	315
8:15 - 8:30 AM	2	35	48	7	58	4	9	61	7	44	37	37	349
8:30 - 8:45 AM	1	22	49	7	25	4	3	59	4	15	27	13	229
8:45 - 9:00 AM	1	16	45	4	16	4	7	45	1	15	32	13	199
Total	7	111	197	25	151	15	31	220	14	110	122	89	1092

Time	SB on 131st St at 86th Ave			EB on 86th Ave at 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	
9:00 - 9:15 AM	8	29	60	4	21	9	5	60	4	32	29	17	278
9:15 - 9:30 AM	5	26	58	6	17	5	7	55	5	14	25	8	231
9:30 - 9:45 AM	2	5	38	9	17	3	1	29	1	10	28	2	145
9:45 - 10:00 AM	1	6	33	9	18	7	4	25	4	5	13	5	130
Total	16	66	189	28	73	24	17	169	14	61	95	32	784

Time	SB on 131st St at 86th Ave			EB on 86th Ave at 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	
10:00 - 10:15 AM	5	9	52	8	14	1	2	41	6	5	22	4	169
10:15 - 10:30 AM	3	2	25	5	9	1	3	37	1	7	17	5	115
10:30 - 10:45 AM	5	8	34	3	12	4	2	39	2	6	20	6	141
10:45 - 11:00 AM	4	5	26	9	18	1	0	36	3	7	39	6	154
Total	17	24	137	25	53	7	7	153	12	25	98	21	579

Time	SB on 131st St at 86th Ave			EB on 86th Ave at 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	
11:00 - 11:15 AM	4	12	28	10	12	2	5	35	2	8	15	5	138
11:15 - 11:30 AM	1	5	27	6	19	3	2	46	2	7	22	6	146
11:30 - 11:45 AM	6	4	42	8	17	2	4	32	1	6	24	6	152
11:45 AM-12:00 PM	5	6	43	8	13	2	6	54	2	11	19	11	180
Total	16	27	140	32	61	9	17	167	7	32	80	28	616

Time	SB on 131st St at 86th Ave			EB on 86th Ave at 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	
12:00 - 12:15 PM	4	17	27	9	21	1	6	35	0	10	41	2	173
12:15 - 12:30 PM	3	7	39	12	13	1	5	35	2	4	30	4	155
12:30 - 12:45 PM	3	4	37	12	20	1	4	44	3	7	19	4	158
12:45 - 1:00 PM	5	4	31	14	17	2	6	40	0	7	13	4	143
Total	15	32	134	47	71	5	21	154	5	28	103	14	629

Time	SB on 131st St at 86th Ave			EB on 86th Ave at 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	
1:00 - 1:15 PM	1	6	32	10	7	2	3	48	3	9	17	7	145
1:15 - 1:30 PM	6	12	50	11	11	4	3	56	1	11	25	7	197
1:30 - 1:45 PM	6	8	49	15	12	4	6	57	0	12	32	11	212
1:45 - 2:00 PM	6	9	52	16	23	6	2	48	7	12	35	12	228
Total	19	35	183	52	53	16	14	209	11	44	109	37	782

Peak Hour Option A

	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
2:00 - 2:15 PM	7	13	51	11	39	7	5	58	1	12	33	11	248
2:15 - 2:30 PM	4	14	43	5	18	3	11	48	3	27	38	21	235
2:30 - 2:45 PM	4	17	45	5	25	4	4	60	1	19	40	12	236
2:45 - 3:00 PM	3	12	54	6	25	4	8	46	1	21	20	16	216
Total	18	56	193	27	107	18	28	212	6	79	131	60	935

	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
3:00 - 3:15 PM	4	13	52	7	21	4	2	58	2	4	25	6	198
3:15 - 3:30 PM	9	8	31	6	20	7	12	66	1	6	33	6	205
3:30 - 3:45 PM	7	15	37	4	20	3	0	70	3	15	41	11	226
3:45 - 4:00 PM	7	18	56	10	20	4	6	74	3	18	51	17	284
Total	27	54	176	27	81	18	20	268	9	43	150	40	913

	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
4:00 - 4:15 PM	6	20	54	10	23	6	7	75	6	18	33	10	268
4:15 - 4:30 PM	8	21	63	11	33	10	3	65	1	8	28	9	260
4:30 - 4:45 PM	6	13	56	5	11	2	5	60	2	12	36	12	220
4:45 - 5:00 PM	7	10	47	6	23	6	4	91	1	5	40	5	245
Total	27	64	220	32	90	24	19	291	10	43	137	36	993

	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
5:00 - 5:15 PM	13	14	45	10	18	5	4	69	1	10	38	9	236
5:15 - 5:30 PM	6	13	56	8	13	6	5	68	2	7	47	9	240
5:30 - 5:45 PM	13	17	48	9	14	7	5	73	3	13	49	7	258
5:45 - 6:00 PM	11	14	54	7	19	4	6	68	1	7	34	9	234
Total	43	58	203	34	64	22	20	278	7	37	168	34	968

Grand Total	212	648	2102	442	972	177	244	2449	126	650	1364	457	9843
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% of Total Traffic	2.2%	6.6%	21.4%	4.5%	9.9%	1.8%	2.5%	24.9%	1.3%	6.6%	13.9%	4.6%	100.0%
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Peak Hour Option A

AM Peak Hour													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
7:45 - 8:00 AM													0
8:00 - 8:15 AM													0
8:15 - 8:30 AM													0
8:30 - 8:45 AM													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Mid Day Peak Hour (N/A)													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
													0
													0
													0
													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

PM Peak Hour													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
3:30 - 3:45 PM													0
3:45 - 4:00 PM													0
4:00 - 4:15 PM													0
4:15 - 4:30 PM													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Option A
Traffic Volumes by One Hour Time Period

Time	Volume
6:30 - 7:30 AM	1132
6:45 - 7:45 AM	1033
7:00 - 8:00 AM	784
7:15 - 8:15 AM	878
7:30 - 8:30 PM	1084
7:45 - 8:45 PM	1132
8:00 - 9:00 AM	1092
8:15 - 9:15 AM	1055
8:30 - 9:30 AM	937
8:45 - 9:45 AM	853
9:00 - 10:00 AM	784
9:15 - 10:15 AM	675
9:30 - 10:30 am	559
9:45 - 10:45 AM	555
10:00 - 11:00 AM	579
10:15 - 11:15 AM	548
10:30 - 11:30 AM	579
10:45 - 11:45 AM	590
11:00 AM - 12:00 PM	616
11:15 AM - 12:15 PM	651
11:30 AM - 12:30 AM	660
11:45 AM - 12:45 PM	666

Time	Volume
12:00 - 1:00 PM	629
12:15 - 1:15 PM	601
12:30 - 1:30 PM	643
12:45 - 1:45 PM	697
1:00 - 2:00 PM	782
1:15 - 2:15 PM	885
1:30 - 2:30 PM	923
1:45 - 2:45 PM	947
2:00 - 3:00 PM	935
2:15 - 3:15 PM	885
2:30 - 3:30 PM	855
2:45 - 3:45 PM	845
3:00 - 4:00 PM	913
3:15 - 4:15 PM	983
3:30 - 4:30 PM	1038
3:45 - 4:45 PM	1032
4:00 - 5:00 PM	993
4:15 - 5:15 PM	961
4:30 - 5:30 PM	941
4:45 - 5:45 PM	979
5:00 - 6:00 PM	968

Prepared by: Brian Kanely
Date: November 11, 2014

Pinellas County Schools Peak Hour Analysis - Option B

Location: 131st Street/125th Street/86th Avenue N

Date of Count: May 14, 2014 (6:30 AM to 6:00 PM)

Weather: Clear Morning & Afternoon Thunderstorms

Note: Option B Includes Option A traffic plus SB traffic on 131st St. that turns left into the middle school parent loop dwy. Option B excludes SB traffic on 131st St and EB traffic on 86th Avenue that turns into the Circle K driveways.

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Time	Traffic from Option A			SB on 131st St left onto MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM		280											280
6:45 - 7:00 AM		488											488
Total	0	768	0	0	0	0	0	0	0	0	0	0	768

Time	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
7:00 - 7:15 AM		221											221
7:15 - 7:30 AM		143											143
7:30 - 7:45 AM		181			1								182
7:45 - 8:00 AM		239			2								241
Total	0	784	0	0	3	0	0	0	0	0	0	0	787

Time	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
8:00 - 8:15 AM		315			5								320
8:15 - 8:30 AM		349			14								363
8:30 - 8:45 AM		229			16								245
8:45 - 9:00 AM		199			29								228
Total	0	1092	0	0	64	0	0	0	0	0	0	0	1156

Time	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
9:00 - 9:15 AM		278			68								346
9:15 - 9:30 AM		231			45								276
9:30 - 9:45 AM		145			3								148
9:45 - 10:00 AM		130			0								130
Total	0	784	0	0	116	0	0	0	0	0	0	0	900

Time	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
10:00 - 10:15 AM		169											169
10:15 - 10:30 AM		115											115
10:30 - 10:45 AM		141											141
10:45 - 11:00 AM		154											154
Total	0	579	0	0	0	0	0	0	0	0	0	0	579

Time	Traffic From Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
11:00 - 11:15 AM		138											138
11:15 - 11:30 AM		146											146
11:30 - 11:45 AM		152											152
11:45 AM-12:00 PM		180											180
Total	0	616	0	0	0	0	0	0	0	0	0	0	616

Time	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
12:00 - 12:15 PM		173											173
12:15 - 12:30 PM		155											155
12:30 - 12:45 PM		158											158
12:45 - 1:00 PM		143											143
Total	0	629	0	0	0	0	0	0	0	0	0	0	629

Time	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
1:00 - 1:15 PM		145											145
1:15 - 1:30 PM		197											197
1:30 - 1:45 PM		212											212
1:45 - 2:00 PM		228											228
Total	0	782	0	0	0	0	0	0	0	0	0	0	782

Peak Hour Option B

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
2:00 - 2:15 PM		248											248
2:15 - 2:30 PM		235											235
2:30 - 2:45 PM		236											236
2:45 - 3:00 PM		216											216
Total	0	935	0	0	0	0	0	0	0	0	0	0	935

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
3:00 - 3:15 PM		198											198
3:15 - 3:30 PM		205			3								208
3:30 - 3:45 PM		226			16								242
3:45 - 4:00 PM		284			19								303
Total	0	913	0	0	38	0	0	0	0	0	0	0	951

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
4:00 - 4:15 PM		268			16								284
4:15 - 4:30 PM		260			8								268
4:30 - 4:45 PM		220											220
4:45 - 5:00 PM		245											245
Total	0	993	0	0	24	0	0	0	0	0	0	0	1017

	Traffic from Option A			SB on 131st St left into MS			SB on 131 S right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
5:00 - 5:15 PM		236											236
5:15 - 5:30 PM		240											240
5:30 - 5:45 PM		258											258
5:45 - 6:00 PM		234											234
Total	0	968	0	0	0	0	0	0	0	0	0	0	968

Grand Total	0	9843	0	0	245	0	0	0	0	0	0	0	10088
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% of Total Traffic	0.0%	97.6%	0.0%	0.0%	2.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
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Peak Hour Option B

AM Peak Hour													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
7:45 - 8:00 AM													0
8:00 - 8:15 AM													0
8:15 - 8:30 AM													0
8:30 - 8:45 AM													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Mid Day Peak Hour (N/A)													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
													0
													0
													0
													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

PM Peak Hour													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
3:30 - 3:45 PM													0
3:45 - 4:00 PM													0
4:00 - 4:15 PM													0
4:15 - 4:30 PM													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Option B
Traffic Volumes by One Hour Time Period

Time	Volume
6:30 - 7:30 AM	1132
6:45 - 7:45 AM	1034
7:00 - 8:00 AM	787
7:15 - 8:15 AM	886
7:30 - 8:30 PM	1106
7:45 - 8:45 PM	1169
8:00 - 9:00 AM	1156
8:15 - 9:15 AM	1182
8:30 - 9:30 AM	1095
8:45 - 9:45 AM	998
9:00 - 10:00 AM	900
9:15 - 10:15 AM	723
9:30 - 10:30 am	562
9:45 - 10:45 AM	555
10:00 - 11:00 AM	579
10:15 - 11:15 AM	548
10:30 - 11:30 AM	579
10:45 - 11:45 AM	590
11:00 AM - 12:00 PM	616
11:15 AM - 12:15 PM	651
11:30 AM - 12:30 AM	660
11:45 AM - 12:45 PM	666

Time	Volume
12:00 - 1:00 PM	629
12:15 - 1:15 PM	601
12:30 - 1:30 PM	643
12:45 - 1:45 PM	697
1:00 - 2:00 PM	782
1:15 - 2:15 PM	885
1:30 - 2:30 PM	923
1:45 - 2:45 PM	947
2:00 - 3:00 PM	935
2:15 - 3:15 PM	885
2:30 - 3:30 PM	858
2:45 - 3:45 PM	864
3:00 - 4:00 PM	951
3:15 - 4:15 PM	1037
3:30 - 4:30 PM	1097
3:45 - 4:45 PM	1075
4:00 - 5:00 PM	1017
4:15 - 5:15 PM	969
4:30 - 5:30 PM	941
4:45 - 5:45 PM	979
5:00 - 6:00 PM	968

Prepared by: Brian Kanely
Date: November 11, 2014

Pinellas County Schools Peak Hour Analysis - Option C

Location: 131st Street/125th Street/86th Avenue N

Date of Count: May 14, 2014 (6:30 AM to 6:00 PM)

Weather: Clear Morning & Afternoon Thunderstorms

Note: Option C includes Option A traffic plus SB traffic on 131st St and EB traffic on 86th Ave that turns into the Circle K driveways.
Option C excludes SB traffic on 131st St that turns left into the middle school parent loop driveway.

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Time	Traffic from Option A			SB on 131st St left onto MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM		280					2			4			286
6:45 - 7:00 AM		488					6			4			498
Total	0	768	0	0	0	0	8	0	0	8	0		784

Time	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
7:00 - 7:15 AM		221					5			3			229
7:15 - 7:30 AM		143					1			0			144
7:30 - 7:45 AM		181					5			1			187
7:45 - 8:00 AM		239					4			3			246
Total	0	784	0	0	0	0	15	0	0	7	0		806

Time	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
8:00 - 8:15 AM		315					4			2			321
8:15 - 8:30 AM		349					7			1			357
8:30 - 8:45 AM		229					3			2			234
8:45 - 9:00 AM		199					2			6			207
Total	0	1092	0	0	0	0	16	0	0	11	0		1119

Time	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
9:00 - 9:15 AM		278					1			1			280
9:15 - 9:30 AM		231					4			2			237
9:30 - 9:45 AM		145					4			5			154
9:45 - 10:00 AM		130					7			4			141
Total	0	784	0	0	0	0	16	0	0	12	0		812

Time	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
10:00 - 10:15 AM		169					1			1			171
10:15 - 10:30 AM		115					4			4			123
10:30 - 10:45 AM		141					5			6			152
10:45 - 11:00 AM		154					5			1			160
Total	0	579	0	0	0	0	15	0	0	12	0		606

Time	Traffic From Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
11:00 - 11:15 AM		138					3			3			144
11:15 - 11:30 AM		146					4			0			150
11:30 - 11:45 AM		152					3			4			159
11:45 AM-12:00 PM		180					4			2			186
Total	0	616	0	0	0	0	14	0	0	9	0		639

Time	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
12:00 - 12:15 PM		173					3			2			178
12:15 - 12:30 PM		155					9			2			166
12:30 - 12:45 PM		158					4			1			163
12:45 - 1:00 PM		143					3			1			147
Total	0	629	0	0	0	0	19	0	0	6	0		654

Time	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
1:00 - 1:15 PM		145					3			1			149
1:15 - 1:30 PM		197					1			0			198
1:30 - 1:45 PM		212					1			3			216
1:45 - 2:00 PM		228					2			3			233
Total	0	782	0	0	0	0	7	0	0	7	0		796

Peak Hour Option C

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
2:00 - 2:15 PM		248						6			5		259
2:15 - 2:30 PM		235						3			1		239
2:30 - 2:45 PM		236						2			1		239
2:45 - 3:00 PM		216						2			8		226
Total	0	935	0	0	0	0	0	13	0	0	15	0	963

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
3:00 - 3:15 PM		198						1			2		201
3:15 - 3:30 PM		205						3			3		211
3:30 - 3:45 PM		226						4			4		234
3:45 - 4:00 PM		284						3			3		290
Total	0	913	0	0	0	0	0	11	0	0	12	0	936

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
4:00 - 4:15 PM		268						2			7		277
4:15 - 4:30 PM		260						3			2		265
4:30 - 4:45 PM		220						4			1		225
4:45 - 5:00 PM		245						3			0		248
Total	0	993	0	0	0	0	0	12	0	0	10	0	1015

	Traffic from Option A			SB on 131st St left into MS			SB on 131 S right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
5:00 - 5:15 PM		236						2			3		241
5:15 - 5:30 PM		240						2			1		243
5:30 - 5:45 PM		258						1			4		263
5:45 - 6:00 PM		234						7			2		243
Total	0	968	0	0	0	0	0	12	0	0	10	0	990

Grand Total	0	9843	0	0	0	0	0	158	0	0	119	0	10120
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% of Total Traffic	0.0%	97.3%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	0.0%	0.0%	1.2%	0.0%	100.0%
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Peak Hour Option C

AM Peak Hour													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
7:45 - 8:00 AM													0
8:00 - 8:15 AM													0
8:15 - 8:30 AM													0
8:30 - 8:45 AM													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Mid Day Peak Hour (N/A)													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
													0
													0
													0
													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

PM Peak Hour													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
3:30 - 3:45 PM													0
3:45 - 4:00 PM													0
4:00 - 4:15 PM													0
4:15 - 4:30 PM													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Option C
Traffic Volumes by One Hour Time Period

Time	Volume
6:30 - 7:30 AM	1157
6:45 - 7:45 AM	1058
7:00 - 8:00 AM	806
7:15 - 8:15 AM	898
7:30 - 8:30 PM	1111
7:45 - 8:45 PM	1158
8:00 - 9:00 AM	1119
8:15 - 9:15 AM	1078
8:30 - 9:30 AM	958
8:45 - 9:45 AM	878
9:00 - 10:00 AM	812
9:15 - 10:15 AM	703
9:30 - 10:30 am	589
9:45 - 10:45 AM	587
10:00 - 11:00 AM	606
10:15 - 11:15 AM	579
10:30 - 11:30 AM	606
10:45 - 11:45 AM	613
11:00 AM - 12:00 PM	639
11:15 AM - 12:15 PM	673
11:30 AM - 12:30 AM	689
11:45 AM - 12:45 PM	693

Time	Volume
12:00 - 1:00 PM	654
12:15 - 1:15 PM	625
12:30 - 1:30 PM	657
12:45 - 1:45 PM	710
1:00 - 2:00 PM	796
1:15 - 2:15 PM	906
1:30 - 2:30 PM	947
1:45 - 2:45 PM	970
2:00 - 3:00 PM	963
2:15 - 3:15 PM	905
2:30 - 3:30 PM	877
2:45 - 3:45 PM	872
3:00 - 4:00 PM	936
3:15 - 4:15 PM	1012
3:30 - 4:30 PM	1066
3:45 - 4:45 PM	1057
4:00 - 5:00 PM	1015
4:15 - 5:15 PM	979
4:30 - 5:30 PM	957
4:45 - 5:45 PM	995
5:00 - 6:00 PM	990

Prepared by: Brian Kanely
Date: November 11, 2014

Pinellas County Schools Peak Hour Analysis - Option D

Location: 131st Street/125th Street/86th Avenue N

Date of Count: May 14, 2014 (6:30 AM to 6:00 PM)

Weather: Clear Morning & Afternoon Thunderstorms

Note: Option D includes Option A traffic plus Option B traffic (SB traffic on 131st St. that turns left into the middle school parent loop dwy) plus Option C traffic (SB traffic on 131st St and EB traffic on 86th Avenue that turns into the Circle K driveways).

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Time	Traffic from Option A			SB on 131st St left onto MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM		280						2			4		286
6:45 - 7:00 AM		488						6			4		498
Total	0	768	0	0	0	0	0	8	0	0	8	0	784

Time	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
7:00 - 7:15 AM		221						5			3		229
7:15 - 7:30 AM		143						1			0		144
7:30 - 7:45 AM		181			1			5			1		188
7:45 - 8:00 AM		239			2			4			3		248
Total	0	784	0	0	3	0	0	15	0	0	7	0	809

Time	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
8:00 - 8:15 AM		315			5			4			2		326
8:15 - 8:30 AM		349			14			7			1		371
8:30 - 8:45 AM		229			16			3			2		250
8:45 - 9:00 AM		199			29			2			6		236
Total	0	1092	0	0	64	0	0	16	0	0	11	0	1183

Time	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
9:00 - 9:15 AM		278			68			1			1		348
9:15 - 9:30 AM		231			45			4			2		282
9:30 - 9:45 AM		145			3			4			5		157
9:45 - 10:00 AM		130			0			7			4		141
Total	0	784	0	0	116	0	0	16	0	0	12	0	928

Time	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
10:00 - 10:15 AM		169						1			1		171
10:15 - 10:30 AM		115						4			4		123
10:30 - 10:45 AM		141						5			6		152
10:45 - 11:00 AM		154						5			1		160
Total	0	579	0	0	0	0	0	15	0	0	12	0	606

Time	Traffic From Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
11:00 - 11:15 AM		138						3			3		144
11:15 - 11:30 AM		146						4			0		150
11:30 - 11:45 AM		152						3			4		159
11:45 AM-12:00 PM		180						4			2		186
Total	0	616	0	0	0	0	0	14	0	0	9	0	639

Time	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
12:00 - 12:15 PM		173						3			2		178
12:15 - 12:30 PM		155						9			2		166
12:30 - 12:45 PM		158						4			1		163
12:45 - 1:00 PM		143						3			1		147
Total	0	629	0	0	0	0	0	19	0	0	6	0	654

Time	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
1:00 - 1:15 PM		145						3			1		149
1:15 - 1:30 PM		197						1			0		198
1:30 - 1:45 PM		212						1			3		216
1:45 - 2:00 PM		228						2			3		233
Total	0	782	0	0	0	0	0	7	0	0	7	0	796

Peak Hour Option D

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
2:00 - 2:15 PM		248						6			5		259
2:15 - 2:30 PM		235						3			1		239
2:30 - 2:45 PM		236						2			1		239
2:45 - 3:00 PM		216						2			8		226
Total	0	935	0	0	0	0	0	13	0	0	15	0	963

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
3:00 - 3:15 PM		198						1			2		201
3:15 - 3:30 PM		205			3			3			3		214
3:30 - 3:45 PM		226			16			4			4		250
3:45 - 4:00 PM		284			19			3			3		309
Total	0	913	0	0	38	0	0	11	0	0	12	0	974

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
4:00 - 4:15 PM		268			16			2			7		293
4:15 - 4:30 PM		260			8			3			2		273
4:30 - 4:45 PM		220						4			1		225
4:45 - 5:00 PM		245						3			0		248
Total	0	993	0	0	24	0	0	12	0	0	10	0	1039

	Traffic from Option A			SB on 131st St left into MS			SB on 131 S right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
5:00 - 5:15 PM		236						2			3		241
5:15 - 5:30 PM		240						2			1		243
5:30 - 5:45 PM		258						1			4		263
5:45 - 6:00 PM		234						7			2		243
Total	0	968	0	0	0	0	0	12	0	0	10	0	990

Grand Total	0	9843	0	0	245	0	0	158	0	0	119	0	10365
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% of Total Traffic	0.0%	95.0%	0.0%	0.0%	2.4%	0.0%	0.0%	1.5%	0.0%	0.0%	1.1%	0.0%	100.0%
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Peak Hour Option D

AM Peak Hour													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
7:45 - 8:00 AM													0
8:00 - 8:15 AM													0
8:15 - 8:30 AM													0
8:30 - 8:45 AM													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Mid Day Peak Hour (N/A)													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
													0
													0
													0
													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

PM Peak Hour													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
3:30 - 3:45 PM													0
3:45 - 4:00 PM													0
4:00 - 4:15 PM													0
4:15 - 4:30 PM													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Option D
Traffic Volumes by One Hour Time Period

Time	Volume
6:30 - 7:30 AM	1157
6:45 - 7:45 AM	1059
7:00 - 8:00 AM	809
7:15 - 8:15 AM	906
7:30 - 8:30 PM	1133
7:45 - 8:45 PM	1195
8:00 - 9:00 AM	1183
8:15 - 9:15 AM	1205
8:30 - 9:30 AM	1116
8:45 - 9:45 AM	1023
9:00 - 10:00 AM	928
9:15 - 10:15 AM	751
9:30 - 10:30 am	592
9:45 - 10:45 AM	587
10:00 - 11:00 AM	606
10:15 - 11:15 AM	579
10:30 - 11:30 AM	606
10:45 - 11:45 AM	613
11:00 AM - 12:00 PM	639
11:15 AM - 12:15 PM	673
11:30 AM - 12:30 AM	689
11:45 AM - 12:45 PM	693

Time	Volume
12:00 - 1:00 PM	654
12:15 - 1:15 PM	625
12:30 - 1:30 PM	657
12:45 - 1:45 PM	710
1:00 - 2:00 PM	796
1:15 - 2:15 PM	906
1:30 - 2:30 PM	947
1:45 - 2:45 PM	970
2:00 - 3:00 PM	963
2:15 - 3:15 PM	905
2:30 - 3:30 PM	880
2:45 - 3:45 PM	891
3:00 - 4:00 PM	974
3:15 - 4:15 PM	1066
3:30 - 4:30 PM	1125
3:45 - 4:45 PM	1100
4:00 - 5:00 PM	1039
4:15 - 5:15 PM	987
4:30 - 5:30 PM	957
4:45 - 5:45 PM	985
5:00 - 6:00 PM	990

Prepared by: Brian Kanely
Date: November 11, 2014

Pinellas County Schools Peak Hour Analysis - Option A

Location: 131st Street/125th Street/86th Avenue N

Date of Count: May 14, 2014 (6:30 AM to 6:00 PM)

Weather: Clear Morning & Afternoon Thunderstorms

Note: Option A is traffic entering the study area at the three study intersections. Option A excludes the SB traffic on 131st St. that turns left into the middle school driveway and right into the Circle K and EB traffic on 86th Ave that turns left into the Circle K.

