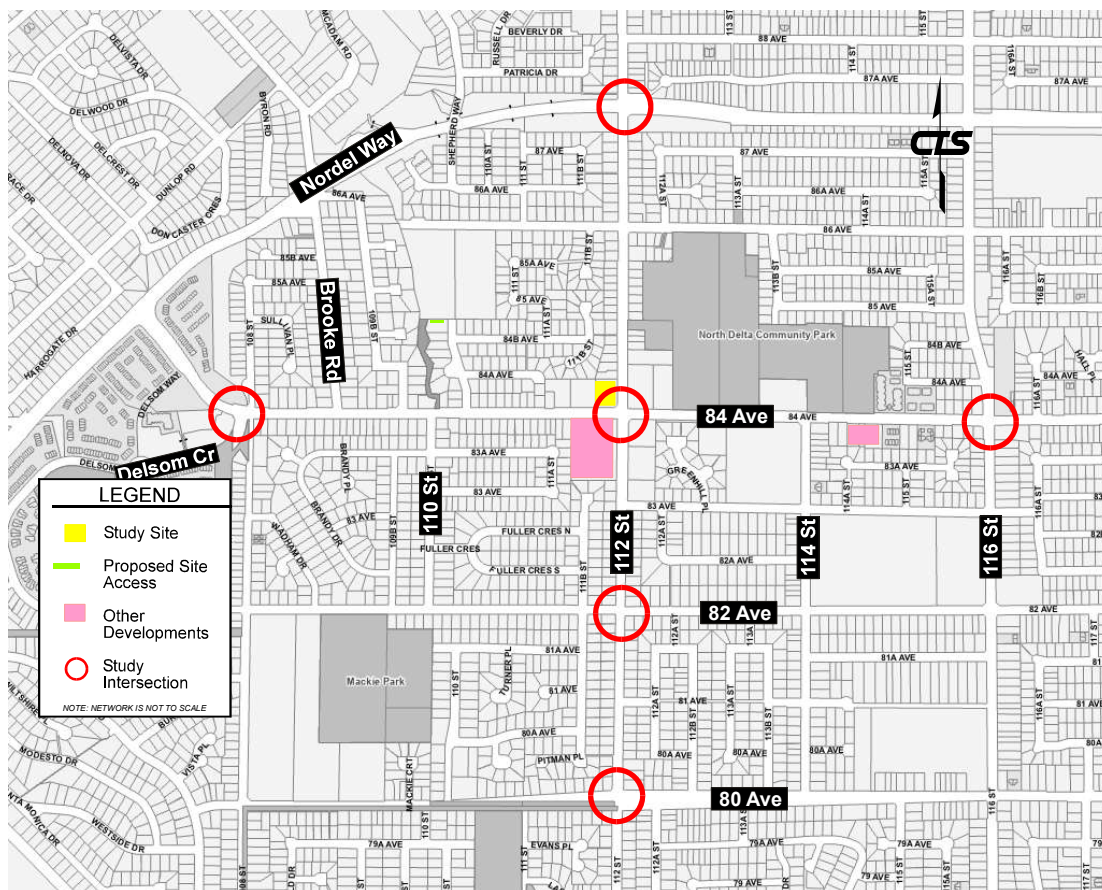


11199 84th Avenue Traffic Impact Study



Prepared for:

Hunter Park Properties



Prepared by:



AUGUST 2024

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Date: August 23, 2024

File No: 9120-01

BY EMAIL

Kulwinder Thandi, CEO
Hunter Park Properties
Unit 252, 12899 76th Avenue
Surrey, BC
V3W 1E6

Dear Mr. Thandi,

Re: 11199 84th Avenue, Delta – REVISED FINAL Traffic Impact Study

Creative Transportation Solutions Ltd. (CTS) is pleased to submit this REVISED FINAL Traffic Impact Study for a proposed mixed-use development located at 11199 84th Avenue in the City of Delta. The primary objectives of this assignment were:

1. To conduct a Traffic Impact Study for a proposed mixed-use development consisting of two levels of underground parking, ground level commercial/retail units, and five storeys of residential, based on the most recent project data.
2. To document the proposed mixed-use development site conditions, data, analyses, findings, and recommendations (if any) in a report that meets the requirements of the client and the City of Delta.