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

	SB on 131st St at 86th Ave			EB on 86th Ave at 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM	2	19	57	23	21	2	11	60	3	37	34	11	280
6:45 - 7:00 AM	1	36	54	42	69	1	17	115	11	60	71	11	488
Total	3	55	111	65	90	3	28	175	14	97	105	22	768

	SB on 131st St at 86th Ave			EB on 86th Ave at 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	
7:00 - 7:15 AM	0	18	60	19	11	5	8	47	5	18	20	10	221
7:15 - 7:30 AM	2	13	42	7	14	2	5	21	3	13	10	11	143
7:30 - 7:45 AM	1	18	57	8	28	6	2	28	5	7	15	6	181
7:45 - 8:00 AM	1	17	60	14	25	3	7	57	4	13	21	17	239
Total	4	66	219	48	78	16	22	153	17	51	66	44	784

	SB on 131st St at 86th Ave			EB on 86th Ave at 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	
8:00 - 8:15 AM	3	38	55	7	52	3	12	55	2	36	26	26	315
8:15 - 8:30 AM	2	35	48	7	58	4	9	61	7	44	37	37	349
8:30 - 8:45 AM	1	22	49	7	25	4	3	59	4	15	27	13	229
8:45 - 9:00 AM	1	16	45	4	16	4	7	45	1	15	32	13	199
Total	7	111	197	25	151	15	31	220	14	110	122	89	1092

	SB on 131st St at 86th Ave			EB on 86th Ave at 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	
9:00 - 9:15 AM	8	29	60	4	21	9	5	60	4	32	29	17	278
9:15 - 9:30 AM	5	26	58	6	17	5	7	55	5	14	25	8	231
9:30 - 9:45 AM	2	5	38	9	17	3	1	29	1	10	28	2	145
9:45 - 10:00 AM	1	6	33	9	18	7	4	25	4	5	13	5	130
Total	16	66	189	28	73	24	17	169	14	61	95	32	784

	SB on 131st St at 86th Ave			EB on 86th Ave at 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	
10:00 - 10:15 AM	5	9	52	8	14	1	2	41	6	5	22	4	169
10:15 - 10:30 AM	3	2	25	5	9	1	3	37	1	7	17	5	115
10:30 - 10:45 AM	5	8	34	3	12	4	2	39	2	6	20	6	141
10:45 - 11:00 AM	4	5	26	9	18	1	0	36	3	7	39	6	154
Total	17	24	137	25	53	7	7	153	12	25	98	21	579

	SB on 131st St at 86th Ave			EB on 86th Ave at 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	
11:00 - 11:15 AM	4	12	28	10	12	2	5	35	2	8	15	5	138
11:15 - 11:30 AM	1	5	27	6	19	3	2	46	2	7	22	6	146
11:30 - 11:45 AM	6	4	42	8	17	2	4	32	1	6	24	6	152
11:45 AM-12:00 PM	5	6	43	8	13	2	6	54	2	11	19	11	180
Total	16	27	140	32	61	9	17	167	7	32	80	28	616

	SB on 131st St at 86th Ave			EB on 86th Ave at 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	
12:00 - 12:15 PM	4	17	27	9	21	1	6	35	0	10	41	2	173
12:15 - 12:30 PM	3	7	39	12	13	1	5	35	2	4	30	4	155
12:30 - 12:45 PM	3	4	37	12	20	1	4	44	3	7	19	4	158
12:45 - 1:00 PM	5	4	31	14	17	2	6	40	0	7	13	4	143
Total	15	32	134	47	71	5	21	154	5	28	103	14	629

	SB on 131st St at 86th Ave			EB on 86th Ave at 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	
1:00 - 1:15 PM	1	6	32	10	7	2	3	48	3	9	17	7	145
1:15 - 1:30 PM	6	12	50	11	11	4	3	56	1	11	25	7	197
1:30 - 1:45 PM	6	8	49	15	12	4	6	57	0	12	32	11	212
1:45 - 2:00 PM	6	9	52	16	23	6	2	48	7	12	35	12	228
Total	19	35	183	52	53	16	14	209	11	44	109	37	782

Peak Hour Option A

	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
2:00 - 2:15 PM	7	13	51	11	39	7	5	58	1	12	33	11	248
2:15 - 2:30 PM	4	14	43	5	18	3	11	48	3	27	38	21	235
2:30 - 2:45 PM	4	17	45	5	25	4	4	60	1	19	40	12	236
2:45 - 3:00 PM	3	12	54	6	25	4	8	46	1	21	20	16	216
Total	18	56	193	27	107	18	28	212	6	79	131	60	935

	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
3:00 - 3:15 PM	4	13	52	7	21	4	2	58	2	4	25	6	198
3:15 - 3:30 PM	9	8	31	6	20	7	12	66	1	6	33	6	205
3:30 - 3:45 PM	7	15	37	4	20	3	0	70	3	15	41	11	226
3:45 - 4:00 PM	7	18	56	10	20	4	6	74	3	18	51	17	284
Total	27	54	176	27	81	18	20	268	9	43	150	40	913

	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
4:00 - 4:15 PM	6	20	54	10	23	6	7	75	6	18	33	10	268
4:15 - 4:30 PM	8	21	63	11	33	10	3	65	1	8	28	9	260
4:30 - 4:45 PM	6	13	56	5	11	2	5	60	2	12	36	12	220
4:45 - 5:00 PM	7	10	47	6	23	6	4	91	1	5	40	5	245
Total	27	64	220	32	90	24	19	291	10	43	137	36	993

	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
5:00 - 5:15 PM	13	14	45	10	18	5	4	69	1	10	38	9	236
5:15 - 5:30 PM	6	13	56	8	13	6	5	68	2	7	47	9	240
5:30 - 5:45 PM	13	17	48	9	14	7	5	73	3	13	49	7	258
5:45 - 6:00 PM	11	14	54	7	19	4	6	68	1	7	34	9	234
Total	43	58	203	34	64	22	20	278	7	37	168	34	968

Grand Total	212	648	2102	442	972	177	244	2449	126	650	1364	457	9843
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% of Total Traffic	2.2%	6.6%	21.4%	4.5%	9.9%	1.8%	2.5%	24.9%	1.3%	6.6%	13.9%	4.6%	100.0%
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Peak Hour Option A

AM Peak Hour													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
7:45 - 8:00 AM													0
8:00 - 8:15 AM													0
8:15 - 8:30 AM													0
8:30 - 8:45 AM													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Mid Day Peak Hour (N/A)													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
													0
													0
													0
													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

PM Peak Hour													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			Total
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
3:30 - 3:45 PM													0
3:45 - 4:00 PM													0
4:00 - 4:15 PM													0
4:15 - 4:30 PM													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Option A
Traffic Volumes by One Hour Time Period

Time	Volume
6:30 - 7:30 AM	1132
6:45 - 7:45 AM	1033
7:00 - 8:00 AM	784
7:15 - 8:15 AM	878
7:30 - 8:30 PM	1084
7:45 - 8:45 PM	1132
8:00 - 9:00 AM	1092
8:15 - 9:15 AM	1055
8:30 - 9:30 AM	937
8:45 - 9:45 AM	853
9:00 - 10:00 AM	784
9:15 - 10:15 AM	675
9:30 - 10:30 am	559
9:45 - 10:45 AM	555
10:00 - 11:00 AM	579
10:15 - 11:15 AM	548
10:30 - 11:30 AM	579
10:45 - 11:45 AM	590
11:00 AM - 12:00 PM	616
11:15 AM - 12:15 PM	651
11:30 AM - 12:30 AM	660
11:45 AM - 12:45 PM	666

Time	Volume
12:00 - 1:00 PM	629
12:15 - 1:15 PM	601
12:30 - 1:30 PM	643
12:45 - 1:45 PM	697
1:00 - 2:00 PM	782
1:15 - 2:15 PM	885
1:30 - 2:30 PM	923
1:45 - 2:45 PM	947
2:00 - 3:00 PM	935
2:15 - 3:15 PM	885
2:30 - 3:30 PM	855
2:45 - 3:45 PM	845
3:00 - 4:00 PM	913
3:15 - 4:15 PM	983
3:30 - 4:30 PM	1038
3:45 - 4:45 PM	1032
4:00 - 5:00 PM	993
4:15 - 5:15 PM	961
4:30 - 5:30 PM	941
4:45 - 5:45 PM	979
5:00 - 6:00 PM	968

Prepared by: Brian Kanely
Date: November 11, 2014

Pinellas County Schools Peak Hour Analysis - Option B

Location: 131st Street/125th Street/86th Avenue N

Date of Count: May 14, 2014 (6:30 AM to 6:00 PM)

Weather: Clear Morning & Afternoon Thunderstorms

Note: Option B includes Option A traffic plus SB traffic on 131st St. that turns left into the middle school parent loop dwy. Option B excludes SB traffic on 131st St and EB traffic on 86th Avenue that turns into the Circle K driveways.

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

	Traffic from Option A			SB on 131st St left onto MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM		280											280
6:45 - 7:00 AM		488											488
Total	0	768	0	0	0	0	0	0	0	0	0	0	768

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
7:00 - 7:15 AM		221											221
7:15 - 7:30 AM		143											143
7:30 - 7:45 AM		181			1								182
7:45 - 8:00 AM		239			2								241
Total	0	784	0	0	3	0	0	0	0	0	0	0	787

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
8:00 - 8:15 AM		315			5								320
8:15 - 8:30 AM		349			14								363
8:30 - 8:45 AM		229			16								245
8:45 - 9:00 AM		199			29								228
Total	0	1092	0	0	64	0	0	0	0	0	0	0	1156

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
9:00 - 9:15 AM		278			68								346
9:15 - 9:30 AM		231			45								276
9:30 - 9:45 AM		145			3								148
9:45 - 10:00 AM		130			0								130
Total	0	784	0	0	116	0	0	0	0	0	0	0	900

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
10:00 - 10:15 AM		169											169
10:15 - 10:30 AM		115											115
10:30 - 10:45 AM		141											141
10:45 - 11:00 AM		154											154
Total	0	579	0	0	0	0	0	0	0	0	0	0	579

	Traffic From Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
11:00 - 11:15 AM		138											138
11:15 - 11:30 AM		146											146
11:30 - 11:45 AM		152											152
11:45 AM-12:00 PM		180											180
Total	0	616	0	0	0	0	0	0	0	0	0	0	616

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
12:00 - 12:15 PM		173											173
12:15 - 12:30 PM		155											155
12:30 - 12:45 PM		158											158
12:45 - 1:00 PM		143											143
Total	0	629	0	0	0	0	0	0	0	0	0	0	629

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
1:00 - 1:15 PM		145											145
1:15 - 1:30 PM		197											197
1:30 - 1:45 PM		212											212
1:45 - 2:00 PM		228											228
Total	0	782	0	0	0	0	0	0	0	0	0	0	782

Peak Hour Option B

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
2:00 - 2:15 PM		248											248
2:15 - 2:30 PM		235											235
2:30 - 2:45 PM		236											236
2:45 - 3:00 PM		216											216
Total	0	935	0	0	0	0	0	0	0	0	0	0	935

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
3:00 - 3:15 PM		198											198
3:15 - 3:30 PM		205			3								208
3:30 - 3:45 PM		226			16								242
3:45 - 4:00 PM		284			19								303
Total	0	913	0	0	38	0	0	0	0	0	0	0	951

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
4:00 - 4:15 PM		268			16								284
4:15 - 4:30 PM		260			8								268
4:30 - 4:45 PM		220											220
4:45 - 5:00 PM		245											245
Total	0	993	0	0	24	0	0	0	0	0	0	0	1017

	Traffic from Option A			SB on 131st St left into MS			SB on 131 S right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
5:00 - 5:15 PM		236											236
5:15 - 5:30 PM		240											240
5:30 - 5:45 PM		258											258
5:45 - 6:00 PM		234											234
Total	0	968	0	0	0	0	0	0	0	0	0	0	968

Grand Total	0	9843	0	0	245	0	0	0	0	0	0	0	10088
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% of Total Traffic	0.0%	97.6%	0.0%	0.0%	2.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
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Peak Hour Option B

AM Peak Hour													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
7:45 - 8:00 AM													0
8:00 - 8:15 AM													0
8:15 - 8:30 AM													0
8:30 - 8:45 AM													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Mid Day Peak Hour (N/A)													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
													0
													0
													0
													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

PM Peak Hour													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
3:30 - 3:45 PM													0
3:45 - 4:00 PM													0
4:00 - 4:15 PM													0
4:15 - 4:30 PM													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Option B
Traffic Volumes by One Hour Time Period

Time	Volume
6:30 - 7:30 AM	1132
6:45 - 7:45 AM	1034
7:00 - 8:00 AM	787
7:15 - 8:15 AM	886
7:30 - 8:30 PM	1106
7:45 - 8:45 PM	1169
8:00 - 9:00 AM	1156
8:15 - 9:15 AM	1182
8:30 - 9:30 AM	1095
8:45 - 9:45 AM	998
9:00 - 10:00 AM	900
9:15 - 10:15 AM	723
9:30 - 10:30 am	562
9:45 - 10:45 AM	555
10:00 - 11:00 AM	579
10:15 - 11:15 AM	548
10:30 - 11:30 AM	579
10:45 - 11:45 AM	590
11:00 AM - 12:00 PM	616
11:15 AM - 12:15 PM	651
11:30 AM - 12:30 AM	660
11:45 AM - 12:45 PM	666

Time	Volume
12:00 - 1:00 PM	629
12:15 - 1:15 PM	601
12:30 - 1:30 PM	643
12:45 - 1:45 PM	697
1:00 - 2:00 PM	782
1:15 - 2:15 PM	885
1:30 - 2:30 PM	923
1:45 - 2: 45 PM	947
2:00 - 3:00 PM	935
2:15 - 3:15 PM	885
2:30 - 3:30 PM	858
2:45 - 3:45 PM	864
3:00 - 4:00 PM	951
3:15 - 4:15 PM	1037
3:30 - 4:30 PM	1097
3:45 - 4:45 PM	1075
4:00 - 5:00 PM	1017
4:15 - 5:15 PM	969
4:30 - 5:30 PM	941
4:45 - 5:45 PM	979
5:00 - 6:00 PM	968

Prepared by: Brian Kanely
Date: November 11, 2014

Pinellas County Schools Peak Hour Analysis - Option C

Location: 131st Street/125th Street/86th Avenue N

Date of Count: May 14, 2014 (6:30 AM to 6:00 PM)

Weather: Clear Morning & Afternoon Thunderstorms

Note: Option C includes Option A traffic plus SB traffic on 131st St and EB traffic on 86th Ave that turns into the Circle K driveways.
Option C excludes SB traffic on 131st St that turns left into the middle school parent loop driveway.

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

	Traffic from Option A			SB on 131st St left onto MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM		280						2			4		286
6:45 - 7:00 AM		488						6			4		498
Total	0	768	0	0	0	0	0	8	0	0	8	0	784

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
7:00 - 7:15 AM		221						5			3		229
7:15 - 7:30 AM		143						1			0		144
7:30 - 7:45 AM		181						5			1		187
7:45 - 8:00 AM		239						4			3		246
Total	0	784	0	0	0	0	0	15	0	0	7	0	806

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
8:00 - 8:15 AM		315						4			2		321
8:15 - 8:30 AM		349						7			1		357
8:30 - 8:45 AM		229						3			2		234
8:45 - 9:00 AM		199						2			6		207
Total	0	1092	0	0	0	0	0	16	0	0	11	0	1119

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
9:00 - 9:15 AM		278						1			1		280
9:15 - 9:30 AM		231						4			2		237
9:30 - 9:45 AM		145						4			5		154
9:45 - 10:00 AM		130						7			4		141
Total	0	784	0	0	0	0	0	16	0	0	12	0	812

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
10:00 - 10:15 AM		169						1			1		171
10:15 - 10:30 AM		115						4			4		123
10:30 - 10:45 AM		141						5			6		152
10:45 - 11:00 AM		154						5			1		160
Total	0	579	0	0	0	0	0	15	0	0	12	0	606

	Traffic From Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
11:00 - 11:15 AM		138						3			3		144
11:15 - 11:30 AM		146						4			0		150
11:30 - 11:45 AM		152						3			4		159
11:45 AM-12:00 PM		180						4			2		186
Total	0	616	0	0	0	0	0	14	0	0	9	0	639

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
12:00 - 12:15 PM		173						3			2		178
12:15 - 12:30 PM		155						9			2		166
12:30 - 12:45 PM		158						4			1		163
12:45 - 1:00 PM		143						3			1		147
Total	0	629	0	0	0	0	0	19	0	0	6	0	654

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
1:00 - 1:15 PM		145						3			1		149
1:15 - 1:30 PM		197						1			0		198
1:30 - 1:45 PM		212						1			3		216
1:45 - 2:00 PM		228						2			3		233
Total	0	782	0	0	0	0	0	7	0	0	7	0	796

Peak Hour Option C

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
2:00 - 2:15 PM		248					6			5			259
2:15 - 2:30 PM		235					3			1			239
2:30 - 2:45 PM		236					2			1			239
2:45 - 3:00 PM		216					2			8			226
Total	0	935	0	0	0	0	13	0	0	15	0		963

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
3:00 - 3:15 PM		198					1			2			201
3:15 - 3:30 PM		205					3			3			211
3:30 - 3:45 PM		226					4			4			234
3:45 - 4:00 PM		284					3			3			290
Total	0	913	0	0	0	0	11	0	0	12	0		936

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
4:00 - 4:15 PM		268					2			7			277
4:15 - 4:30 PM		260					3			2			265
4:30 - 4:45 PM		220					4			1			225
4:45 - 5:00 PM		245					3			0			248
Total	0	993	0	0	0	0	12	0	0	10	0		1015

	Traffic from Option A			SB on 131st St left into MS			SB on 131 S right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
5:00 - 5:15 PM		236					2			3			241
5:15 - 5:30 PM		240					2			1			243
5:30 - 5:45 PM		258					1			4			263
5:45 - 6:00 PM		234					7			2			243
Total	0	968	0	0	0	0	12	0	0	10	0		990

Grand Total	0	9843	0	0	0	0	0	158	0	0	119	0	10120
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% of Total Traffic	0.0%	97.3%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	0.0%	0.0%	1.2%	0.0%	100.0%
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Peak Hour Option C

AM Peak Hour													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
7:45 - 8:00 AM													0
8:00 - 8:15 AM													0
8:15 - 8:30 AM													0
8:30 - 8:45 AM													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Mid Day Peak Hour (N/A)													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
													0
													0
													0
													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

PM Peak Hour													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
3:30 - 3:45 PM													0
3:45 - 4:00 PM													0
4:00 - 4:15 PM													0
4:15 - 4:30 PM													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Option C
Traffic Volumes by One Hour Time Period

Time	Volume
6:30 - 7:30 AM	1157
6:45 - 7:45 AM	1058
7:00 - 8:00 AM	806
7:15 - 8:15 AM	898
7:30 - 8:30 PM	1111
7:45 - 8:45 PM	1158
8:00 - 9:00 AM	1119
8:15 - 9:15 AM	1078
8:30 - 9:30 AM	958
8:45 - 9:45 AM	878
9:00 - 10:00 AM	812
9:15 - 10:15 AM	703
9:30 - 10:30 am	589
9:45 - 10:45 AM	587
10:00 - 11:00 AM	606
10:15 - 11:15 AM	579
10:30 - 11:30 AM	606
10:45 - 11:45 AM	613
11:00 AM - 12:00 PM	639
11:15 AM - 12:15 PM	673
11:30 AM - 12:30 AM	689
11:45 AM - 12:45 PM	693

Time	Volume
12:00 - 1:00 PM	654
12:15 - 1:15 PM	625
12:30 - 1:30 PM	657
12:45 - 1:45 PM	710
1:00 - 2:00 PM	796
1:15 - 2:15 PM	906
1:30 - 2:30 PM	947
1:45 - 2:45 PM	970
2:00 - 3:00 PM	963
2:15 - 3:15 PM	905
2:30 - 3:30 PM	877
2:45 - 3:45 PM	872
3:00 - 4:00 PM	936
3:15 - 4:15 PM	1012
3:30 - 4:30 PM	1066
3:45 - 4:45 PM	1057
4:00 - 5:00 PM	1015
4:15 - 5:15 PM	979
4:30 - 5:30 PM	957
4:45 - 5:45 PM	995
5:00 - 6:00 PM	990

Prepared by: Brian Kanely
Date: November 11, 2014

Pinellas County Schools Peak Hour Analysis - Option D

Location: 131st Street/125th Street/86th Avenue N

Date of Count: May 14, 2014 (6:30 AM to 6:00 PM)

Weather: Clear Morning & Afternoon Thunderstorms

Note: Option D includes Option A traffic plus Option B traffic (SB traffic on 131st St. that turns left into the middle school parent loop dwy) plus Option C traffic (SB traffic on 131st St and EB traffic on 86th Avenue that turns into the Circle K driveways).

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

	Traffic from Option A			SB on 131st St left onto MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM		280						2			4		286
6:45 - 7:00 AM		488						6			4		498
Total	0	768	0	0	0	0	0	8	0	0	8	0	784

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
7:00 - 7:15 AM		221						5			3		229
7:15 - 7:30 AM		143						1			0		144
7:30 - 7:45 AM		181			1			5			1		188
7:45 - 8:00 AM		239			2			4			3		248
Total	0	784	0	0	3	0	0	15	0	0	7	0	809

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
8:00 - 8:15 AM		315			5			4			2		326
8:15 - 8:30 AM		349			14			7			1		371
8:30 - 8:45 AM		229			16			3			2		250
8:45 - 9:00 AM		199			29			2			6		236
Total	0	1092	0	0	64	0	0	16	0	0	11	0	1183

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
9:00 - 9:15 AM		278			68			1			1		348
9:15 - 9:30 AM		231			45			4			2		282
9:30 - 9:45 AM		145			3			4			5		157
9:45 - 10:00 AM		130			0			7			4		141
Total	0	784	0	0	116	0	0	16	0	0	12	0	928

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
10:00 - 10:15 AM		169						1			1		171
10:15 - 10:30 AM		115						4			4		123
10:30 - 10:45 AM		141						5			6		152
10:45 - 11:00 AM		154						5			1		160
Total	0	579	0	0	0	0	0	15	0	0	12	0	606

	Traffic From Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
11:00 - 11:15 AM		138						3			3		144
11:15 - 11:30 AM		146						4			0		150
11:30 - 11:45 AM		152						3			4		159
11:45 AM-12:00 PM		180						4			2		186
Total	0	616	0	0	0	0	0	14	0	0	9	0	639

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
12:00 - 12:15 PM		173						3			2		178
12:15 - 12:30 PM		155						9			2		166
12:30 - 12:45 PM		158						4			1		163
12:45 - 1:00 PM		143						3			1		147
Total	0	629	0	0	0	0	0	19	0	0	6	0	654

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													
1:00 - 1:15 PM		145						3			1		149
1:15 - 1:30 PM		197						1			0		198
1:30 - 1:45 PM		212						1			3		216
1:45 - 2:00 PM		228						2			3		233
Total	0	782	0	0	0	0	0	7	0	0	7	0	796

Peak Hour Option D

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
2:00 - 2:15 PM		248						6			5		259
2:15 - 2:30 PM		235						3			1		239
2:30 - 2:45 PM		236						2			1		239
2:45 - 3:00 PM		216						2			8		226
Total	0	935	0	0	0	0	0	13	0	0	15	0	963

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
3:00 - 3:15 PM		198						1			2		201
3:15 - 3:30 PM		205			3			3			3		214
3:30 - 3:45 PM		226			16			4			4		250
3:45 - 4:00 PM		284			19			3			3		309
Total	0	913	0	0	38	0	0	11	0	0	12	0	974

	Traffic from Option A			SB on 131st St left into MS			SB on 131 St right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
4:00 - 4:15 PM		268			16			2			7		293
4:15 - 4:30 PM		260			8			3			2		273
4:30 - 4:45 PM		220						4			1		225
4:45 - 5:00 PM		245						3			0		248
Total	0	993	0	0	24	0	0	12	0	0	10	0	1039

	Traffic from Option A			SB on 131st St left into MS			SB on 131 S right into Circle K			East on 86 Av left into Circle K			Total
Time													Total
5:00 - 5:15 PM		236						2			3		241
5:15 - 5:30 PM		240						2			1		243
5:30 - 5:45 PM		258						1			4		263
5:45 - 6:00 PM		234						7			2		243
Total	0	968	0	0	0	0	0	12	0	0	10	0	990

Grand Total	0	9843	0	0	245	0	0	158	0	0	119	0	10365
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% of Total Traffic	0.0%	95.0%	0.0%	0.0%	2.4%	0.0%	0.0%	1.5%	0.0%	0.0%	1.1%	0.0%	100.0%
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Peak Hour Option D

AM Peak Hour													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
7:45 - 8:00 AM													0
8:00 - 8:15 AM													0
8:15 - 8:30 AM													0
8:30 - 8:45 AM													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Mid Day Peak Hour (N/A)													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
													0
													0
													0
													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

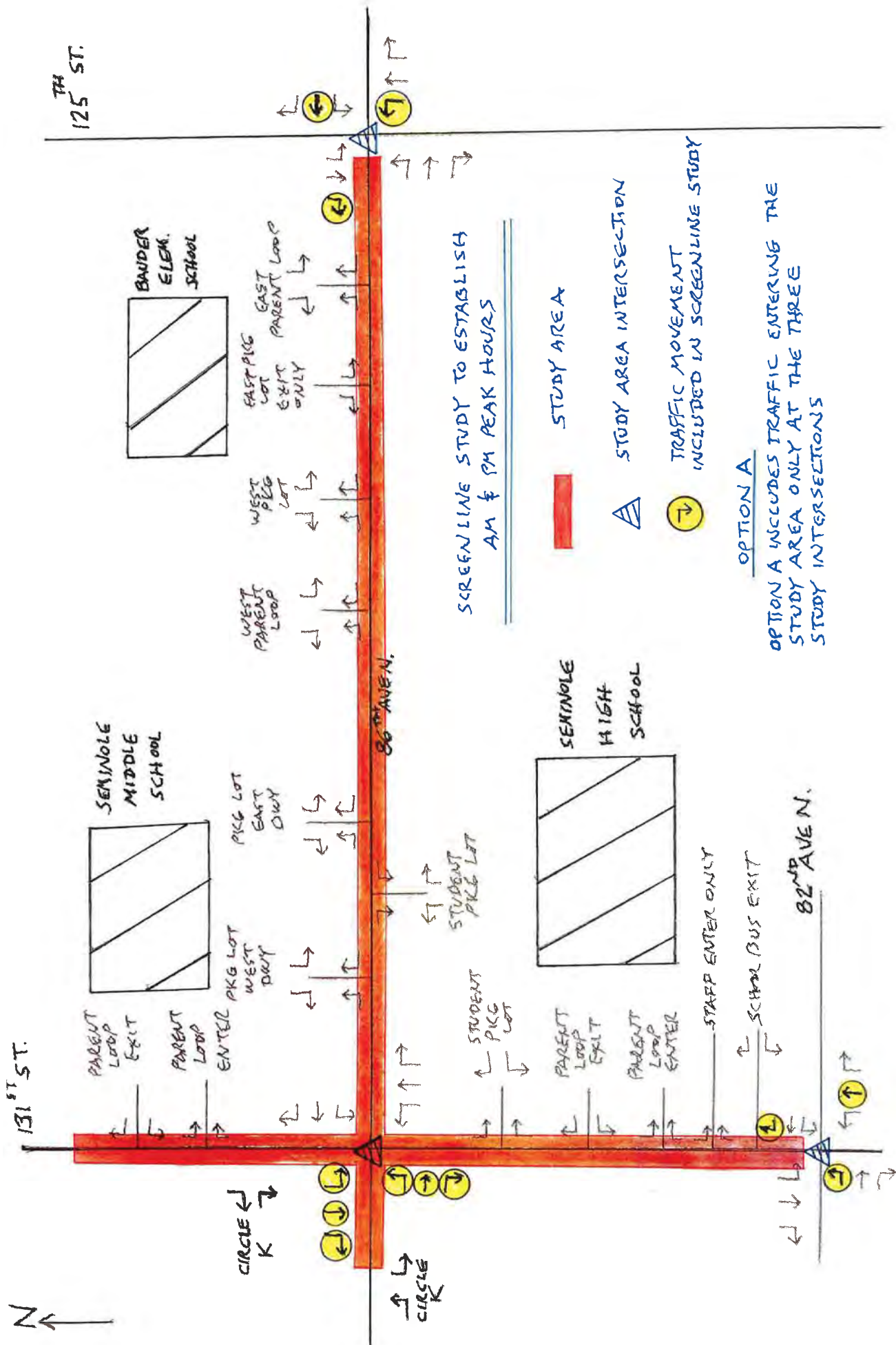
PM Peak Hour													
	SB on 131st St at 86th Ave			EB on 86th Ave to 131st St			NB on 131st St at 82nd Ave			WB on 86th Ave at 125th St			
Time	Right to 86	Left to 86	SB on 131	Right to 131	EB on 86	Left to 131	WB Rt to 131	NB on 131	EB Lt to 131	SB Rt to 86	WB on 86	NB Lt to 86	Total
3:30 - 3:45 PM													0
3:45 - 4:00 PM													0
4:00 - 4:15 PM													0
4:15 - 4:30 PM													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Option D
Traffic Volumes by One Hour Time Period

Time	Volume
6:30 - 7:30 AM	1157
6:45 - 7:45 AM	1059
7:00 - 8:00 AM	809
7:15 - 8:15 AM	906
7:30 - 8:30 PM	1133
7:45 - 8:45 PM	1195
8:00 - 9:00 AM	1183
8:15 - 9:15 AM	1205
8:30 - 9:30 AM	1116
8:45 - 9:45 AM	1023
9:00 - 10:00 AM	928
9:15 - 10:15 AM	751
9:30 - 10:30 am	592
9:45 - 10:45 AM	587
10:00 - 11:00 AM	606
10:15 - 11:15 AM	579
10:30 - 11:30 AM	606
10:45 - 11:45 AM	613
11:00 AM - 12:00 PM	639
11:15 AM - 12:15 PM	673
11:30 AM - 12:30 AM	689
11:45 AM - 12:45 PM	693