TABLE OF CONTENTS

1.0	BACKGROUND	1
1.1	Development Site	1
1.2	Study Area.....	1
1.3	Nearby Development.....	3
1.4	Road Network.....	3
1.5	Transport Modal Infrastructure.....	7
1.6	Study Periods	9
2.0	BASE TRAFFIC VOLUMES.....	10
3.0	DEVELOPMENT SITE TRAFFIC VOLUMES.....	17
3.1	Trip Generation.....	17
3.2	Development Site Trip Distribution.....	18
4.0	BASE + SITE TRAFFIC VOLUMES.....	21
5.0	TRAFFIC ANALYSIS	26
5.1	Capacity Analysis	26
5.2	Evaluation Approach.....	27
6.0	PARKING AND LOADING.....	41
6.1	Vehicle Parking (Bylaw).....	41
6.2	Vehicle Parking (Metro)	41
6.3	Loading.....	43
6.4	Bicycle Parking	43
7.0	ACCESS	44
8.0	SUMMARY AND CONCLUSIONS	46
9.0	RECOMMENDATIONS	48

LIST OF FIGURES

FIGURE 1 STUDY AREA AND ADJACENT ROAD NETWORK.....	2
FIGURE 2 EXISTING LANING CONFIGURATION	6
FIGURE 3 EXISTING BUS ROUTES AND BUS STOP LOCATIONS	8
FIGURE 4 2023 WEEKDAY AM PEAK HOUR BASE TRAFFIC VOLUMES	11
FIGURE 5 2023 WEEKDAY PM PEAK HOUR BASE TRAFFIC VOLUMES.....	12
FIGURE 6 2028 WEEKDAY AM PEAK HOUR BASE TRAFFIC VOLUMES	13
FIGURE 7 2028 WEEKDAY PM PEAK HOUR BASE TRAFFIC VOLUMES.....	14
FIGURE 8 2033 WEEKDAY AM PEAK HOUR BASE TRAFFIC VOLUMES	15
FIGURE 9 2033 WEEKDAY PM PEAK HOUR BASE TRAFFIC VOLUMES.....	16
FIGURE 10 2028 WEEKDAY AM PEAK HOUR SITE GENERATED TRAFFIC VOLUMES	19
FIGURE 11 2028 WEEKDAY PM PEAK HOUR SITE GENERATED TRAFFIC VOLUMES.....	20
FIGURE 12 2028 WEEKDAY AM PEAK HOUR BASE + SITE TRAFFIC VOLUMES.....	22
FIGURE 13 2028 WEEKDAY PM PEAK HOUR BASE + SITE TRAFFIC VOLUMES.....	23
FIGURE 14 2033 WEEKDAY AM PEAK HOUR BASE + SITE TRAFFIC VOLUMES	24
FIGURE 15 2033 WEEKDAY PM PEAK HOUR BASE + SITE TRAFFIC VOLUMES.....	25
FIGURE 16 SIGHT DISTANCE	44
FIGURE 17 STOPPING SIGHT DISTANCE AT ACCESS	45

LIST OF TABLES

TABLE 1 SUMMARY OF DEVELOPMENT SITE GENERATED VEHICLE TRIPS	17
TABLE 2 TRIP DISTRIBUTION PERCENTAGES FOR SITE GENERATED TRAFFIC	18
TABLE 3 TRIP DISTRIBUTION VEHICLE VOLUMES FOR SITE GENERATED TRAFFIC.....	18
TABLE 4 LEVEL OF SERVICE AND CORRESPONDING AVERAGE DELAY.....	26
TABLE 5 CAPACITY ANALYSIS SUMMARY TABLE FOR SIGNALIZED INTERSECTION ...	28
TABLE 6 CAPACITY ANALYSIS SUMMARY TABLE FOR SIGNALIZED INTERSECTION 84 TH AVENUE AND 112 STREET	29
TABLE 7 CAPACITY ANALYSIS SUMMARY TABLE FOR SIGNALIZED INTERSECTION 82 AVENUE AND 112 STREET	30
TABLE 8 CAPACITY ANALYSIS SUMMARY TABLE FOR SIGNALIZED INTERSECTION 80 TH AVENUE AND 112 TH STREET	31
TABLE 9 CAPACITY ANALYSIS SUMMARY TABLE FOR SIGNALIZED INTERSECTION 84 TH AVENUE AT 116 STREET	32
TABLE 10 CAPACITY ANALYSIS SUMMARY TABLE FOR SIGNALIZED INTERSECTION 84 TH AVENUE AT DELSOM CRESCENT	33
TABLE 11 CAPACITY ANALYSIS SUMMARY TABLE FOR UNSIGNALIZED INTERSECTION	34
TABLE 12 VEHICLE PARKING SUMMARY (BYLAW).....	41
TABLE 13 VEHICLE PARKING SUMMARY (METRO).....	42
TABLE 14 BICYCLE PARKING SUMMARY	43

1.0 BACKGROUND

1.1 Development Site

The proposed mixed-use development is located at 11199 84th Avenue in the City of Delta and comprises 12,528.26 ft² (1,163.91 m²) of ground floor commercial space and a total of 84 multi-family residential units. Access will be via an underground parkade located off of 112th Street.