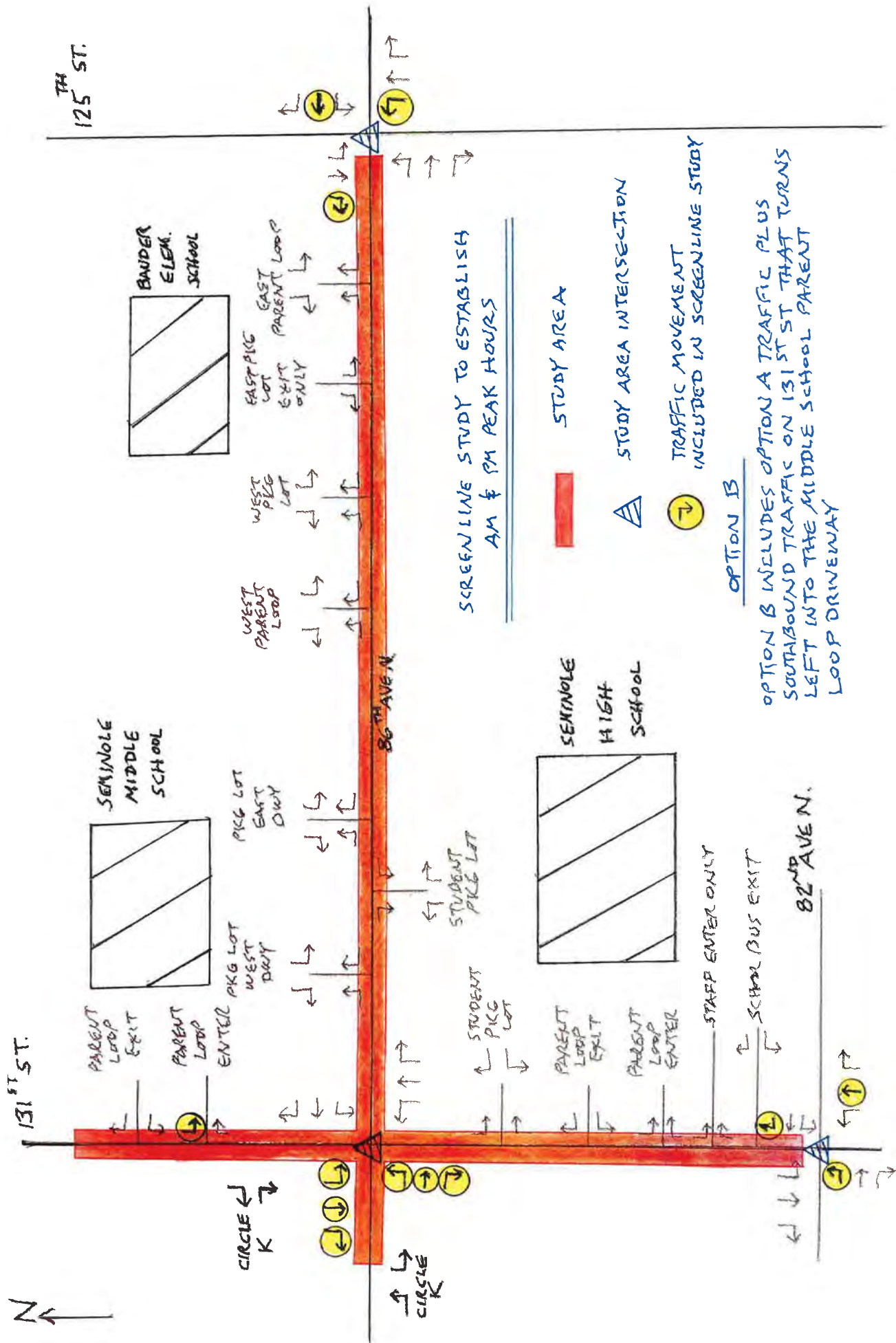
Time	Volume
12:00 - 1:00 PM	654
12:15 - 1:15 PM	625
12:30 - 1:30 PM	657
12:45 - 1:45 PM	710
1:00 - 2:00 PM	796
1:15 - 2:15 PM	906
1:30 - 2:30 PM	947
1:45 - 2: 45 PM	970
2:00 - 3:00 PM	963
2:15 - 3:15 PM	905
2:30 - 3:30 PM	880
2:45 - 3:45 PM	891
3:00 - 4:00 PM	974
3:15 - 4:15 PM	1066
3:30 - 4:30 PM	1125
3:45 - 4:45 PM	1100
4:00 - 5:00 PM	1039
4:15 - 5:15 PM	987
4:30 - 5:30 PM	957
4:45 - 5:45 PM	995
5:00 - 6:00 PM	990

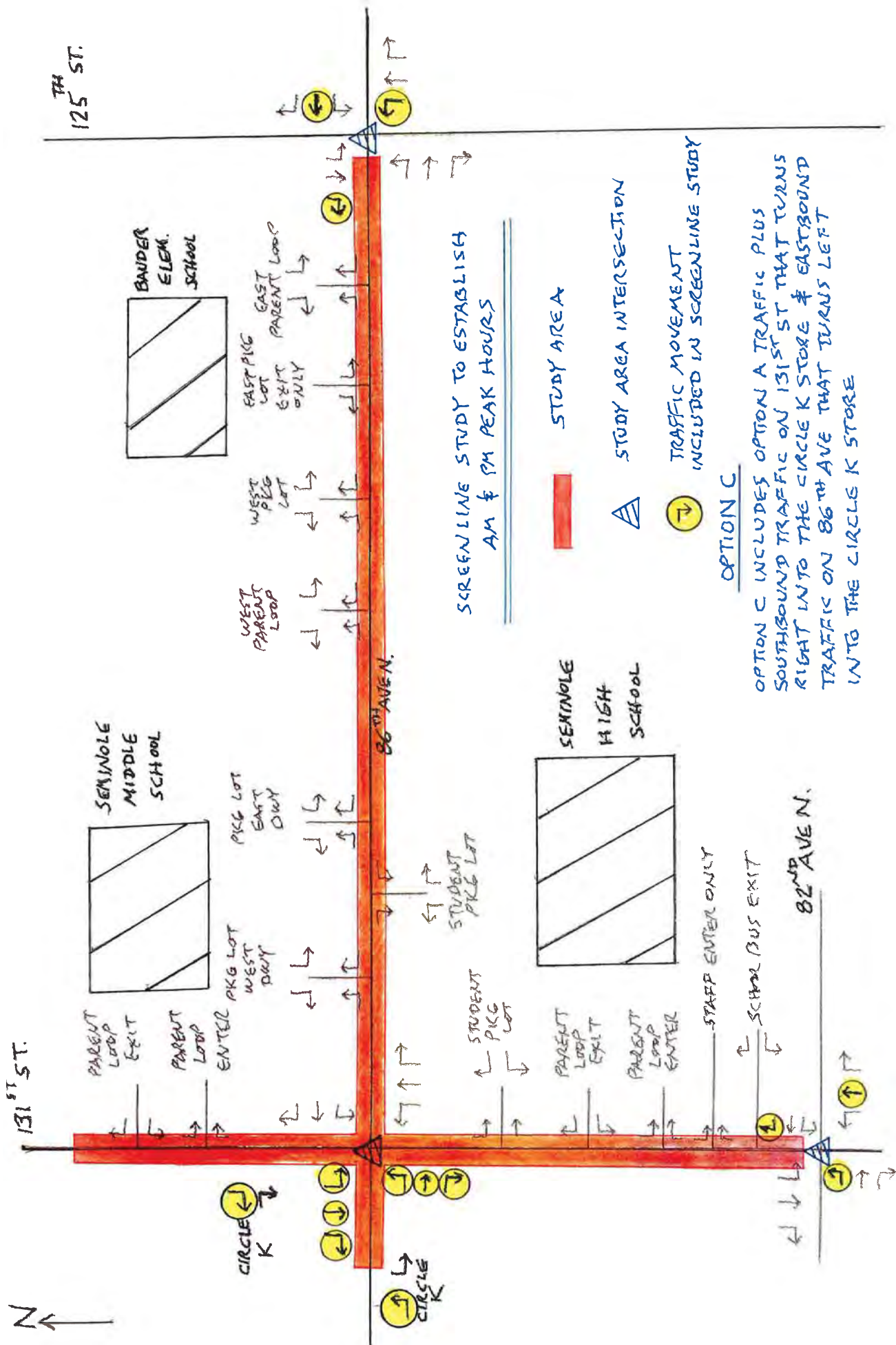
Prepared by: Brian Kanely
Date: November 11, 2014

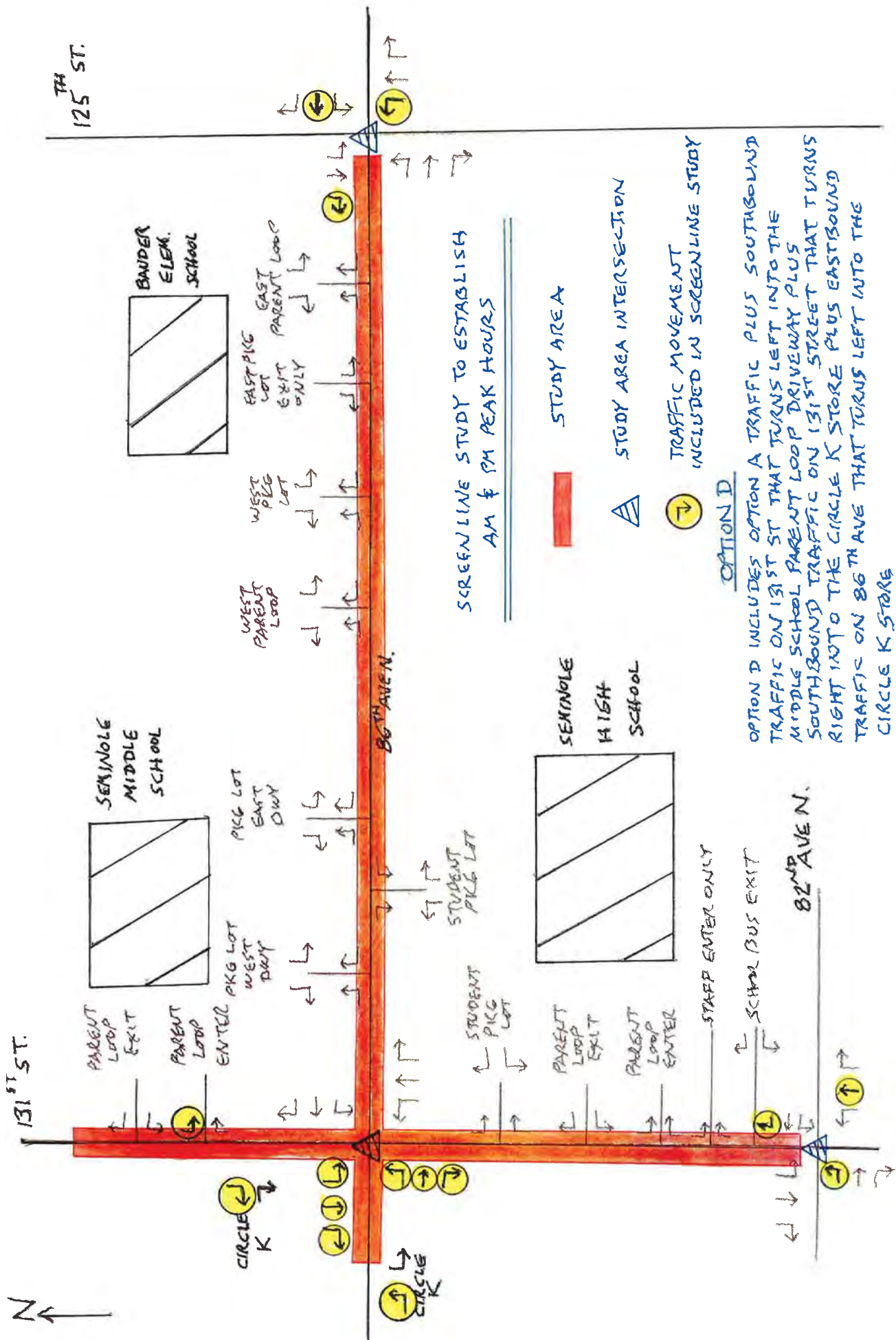


OPTION A

OPTION A INCLUDES TRAFFIC ENTERING THE STUDY AREA ONLY AT THE THREE STUDY INTERSECTIONS







APPENDIX B

Growth Rate for 2035 Design Traffic Memorandum



MEMORANDUM

December 5, 2014

From: Nicole Harris, PE

Project Manager

To: File

Project: 131st Street N at 86th Avenue N, 86th Avenue N at 125th Street N and 131st Street N at 82nd Avenue N
Intersection Improvements

Re: Growth Rate for 2035 Design Traffic Memorandum

The design traffic contains two components: background traffic and school traffic. Based on information received from the Pinellas County School Board, the four schools in the project study area are not anticipated increase students population in the future; therefore the number of students and school traffic is not expected to increase.

2014 Design Traffic

The 2014 peak hour design traffic turning movement counts (TMC) are derived from the TMC data obtained in May 2014 at the three intersections. The intersection traffic was counted in fifteen (15) minute increments and was obtained manually. In addition to the intersection counts, TMC were also obtained at all school driveways for the three schools. This provides the data necessary to break the TMC data into background and school traffic. The intersection turning movement counts obtained in May 2014 are attached for reference and the distribution of the school traffic for the peak hours is shown on the attached drawings.

2035 Design Traffic

For the 2035 design traffic, a growth rate for the background traffic was developed in coordination with the Pinellas County Metropolitan Planning Organization (MPO). The MPO provided Volkert with historical traffic counts and the projected growth rates for three traffic count stations in the vicinity of the study area. During the past fifteen years, the historical traffic counts have sustained (no increase or negative growth). To provide for modest future traffic growth, the MPO concurred with our

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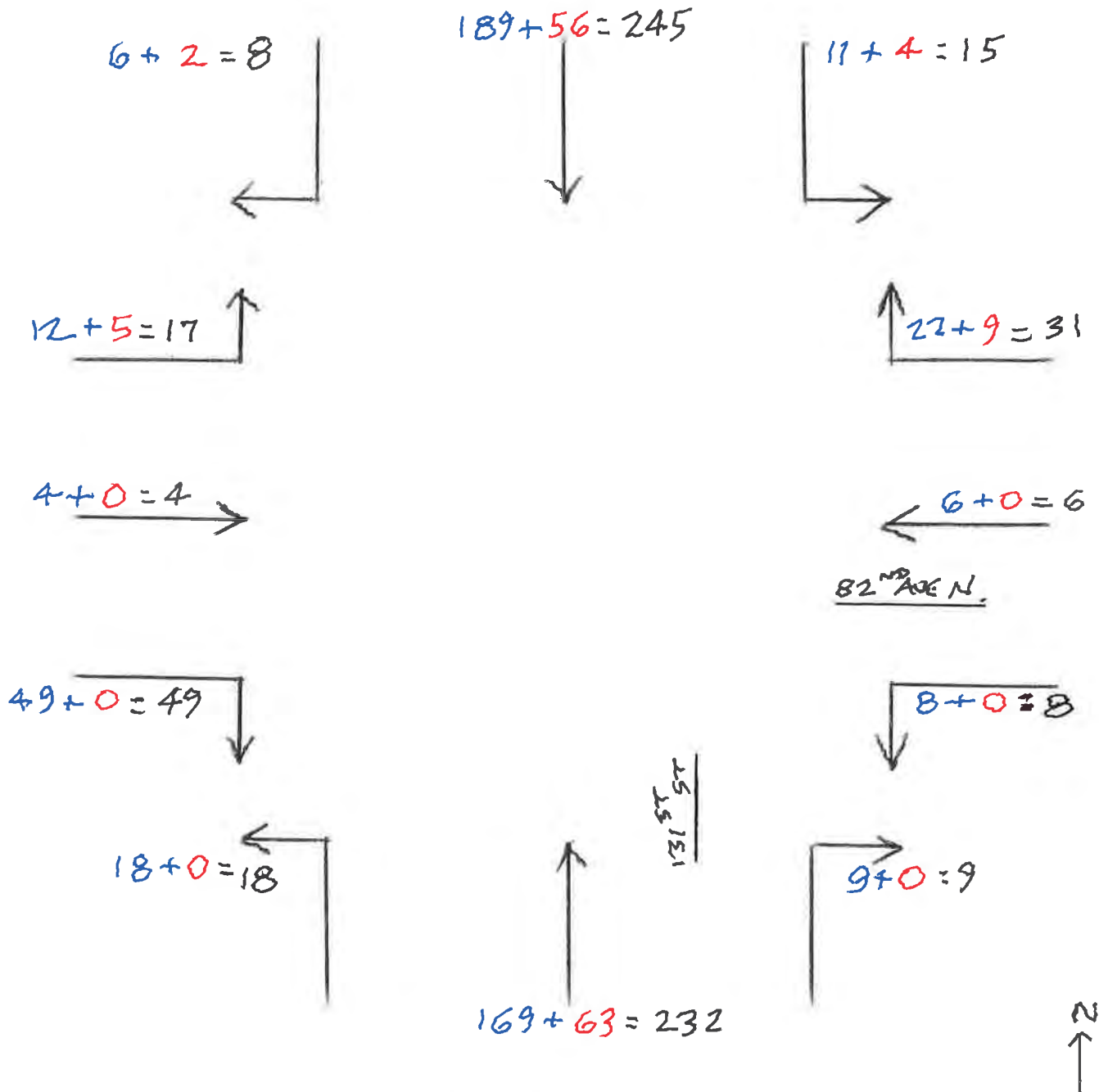
recommendation that a one percent (1%) per year growth rate was reasonable. Therefore, the background traffic for 2014 was increased by twenty percent (20%) to obtain 2035 background traffic volumes. As described above, the school traffic will not increase in future years and it was maintained at 2014 volumes.

Attachments:

- B1: 2014 & 2035 AM & PM Peak Hour Intersection Turning Movement Counts
- B2: 2014 Intersection Count Data Sheets
- B3: MPO Correspondence Emails
- B4: 2014 AM & PM Peak Hour Traffic Drawings

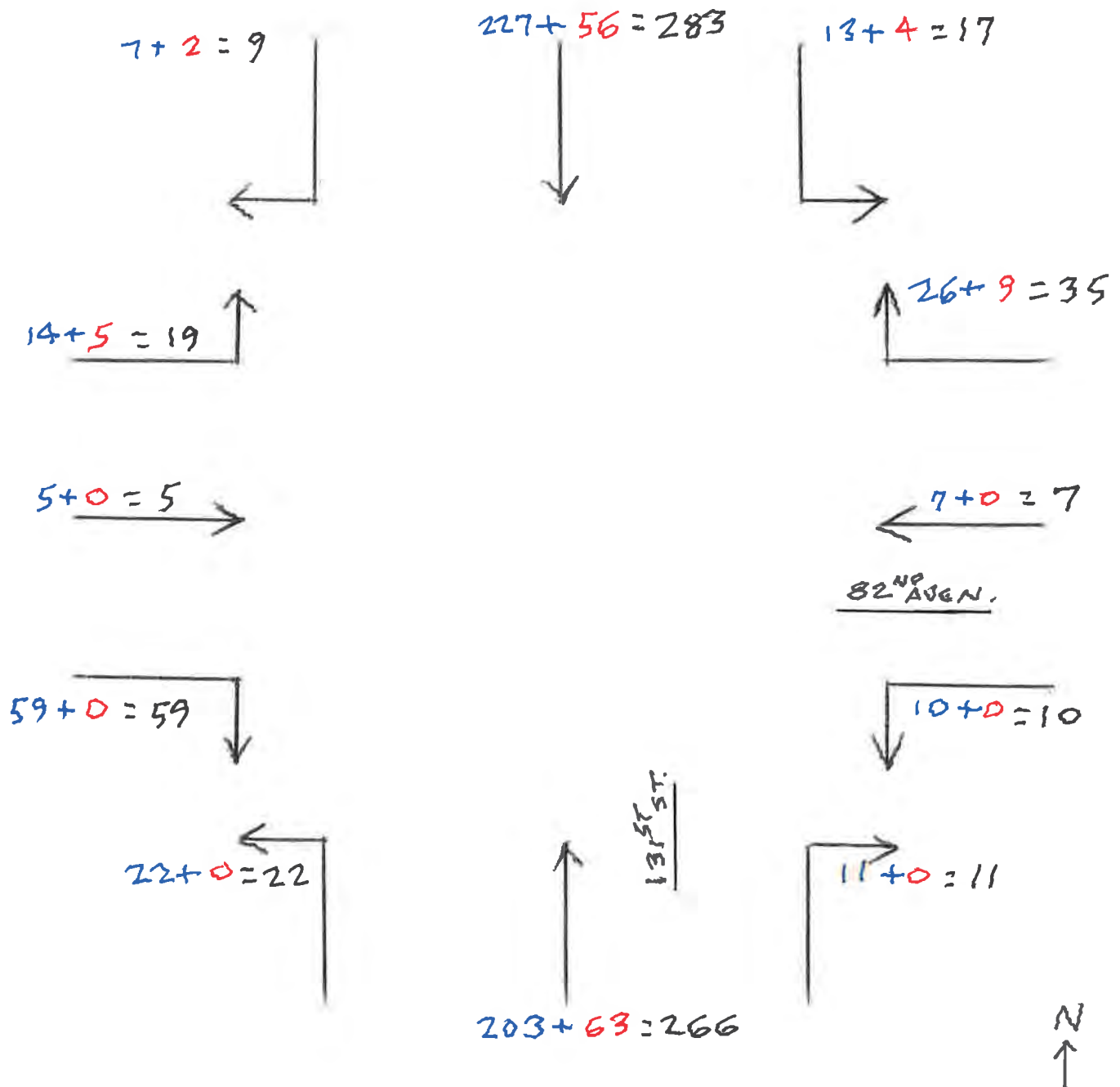
82ND AVE N. & 131ST ST- 2014 TRAFFIC

AM PEAK HR - 7:45 - 8:45 AM



82ND AVE N. & 131ST ST - 2035 TRAFFIC

AM PEAK HR - 7:45 - 8:45 AM



LEGEND

FF + BB = HH

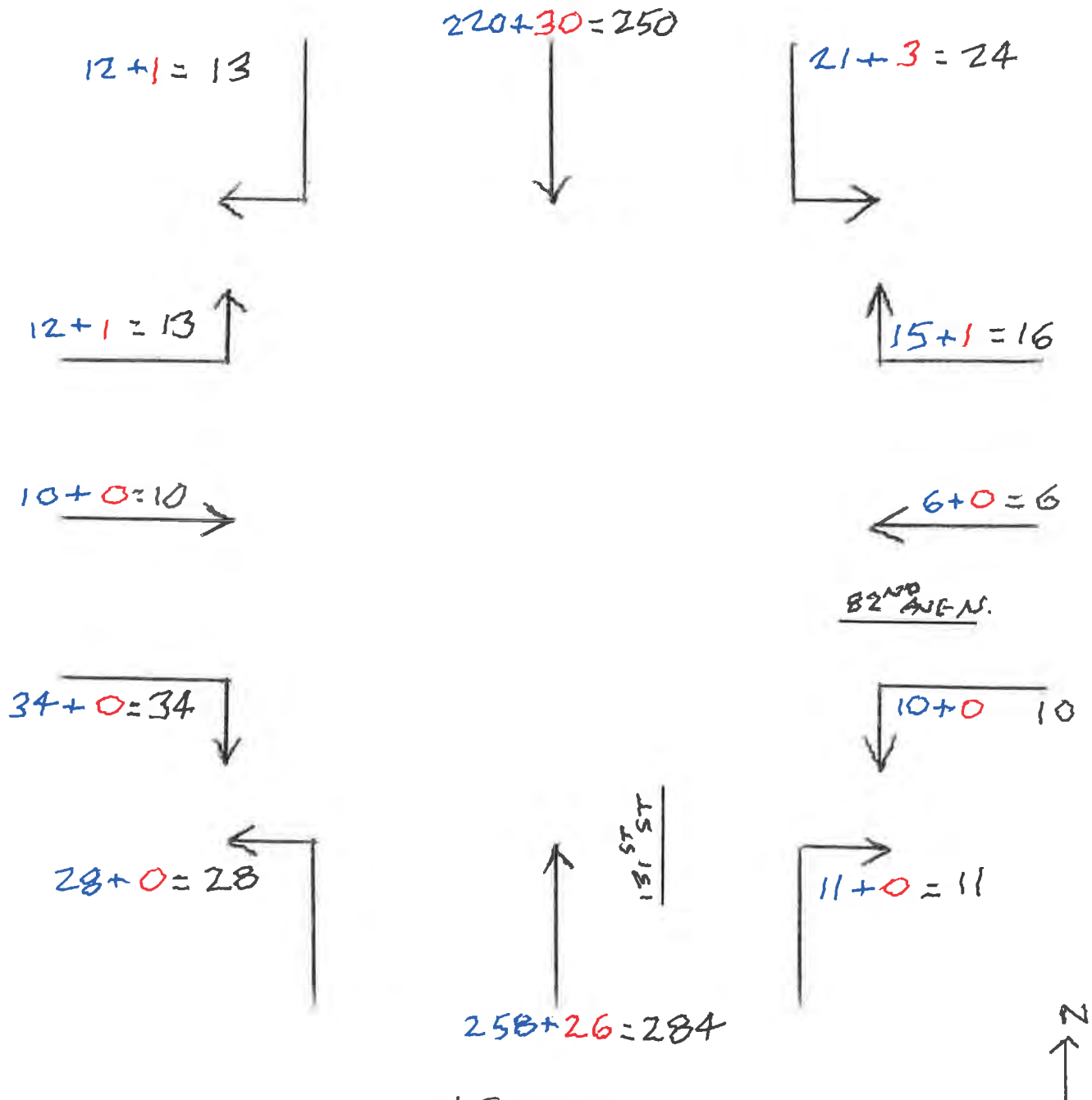
FF = AA(1.2) {GROW BY 20%}

BB = 2014 SCHOOL TRAFFIC (NO GROWTH)

HH = 2035 TOTAL TRAFFIC

82ND AVE N. & 131ST ST. 2014 TRAFFIC

PM PEAK HR - 3:30 - 4:30 PM



LEGEND

AA + BB = CC

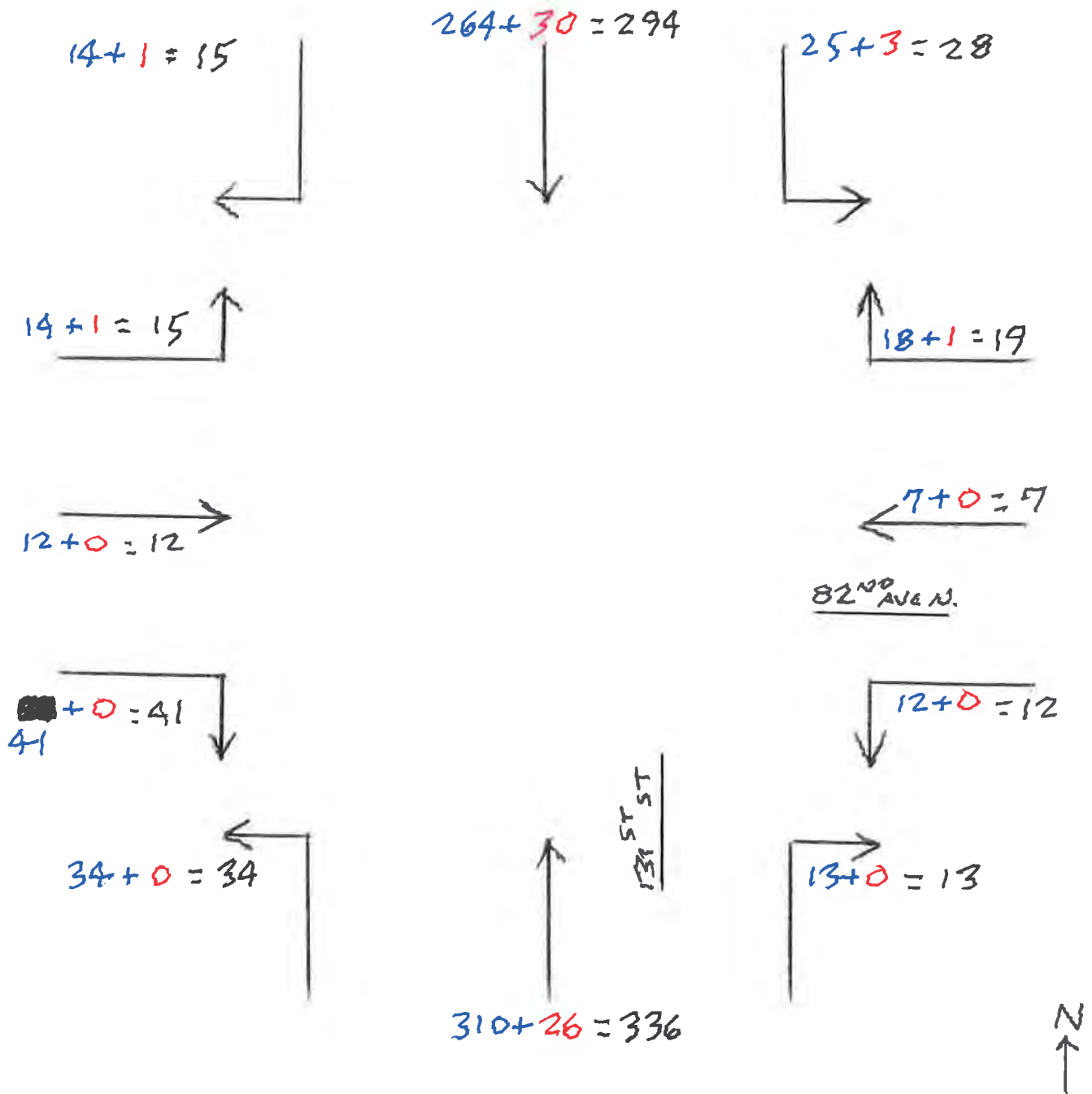
AA : 2014 BACKGROUND TRAFFIC

BB = 2014 SCHOOL TRAFFIC

CC = 2014 TOTAL TRAFFIC

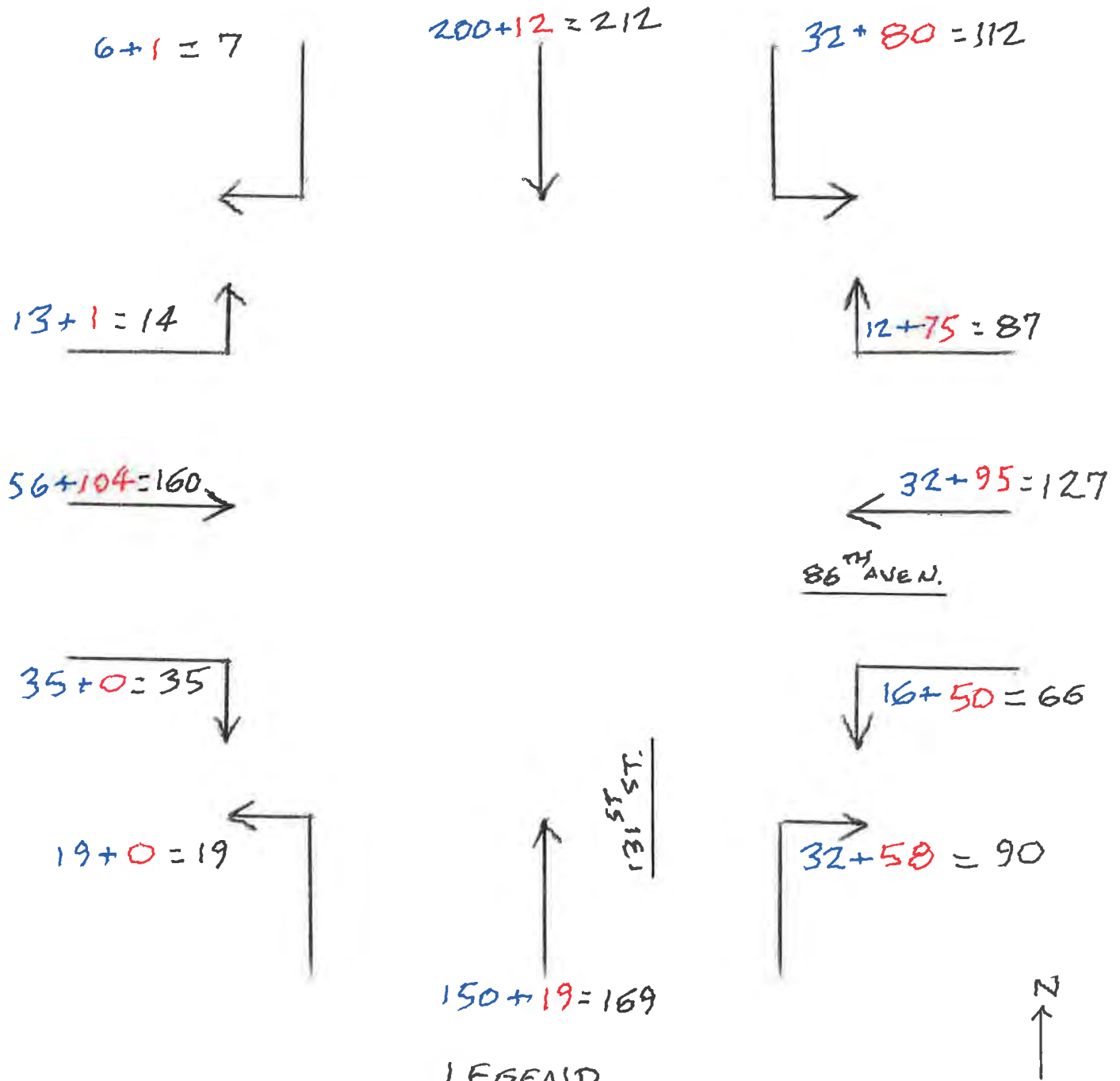
82ND AVE N. @ 131ST ST - 2035 TRAFFIC

PM PEAK HR - 3:30 - 4:30 PM



86TH AVENUE & 131ST ST - 2014 TRAFFIC

AM PEAK HR - 7:45-8:45 AM



LEGEND

$$AA + BB = CC$$

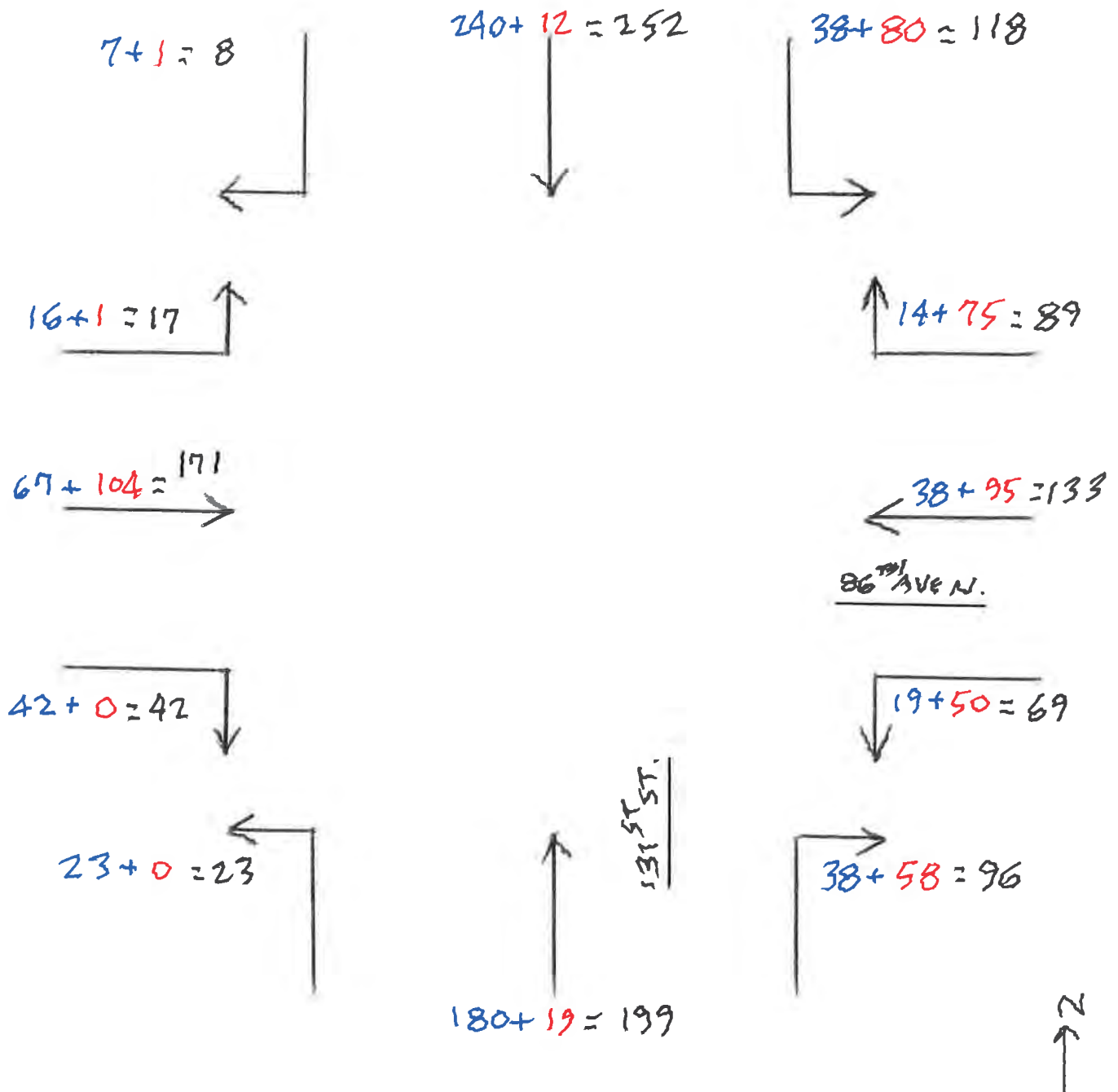
AA : 2014 BACKGROUND TRAFFIC

BB = 2014 SCHOOL TRAFFIC

CC = 2014 TOTAL TRAFFIC

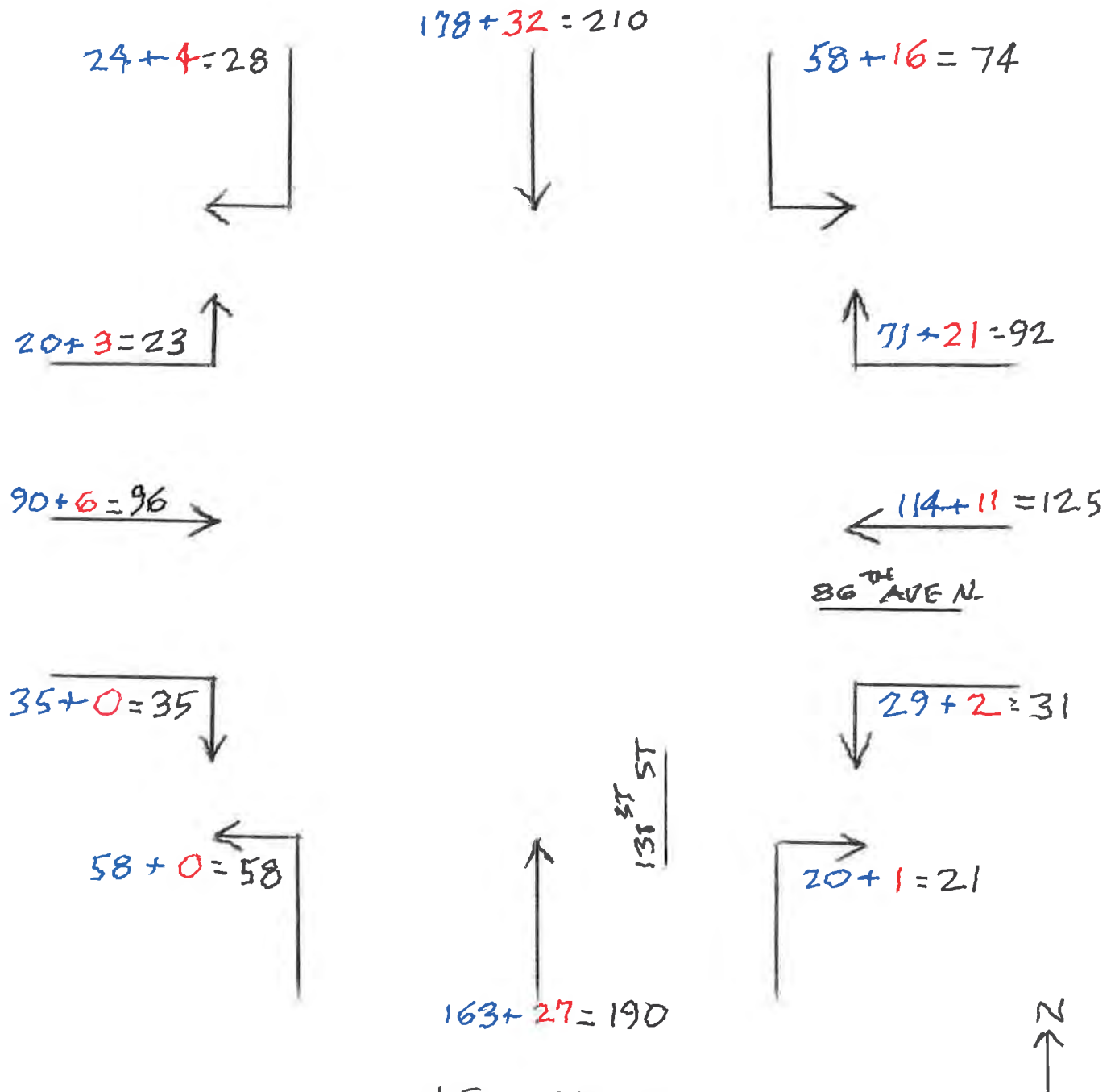
86TH AVE N. & 131ST ST. 2035 TRAFFIC

AM PEAK HR - 7:45 - 8:45 AM



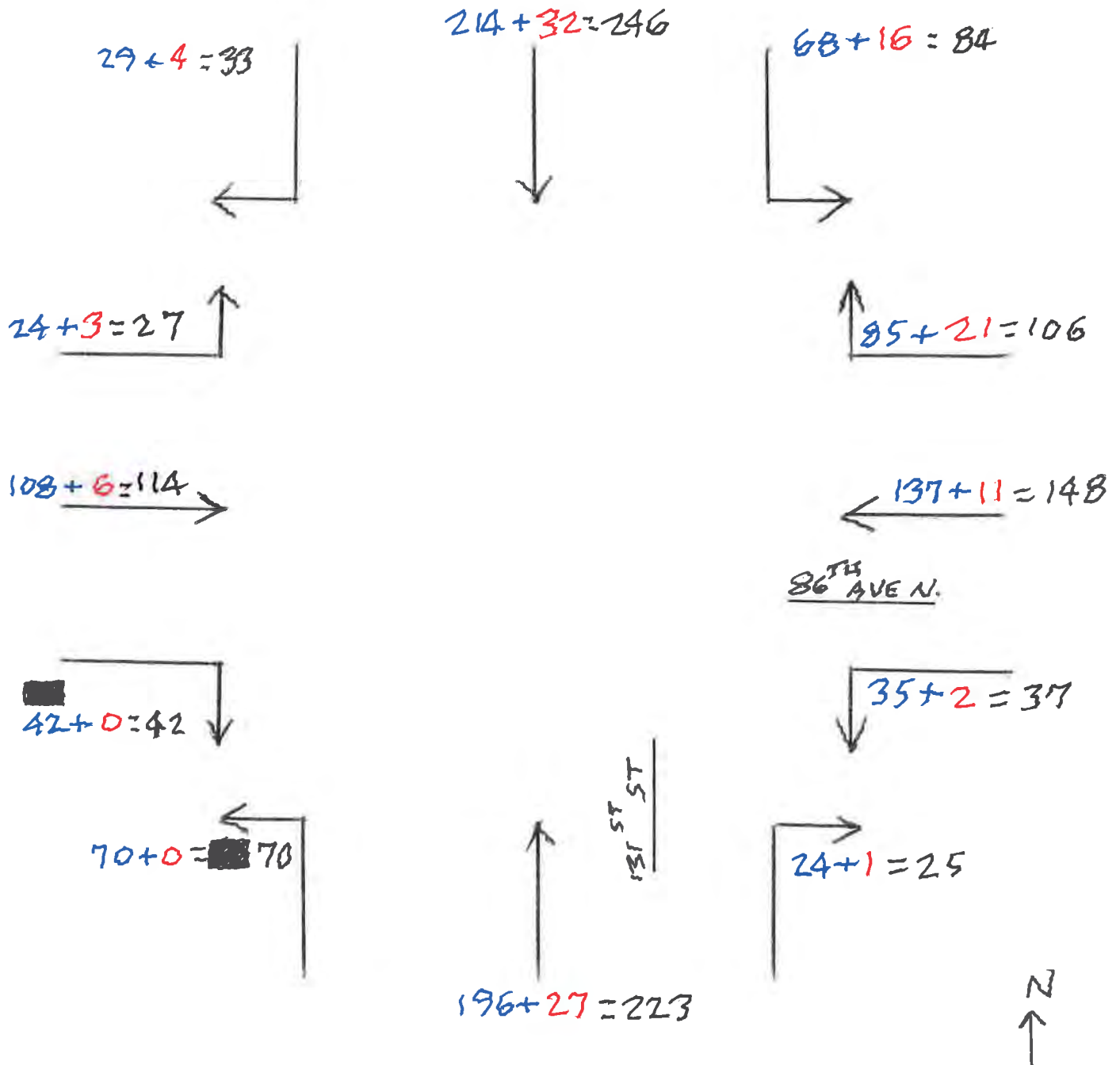
86TH AVE N. & 131ST ST - 2014 TRAFFIC

PM PEAK HR - 3:30-4:30 PM



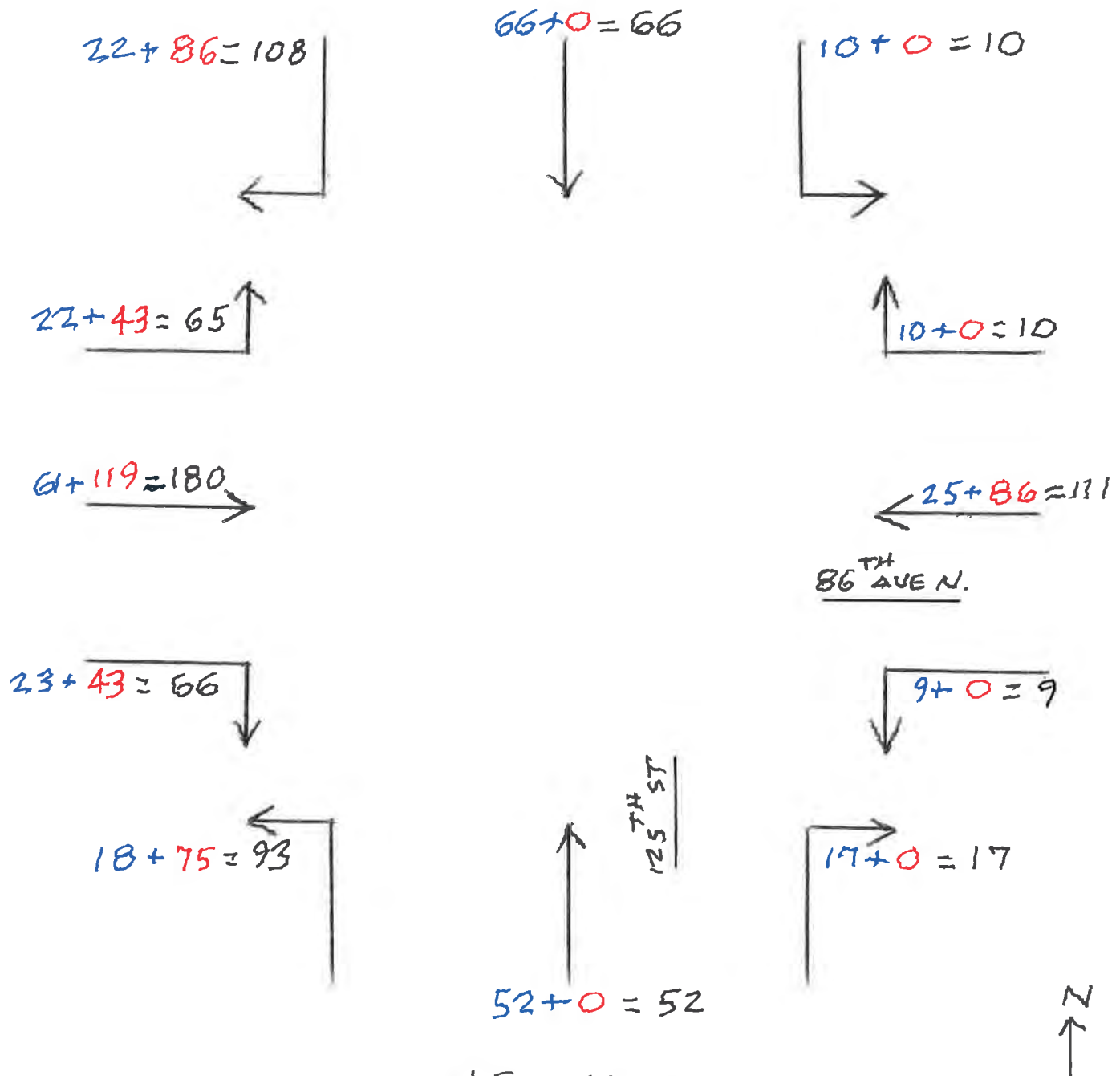
86TH AVE N. & 131ST ST - 2035 TRAFFIC

PM PEAK HR - 3:30 - 4:30 PM



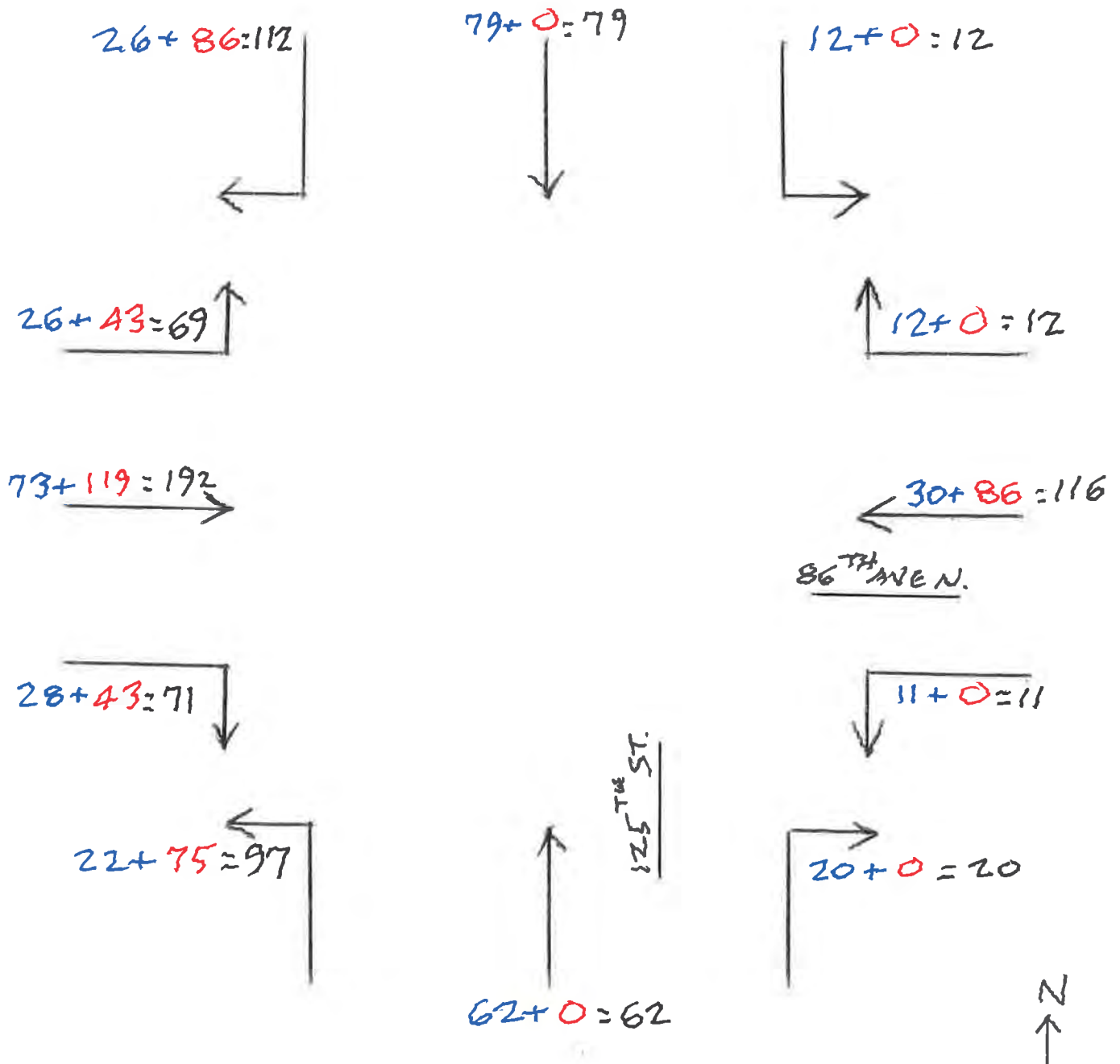
86TH AVE N. & 125TH ST - 2014 TRAFFIC

AM PEAK HR. 7:45 - 8:45 AM



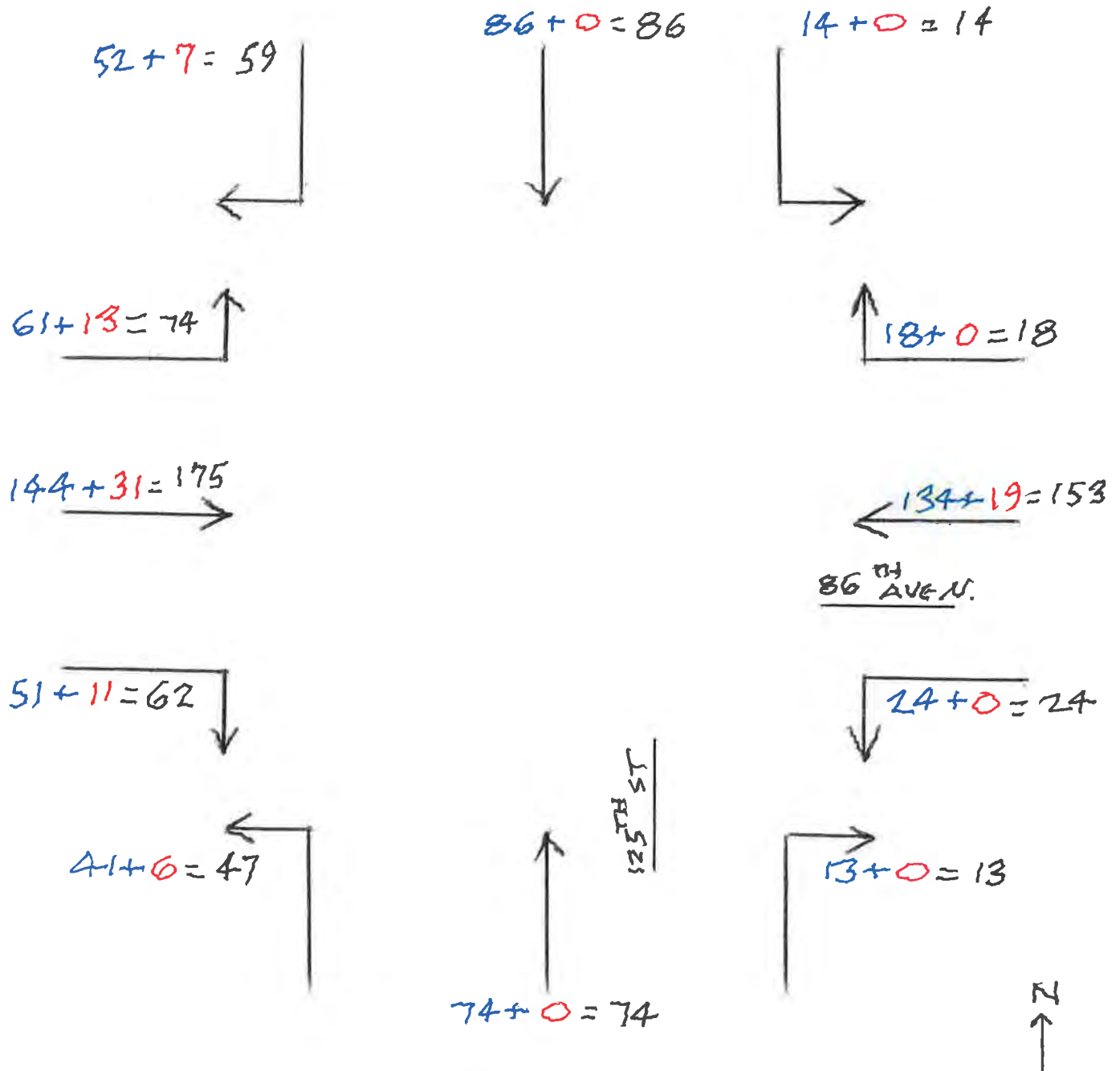
86TH AVE & 125TH ST - 2035 TRAFFIC

AM PEAK HR - 7:45 - 8:45 AM



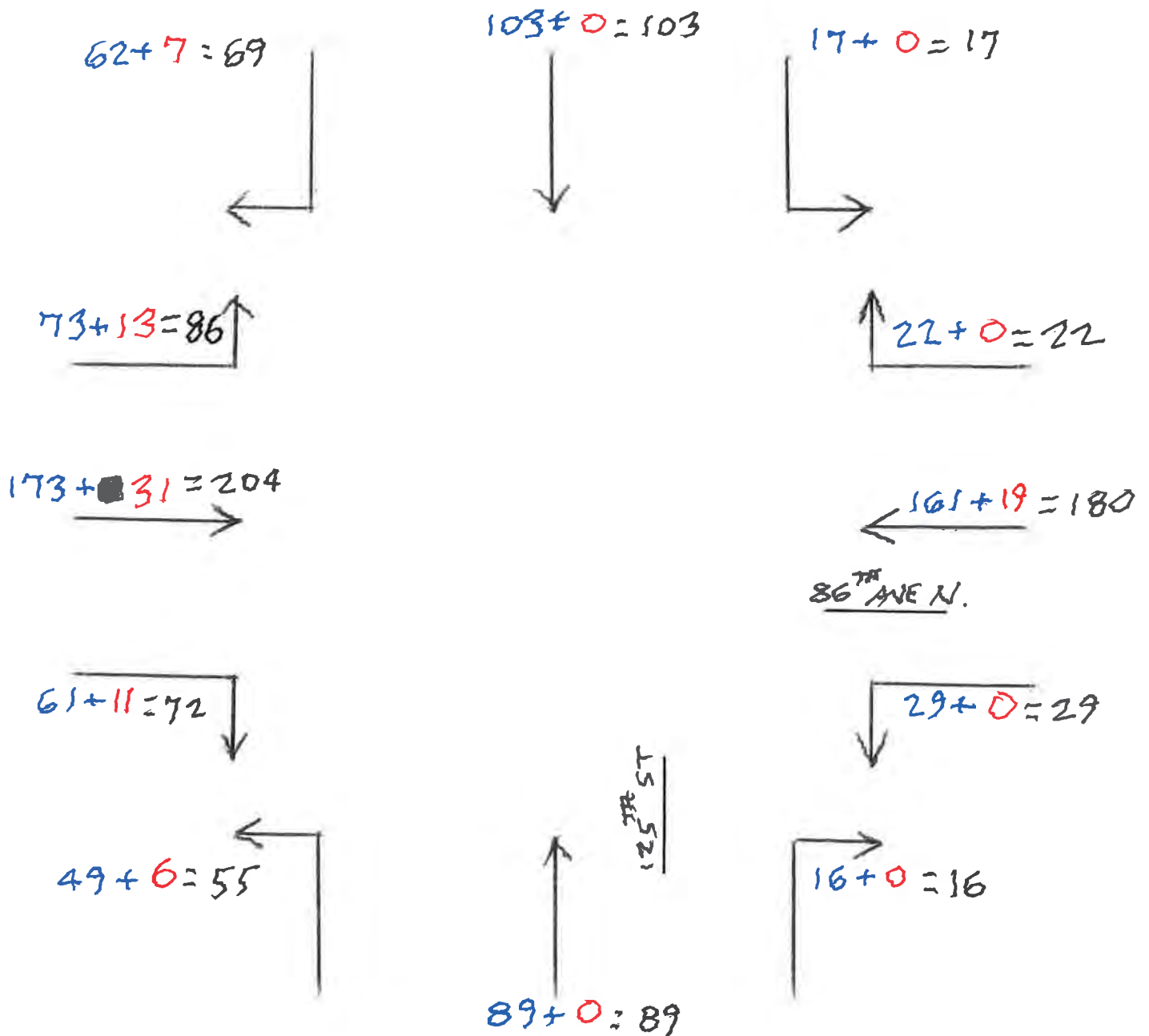
86TH AVE N. & 125TH ST - 2014 TRAFFIC

PM PEAK HR - 3:30 - 4:30 PM



86TH AVE N & 125TH ST - 2035 TRAFFIC

PM PEAK HR - 3:30 - 4:30 PM



LEGEND

FF + BB = HH

FF = AA(1.2) {GROW BY 20%}

BB = 2014 SCHOOL TRAFFIC (NO GROWTH)