Note that the site is currently occupied by a convenience market.

The proposed mixed-use development is to be zoned CD471 - Comprehensive Development.

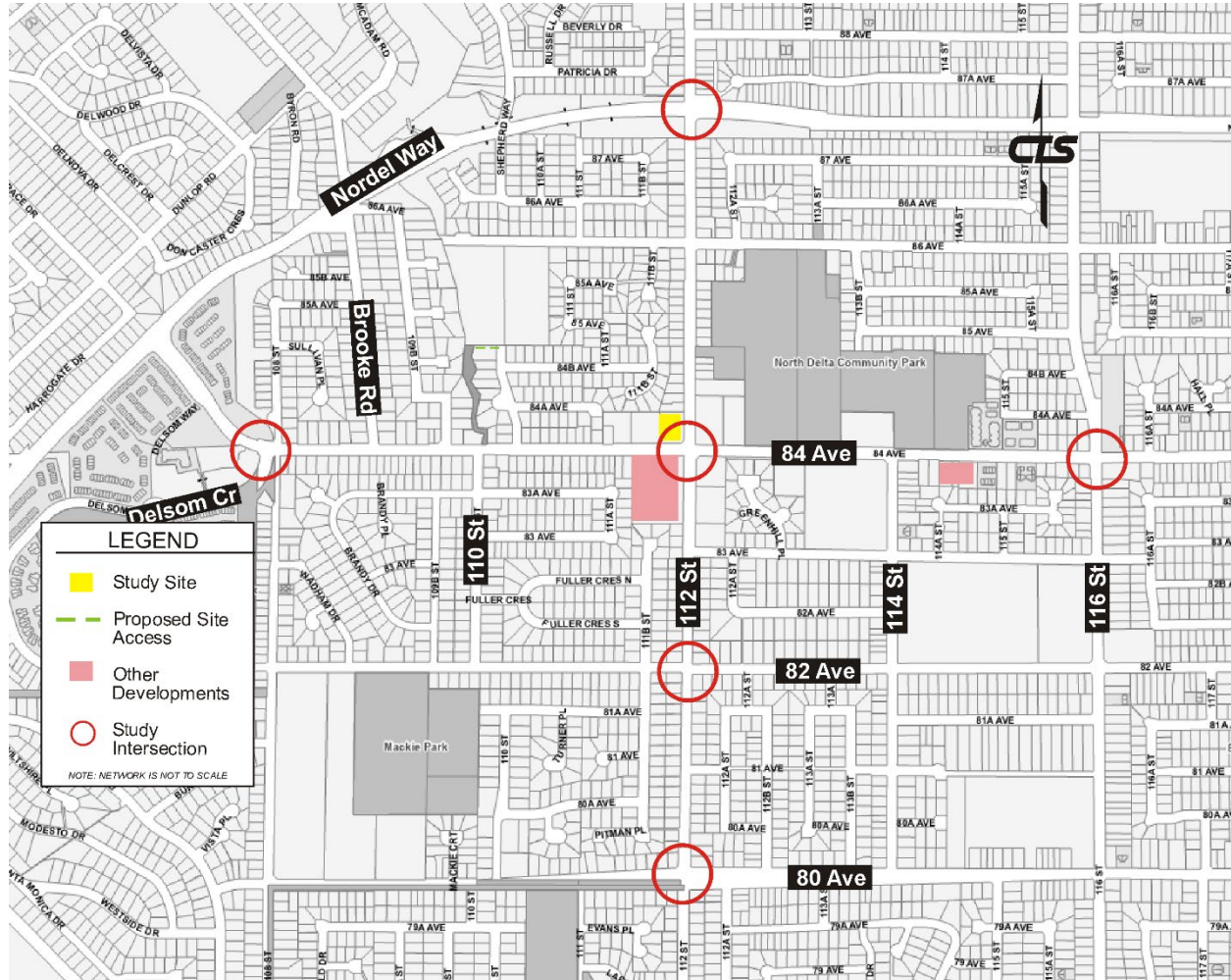
The legal description is:

- Lot 1, Plan BCP14758, District Lot 440, Group 2, New Westminster Land District

1.2 Study Area

The study area is bounded by Nordel Way to the north, 116th Street to the east, 80th Avenue to the south, and Delsom Crescent to the west. **FIGURE 1** illustrates the study area and adjacent road network. A copy of the development site plan referenced by this Traffic Impact Study is included as **APPENDIX A**.