HH = 2035 TOTAL TRAFFIC

Vehicle Turning Movements Data Sheet

Location: 125th Street & 86th Avenue N. (traffic signal control)

Date: May 14, 2014 (6:30 AM - 6:00 PM)

Weather: Clear Morning & Afternoon Thunderstorms

Observers: Bob Bischof

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Time	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM	1	7	11	9	27	8	37	22	0	1	34	7	164
6:45 - 7:00 AM	6	9	11	40	55	21	60	30	2	1	71	7	313
Total	7	16	22	49	82	29	97	52	2	2	105	14	477

Time	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM	10	16	10	22	35	14	18	22	2	2	20	2	173
7:15 - 7:30 AM	4	7	11	5	19	6	13	15	1	3	10	1	95
7:30 - 7:45 AM	8	12	6	7	34	4	7	14	1	3	15	1	112
7:45 - 8:00 AM	6	18	17	3	26	7	13	18	2	2	21	1	134
Total	28	53	44	37	114	31	51	69	6	10	66	5	514

Time	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM	5	11	26	16	42	20	36	16	0	4	26	2	204
8:15 - 8:30 AM	3	12	37	19	60	21	44	21	3	2	37	0	259
8:30 - 8:45 AM	3	11	13	28	52	17	15	11	5	2	27	6	190
8:45 - 9:00 AM	2	12	13	4	39	7	15	18	2	3	32	4	151
Total	13	46	89	67	193	65	110	66	10	11	122	12	804

Time	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM	2	15	17	8	33	9	32	21	2	0	29	3	171
9:15 - 9:30 AM	5	16	8	9	28	10	14	20	4	4	25	1	144
9:30 - 9:45 AM	0	13	2	9	15	3	10	7	1	1	28	2	91
9:45 - 10:00 AM	4	11	5	4	24	8	5	11	3	4	13	2	94
Total	11	55	32	30	100	30	61	59	10	9	95	8	500

Time	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
10:00 - 10:15 AM	4	17	4	5	29	0	5	17	3	3	22	2	111
10:15 - 10:30 AM	5	14	5	3	18	4	7	9	2	3	17	5	92
10:30 - 10:45 AM	7	18	6	8	32	9	6	18	2	5	20	1	132
10:45 - 11:00 AM	5	17	6	5	20	5	7	7	1	3	39	3	118
Total	21	66	21	21	99	18	25	51	8	14	98	11	453

Time	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
11:00 - 11:15 AM	1	12	5	4	22	5	8	16	4	2	15	2	96
11:15 - 11:30 AM	1	7	6	11	30	10	7	12	4	1	22	6	117
11:30 - 11:45 AM	2	17	6	5	20	6	6	10	3	6	24	4	109
11:45 AM-12:00 PM	4	25	11	3	17	6	11	14	4	5	19	4	123
Total	8	61	28	23	89	27	32	52	15	14	80	16	445

Time	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
12:00 - 12:15 PM	3	14	2	6	27	5	10	17	5	4	41	6	140
12:15 - 12:30 PM	1	12	4	1	23	5	4	12	1	5	30	3	101
12:30 - 12:45 PM	3	21	4	3	31	1	7	21	6	5	19	4	125
12:45 - 1:00 PM	6	16	4	7	25	14	7	12	3	3	13	4	114
Total	13	63	14	17	106	25	28	62	15	17	103	17	480

Time	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
1:00 - 1:15 PM	6	6	7	2	22	4	9	10	3	5	17	3	94
1:15 - 1:30 PM	7	20	7	5	23	2	11	12	6	2	25	0	120
1:30 - 1:45 PM	6	19	11	37	50	28	12	16	7	1	32	4	223
1:45 - 2:00 PM	13	18	12	42	62	34	12	16	1	3	35	11	259
Total	32	63	37	86	157	68	44	54	17	11	109	18	696

Location: 125th Street & 86th Avenue N.

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM	6	20	11	10	35	17	12	22	4	2	33	3	175
2:15 - 2:30 PM	5	22	21	6	20	3	27	14	2	4	38	4	166
2:30 - 2:45 PM	5	26	12	14	31	22	19	18	4	7	40	3	201
2:45 - 3:00 PM	3	11	16	35	50	27	21	14	5	7	20	11	220
Total	19	79	60	65	136	69	79	68	15	20	131	21	762

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM	8	29	6	8	31	19	4	22	5	0	25	10	167
3:15 - 3:30 PM	7	22	6	3	24	10	6	11	3	0	33	4	129
3:30 - 3:45 PM	4	24	11	4	38	13	15	23	5	3	41	6	187
3:45 - 4:00 PM	2	14	17	7	31	11	18	21	4	5	51	9	190
Total	21	89	40	22	124	53	43	77	17	8	150	29	673

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM	3	16	10	36	38	20	18	24	2	6	33	5	211
4:15 - 4:30 PM	4	20	9	15	68	30	8	18	3	4	28	4	211
4:30 - 4:45 PM	3	18	12	8	34	15	12	16	2	4	36	5	165
4:45 - 5:00 PM	8	20	5	8	27	16	5	22	5	2	40	4	162
Total	18	74	36	67	167	81	43	80	12	16	137	18	749

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
5:00 - 5:15 PM	1	20	9	15	21	4	10	18	6	10	38	9	161
5:15 - 5:30 PM	9	20	9	8	32	10	7	22	8	5	47	6	183
5:30 - 5:45 PM	3	29	7	5	27	17	13	23	2	6	49	6	187
5:45 - 6:00 PM	3	29	9	8	28	15	7	18	2	7	34	9	169
Total	16	98	34	36	108	46	37	81	18	28	168	30	700

Grand Total	207	763	457	520	1475	542	650	771	145	160	1364	199	7253
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% on each Approach	14%	54%	32%	21%	58%	21%	42%	49%	9%	9%	79%	12%
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% of Total Traffic	2.9%	10.5%	6.3%	7.2%	20.3%	7.5%	9.0%	10.6%	2.0%	2.2%	18.8%	2.7%	100.0%
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Location: 125th Street & 86th Avenue N.

AM Peak Hour													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
7:45 - 8:00 AM	6	18	17	3	26	7	13	18	2	2	21	1	134
8:00 - 8:15 AM	5	11	26	16	42	20	36	16	0	4	26	2	204
8:15 - 8:30 AM	3	12	37	19	60	21	44	21	3	2	37	0	259
8:30 - 8:45 AM	3	11	13	28	52	17	15	11	5	2	27	6	190
Total	17	52	93	66	180	65	108	66	10	10	111	9	787

Mid Day Peak Hour													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
													0
													0
													0
													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

PM Peak Hour													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:30 - 3:45 PM	4	24	11	4	38	13	15	23	5	3	41	6	187
3:45 - 4:00 PM	2	14	17	7	31	11	18	21	4	5	51	9	190
4:00 - 4:15 PM	3	16	10	36	38	20	18	24	2	6	33	5	211
4:15 - 4:30 PM	4	20	9	15	68	30	8	18	3	4	28	4	211
Total	13	74	47	62	175	74	59	86	14	18	153	24	799

Prepared by: Brian Kanely

Date: November 24, 2014

Vehicle Turning Movements Data Sheet

Location: 131st Street & 82nd Avenue N. (stop sign control; 82nd Avenue stops)

Date: May 14, 2014 (6:30 AM to 6:00 PM)

Weather: Clear Morning & Afternoon Thunderstorms

Observers: Aaron Bischof

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM	11	60	1	7	0	3	0	34	5	11	1	2	135
6:45 - 7:00 AM	15	115	1	9	8	11	1	36	4	17	4	8	229
Total	26	175	2	16	8	14	1	70	9	28	5	10	364

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM	3	47	1	12	2	5	4	59	2	8	3	6	152
7:15 - 7:30 AM	3	21	1	8	0	3	0	57	2	5	0	3	103
7:30 - 7:45 AM	1	28	3	7	1	5	1	49	3	2	1	2	103
7:45 - 8:00 AM	2	57	3	8	1	4	1	52	5	7	0	4	144
Total	9	153	8	35	4	17	6	217	12	22	4	15	502

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM	2	55	4	11	0	2	4	57	3	12	2	1	153
8:15 - 8:30 AM	4	61	6	19	3	7	1	57	5	9	2	1	175
8:30 - 8:45 AM	1	59	5	11	0	4	2	79	2	3	2	2	170
8:45 - 9:00 AM	0	45	2	10	0	1	4	47	2	7	1	1	120
Total	7	220	17	51	3	14	11	240	12	31	7	5	618

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM	1	60	5	8	4	4	0	63	3	5	1	0	154
9:15 - 9:30 AM	1	55	3	11	4	5	1	68	3	7	1	1	160
9:30 - 9:45 AM	2	29	6	9	0	1	0	50	3	1	1	5	107
9:45 - 10:00 AM	1	25	0	7	0	4	0	50	3	4	1	2	97
Total	5	169	14	35	8	14	1	231	12	17	4	8	518

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
10:00 - 10:15 AM	1	41	7	8	2	6	1	46	2	2	0	1	117
10:15 - 10:30 AM	2	37	4	10	1	1	0	49	4	3	0	1	112
10:30 - 10:45 AM	2	39	5	3	2	2	2	53	5	2	0	2	117
10:45 - 11:00 AM	3	36	5	6	2	3	2	37	2	0	0	2	98
Total	8	153	21	27	7	12	5	185	13	7	0	6	444

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
11:00 - 11:15 AM	0	35	3	3	0	2	0	38	4	5	0	1	91
11:15 - 11:30 AM	5	46	5	5	0	2	2	50	5	2	0	4	126
11:30 - 11:45 AM	3	32	1	10	0	1	2	50	4	4	1	2	110
11:45 AM-12:00 PM	3	54	8	7	0	2	2	45	5	6	1	1	134
Total	11	167	17	25	0	7	6	183	18	17	2	8	461

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
12:00 - 12:15 PM	4	35	12	6	2	0	4	32	5	6	2	3	111
12:15 - 12:30 PM	5	35	10	10	1	2	1	40	7	5	0	1	117
12:30 - 12:45 PM	3	44	4	7	0	3	0	47	3	4	2	6	123
12:45 - 1:00 PM	3	40	5	6	3	0	1	51	4	6	1	3	123
Total	15	154	31	29	6	5	6	170	19	21	5	13	474

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
1:00 - 1:15 PM	4	48	5	9	3	3	1	42	2	3	1	2	123
1:15 - 1:30 PM	1	56	6	5	0	1	2	41	5	3	0	1	121
1:30 - 1:45 PM	9	57	3	8	3	0	11	55	15	6	2	6	175
1:45 - 2:00 PM	5	48	5	6	2	7	4	85	6	2	2	8	180
Total	19	209	19	28	8	11	18	223	28	14	5	17	599

Location: 131st Street & 82nd Avenue N.

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM	5	58	5	6	0	1	3	69	4	5	1	3	160
2:15 - 2:30 PM	5	48	2	3	2	3	3	60	5	11	3	8	153
2:30 - 2:45 PM	1	60	6	7	2	1	0	50	8	4	1	3	143
2:45 - 3:00 PM	1	46	7	8	3	1	5	82	8	8	5	4	178
Total	12	212	20	24	7	6	11	261	25	28	10	18	634

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM	1	58	6	5	1	2	0	63	8	2	1	1	148
3:15 - 3:30 PM	3	66	9	4	1	1	4	46	6	12	3	3	158
3:30 - 3:45 PM	1	70	4	9	2	3	0	50	4	0	2	3	148
3:45 - 4:00 PM	4	74	5	5	1	3	2	56	2	6	2	2	162
Total	9	268	24	23	5	9	6	215	20	20	8	9	616

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM	5	75	5	13	3	6	8	60	13	7	1	2	198
4:15 - 4:30 PM	1	65	14	7	4	1	3	84	5	3	1	3	191
4:30 - 4:45 PM	4	60	8	4	3	2	3	64	4	5	0	5	162
4:45 - 5:00 PM	4	91	5	6	2	1	1	61	5	4	1	4	185
Total	14	291	32	30	12	10	15	269	27	19	3	14	736

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
5:00 - 5:15 PM	3	69	6	5	3	1	1	46	5	4	2	3	148
5:15 - 5:30 PM	2	68	10	6	1	2	2	56	8	5	3	3	166
5:30 - 5:45 PM	2	73	8	4	1	3	1	53	6	5	0	3	159
5:45 - 6:00 PM	8	68	6	6	0	1	2	65	3	6	0	4	169
Total	15	278	30	21	5	7	6	220	22	20	5	13	642

Grand Total	150	2449	235	344	73	126	92	2484	217	244	58	136	6608
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% on each Approach	5%	87%	8%	64%	13%	23%	3%	89%	8%	56%	13%	31%
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% of Total Traffic	2.3%	37.1%	3.6%	5.2%	1.1%	1.9%	1.4%	37.6%	3.3%	3.7%	0.9%	2.1%	100.0%
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Location: 131st Street & 82nd Avenue N.

AM Peak Hour													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
7:45 - 8:00 AM	2	57	3	8	1	4	1	52	5	7	0	4	144
8:00 - 8:15 AM	2	55	4	11	0	2	4	57	3	12	2	1	153
8:15 - 8:30 AM	4	61	6	19	3	7	1	57	5	9	2	1	175
8:30 - 8:45 AM	1	59	5	11	0	4	2	79	2	3	2	2	170
Total	9	232	18	49	4	17	8	245	15	31	6	8	642

Mid Day Peak Hour													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
													0
													0
													0
													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

PM Peak Hour													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:30 - 3:45 PM	1	70	4	9	2	3	0	50	4	0	2	3	148
3:45 - 4:00 PM	4	74	5	5	1	3	2	56	2	6	2	2	162
4:00 - 4:15 PM	5	75	5	13	3	6	8	60	13	7	1	2	198
4:15 - 4:30 PM	1	65	14	7	4	1	3	84	5	3	1	3	191
Total	11	284	28	34	10	13	13	250	24	16	6	10	699

Prepared by: Brian Kanely

Date: November 24, 2014

Vehicle Turning Movements Data Sheet

Location: 131st Street & 86th Avenue N. (traffic signal control)

Date: May 14, 2014 (6:30 AM to 6:00 PM)

Weather: Clear Morning & Afternoon Thunderstorms

Observers: Marcio Resendes & Shannon Bolesta

Remarks: School Times: Bauder Elem. 8:35 AM to 2:35 PM; Seminole Middle 9:30 AM to 4:00 PM; Seminole High 7:05 AM to 1:35 PM

Time	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
6:00 - 6:15 AM													
6:15 - 6:30 AM													
6:30 - 6:45 AM	13	33	17	23	21	2	2	57	19	0	8	3	198
6:45 - 7:00 AM	36	49	23	42	69	1	1	54	36	0	2	2	315
Total	49	82	40	65	90	3	3	111	55	0	10	5	513

Time	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
7:00 - 7:15 AM	25	54	15	19	11	5	0	60	18	6	12	5	230
7:15 - 7:30 AM	5	23	4	7	14	2	2	42	13	8	5	3	128
7:30 - 7:45 AM	7	24	7	8	28	6	1	57	18	5	6	10	177
7:45 - 8:00 AM	14	53	6	14	25	3	1	60	17	3	15	6	217
Total	51	154	32	48	78	16	4	219	66	22	38	24	752

Time	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
8:00 - 8:15 AM	30	34	8	7	52	3	3	55	38	29	42	18	319
8:15 - 8:30 AM	35	40	4	7	58	4	2	48	35	23	41	14	311
8:30 - 8:45 AM	11	42	1	7	25	4	1	49	22	32	29	28	251
8:45 - 9:00 AM	11	41	5	4	16	4	1	45	16	27	18	9	197
Total	87	157	18	25	151	15	7	197	111	111	130	69	1078

Time	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
9:00 - 9:15 AM	3	56	8	4	21	9	8	60	29	35	16	5	254
9:15 - 9:30 AM	5	54	7	6	17	5	5	58	26	39	19	5	246
9:30 - 9:45 AM	8	26	5	9	17	3	2	38	5	9	19	10	151
9:45 - 10:00 AM	7	33	4	9	18	7	1	33	6	7	15	5	145
Total	23	169	24	28	73	24	16	189	66	90	69	25	796

Time	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
10:00 - 10:15 AM	11	40	10	8	14	1	5	52	9	8	20	11	189
10:15 - 10:30 AM	3	16	3	5	9	1	3	25	2	12	12	7	98
10:30 - 10:45 AM	24	49	9	3	12	4	5	34	8	3	12	11	174
10:45 - 11:00 AM	5	20	5	9	18	1	4	26	5	9	22	15	139
Total	43	125	27	25	53	7	17	137	24	32	66	44	600

Time	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
11:00 - 11:15 AM	6	35	10	10	12	2	4	28	12	6	17	6	148
11:15 - 11:30 AM	17	45	10	6	19	3	1	27	5	8	13	6	160
11:30 - 11:45 AM	6	24	9	8	17	2	6	42	4	10	11	7	146
11:45 AM-12:00 PM	13	32	10	8	13	2	5	43	6	16	22	12	182
Total	42	136	39	32	61	9	16	140	27	40	63	31	636

Time	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
12:00 - 12:15 PM	6	29	16	9	21	1	4	27	17	23	21	11	185
12:15 - 12:30 PM	2	33	3	12	13	1	3	39	7	5	26	4	148
12:30 - 12:45 PM	7	45	4	12	20	1	3	37	4	4	12	9	158
12:45 - 1:00 PM	3	35	17	14	17	2	5	31	4	8	23	2	161
Total	18	142	40	47	71	5	15	134	32	40	82	26	652

Time	Northbound			Eastbound			Southbound			Westbound			Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
1:00 - 1:15 PM	7	22	9	10	7	2	1	32	6	7	10	8	121
1:15 - 1:30 PM	5	36	14	11	11	4	6	50	12	9	24	9	191
1:30 - 1:45 PM	16	53	30	15	12	4	6	49	8	23	25	10	251
1:45 - 2:00 PM	6	64	21	16	23	6	6	52	9	19	39	19	280
Total	34	175	74	52	53	16	19	183	35	58	98	46	843

Location: 131st Street & 86th Avenue N.

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
2:00 - 2:15 PM	14	43	15	11	39	7	7	51	13	10	18	10	238
2:15 - 2:30 PM	11	51	11	5	18	3	4	43	14	10	23	6	199
2:30 - 2:45 PM	14	61	16	5	25	4	4	45	17	20	28	17	256
2:45 - 3:00 PM	7	41	7	6	25	4	3	54	12	17	45	17	238
Total	46	196	49	27	107	18	18	193	56	57	114	50	931

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:00 - 3:15 PM	7	57	7	7	21	4	4	52	13	28	33	6	239
3:15 - 3:30 PM	1	55	13	6	20	7	9	31	8	20	18	7	195
3:30 - 3:45 PM	3	53	16	4	20	3	7	37	15	19	27	7	211
3:45 - 4:00 PM	12	47	11	10	20	4	7	56	18	11	22	3	221
Total	23	212	47	27	81	18	27	176	54	78	100	23	866

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
4:00 - 4:15 PM	4	33	13	10	23	6	6	54	20	24	26	8	227
4:15 - 4:30 PM	2	57	18	11	33	10	8	63	21	38	50	13	324
4:30 - 4:45 PM	4	56	12	5	11	2	6	56	13	11	26	2	204
4:45 - 5:00 PM	4	67	10	6	23	6	7	47	10	13	33	13	239
Total	14	213	53	32	90	24	27	220	64	86	135	36	994

	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
5:00 - 5:15 PM	4	52	11	10	18	5	13	45	14	18	35	4	229
5:15 - 5:30 PM	2	78	10	8	13	6	6	56	13	25	26	6	249
5:30 - 5:45 PM	8	68	7	9	14	7	13	48	17	22	33	7	253
5:45 - 6:00 PM	4	51	11	7	19	4	11	54	14	16	25	6	222
Total	18	249	39	34	64	22	43	203	58	81	119	23	953

Grand Total	448	2010	482	442	972	177	212	2102	648	695	1024	402	9614
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% on each Approach	15%	68%	17%	28%	61%	11%	7%	71%	22%	33%	48%	19%
--------------------	-----	-----	-----	-----	-----	-----	----	-----	-----	-----	-----	-----

% of Total Traffic	4.7%	20.9%	5.0%	4.6%	10.1%	1.8%	2.2%	21.9%	6.7%	7.2%	10.7%	4.2%	100.0%
--------------------	------	-------	------	------	-------	------	------	-------	------	------	-------	------	--------

Location: 131st Street & 86th Avenue N.

AM Peak Hour													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
7:45 - 8:00 AM	14	53	6	14	25	3	1	60	17	3	15	6	217
8:00 - 8:15 AM	30	34	8	7	52	3	3	55	38	29	42	18	319
8:15 - 8:30 AM	35	40	4	7	58	4	2	48	35	23	41	14	311
8:30 - 8:45 AM	11	42	1	7	25	4	1	49	22	32	29	28	251
Total	90	169	19	35	160	14	7	212	112	87	127	66	1098

Mid Day Peak Hour													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
													0
													0
													0
													0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

PM Peak Hour													
	Northbound			Eastbound			Southbound			Westbound			Total
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
3:30 - 3:45 PM	3	53	16	4	20	3	7	37	15	19	27	7	211
3:45 - 4:00 PM	12	47	11	10	20	4	7	56	18	11	22	3	221
4:00 - 4:15 PM	4	33	13	10	23	6	6	54	20	24	26	8	227
4:15 - 4:30 PM	2	57	18	11	33	10	8	63	21	38	50	13	324
Total	21	190	58	35	96	23	28	210	74	92	125	31	983

Prepared by: Brian Kanely

Date: November 24, 2014

brian kanely

From: Hanger, Marc D. [whanger@co.pinellas.fl.us]
Sent: Wednesday, November 19, 2014 4:04 PM
To: brian kanely
Subject: RE: Pinellas County Regression Traffic Volumes

Your approach seems reasonable. The decrease in traffic there during recent years may also be due to more kids walking to school rather than busing or parents driving them. Small changes in traffic volumes really show up on low volume roads like what you are working with.....Marc

From: brian kanely [mailto:brian.kanely@volkert.com]
Sent: Wednesday, November 19, 2014 3:45 PM
To: Hanger, Marc D.
Subject: RE: Pinellas County Regression Traffic Volumes

Interesting data.

The historical data shows a slight decrease at all three locations since 1999 (due to poor economy?).

The LRTP data shows the following increases in AADT at the three locations (2014 LOS to 2035 LRTP)

- 86th Ave N = +20%
- 125th St = +41%
- 131st St = +16%

To be conservative and allow for an improving economy, I would assume an increase of 20% for all three sites from current traffic to 2035 traffic. That is a modest per year increase (2%) but provides for additional development in an area already pretty much built out.

The peak hours have substantial school traffic. Since the School Board does not anticipate any increase in student population at these schools, I will divide the peak hour traffic into school traffic and background traffic, and just increase the background traffic 20% for 2035.

Does that approach seem reasonable?

Brian

Brian Kanely, P.E.
Sr. Traffic Engineer

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 352-372-9594 x3006
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brian.kanely@volkert.com

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From: Hanger, Marc D. [mailto:whanger@co.pinellas.fl.us]
Sent: Wednesday, November 19, 2014 3:23 PM

To: brian.kanely@volkert.com

Subject: Pinellas County Regression Traffic Volumes

Brian, attached are the historical regression analysis of traffic volumes concerning the three sites that you requested. The January 1st dates you will notice on some entries depict published estimated values, recently on some locations we went to a gap year data collection method to save costs. Also disregard PSDT values, that part of the database has not been programmed. The database uses 1.0 as the baseline value, less than 1.0 is a decrease. Looks like you have plenty of good historical data for those count station sites.....*Marc*

William D (Marc) Hanger

Transportation Planning Analyst

Pinellas County Planning/MPO

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brian kanely

From: brian kanely [brian.kanely@volkert.com]
Sent: Wednesday, November 19, 2014 3:45 PM
To: 'Hanger, Marc D.'
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- 86th Ave N = +20%
- 125th St = +41%
- 131st St = =16% *(-16%) BK*

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The peak hours have substantial school traffic. Since the School Board does not anticipate any increase in student population at these schools, I will divide the peak hour traffic into school traffic and background traffic, and just increase the background traffic 20% for 2035.

Does that approach seem reasonable?

Brian

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William D (Marc) Hanger

11/20/2014

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brian kanely

From: Hanger, Marc D. [whanger@co.pinellas.fl.us]
Sent: Wednesday, November 19, 2014 3:23 PM
To: brian.kanely@volkert.com
Subject: Pinellas County Regression Traffic Volumes
Attachments: 1097_r12.pdf; 3036_r13.pdf; mp36_r13.pdf

Brian, attached are the historical regression analysis of traffic volumes concerning the three sites that you requested. The January 1st dates you will notice on some entries depict published estimated values, recently on some locations we went to a gap year data collection method to save costs. Also disregard PSDT values, that part of the database has not been programmed. The database uses 1.0 as the baseline value, less than 1.0 is a decrease. Looks like you have plenty of good historical data for those count station sites.....*Marc*

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Count Station Regression Report (Volume)

Pinellas County MPO

Count Station: 1097
 Roadway: 86 AV N
 Location: W OF 125 ST N

Report Date: 11/19/2014
 History Start Year: 1999
 History End Year: 2012
 Future Growth Rate (FGR): 0.9853 (Calculated)

Regression Summary:

Regression Growth Rate: 0.9853

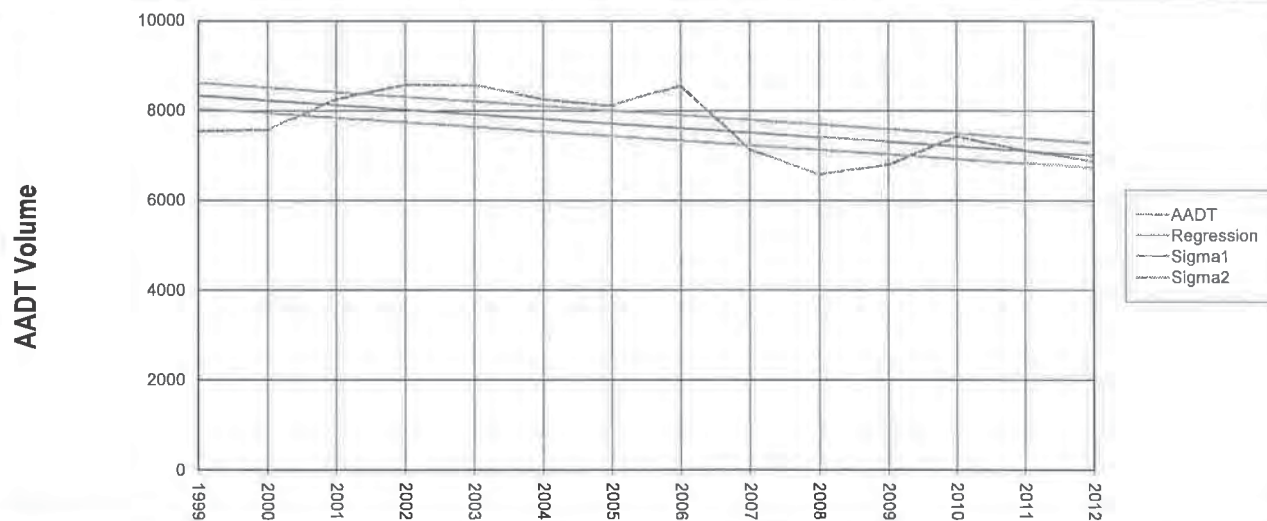
Slope: -102.79

Intercept: 213,816.91

Historical Count Data Summary:

Year	StudyDate	Source	AADT	PeakToDaily	PSDT
2012	01/10/2012	MPO	6,867	0.1030	6,540
2011	01/01/2011	MPO	7,113	0.0000	7,113
2010	10/26/2010	MPO	7,424	0.0970	7,138
2009	03/10/2009	MPO	6,793	0.0950	7,304
2008	02/26/2008	MPO	6,580	0.1010	7,231
2007	04/03/2007	MPO	7,135	0.0970	7,755
2006	12/05/2006	MPO	8,561	0.1060	8,076
2005	05/10/2005	MPO	8,114	0.0950	8,365
2004	08/31/2004	MPO	8,260	0.1000	7,648
2003	11/18/2003	MPO	8,559	0.0910	8,230
2002	12/03/2002		8,582	0.0990	8,173
2001	05/15/2001		8,261	0.1240	8,605
2000	04/25/2000		7,571	0.0960	7,886
1999	05/18/1999		7,548	0.0980	7,624

Regression Graph:



Count Station Report (Class) Pinellas County MPO

Count Station: MP36
Roadway: 125 ST N
Location: N OF 86 AV N

Report Date: 11/19/2014
History Start Year: 1999
History End Year: 2013
Future Growth Rate (FGR): 0.9785 (Calculated)

Regression Summary:

Regression Growth Rate: 0.9785

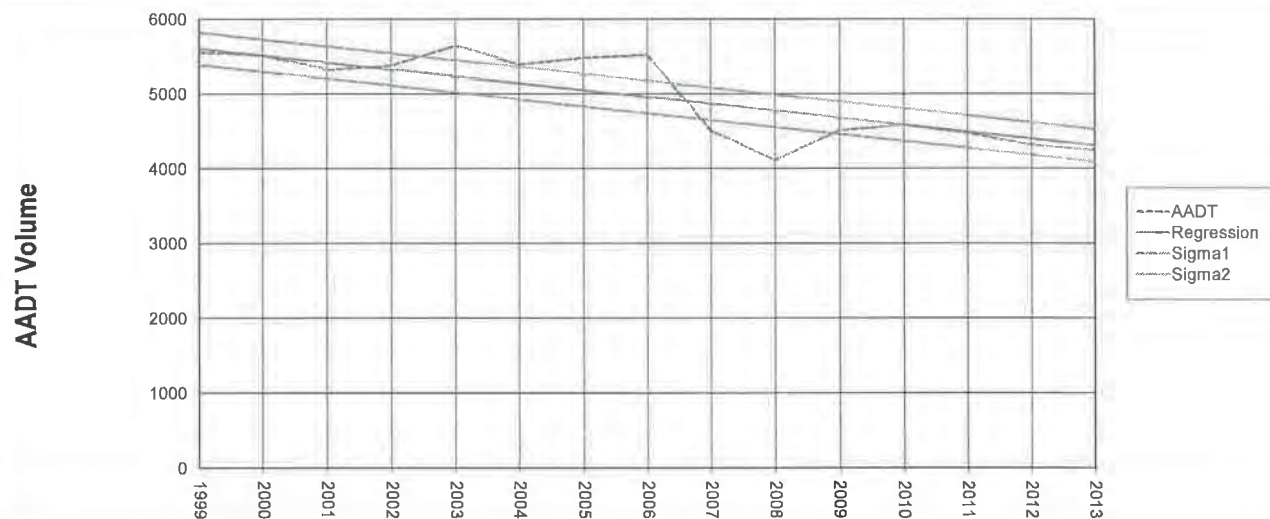
Slope: -92.51

Intercept: 190,531.05

Historical Count Data Summary:

Year	StudyDate	Source	AADT	PeakToDaily	PSDT
2013	02/05/2013	MPO	4,243	0.0900	4,286
2012	01/01/2012	MPO	4,316	0.0000	4,316
2011	01/12/2011	MPO	4,474	0.0900	4,302
2009	03/10/2009	MPO	4,504	0.0930	4,843
2008	02/26/2008	MPO	4,108	0.0930	4,514
2007	04/03/2007	MPO	4,510	0.0910	4,902
2006	11/16/2006	MPO	5,524	0.1050	5,115
2005	12/06/2005	MPO	5,482	0.1240	5,172
2004	11/30/2004	MPO	5,389	0.1080	5,132
2003	11/18/2003	MPO	5,641	0.0970	5,424
2002	12/03/2002		5,376	0.0990	5,120
2001	05/15/2001		5,320	0.0990	5,542
1999	10/12/1999		5,558	0.1010	5,396

Regression Graph:



Count Station Regression Report (Volume)

Pinellas County MPO

Count Station: 3036
 Roadway: 131 ST N
 Location: N OF 103 AV N

Report Date: 11/19/2014
 History Start Year: 1999
 History End Year: 2013
 Future Growth Rate (FGR): 0.9789 (Calculated)

Regression Summary:

Regression Growth Rate: 0.9789

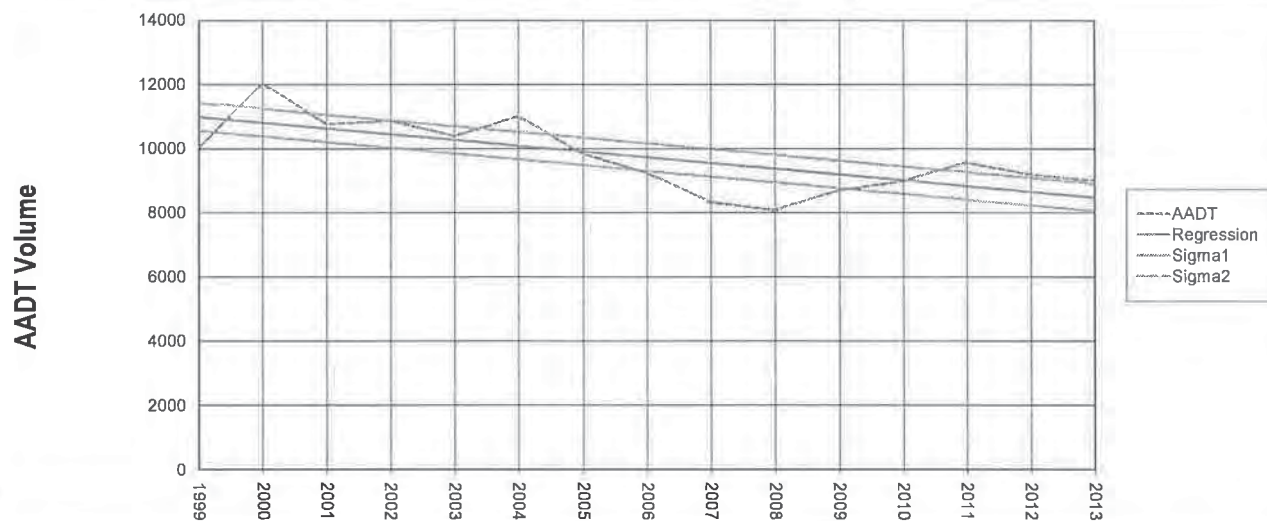
Slope: -179.29

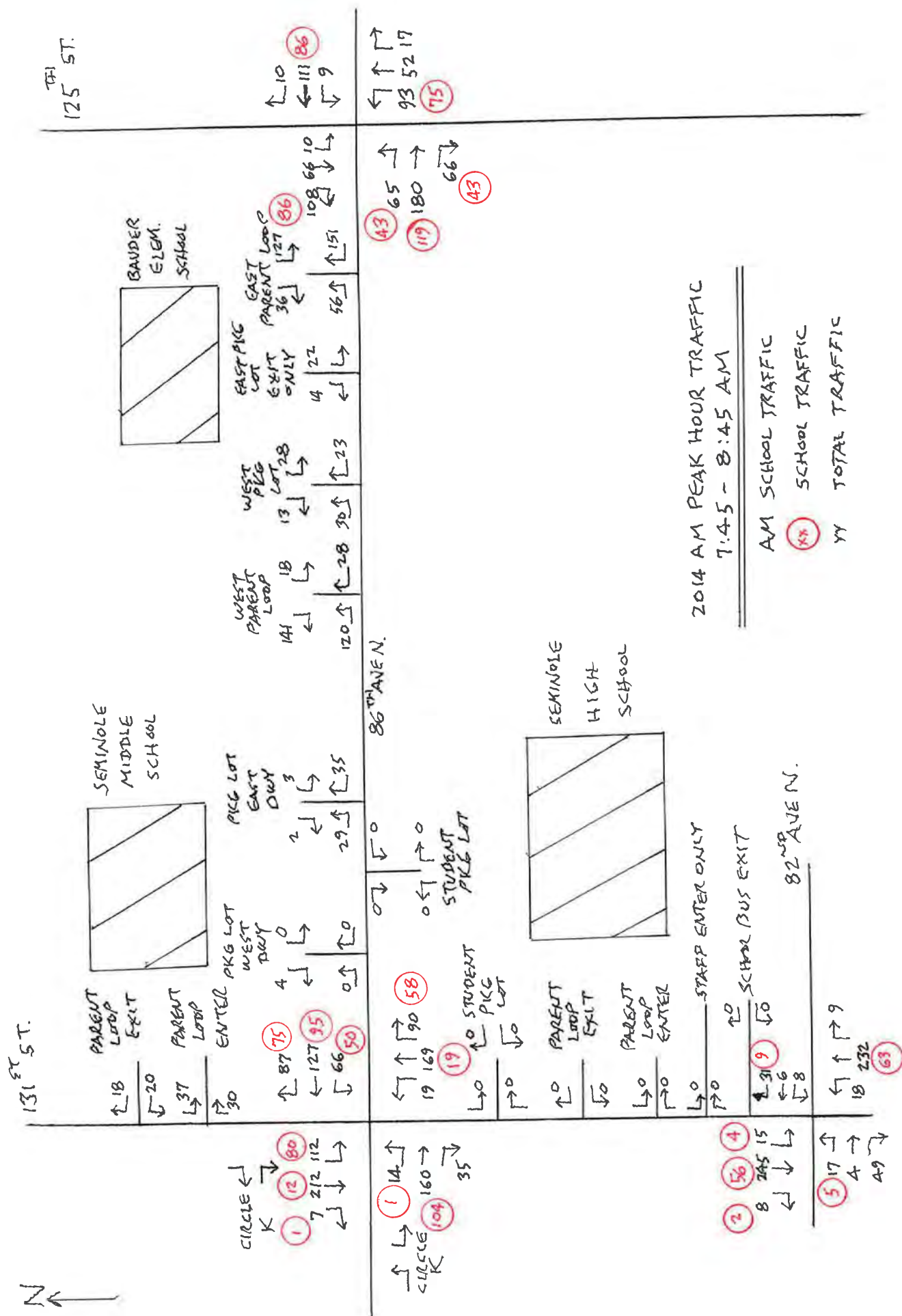
Intercept: 369,398.67

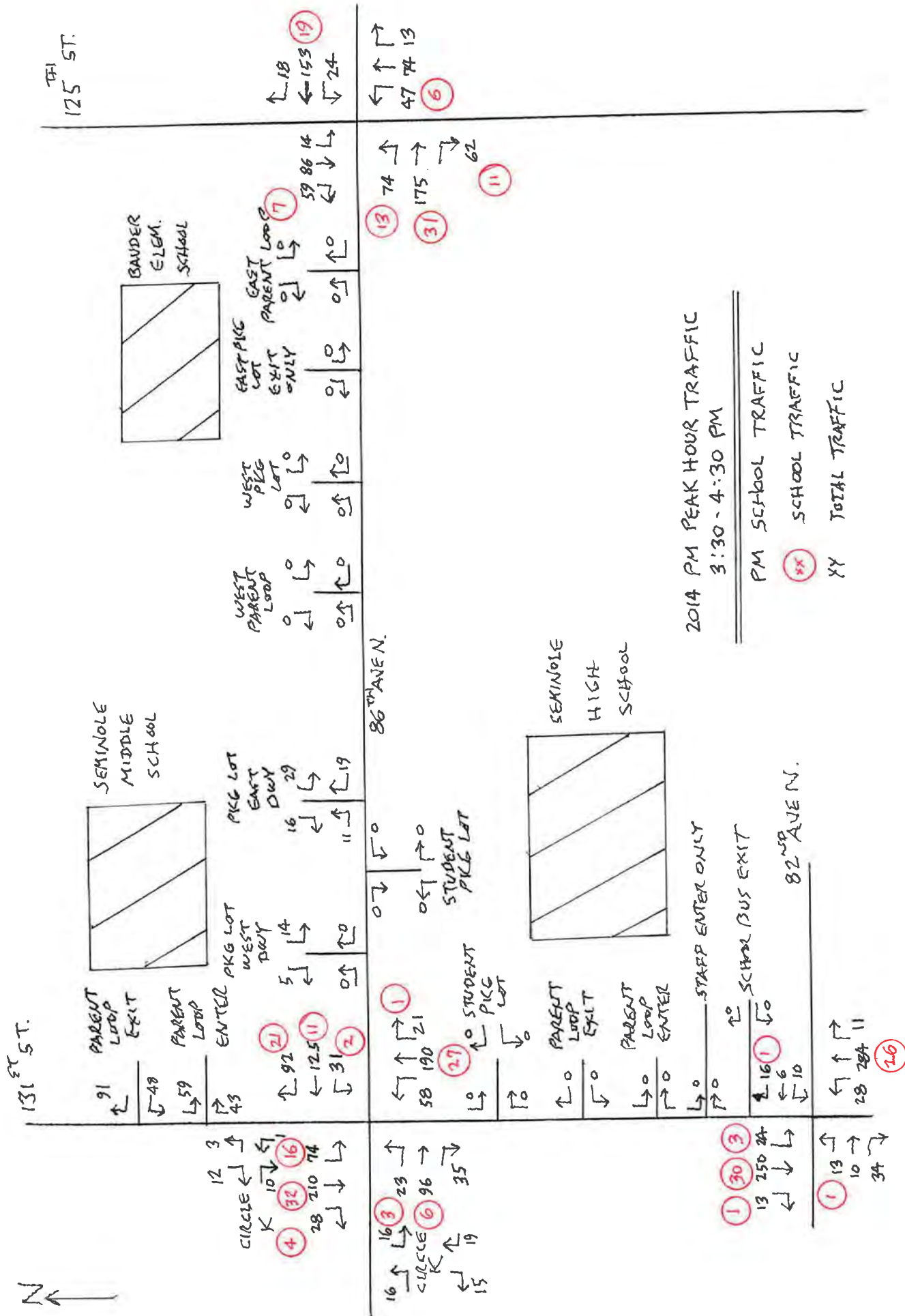
Historical Count Data Summary:

Year	StudyDate	Source	AADT	PeakToDaily	PSDT
2013	02/05/2013	MPO	9,002	0.0910	9,093
2012	01/01/2012	MPO	9,196	0.0000	9,196
2011	10/12/2011	MPO	9,572	0.0920	9,204
2010	10/26/2010	MPO	8,990	0.0890	8,644
2009	03/10/2009	MPO	8,703	0.0880	9,358
2008	02/26/2008	MPO	8,080	0.0910	8,879
2007	04/03/2007	MPO	8,335	0.0850	9,060
2006	11/16/2006	MPO	9,238	0.0950	8,554
2005	10/11/2005	MPO	9,839	0.0840	9,370
2004	11/30/2004	MPO	10,994	0.0970	10,470
2003	11/18/2003	MPO	10,405	0.0910	10,005
2002	12/03/2002		10,868	0.0900	10,350
2001	10/30/2001		10,765	0.0960	9,876
2000	10/03/2000		12,020	0.0920	11,448
1999	10/12/1999		10,051	0.0880	9,758

Regression Graph:







Appendix C

Intersection Analysis Summary

Table 1
Levels of Service, Delay, and Back of Queue (95%)

Year 2014 - No-Build

AM Peak					PM Peak				
Intersection	Traffic Control	Lane Group/ Approach	AM Peak Hour		Traffic Control	Lane Group/ Approach	PM Peak Hour		Delay (sec)
			LOS	95% Queue (ft)			LOS	95% Queue (ft)	
86th Avenue N & 131st Street	Signalized	EB/LTR	C	84	Signalized	EB/LTR	C	136	28.3
		WB/LTR	C	55		WB/LTR	C	198	32.5
		NB/LTR	C	141		NB/LTR	C	219	31.6
		SB/LTR	C	165		SB/LTR	C	233	31.7
	Overall LOS		C	24.3	Overall LOS		C	31.3	
86th Avenue N & 125th Street	Signalized	EB/LTR	B	58	Signalized	EB/LTR	B	136	14.0
		WB/LTR	B	38		WB/LTR	C	128	21.6
		NB/LTR	B	66		NB/LTR	C	96	20.6
		SB/LTR	B	73		SB/LTR	B	103	18.7
82nd Avenue N & 131st Street	Stop-control	Overall LOS	B	15.9	Stop-control	Overall LOS	B	18.1	
		EB/LTR	B	8		EB/LTR	B	9	12.5
		WB/LTR	B	5		WB/LTR	B	6	13.3
		NB/LTR	-	1		NB/LTR	-	2	0.9
		SB/LTR	-	1		SB/LTR	-	1	0.8

EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound
L: Left, T: Thru, R: Right

Year 2035 - No-Build

AM Peak					PM Peak				
Intersection	Traffic Control	Lane Group/ Approach	AM Peak Hour		Traffic Control	Lane Group/ Approach	PM Peak Hour		Delay (sec)
			LOS	95% Queue (ft)			LOS	95% Queue (ft)	
86th Avenue N & 131st Street	Signalized	EB/LTR	C	112	Signalized	EB/LTR	D	187	35.8
		WB/LTR	C	71		WB/LTR	D	276	42.8
		NB/LTR	C	190		NB/LTR	D	307	41.0
		SB/LTR	C	217		SB/LTR	C	330	34.7
	Overall LOS		C	27.6	Overall LOS		D	38.7	
86th Avenue N & 125th Street	Signalized	EB/LTR	B	68	Signalized	EB/LTR	B	166	15.2
		WB/LTR	B	44		WB/LTR	C	154	22.8
		NB/LTR	B	77		NB/LTR	C	114	21.5
		SB/LTR	B	85		SB/LTR	B	123	19.8
82nd Avenue N & 131st Street	Stop-control	Overall LOS	B	16.5	Stop-control	Overall LOS	B	19.2	
		EB/LTR	B	11		EB/LTR	B	14	14.1
		WB/LTR	B	7		WB/LTR	C	9	15.3
		NB/LTR	-	1		NB/LTR	-	2	1.0
		SB/LTR	-	1		SB/LTR	-	2	0.9

EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound
L: Left, T: Thru, R: Right

















Appendix D

Intersection Synchro Results

Timings
3: 131st Street & 86th Ave N

Existing Year 2014 - AM Peak

1/13/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	56	35	16	32	12	19	150	32	32	200	6
Satd. Flow (prot)	0	1768	0	0	1789	0	0	1813	0	0	1842	0
Flt Permitted		0.952			0.887			0.995			0.993	
Satd. Flow (perm)	0	1694	0	0	1608	0	0	1813	0	0	1842	0
Satd. Flow (RTOR)		14			7			6			1	
Lane Group Flow (vph)	0	113	0	0	65	0	0	219	0	0	259	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		8			4		6	6		2	2	
Permitted Phases	8			4								
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.9	30.9		30.9	30.9		31.3	31.3		31.3	31.3	
Total Split (s)	60.9	60.9		60.9	60.9		81.3	81.3		41.3	41.3	
Total Split (%)	33.2%	33.2%		33.2%	33.2%		44.3%	44.3%		22.5%	22.5%	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.7	2.7		2.7	2.7		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.9			5.9			6.3			6.3	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None		Min	Min	
Act Effect Green (s)		10.1			10.1			14.2			14.7	
Actuated g/C Ratio		0.17			0.17			0.24			0.25	
v/c Ratio		0.37			0.23			0.49			0.56	
Control Delay		24.8			23.3			23.5			24.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		24.8			23.3			23.5			24.9	
LOS		C			C			C			C	
Approach Delay		24.8			23.3			23.5			24.9	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)		30			17			62			76	
Queue Length 95th (ft)		84			55			141			165	
Internal Link Dist (ft)		305			2567			1263			381	
Turn Bay Length (ft)												
Base Capacity (vph)		1551			1472			1813			1145	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.07			0.04			0.12			0.23	

Intersection Summary

Cycle Length: 183.5

Actuated Cycle Length: 58

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 24.3

Intersection LOS: C

Timings 3: 131st Street & 86th Ave N

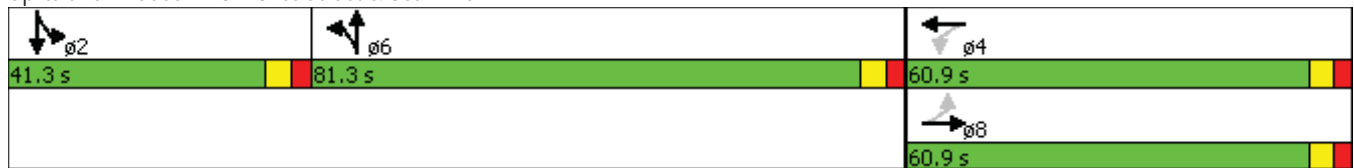
Existing Year 2014 - AM Peak
1/13/2015

Intersection Capacity Utilization 35.4%

ICU Level of Service A

Analysis Period (min) 15

















Splits and Phases: 3: 131st Street & 86th Ave N



Timings
9: 125th Street & 86th Ave N

Existing Year 2014 - AM Peak

1/13/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	61	23	9	25	10	18	52	17	10	66	22
Satd. Flow (prot)	0	1791	0	0	1787	0	0	1796	0	0	1798	0
Flt Permitted		0.953			0.949			0.936			0.974	
Satd. Flow (perm)	0	1724	0	0	1713	0	0	1698	0	0	1760	0
Satd. Flow (RTOR)		12			9			8			10	
Lane Group Flow (vph)	0	115	0	0	48	0	0	95	0	0	107	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		2	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	16.0		16.0	16.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.7	38.2		38.2	38.2		38.4	38.4		38.4	38.4	
Total Split (s)	41.7	56.2		56.2	56.2		76.4	76.4		76.4	76.4	
Total Split (%)	23.9%	32.2%		32.2%	32.2%		43.8%	43.8%		43.8%	43.8%	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.0	2.5		2.5	2.5		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.2			6.2			6.4			6.4	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	Min	Ped		Ped	Ped		Ped	Ped		Ped	Ped	
Act Effect Green (s)		44.2			32.0			32.0			32.0	
Actuated g/C Ratio		0.50			0.36			0.36			0.36	
v/c Ratio		0.13			0.08			0.15			0.17	
Control Delay		11.2			16.4			18.5			18.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		11.2			16.4			18.5			18.4	
LOS		B			B			B			B	
Approach Delay		11.2			16.4			18.5			18.4	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		29			14			32			36	
Queue Length 95th (ft)		58			38			66			73	
Internal Link Dist (ft)		2567			197			589			410	
Turn Bay Length (ft)												
Base Capacity (vph)		1728			968			1340			1389	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.07			0.05			0.07			0.08	

Intersection Summary

Cycle Length: 174.3

Actuated Cycle Length: 88.8

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.17

Intersection Signal Delay: 15.9

Intersection LOS: B

Timings
9: 125th Street & 86th Ave N

Existing Year 2014 - AM Peak

1/13/2015

Intersection Capacity Utilization 32.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 9: 125th Street & 86th Ave N



















HCM Unsignalized Intersection Capacity Analysis

6: 82nd Avenue/82nd Avenue & 131st Street

Existing Year 2014 - AM Peak

















1/13/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	12	4	49	8	6	22	18	169	9	11	189	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	13	4	53	9	7	24	20	184	10	12	205	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	488	465	209	516	464	189	212			193		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	488	465	209	516	464	189	212			193		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	99	94	98	99	97	99			99		
cM capacity (veh/h)	464	483	832	429	484	853	1358			1380		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	71	39	213	224								
Volume Left	13	9	20	12								
Volume Right	53	24	10	7								
cSH	698	634	1358	1380								
Volume to Capacity	0.10	0.06	0.01	0.01								
Queue Length 95th (ft)	8	5	1	1								
Control Delay (s)	10.7	11.1	0.8	0.5								
Lane LOS	B	B	A	A								
Approach Delay (s)	10.7	11.1	0.8	0.5								
Approach LOS	B	B										
Intersection Summary												
Average Delay			2.7									
Intersection Capacity Utilization			27.2%	ICU Level of Service					A			
Analysis Period (min)			15									

Timings
3: 131st Street & 86th Ave N

Existing Year 2014 - PM Peak

1/13/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	90	35	29	114	71	58	163	20	58	178	24
Satd. Flow (prot)	0	1791	0	0	1766	0	0	1820	0	0	1820	0
Flt Permitted		0.940			0.937			0.988			0.989	
Satd. Flow (perm)	0	1695	0	0	1667	0	0	1820	0	0	1820	0
Satd. Flow (RTOR)		9			14			3			2	
Lane Group Flow (vph)	0	158	0	0	233	0	0	262	0	0	282	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		8			4		6	6		2	2	
Permitted Phases	8			4								
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.9	30.9		30.9	30.9		31.3	31.3		31.3	31.3	
Total Split (s)	60.9	60.9		60.9	60.9		81.3	81.3		41.3	41.3	
Total Split (%)	33.2%	33.2%		33.2%	33.2%		44.3%	44.3%		22.5%	22.5%	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.7	2.7		2.7	2.7		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.9			5.9			6.3			6.3	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None		Min	Min	
Act Effect Green (s)		17.4			17.4			18.8			19.4	
Actuated g/C Ratio		0.23			0.23			0.25			0.26	
v/c Ratio		0.40			0.59			0.57			0.60	
Control Delay		28.3			32.5			31.6			31.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		28.3			32.5			31.6			31.7	
LOS		C			C			C			C	
Approach Delay		28.3			32.5			31.6			31.7	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)		57			88			103			112	
Queue Length 95th (ft)		136			198			219			233	
Internal Link Dist (ft)		305			2567			1263			381	
Turn Bay Length (ft)												
Base Capacity (vph)		1292			1272			1692			890	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.12			0.18			0.15			0.32	
Intersection Summary												
Cycle Length: 183.5												
Actuated Cycle Length: 75												
Natural Cycle: 95												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.60												
Intersection Signal Delay: 31.3												
Intersection LOS: C												