**FIGURE 1
STUDY AREA AND ADJACENT ROAD NETWORK**



The following intersections were included in the Traffic Impact Study:

- 1) 84th Avenue and 112th Street (signalized);
- 2) 84th Avenue and Delsom Crescent (signalized);
- 3) 84th Avenue and 116th Street (signalized);
- 4) Nordel Way and 112th Street (signalized);
- 5) 82nd Avenue and 112th Street (signalized);
- 6) 80th Avenue and 112th Street (signalized); and
- 7) Development site access.

1.3 Nearby Development

For the year 2028, traffic generated by the following nearby developments was captured by an annual growth rate:

- 11448, 11458 & 11480 84th Avenue Development (148 condominiums).
- North Delta Shopping Center (338 residential units and 8,000 m² of commercial).

1.4 Road Network

A brief description of each study intersection follows:

84th Avenue and 112th Street

- 84th Avenue intersects 112th Street at a signalized “+” intersection.
- Within the study area, 84th Avenue is an east/west collector road and 112th Street is a north/south collector road.
- On the north approach there is a left-turn lane, and a shared through/right-turn lane. On the south approach there is a left-turn lane, and a shared through/right-turn lane. On the west approach there is a left-turn lane, a through lane, and a right-turn lane. On the east approach there is a left-turn lane, and a shared through/right-turn lane.
- Within the study area, 112th Street and 84th Avenue are bus routes.
- There are sidewalks and crosswalks on all approaches to the intersection.
- There are bicycle lanes on the east approach to the intersection.
- The intersection is illuminated.
- The posted speed is 50 km/h on 84th Avenue and 112th Street.

84th Avenue and Delsom Crescent

- 84th Avenue intersects Delsom Crescent at a signalized “+” intersection.
- Within the study area, 84th Avenue is an east/west collector road and Delsom Crescent is a north/south collector road.
- On the north approach there is a left-turn lane, a through lane, and a right-turn lane. On the south approach there is a left-turn lane, a through lane, and a right-turn lane. On the west approach there is a left-turn lane, a through lane, and a right-turn lane. On the east approach there is a left-turn lane, and a shared through/right-turn lane.
- Within the study area, 84th Avenue is a bus route.
- There are sidewalks and crosswalks on all approaches to the intersection.
- The intersection is illuminated.
- The posted speed is 50 km/h on 84th Avenue and Delsom Crescent.

84th Avenue and 116th Street

- 84th Avenue intersects 116th Street at a signalized “+” intersection.
- Within the study area, 84th Avenue is an east/west collector road and 116th Street is a north/south collector road.
- On all approaches there is a left-turn lane, and a shared through/right-turn lane.
- Within the study area, 116th Street and 84th Avenue are bus routes.
- There are sidewalks and crosswalks on all approaches to the intersection.
- There are bicycle lanes on 84th Avenue.
- The intersection is illuminated.
- The posted speed is 50 km/h on 84th Avenue and 116th Street.

Nordel Way and 112th Street

- Nordel Way intersects 112th Street at a signalized “+” intersection.
- Within the study area, Nordel Way is an east/west arterial road and major truck route and 112th Street is a north/south collector road.
- On the north approach there is a left-turn lane, a through lane, and a right-turn lane. On the south approach there is a left-turn lane, and a shared through/right-turn lane. On the west approach there is a left-turn lane, a through lane, and a shared through/right-turn lane. On the east approach there is a left-turn lane, a through lane, and a shared through/right-turn lane.

- Nordel Way and 112th Street are bus routes.
- There are sidewalks and crosswalks on all approaches to the intersection.
- There is a multi-use pathway on the south side of Nordel Way.
- The intersection is illuminated.
- The posted speed is 60 km/h on Nordel Way, and 50 km/h on 112th Street.