Timings 3: 131st Street & 86th Ave N

Existing Year 2014 - PM Peak





1/13/2015

Intersection Capacity Utilization 44.3%

ICU Level of Service A

Analysis Period (min) 15

















Splits and Phases: 3: 131st Street & 86th Ave N

 ø2	 ø6	 ø4
41.3 s	81.3 s	60.9 s
		 ø8
		60.9 s

Timings
9: 125th Street & 86th Ave N

Existing Year 2014 - PM Peak

1/13/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	144	51	24	134	18	41	74	13	14	86	52
Satd. Flow (prot)	0	1791	0	0	1824	0	0	1807	0	0	1766	0
Flt Permitted		0.891			0.931			0.863			0.971	
Satd. Flow (perm)	0	1615	0	0	1710	0	0	1585	0	0	1724	0
Satd. Flow (RTOR)		14			5			5			21	
Lane Group Flow (vph)	0	278	0	0	192	0	0	139	0	0	165	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		2	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	16.0		16.0	16.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.7	38.2		38.2	38.2		38.4	38.4		38.4	38.4	
Total Split (s)	26.7	56.2		56.2	56.2		56.4	56.4		56.4	56.4	
Total Split (%)	19.2%	40.3%		40.3%	40.3%		40.5%	40.5%		40.5%	40.5%	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.0	2.5		2.5	2.5		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.2			6.2			6.4			6.4	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	Min	Ped		Ped	Ped		Ped	Ped		Ped	Ped	
Act Effect Green (s)		44.2			32.0			32.0			32.0	
Actuated g/C Ratio		0.50			0.36			0.36			0.36	
v/c Ratio		0.34			0.31			0.24			0.26	
Control Delay		14.0			21.6			20.6			18.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.0			21.6			20.6			18.7	
LOS		B			C			C			B	
Approach Delay		14.0			21.6			20.6			18.7	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)		83			74			52			55	
Queue Length 95th (ft)		136			128			96			103	
Internal Link Dist (ft)		2567			197			589			410	
Turn Bay Length (ft)												
Base Capacity (vph)		1408			965			894			979	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.20			0.20			0.16			0.17	

Intersection Summary

Cycle Length: 139.3

Actuated Cycle Length: 88.8

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.34

Intersection Signal Delay: 18.1

Intersection LOS: B

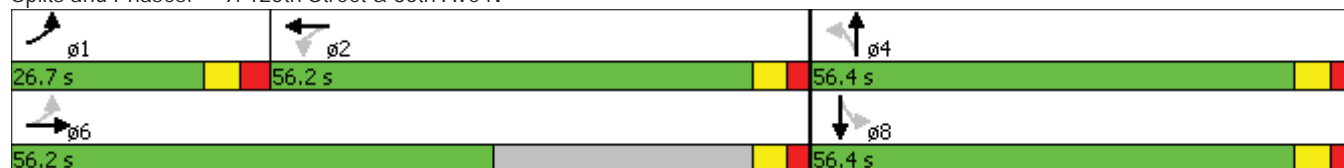
Timings 9: 125th Street & 86th Ave N

Existing Year 2014 - PM Peak
1/13/2015

Intersection Capacity Utilization 50.5%
Analysis Period (min) 15

ICU Level of Service A

Splits and Phases: 9: 125th Street & 86th Ave N



















HCM Unsignalized Intersection Capacity Analysis

6: 82nd Avenue/82nd Avenue & 131st Street

Existing Year 2014 - PM Peak

















1/13/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	12	10	34	10	6	15	28	258	11	21	220	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	13	11	37	11	7	16	30	280	12	23	239	13
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	658	645	246	681	645	286	252			292		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	658	645	246	681	645	286	252			292		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	97	95	97	98	98	98			98		
cM capacity (veh/h)	353	375	793	329	375	753	1313			1269		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	61	34	323	275								
Volume Left	13	11	30	23								
Volume Right	37	16	12	13								
cSH	541	467	1313	1269								
Volume to Capacity	0.11	0.07	0.02	0.02								
Queue Length 95th (ft)	9	6	2	1								
Control Delay (s)	12.5	13.3	0.9	0.8								
Lane LOS	B	B	A	A								
Approach Delay (s)	12.5	13.3	0.9	0.8								
Approach LOS	B	B										
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			32.0%	ICU Level of Service					A			
Analysis Period (min)			15									

Timings
3: 131st Street & 86th Ave N

Future Year 2035 - AM Peak

1/13/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	67	42	19	38	14	23	180	38	38	240	7
Satd. Flow (prot)	0	1766	0	0	1791	0	0	1815	0	0	1844	0
Flt Permitted		0.951			0.902			0.995			0.993	
Satd. Flow (perm)	0	1690	0	0	1637	0	0	1815	0	0	1844	0
Satd. Flow (RTOR)		14			7			6			1	
Lane Group Flow (vph)	0	136	0	0	77	0	0	262	0	0	310	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		8			4		6	6		2	2	
Permitted Phases	8			4								
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.9	30.9		30.9	30.9		31.3	31.3		31.3	31.3	
Total Split (s)	60.9	60.9		60.9	60.9		81.3	81.3		41.3	41.3	
Total Split (%)	33.2%	33.2%		33.2%	33.2%		44.3%	44.3%		22.5%	22.5%	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.7	2.7		2.7	2.7		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.9			5.9			6.3			6.3	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None		Min	Min	
Act Effect Green (s)		11.6			11.6			17.2			19.8	
Actuated g/C Ratio		0.17			0.17			0.25			0.29	
v/c Ratio		0.45			0.27			0.56			0.57	
Control Delay		30.0			27.5			28.0			26.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		30.0			27.5			28.0			26.3	
LOS		C			C			C			C	
Approach Delay		30.0			27.5			28.0			26.3	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)		45			25			91			107	
Queue Length 95th (ft)		112			71			190			217	
Internal Link Dist (ft)		305			2567			1263			381	
Turn Bay Length (ft)												
Base Capacity (vph)		1392			1348			1770			984	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.10			0.06			0.15			0.32	
Intersection Summary												
Cycle Length: 183.5												
Actuated Cycle Length: 67.7												
Natural Cycle: 95												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.57												
Intersection Signal Delay: 27.6												
Intersection LOS: C												

Timings
3: 131st Street & 86th Ave N

Future Year 2035 - AM Peak

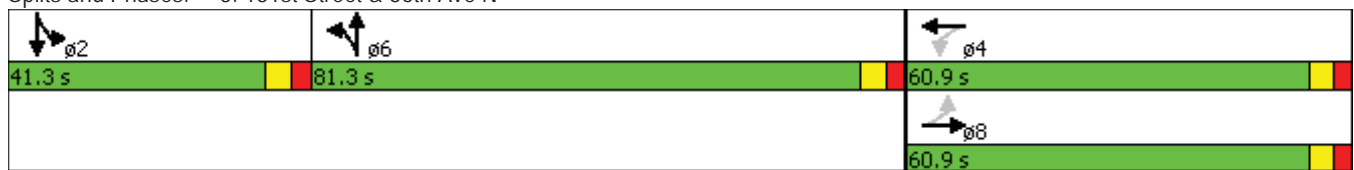
1/13/2015

Intersection Capacity Utilization 40.3%

ICU Level of Service A

Analysis Period (min) 15

















Splits and Phases: 3: 131st Street & 86th Ave N



Timings
9: 125th Street & 86th Ave N

Future Year 2035 - AM Peak

1/13/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	73	28	11	30	12	22	62	20	12	79	26
Satd. Flow (prot)	0	1789	0	0	1789	0	0	1794	0	0	1798	0
Flt Permitted		0.950			0.943			0.928			0.971	
Satd. Flow (perm)	0	1717	0	0	1704	0	0	1684	0	0	1754	0
Satd. Flow (RTOR)		12			8			8			10	
Lane Group Flow (vph)	0	137	0	0	58	0	0	113	0	0	127	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		2	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	16.0		16.0	16.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.7	38.2		38.2	38.2		38.4	38.4		38.4	38.4	
Total Split (s)	41.7	56.2		56.2	56.2		76.4	76.4		76.4	76.4	
Total Split (%)	23.9%	32.2%		32.2%	32.2%		43.8%	43.8%		43.8%	43.8%	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.0	2.5		2.5	2.5		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.2			6.2			6.4			6.4	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	Min	Ped		Ped	Ped		Ped	Ped		Ped	Ped	
Act Effect Green (s)		44.2			32.0			32.0			32.0	
Actuated g/C Ratio		0.50			0.36			0.36			0.36	
v/c Ratio		0.16			0.09			0.18			0.20	
Control Delay		11.6			17.3			19.1			19.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		11.6			17.3			19.1			19.0	
LOS		B			B			B			B	
Approach Delay		11.6			17.3			19.1			19.0	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		36			18			40			44	
Queue Length 95th (ft)		68			44			77			85	
Internal Link Dist (ft)		2567			197			589			410	
Turn Bay Length (ft)												
Base Capacity (vph)		1721			962			1329			1384	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.08			0.06			0.09			0.09	

Intersection Summary

Cycle Length: 174.3

Actuated Cycle Length: 88.8

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.20

Intersection Signal Delay: 16.5

Intersection LOS: B

Timings 9: 125th Street & 86th Ave N

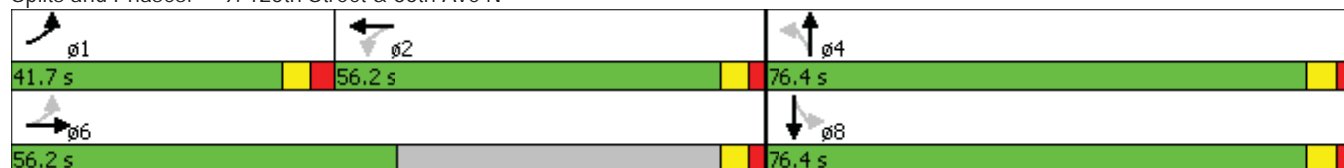
Future Year 2035 - AM Peak
1/13/2015

Intersection Capacity Utilization 33.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 9: 125th Street & 86th Ave N



















HCM Unsignalized Intersection Capacity Analysis

6: 82nd Avenue/82nd Avenue & 131st Street

Future Year 2035 - AM Peak

















1/13/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	14	5	59	10	7	26	22	203	11	13	227	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	15	5	64	11	8	28	24	221	12	14	247	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	585	559	251	620	557	227	254			233		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	585	559	251	620	557	227	254			233		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	99	92	97	98	97	98			99		
cM capacity (veh/h)	393	425	788	356	426	813	1311			1335		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	85	47	257	268								
Volume Left	15	11	24	14								
Volume Right	64	28	12	8								
cSH	638	562	1311	1335								
Volume to Capacity	0.13	0.08	0.02	0.01								
Queue Length 95th (ft)	11	7	1	1								
Control Delay (s)	11.5	12.0	0.9	0.5								
Lane LOS	B	B	A	A								
Approach Delay (s)	11.5	12.0	0.9	0.5								
Approach LOS	B	B										
Intersection Summary												
Average Delay			2.9									
Intersection Capacity Utilization			31.4%	ICU Level of Service					A			
Analysis Period (min)			15									

Timings
3: 131st Street & 86th Ave N

Future Year 2035 - PM Peak

1/13/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	108	42	35	137	85	70	196	24	68	214	29
Satd. Flow (prot)	0	1789	0	0	1766	0	0	1820	0	0	1818	0
Flt Permitted		0.907			0.932			0.988			0.989	
Satd. Flow (perm)	0	1634	0	0	1658	0	0	1820	0	0	1818	0
Satd. Flow (RTOR)		9			14			3			3	
Lane Group Flow (vph)	0	189	0	0	279	0	0	315	0	0	339	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		8			4		6	6		2	2	
Permitted Phases	8			4								
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.9	30.9		30.9	30.9		31.3	31.3		31.3	31.3	
Total Split (s)	60.9	60.9		60.9	60.9		81.3	81.3		41.3	41.3	
Total Split (%)	33.2%	33.2%		33.2%	33.2%		44.3%	44.3%		22.5%	22.5%	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.7	2.7		2.7	2.7		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.9			5.9			6.3			6.3	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	None		Min	Min	
Act Effect Green (s)		22.0			22.0			23.7			29.0	
Actuated g/C Ratio		0.23			0.23			0.25			0.31	
v/c Ratio		0.48			0.70			0.68			0.60	
Control Delay		35.8			42.8			41.0			34.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		35.8			42.8			41.0			34.7	
LOS		D			D			D			C	
Approach Delay		35.8			42.8			41.0			34.7	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)		91			143			166			166	
Queue Length 95th (ft)		187			276			307			330	
Internal Link Dist (ft)		305			2567			1263			381	
Turn Bay Length (ft)												
Base Capacity (vph)		992			1009			1478			701	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.19			0.28			0.21			0.48	
Intersection Summary												
Cycle Length: 183.5												
Actuated Cycle Length: 93.9												
Natural Cycle: 95												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.70												
Intersection Signal Delay: 38.7												
Intersection LOS: D												

Timings 3: 131st Street & 86th Ave N

Future Year 2035 - PM Peak

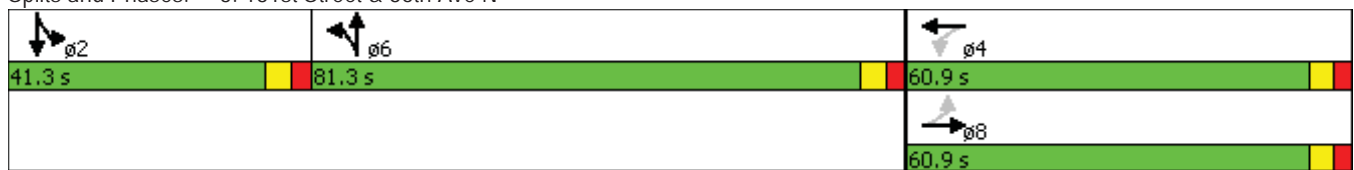
1/13/2015

Intersection Capacity Utilization 51.0%

ICU Level of Service A

Analysis Period (min) 15

















Splits and Phases: 3: 131st Street & 86th Ave N



Timings
9: 125th Street & 86th Ave N

Future Year 2035 - PM Peak

1/13/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	173	61	29	161	22	49	89	16	17	103	62
Satd. Flow (prot)	0	1791	0	0	1824	0	0	1807	0	0	1768	0
Flt Permitted		0.848			0.917			0.849			0.967	
Satd. Flow (perm)	0	1537	0	0	1684	0	0	1559	0	0	1718	0
Satd. Flow (RTOR)		14			5			5			21	
Lane Group Flow (vph)	0	333	0	0	231	0	0	167	0	0	197	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		2	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	16.0		16.0	16.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.7	38.2		38.2	38.2		38.4	38.4		38.4	38.4	
Total Split (s)	26.7	56.2		56.2	56.2		56.4	56.4		56.4	56.4	
Total Split (%)	19.2%	40.3%		40.3%	40.3%		40.5%	40.5%		40.5%	40.5%	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.0	2.5		2.5	2.5		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.2			6.2			6.4			6.4	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	Min	Ped		Ped	Ped		Ped	Ped		Ped	Ped	
Act Effect Green (s)		44.2			32.0			32.0			32.0	
Actuated g/C Ratio		0.50			0.36			0.36			0.36	
v/c Ratio		0.42			0.38			0.30			0.31	
Control Delay		15.2			22.8			21.5			19.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		15.2			22.8			21.5			19.8	
LOS		B			C			C			B	
Approach Delay		15.2			22.8			21.5			19.8	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)		104			92			64			69	
Queue Length 95th (ft)		166			154			114			123	
Internal Link Dist (ft)		2567			197			589			410	
Turn Bay Length (ft)												
Base Capacity (vph)		1346			950			880			976	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.25			0.24			0.19			0.20	

Intersection Summary

Cycle Length: 139.3

Actuated Cycle Length: 88.8

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.42

Intersection Signal Delay: 19.2

Intersection LOS: B

Timings
9: 125th Street & 86th Ave N

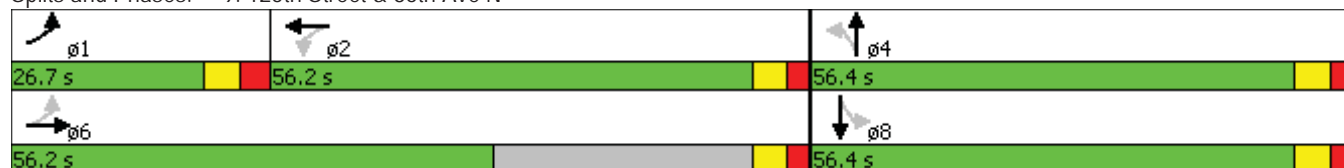
Future Year 2035 - PM Peak
1/13/2015

Intersection Capacity Utilization 58.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 9: 125th Street & 86th Ave N



















HCM Unsignalized Intersection Capacity Analysis

6: 82nd Avenue/82nd Avenue & 131st Street

Future Year 2035 - PM Peak

1/13/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	14	12	41	12	7	18	34	310	13	25	264	14
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	15	13	45	13	8	20	37	337	14	27	287	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	790	774	295	818	774	344	302			351		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	790	774	295	818	774	344	302			351		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	96	94	95	98	97	97			98		
cM capacity (veh/h)	282	313	745	258	312	699	1259			1208		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	73	40	388	329								
Volume Left	15	13	37	27								
Volume Right	45	20	14	15								
cSH	468	391	1259	1208								
Volume to Capacity	0.16	0.10	0.03	0.02								
Queue Length 95th (ft)	14	9	2	2								
Control Delay (s)	14.1	15.3	1.0	0.9								
Lane LOS	B	C	A	A								
Approach Delay (s)	14.1	15.3	1.0	0.9								
Approach LOS	B	C										
Intersection Summary												
Average Delay			2.8									
Intersection Capacity Utilization			37.1%	ICU Level of Service					A			
Analysis Period (min)			15									

Appendix E

Intersection Alternatives Analysis Summary

Table 1
Levels of Service, Delay, and Back of Queue (95%)

Alternative 1 - Add Northbound and Southbound Left Turn Lane/Phase
Alternative 2 - Alternative 1 plus Exclusive Pedestrian Phase and No Right Turn on Red
Alternative 3 - Alternative 2 plus WB right turn lane

Year 2014 - No-Build

AM Peak						PM Peak					
Intersection	Traffic Control	Lane Group/ Approach	AM Peak Hour			Intersection	Traffic Control	Lane Group/ Approach	PM Peak Hour		
			LOS	95% Queue (ft)	Delay (sec)				LOS	95% Queue (ft)	Delay (sec)
86th Avenue N & 131st Street	Signalized	EB/LTR	C	84	24.8	86th Avenue N & 131st Street	Signalized	EB/LTR	C	136	28.3
		WB/LTR	C	55	23.3			WB/LTR	C	198	32.5
		NB/LTR	C	141	23.5			NB/LTR	C	219	31.6
		SB/LTR	C	165	24.9			SB/LTR	C	233	31.7
	Overall LOS		C			24.3	Overall LOS		C		
86th Avenue N & 125th Street	Signalized	EB/LTR	B	58	11.2	86th Avenue N & 125th Street	Signalized	EB/LTR	B	136	14.0
		WB/LTR	B	38	16.4			WB/LTR	C	128	21.6
		NB/LTR	B	66	18.5			NB/LTR	C	96	20.6
		SB/LTR	B	73	18.4			SB/LTR	B	103	18.7
	Overall LOS		B			15.9	Overall LOS		B		
82nd Avenue N & 131st Street	Stop-control	EB/LTR	B	8	10.7	82nd Avenue N & 131st Street	Stop-control	EB/LTR	B	9	12.5
		WB/LTR	B	5	11.1			WB/LTR	B	6	13.3
		NB/LTR	-	1	0.8			NB/LTR	-	2	0.9
		SB/LTR	-	1	0.8			SB/LTR	-	1	0.8
	EB = Eastbound, WB =Westbound, NB = Northbound, SB = Southbound L: Left, T:Thru, R: Right						EB = Eastbound, WB =Westbound, NB = Northbound, SB = Southbound L: Left, T:Thru, R: Right				

Year 2014 - Alternative 1

AM Peak						PM Peak					
Intersection	Traffic Control	Lane Group/ Approach	AM Peak Hour			Intersection	Traffic Control	Lane Group/ Approach	PM Peak Hour		
			LOS	95% Queue (ft)	Delay (sec)				LOS	95% Queue (ft)	Delay (sec)
86th Avenue N & 131st Street	Signalized	EB/LTR	B	56	11.7	86th Avenue N & 131st Street	Signalized	EB/LTR	B	85	16.5
		WB/LTR	B	38	11.7			WB/LTR	B	122	18.4
		NB/L	A	9	6.4			NB/L	A	27	8.3
		NB/TR	A	88	9.3			NB/TR	B	112	18.8
		SB/L	A	13	6.3			SB/L	A	27	8.2
		SB/TR	A	103	9.7			SB/TR	B	120	19.0
	Overall LOS		A					9.9	Overall LOS		B

Year 2014 - Alternative 2

AM Peak						PM Peak					
Intersection	Traffic Control	Lane Group/ Approach	AM Peak Hour			Intersection	Traffic Control	Lane Group/ Approach	PM Peak Hour		
			LOS	95% Queue (ft)	Delay (sec)				LOS	95% Queue (ft)	Delay (sec)
86th Avenue N & 131st Street	Signalized	EB/LTR	B	65	16.9	86th Avenue N & 131st Street	Signalized	EB/LTR	B	93	18.9
		WB/LTR	B	43	15.9			WB/LTR	C	135	21.4
		NB/L	A	10	6.2			NB/L	A	29	8.8
		NB/TR	B	96	14.1			NB/TR	C	121	21.5
		SB/L	A	14	6.2			SB/L	A	29	8.6
		SB/TR	B	106	11.2			SB/TR	C	129	21.5
	Overall LOS		B		13.1			Overall LOS		B	

Year 2014 - Alternative 3

AM Peak						PM Peak					
Intersection	Traffic Control	Lane Group/ Approach	AM Peak Hour			Intersection	Traffic Control	Lane Group/ Approach	PM Peak Hour		
			LOS	95% Queue (ft)	Delay (sec)				LOS	95% Queue (ft)	Delay (sec)
86th Avenue N & 131st Street	Signalized	EB/LTR	B	65	16.6	86th Avenue N & 131st Street	Signalized	EB/LTR	B	91	19.1
		WB/LT	B	36	15.5			WB/LT	B	90	19.1
		WB/R	B	14	15.0			WB/R	B	50	17.2
		NB/L	A	10	6.3			NB/L	A	24	7.4
		NB/TR	B	96	13.4			NB/TR	B	107	18.0
		SB/L	A	14	6.3			SB/L	A	24	7.2
		SB/TR	B	107	10.7			SB/TR	B	115	18.0
	Overall LOS		B			12.6	Overall LOS		B		

Year 2035 - No-Build

AM Peak

Intersection	Traffic Control	Lane Group/ Approach	AM Peak Hour		
			LOS	95% Queue (ft)	Delay (sec)
86th Avenue N & 131st Street	Signalized	EB/LTR	C	112	30.0
		WB/LTR	C	71	27.5
		NB/LTR	C	190	28.0
		SB/LTR	C	217	26.3
	Overall LOS			C	27.6
86th Avenue N & 125th Street	Signalized	EB/LTR	B	68	11.6
		WB/LTR	B	44	17.3
		NB/LTR	B	77	19.1
		SB/LTR	B	85	19.0
	Overall LOS			B	16.5
82nd Avenue N & 131st Street	Stop-control	EB/LTR	B	11	11.5
		WB/LTR	B	7	12.0
		NB/LTR	-	1	0.9
		SB/LTR	-	1	0.5

EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound
L: Left, T:Thru, R: Right

PM Peak

Intersection	Traffic Control	Lane Group/ Approach	PM Peak Hour		
			LOS	95% Queue (ft)	Delay (sec)
86th Avenue N & 131st Street	Signalized	EB/LTR	D	187	35.8
		WB/LTR	D	276	42.8
		NB/LTR	D	307	41.0
		SB/LTR	C	330	34.7
	Overall LOS		D38.7		
86th Avenue N & 125th Street	Signalized	EB/LTR	B	166	15.2
		WB/LTR	C	154	22.8
		NB/LTR	C	114	21.5
		SB/LTR	B	123	19.8
	Overall LOS		B19.2		
82nd Avenue N & 131st Street	Stop-control	EB/LTR	B	14	14.1
		WB/LTR	C	9	15.3
		NB/LTR	-	2	1.0
		SB/LTR	-	2	0.9

EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound
L: Left, T:Thru, R: Right

Year 2035 - Alternative 1

AM Peak

Intersection	Traffic Control	Lane Group/ Approach	AM Peak Hour		
			LOS	95% Queue (ft)	Delay (sec)
86th Avenue N & 131st Street	Signalized	EB/LTR	B	69	14.9
		WB/LTR	B	46	14.4
		NB/L	A	11	6.2
		NB/TR	B	109	12.9
		SB/L	A	16	6.2
		SB/TR	B	126	10.7
	Overall LOS		B		12.1

PM Peak

Intersection	Traffic Control	Lane Group/ Approach	PM Peak Hour		
			LOS	95% Queue (ft)	Delay (sec)
86th Avenue N & 131st Street	Signalized	EB/LTR	B	109	18.7
		WB/LTR	C	161	22.1
		NB/L	A	35	9.1
		NB/TR	C	146	22.0
		SB/L	A	35	9.0
		SB/TR	C	160	22.6
	Overall LOS		B		19.9

Year 2035 - Alternative 2

AM Peak

Intersection	Traffic Control	Lane Group/ Approach	AM Peak Hour		
			LOS	95% Queue (ft)	Delay (sec)
86th Avenue N & 131st Street	Signalized	EB/LTR	B	81	19.7
		WB/LTR	B	51	18.1
		NB/L	A	12	6.4
		NB/TR	B	120	16.7
		SB/L	A	17	6.4
		SB/TR	B	132	14.1
	Overall LOS		B		15.6

PM Peak

Intersection	Traffic Control	Lane Group/ Approach	PM Peak Hour		
			LOS	Queue (ft)	Delay (sec)
86th Avenue N & 131st Street	Signalized	EB/LTR	C	121	20.2
		WB/LTR	C	179	23.3
		NB/L	A	39	10.0
		NB/TR	C	160	23.6
		SB/L	A	38	9.7
		SB/TR	C	172	23.7
	Overall LOS		C		21.1

Year 2035 - Alternative 3

AM Peak

Intersection	Traffic Control	Lane Group/ Approach	AM Peak Hour		
			LOS	95% Queue (ft)	Delay (sec)
86th Avenue N & 131st Street	Signalized	EB/LTR	B	80	17.8
		WB/LT	B	43	16.2
		WB/R	B	16	15.7
		NB/L	A	12	6.7
		NB/TR	B	120	14.9
		SB/L	A	17	6.7
		SB/TR	B	132	11.9
	Overall LOS		B		13.8

PM Peak

Intersection	Traffic Control	Lane Group/ Approach	PM Peak Hour		
			LOS	95% Queue (ft)	Delay (sec)
86th Avenue N & 131st Street	Signalized	EB/LTR	C	117	21.8
		WB/LT	C	115	21.7
		WB/R	B	63	19.0
		NB/L	A	32	8.1
		NB/TR	C	140	20.9
		SB/L	A	31	7.9
		SB/TR	C	152	21.0
	Overall LOS		B	19.3	

Appendix F

Intersection Year 2014 Alternatives Synchro Results

Timings

3: 131st Street & 86th Ave N

Alternative 1 - Year 2014 - AM Peak

1/21/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Volume (vph)	13	56	35	16	32	12	19	150	32	32	200	6
Satd. Flow (prot)	0	1768	0	0	1789	0	1770	1812	0	1770	1853	0
Flt Permitted		0.945			0.874		0.619			0.633		
Satd. Flow (perm)	0	1681	0	0	1584	0	1153	1812	0	1179	1853	0
Satd. Flow (RTOR)		27			13			13			2	
Lane Group Flow (vph)	0	113	0	0	65	0	21	198	0	35	224	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.9	30.9		30.9	30.9		20.0	31.3		20.0	31.3	
Total Split (s)	34.0	34.0		34.0	34.0		20.0	41.0		20.0	41.0	
Total Split (%)	35.8%	35.8%		35.8%	35.8%		21.1%	43.2%		21.1%	43.2%	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.7	2.7		2.7	2.7		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.9			5.9		6.3	6.3		6.3	6.3	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	Min	
Act Effect Green (s)		8.5			8.5		17.2	19.6		17.2	19.6	
Actuated g/C Ratio		0.26			0.26		0.52	0.60		0.52	0.60	
v/c Ratio		0.25			0.16		0.03	0.18		0.05	0.20	
Control Delay		11.7			11.7		6.4	9.3		6.3	9.7	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		11.7			11.7		6.4	9.3		6.3	9.7	
LOS		B			B		A	A		A	A	
Approach Delay		11.7			11.7			9.0			9.3	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		10			6		2	20		3	24	
Queue Length 95th (ft)		56			38		9	88		13	103	
Internal Link Dist (ft)		305			2567			1033			381	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)		1464			1378		950	1697		954	1735	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.08			0.05		0.02	0.12		0.04	0.13	

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 32.9

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.25

Intersection Signal Delay: 9.9

Intersection LOS: A

Timings 3: 131st Street & 86th Ave N

Alternative 1 - Year 2014 - AM Peak

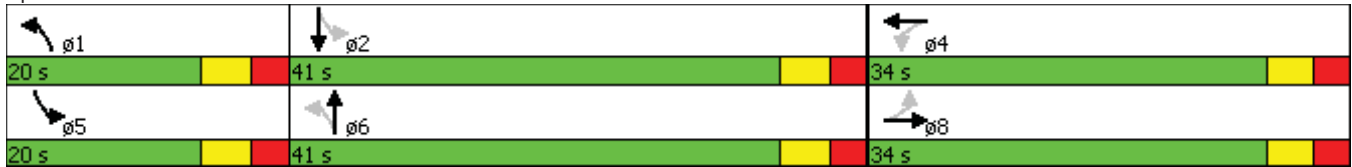
1/21/2015

Intersection Capacity Utilization 38.6%

ICU Level of Service A

Analysis Period (min) 15



















Splits and Phases: 3: 131st Street & 86th Ave N



Timings
3: 131st Street & 86th Ave N

Alternative 1 - Year 2014 - PM Peak

1/21/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	90	35	29	114	71	58	163	20	58	178	24
Satd. Flow (prot)	0	1791	0	0	1766	0	1770	1831	0	1770	1829	0
Flt Permitted		0.924			0.932		0.621			0.622		
Satd. Flow (perm)	0	1666	0	0	1658	0	1157	1831	0	1159	1829	0
Satd. Flow (RTOR)		14			22			5			6	
Lane Group Flow (vph)	0	158	0	0	233	0	63	199	0	63	219	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.9	30.9		30.9	30.9		31.3	31.3		31.3	31.3	
Total Split (s)	44.0	44.0		44.0	44.0		33.0	43.0		33.0	43.0	
Total Split (%)	36.7%	36.7%		36.7%	36.7%		27.5%	35.8%		27.5%	35.8%	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.7	2.7		2.7	2.7		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.9			5.9		6.3	6.3		6.3	6.3	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	Min	
Act Effect Green (s)		12.5			12.5		15.5	11.8		15.8	12.0	
Actuated g/C Ratio		0.28			0.28		0.35	0.26		0.35	0.27	
v/c Ratio		0.33			0.49		0.12	0.41		0.12	0.44	
Control Delay		16.5			18.4		8.3	18.8		8.2	19.0	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		16.5			18.4		8.3	18.8		8.2	19.0	
LOS		B			B		A	B		A	B	
Approach Delay		16.5			18.4			16.3			16.6	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		34			52		8	48		8	53	
Queue Length 95th (ft)		85			122		27	112		27	120	
Internal Link Dist (ft)		305			2567			1033			381	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)		1369			1364		1188	1474		1188	1473	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.12			0.17		0.05	0.14		0.05	0.15	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 44.7

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 16.9

Intersection LOS: B

Timings 3: 131st Street & 86th Ave N

Alternative 1 - Year 2014 - PM Peak
1/21/2015

Intersection Capacity Utilization 47.9%

ICU Level of Service A

Analysis Period (min) 15



















Splits and Phases: 3: 131st Street & 86th Ave N



Timings
3: 131st Street & 86th Ave N

Alternative 2 - Year 2014 - AM Peak

1/21/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	56	35	16	32	12	19	150	32	32	200	6
Satd. Flow (prot)	0	1768	0	0	1789	0	1770	1812	0	1770	1853	0
Flt Permitted		0.951			0.886		0.619			0.585		
Satd. Flow (perm)	0	1692	0	0	1606	0	1153	1812	0	1090	1853	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	113	0	0	65	0	21	198	0	35	224	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.9	30.9		30.9	30.9		31.3	31.3		31.3	31.3	
Total Split (s)	58.0	58.0		58.0	58.0		35.0	90.5		35.0	90.5	
Total Split (%)	27.9%	27.9%		27.9%	27.9%		16.8%	43.6%		16.8%	43.6%	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.7	2.7		2.7	2.7		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.9			5.9		6.3	6.3		6.3	6.3	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	Min	
Act Effect Green (s)		9.4			9.4		17.0	14.7		18.2	17.1	
Actuated g/C Ratio		0.23			0.23		0.41	0.36		0.44	0.41	
v/c Ratio		0.29			0.18		0.04	0.31		0.06	0.29	
Control Delay		16.9			15.9		6.2	14.1		6.2	11.2	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		16.9			15.9		6.2	14.1		6.2	11.2	
LOS		B			B		A	B		A	B	
Approach Delay		16.9			15.9			13.3			10.5	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		15			8		2	24		4	27	
Queue Length 95th (ft)		65			43		10	96		14	106	
Internal Link Dist (ft)		305			2567			1033			381	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)		1686			1600		1286	1812		1286	1853	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.07			0.04		0.02	0.11		0.03	0.12	

Intersection Summary

Cycle Length: 207.8

Actuated Cycle Length: 41.3

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.31

Intersection Signal Delay: 13.1

Intersection LOS: B

Timings
3: 131st Street & 86th Ave N

Alternative 2 - Year 2014 - AM Peak
1/21/2015

Lane Group	ø12
Lane Configurations	
Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	12
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	24.3
Total Split (s)	24.3
Total Split (%)	12%
Yellow Time (s)	3.6
All-Red Time (s)	2.7
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Timings 3: 131st Street & 86th Ave N

Alternative 2 - Year 2014 - AM Peak
1/21/2015

Intersection Capacity Utilization 38.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: 131st Street & 86th Ave N

 ø1	 ø2	 ø4	 ø12
35 s	90.5 s	58 s	24.3 s
 ø5	 ø6	 ø8	
35 s	90.5 s	58 s	

Timings

3: 131st Street & 86th Ave N

Alternative 2 - Year 2014 - PM Peak

1/21/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Volume (vph)	20	90	35	29	114	71	58	163	20	58	178	24
Satd. Flow (prot)	0	1791	0	0	1766	0	1770	1831	0	1770	1829	0
Flt Permitted		0.928			0.935		0.621			0.618		
Satd. Flow (perm)	0	1673	0	0	1663	0	1157	1831	0	1151	1829	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	158	0	0	233	0	63	199	0	63	219	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.9	30.9		30.9	30.9		15.0	31.3		15.0	31.3	
Total Split (s)	56.0	56.0		56.0	56.0		20.0	49.7		20.0	49.7	
Total Split (%)	34.1%	34.1%		34.1%	34.1%		12.2%	30.3%		12.2%	30.3%	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.7	2.7		2.7	2.7		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.9			5.9		6.3	6.3		6.3	6.3	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	Min	
Act Effect Green (s)		14.2			14.2		18.2	12.8		18.9	13.1	
Actuated g/C Ratio		0.28			0.28		0.36	0.25		0.37	0.26	
v/c Ratio		0.34			0.50		0.12	0.43		0.12	0.46	
Control Delay		18.9			21.4		8.8	21.5		8.6	21.5	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		18.9			21.4		8.8	21.5		8.6	21.5	
LOS		B			C		A	C		A	C	
Approach Delay		18.9			21.4			18.5			18.6	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		39			61		9	52		9	58	
Queue Length 95th (ft)		93			135		29	121		29	129	
Internal Link Dist (ft)		305			2567			1033			381	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)		1531			1522		747	1513		753	1511	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.10			0.15		0.08	0.13		0.08	0.14	

Intersection Summary

Cycle Length: 164

Actuated Cycle Length: 50.6

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 19.3

Intersection LOS: B

Timings
3: 131st Street & 86th Ave N

Alternative 2 - Year 2014 - PM Peak
1/21/2015

Lane Group	ø12
Lane Configurations	
Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	12
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	38.3
Total Split (s)	38.3
Total Split (%)	23%
Yellow Time (s)	3.6
All-Red Time (s)	2.7
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Timings 3: 131st Street & 86th Ave N

Alternative 2 - Year 2014 - PM Peak








1/21/2015

Intersection Capacity Utilization 47.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: 131st Street & 86th Ave N

 ø1	 ø2	 ø4	 ø12
20 s	49.7 s	56 s	38.3 s
 ø5	 ø6	 ø8	
20 s	49.7 s	56 s	

Timings

3: 131st Street & 86th Ave N

Alternative 3 - Year 2014 - AM Peak

1/21/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↔		↔	↔	
Volume (vph)	13	56	35	16	32	12	19	150	32	32	200	6
Satd. Flow (prot)	0	1768	0	0	1833	1583	1770	1812	0	1770	1853	0
Flt Permitted		0.947			0.847		0.619			0.591		
Satd. Flow (perm)	0	1685	0	0	1578	1583	1153	1812	0	1101	1853	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	113	0	0	52	13	21	198	0	35	224	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	30.9	30.9		30.9	30.9	30.9	20.0	31.3		20.0	31.3	
Total Split (s)	40.7	40.7		40.7	40.7	40.7	25.0	50.0		25.0	50.0	
Total Split (%)	27.1%	27.1%		27.1%	27.1%	27.1%	16.7%	33.3%		16.7%	33.3%	
Yellow Time (s)	3.2	3.2		3.2	3.2	3.2	3.6	3.6		3.6	3.6	
All-Red Time (s)	2.7	2.7		2.7	2.7	2.7	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.9			5.9	5.9	6.3	6.3		6.3	6.3	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	None		None	Min	
Act Effect Green (s)		9.3			9.3	9.3	17.9	17.5		19.0	19.7	
Actuated g/C Ratio		0.24			0.24	0.24	0.46	0.45		0.49	0.51	
v/c Ratio		0.28			0.14	0.03	0.03	0.24		0.05	0.24	
Control Delay		16.6			15.5	15.0	6.3	13.4		6.3	10.7	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		16.6			15.5	15.0	6.3	13.4		6.3	10.7	
LOS		B			B	B	A	B		A	B	
Approach Delay		16.6			15.4			12.7			10.1	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		15			7	2	2	23		4	27	
Queue Length 95th (ft)		65			36	14	10	96		14	107	
Internal Link Dist (ft)		305			2567			1033			381	
Turn Bay Length (ft)						100	150			150		
Base Capacity (vph)		1478			1385	1389	1012	1719		1008	1757	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.08			0.04	0.01	0.02	0.12		0.03	0.13	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 38.7

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.28

Intersection Signal Delay: 12.6

Intersection LOS: B

Timings
3: 131st Street & 86th Ave N

Alternative 3 - Year 2014 - AM Peak
1/21/2015

Lane Group	ø12
Lane Configurations	
Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	12
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	34.3
Total Split (s)	34.3
Total Split (%)	23%
Yellow Time (s)	3.6
All-Red Time (s)	2.7
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Timings 3: 131st Street & 86th Ave N








Alternative 3 - Year 2014 - AM Peak
1/21/2015

Intersection Capacity Utilization 44.6%

ICU Level of Service A

Analysis Period (min) 15




















Splits and Phases: 3: 131st Street & 86th Ave N

 ø1	 ø2	 ø4	 ø12
25 s	50 s	40.7 s	34.3 s
 ø5	 ø6	 ø8	
25 s	50 s	40.7 s	

Timings
3: 131st Street & 86th Ave N

Alternative 3 - Year 2014 - PM Peak

1/21/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	90	35	29	114	71	58	163	20	58	178	24
Satd. Flow (prot)	0	1791	0	0	1844	1583	1770	1831	0	1770	1829	0
Flt Permitted		0.932			0.896		0.621			0.617		
Satd. Flow (perm)	0	1681	0	0	1669	1583	1157	1831	0	1149	1829	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	158	0	0	156	77	63	199	0	63	219	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	30.9	30.9		30.9	30.9	30.9	31.3	31.3		31.3	31.3	
Total Split (s)	42.0	42.0		42.0	42.0	42.0	33.0	50.7		33.0	50.7	
Total Split (%)	26.3%	26.3%		26.3%	26.3%	26.3%	20.6%	31.7%		20.6%	31.7%	
Yellow Time (s)	3.2	3.2		3.2	3.2	3.2	3.6	3.6		3.6	3.6	
All-Red Time (s)	2.7	2.7		2.7	2.7	2.7	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.9			5.9	5.9	6.3	6.3		6.3	6.3	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	None		None	Min	
Act Effect Green (s)		11.1			11.1	11.1	15.7	12.0		16.2	12.3	
Actuated g/C Ratio		0.26			0.26	0.26	0.36	0.28		0.37	0.28	
v/c Ratio		0.37			0.37	0.19	0.12	0.39		0.12	0.42	
Control Delay		19.1			19.1	17.2	7.4	18.0		7.2	18.0	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		19.1			19.1	17.2	7.4	18.0		7.2	18.0	
LOS		B			B	B	A	B		A	B	
Approach Delay		19.1			18.4			15.5			15.6	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		38			38	18	8	47		8	52	
Queue Length 95th (ft)		91			90	50	24	107		24	115	
Internal Link Dist (ft)		305			2567			1033			381	
Turn Bay Length (ft)						100	150			150		
Base Capacity (vph)		1364			1354	1284	1211	1658		1211	1656	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.12			0.12	0.06	0.05	0.12		0.05	0.13	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 43.5

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.42

Intersection Signal Delay: 16.9

Intersection LOS: B

Timings
3: 131st Street & 86th Ave N

Alternative 3 - Year 2014 - PM Peak

1/21/2015

Lane Group	ø12
Lane Configurations	
Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	12
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	34.3
Total Split (s)	34.3
Total Split (%)	21%
Yellow Time (s)	3.6
All-Red Time (s)	2.7
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Timings 3: 131st Street & 86th Ave N

Alternative 3 - Year 2014 - PM Peak








1/21/2015

Intersection Capacity Utilization 46.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: 131st Street & 86th Ave N

 ø1	 ø2	 ø4	 ø12
33 s	50.7 s	42 s	34.3 s
 ø5	 ø6	 ø8	
33 s	50.7 s	42 s	

Appendix G

Intersection Year 2035 Alternatives Synchro Results

Timings

3: 131st Street & 86th Ave N

Alternative 1 - Future Year 2035 - AM Peak

1/21/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Volume (vph)	16	67	42	19	38	14	23	180	38	38	240	7
Satd. Flow (prot)	0	1766	0	0	1791	0	1770	1814	0	1770	1855	0
Flt Permitted		0.942			0.871		0.594			0.573		
Satd. Flow (perm)	0	1674	0	0	1580	0	1106	1814	0	1067	1855	0
Satd. Flow (RTOR)		28			13			12			2	
Lane Group Flow (vph)	0	136	0	0	77	0	25	237	0	41	269	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.9	30.9		30.9	30.9		20.0	31.3		20.0	31.3	
Total Split (s)	34.0	34.0		34.0	34.0		20.0	41.0		20.0	41.0	
Total Split (%)	35.8%	35.8%		35.8%	35.8%		21.1%	43.2%		21.1%	43.2%	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.7	2.7		2.7	2.7		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.9			5.9		6.3	6.3		6.3	6.3	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	Min	
Act Effect Green (s)		9.1			9.1		17.4	17.0		18.5	19.2	
Actuated g/C Ratio		0.24			0.24		0.46	0.45		0.48	0.50	
v/c Ratio		0.32			0.20		0.04	0.29		0.06	0.29	
Control Delay		14.9			14.4		6.2	12.9		6.2	10.7	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		14.9			14.4		6.2	12.9		6.2	10.7	
LOS		B			B		A	B		A	B	
Approach Delay		14.9			14.4			12.3			10.1	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		14			8		3	26		4	32	
Queue Length 95th (ft)		69			46		11	109		16	126	
Internal Link Dist (ft)		305			2567			1033			381	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)		1336			1258		877	1581		870	1615	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.10			0.06		0.03	0.15		0.05	0.17	

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 38.2

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.32

Intersection Signal Delay: 12.1

Intersection LOS: B

Timings 3: 131st Street & 86th Ave N

Alternative 1 - Future Year 2035 - AM Peak

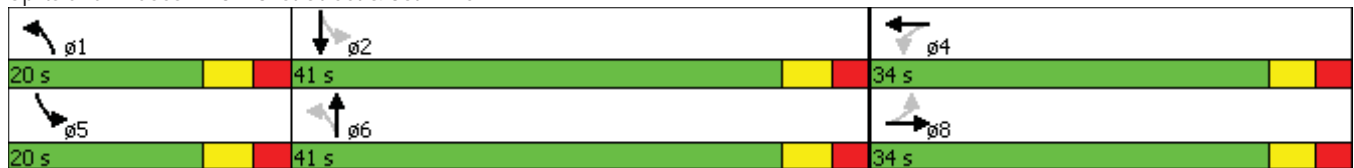
1/21/2015

Intersection Capacity Utilization 42.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: 131st Street & 86th Ave N



Timings

3: 131st Street & 86th Ave N

Alternative 1 - Future Year 2035 - PM Peak

1/21/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Volume (vph)	24	108	42	35	137	85	70	196	24	68	214	29
Satd. Flow (prot)	0	1789	0	0	1766	0	1770	1833	0	1770	1829	0
Flt Permitted		0.931			0.928		0.587			0.601		
Satd. Flow (perm)	0	1677	0	0	1651	0	1093	1833	0	1120	1829	0
Satd. Flow (RTOR)		14			22			5			6	
Lane Group Flow (vph)	0	189	0	0	279	0	76	239	0	74	265	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.9	30.9		30.9	30.9		31.3	31.3		31.3	31.3	
Total Split (s)	44.0	44.0		44.0	44.0		33.0	43.0		33.0	43.0	
Total Split (%)	36.7%	36.7%		36.7%	36.7%		27.5%	35.8%		27.5%	35.8%	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.7	2.7		2.7	2.7		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.9			5.9		6.3	6.3		6.3	6.3	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	Min	
Act Effect Green (s)		14.8			14.8		19.4	13.9		19.8	14.1	
Actuated g/C Ratio		0.28			0.28		0.37	0.27		0.38	0.27	
v/c Ratio		0.39			0.58		0.15	0.49		0.14	0.54	
Control Delay		18.7			22.1		9.1	22.0		9.0	22.6	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		18.7			22.1		9.1	22.0		9.0	22.6	
LOS		B			C		A	C		A	C	
Approach Delay		18.7			22.1			18.9			19.6	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		45			70		11	64		11	71	
Queue Length 95th (ft)		109			161		35	146		35	160	
Internal Link Dist (ft)		305			2567			1033			381	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)		1230			1213		1039	1306		1040	1303	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.15			0.23		0.07	0.18		0.07	0.20	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 52.4

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 19.9

Intersection LOS: B

Timings

3: 131st Street & 86th Ave N

Alternative 1 - Future Year 2035 - PM Peak

1/21/2015

Intersection Capacity Utilization 53.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: 131st Street & 86th Ave N



Timings

3: 131st Street & 86th Ave N

Alternative 2 - Future Year 2035 - AM Peak

1/21/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Volume (vph)	16	67	42	19	38	14	23	180	38	38	240	7
Satd. Flow (prot)	0	1766	0	0	1791	0	1770	1814	0	1770	1855	0
Flt Permitted		0.951			0.877		0.594			0.560		
Satd. Flow (perm)	0	1690	0	0	1591	0	1106	1814	0	1043	1855	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	136	0	0	77	0	25	237	0	41	269	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.9	30.9		30.9	30.9		31.3	31.3		31.3	31.3	
Total Split (s)	58.0	58.0		58.0	58.0		35.0	90.5		35.0	90.5	
Total Split (%)	27.9%	27.9%		27.9%	27.9%		16.8%	43.6%		16.8%	43.6%	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.7	2.7		2.7	2.7		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.9			5.9		6.3	6.3		6.3	6.3	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	Min	
Act Effect Green (s)		10.4			10.4		18.8	15.1		20.2	17.8	
Actuated g/C Ratio		0.23			0.23		0.41	0.33		0.44	0.39	
v/c Ratio		0.35			0.21		0.04	0.39		0.07	0.37	
Control Delay		19.7			18.1		6.4	16.7		6.4	14.1	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		19.7			18.1		6.4	16.7		6.4	14.1	
LOS		B			B		A	B		A	B	
Approach Delay		19.7			18.1			15.7			13.1	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		33			18		3	56		5	36	
Queue Length 95th (ft)		81			51		12	120		17	132	
Internal Link Dist (ft)		305			2567			1033			381	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)		1688			1589		1185	1814		1184	1855	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.08			0.05		0.02	0.13		0.03	0.15	

Intersection Summary

Cycle Length: 207.8

Actuated Cycle Length: 45.4

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 15.6

Intersection LOS: B

Timings
3: 131st Street & 86th Ave N

Alternative 2 - Future Year 2035 - AM Peak

1/21/2015

Lane Group	ø12
Lane Configurations	
Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	12
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	24.3
Total Split (s)	24.3
Total Split (%)	12%
Yellow Time (s)	3.6
All-Red Time (s)	2.7
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Timings 3: 131st Street & 86th Ave N

Alternative 2 - Future Year 2035 - AM Peak


1/21/2015

Intersection Capacity Utilization 42.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: 131st Street & 86th Ave N

 ø1	 ø2	 ø4	 ø12
35 s	90.5 s	58 s	24.3 s
 ø5	 ø6	 ø8	
35 s	90.5 s	58 s	

Timings

3: 131st Street & 86th Ave N

Alternative 2 - Future Year 2035 - PM Peak

1/21/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	108	42	35	137	85	70	196	24	68	214	29
Satd. Flow (prot)	0	1789	0	0	1766	0	1770	1833	0	1770	1829	0
Flt Permitted		0.925			0.932		0.575			0.588		
Satd. Flow (perm)	0	1666	0	0	1658	0	1071	1833	0	1095	1829	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	189	0	0	279	0	76	239	0	74	265	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.9	30.9		30.9	30.9		15.0	31.3		15.0	31.3	
Total Split (s)	56.0	56.0		56.0	56.0		20.0	49.7		20.0	49.7	
Total Split (%)	34.1%	34.1%		34.1%	34.1%		12.2%	30.3%		12.2%	30.3%	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.7	2.7		2.7	2.7		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.9			5.9		6.3	6.3		6.3	6.3	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	Min	
Act Effect Green (s)		17.7			17.7		21.6	15.8		22.4	16.2	
Actuated g/C Ratio		0.31			0.31		0.38	0.27		0.39	0.28	
v/c Ratio		0.37			0.55		0.15	0.48		0.14	0.51	
Control Delay		20.2			23.3		10.0	23.6		9.7	23.7	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		20.2			23.3		10.0	23.6		9.7	23.7	
LOS		C			C		A	C		A	C	
Approach Delay		20.2			23.3			20.3			20.6	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)		52			82		13	71		12	79	
Queue Length 95th (ft)		121			179		39	160		38	172	
Internal Link Dist (ft)		305			2567			1033			381	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)		1403			1397		683	1386		696	1384	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.13			0.20		0.11	0.17		0.11	0.19	

Intersection Summary

Cycle Length: 164

Actuated Cycle Length: 57.6

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 21.1

Intersection LOS: C

Timings
3: 131st Street & 86th Ave N

Alternative 2 - Future Year 2035 - PM Peak

1/21/2015

Lane Group	ø12
Lane Configurations	
Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	12
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	38.3
Total Split (s)	38.3
Total Split (%)	23%
Yellow Time (s)	3.6
All-Red Time (s)	2.7
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Timings 3: 131st Street & 86th Ave N

Alternative 2 - Future Year 2035 - PM Peak








1/21/2015

Intersection Capacity Utilization 53.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: 131st Street & 86th Ave N




















 ø1	 ø2	 ø4	 ø12
20 s	49.7 s	56 s	38.3 s
 ø5	 ø6	 ø8	
20 s	49.7 s	56 s	

Timings

3: 131st Street & 86th Ave N

Alternative 3 - Future Year 2035 - AM Peak

1/21/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	67	42	19	38	14	23	180	38	38	240	7
Satd. Flow (prot)	0	1766	0	0	1831	1583	1770	1814	0	1770	1855	0
Flt Permitted		0.953			0.852		0.594			0.568		
Satd. Flow (perm)	0	1694	0	0	1587	1583	1106	1814	0	1058	1855	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	136	0	0	62	15	25	237	0	41	269	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	30.9	30.9		30.9	30.9	30.9	20.0	31.3		20.0	31.3	
Total Split (s)	40.7	40.7		40.7	40.7	40.7	25.0	50.0		25.0	50.0	
Total Split (%)	27.1%	27.1%		27.1%	27.1%	27.1%	16.7%	33.3%		16.7%	33.3%	
Yellow Time (s)	3.2	3.2		3.2	3.2	3.2	3.6	3.6		3.6	3.6	
All-Red Time (s)	2.7	2.7		2.7	2.7	2.7	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.9			5.9	5.9	6.3	6.3		6.3	6.3	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	None		None	Min	
Act Effect Green (s)		10.4			10.4	10.4	18.1	15.8		19.4	18.3	
Actuated g/C Ratio		0.24			0.24	0.24	0.42	0.36		0.45	0.42	
v/c Ratio		0.34			0.16	0.04	0.04	0.36		0.07	0.35	
Control Delay		17.8			16.2	15.7	6.7	14.9		6.7	11.9	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		17.8			16.2	15.7	6.7	14.9		6.7	11.9	
LOS		B			B	B	A	B		A	B	
Approach Delay		17.8			16.1			14.1			11.2	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		20			9	2	3	31		5	35	
Queue Length 95th (ft)		80			43	16	12	120		17	132	
Internal Link Dist (ft)		305			2567			1033			381	
Turn Bay Length (ft)						100	150			150		
Base Capacity (vph)		1390			1302	1298	911	1673		907	1710	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.10			0.05	0.01	0.03	0.14		0.05	0.16	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 43.5

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.36

Intersection Signal Delay: 13.8

Intersection LOS: B

Timings
3: 131st Street & 86th Ave N

Alternative 3 - Future Year 2035 - AM Peak
1/21/2015

Lane Group	ø12
Lane Configurations	
Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	12
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	34.3
Total Split (s)	34.3
Total Split (%)	23%
Yellow Time (s)	3.6
All-Red Time (s)	2.7
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Timings 3: 131st Street & 86th Ave N

Alternative 3 - Future Year 2035 - AM Peak








1/21/2015

Intersection Capacity Utilization 47.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: 131st Street & 86th Ave N

 ø1	 ø2	 ø4	 ø12
25 s	50 s	40.7 s	34.3 s
 ø5	 ø6	 ø8	
25 s	50 s	40.7 s	

Timings

3: 131st Street & 86th Ave N

Alternative 3 - Future Year 2035 - PM Peak

1/21/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↔		↔	↔	
Volume (vph)	24	108	42	35	137	85	70	196	24	68	214	29
Satd. Flow (prot)	0	1789	0	0	1844	1583	1770	1833	0	1770	1829	0
Flt Permitted		0.931			0.902		0.596			0.594		
Satd. Flow (perm)	0	1677	0	0	1680	1583	1110	1833	0	1106	1829	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	189	0	0	187	92	76	239	0	74	265	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	30.9	30.9		30.9	30.9	30.9	31.3	31.3		31.3	31.3	
Total Split (s)	42.0	42.0		42.0	42.0	42.0	33.0	50.7		33.0	50.7	
Total Split (%)	26.3%	26.3%		26.3%	26.3%	26.3%	20.6%	31.7%		20.6%	31.7%	
Yellow Time (s)	3.2	3.2		3.2	3.2	3.2	3.6	3.6		3.6	3.6	
All-Red Time (s)	2.7	2.7		2.7	2.7	2.7	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.9			5.9	5.9	6.3	6.3		6.3	6.3	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	None		None	Min	
Act Effect Green (s)		13.4			13.4	13.4	20.1	14.5		20.9	14.9	
Actuated g/C Ratio		0.26			0.26	0.26	0.39	0.28		0.40	0.29	
v/c Ratio		0.43			0.43	0.22	0.14	0.46		0.13	0.50	
Control Delay		21.8			21.7	19.0	8.1	20.9		7.9	21.0	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		21.8			21.7	19.0	8.1	20.9		7.9	21.0	
LOS		C			C	B	A	C		A	C	
Approach Delay		21.8			20.8			17.8			18.1	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)		50			50	23	11	63		10	70	
Queue Length 95th (ft)		117			115	63	32	140		31	152	
Internal Link Dist (ft)		305			2567			1033			381	
Turn Bay Length (ft)						100	150			150		
Base Capacity (vph)		1199			1201	1132	1036	1528		1036	1524	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.16			0.16	0.08	0.07	0.16		0.07	0.17	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 51.7

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 19.3

Intersection LOS: B

Timings
3: 131st Street & 86th Ave N

Alternative 3 - Future Year 2035 - PM Peak

1/21/2015

Lane Group	ø12
Lane Configurations	
Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	12
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	34.3
Total Split (s)	34.3
Total Split (%)	21%
Yellow Time (s)	3.6
All-Red Time (s)	2.7
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Timings 3: 131st Street & 86th Ave N

Alternative 3 - Future Year 2035 - PM Peak








1/21/2015

Intersection Capacity Utilization 57.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: 131st Street & 86th Ave N

 ø1	 ø2	 ø4	 ø12
33 s	50.7 s	42 s	34.3 s
 ø5	 ø6	 ø8	
33 s	50.7 s	42 s	