82nd Avenue and 112th Street

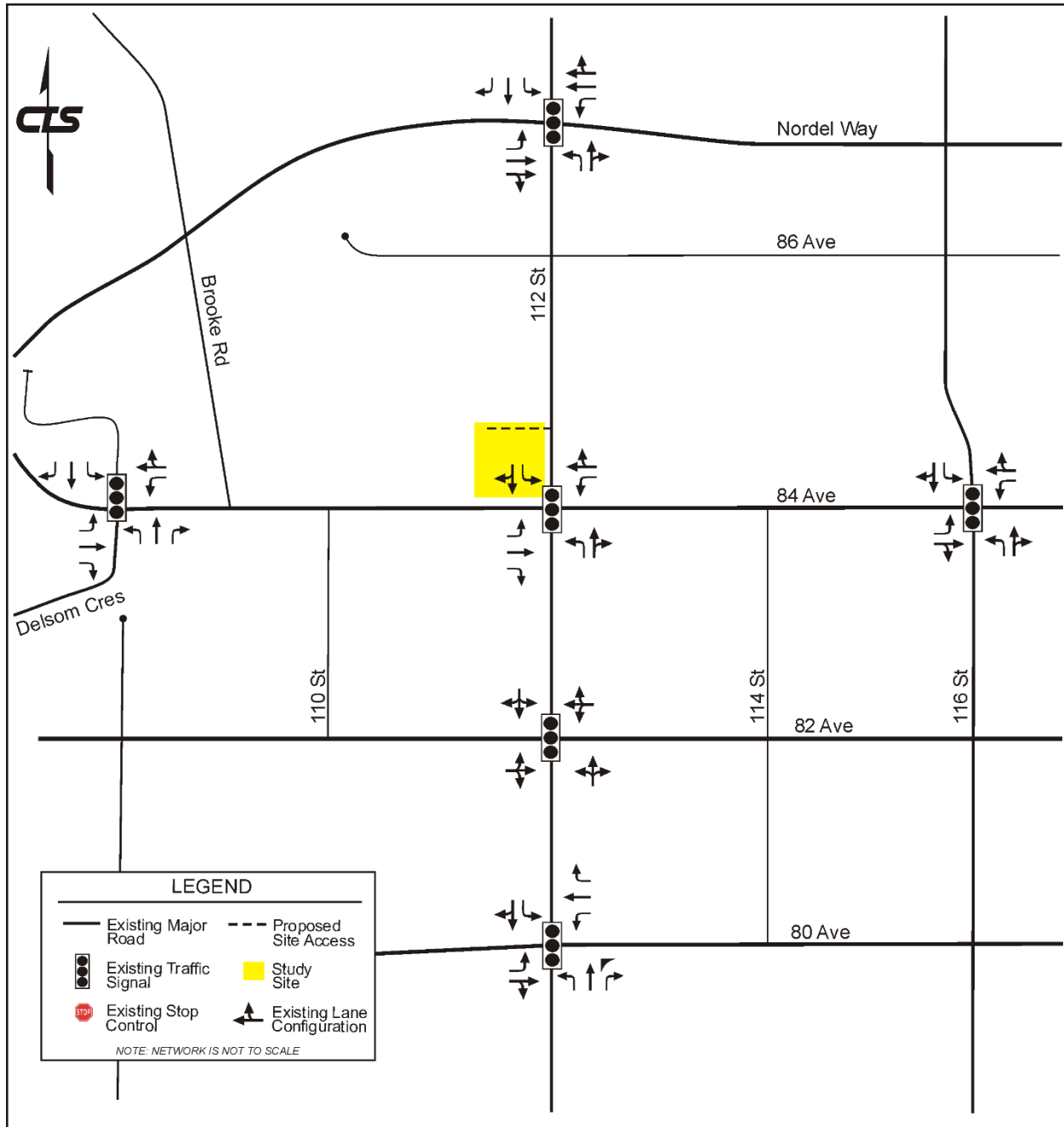
- 82nd Avenue intersects 112th Street at a signalized “+” intersection.
- Within the study area, 82nd Avenue is an east/west local road and 112th Street is a north/south collector road.
- On all approaches there is a shared left/through/right-turn lane.
- 112th Street is a bus route.
- There are sidewalks and crosswalks on all approaches to the intersection.
- There are bicycle lanes on 82nd Avenue.
- The intersection is illuminated.
- The posted speed is 50 km/h on 82nd Avenue and 112th Street.

80th Avenue and 112th Street

- 80th Avenue intersects 112th Street at a signalized “+” intersection.
- Within the study area, 80th Avenue is an east/west collector road and 112th Street is a north/south collector road.
- On the north approach there is a left-turn lane, and a shared through/right-turn lane. On the south approach there is a left-turn lane, a through lane and a right-turn lane. On the west approach there is a left-turn lane, and a shared through/right-turn lane. On the east approach there is a left-turn lane, a through lane, and a right-turn lane.
- 112th Street is a bus route.
- There are sidewalks and crosswalks on all approaches to the intersection.
- The intersection is illuminated.
- The posted speed is 50 km/h on 82nd Avenue and 112th Street.

The existing laning configuration for each study intersection is illustrated by **FIGURE 2**.

**FIGURE 2
EXISTING LANING CONFIGURATION**



1.5 Transport Modal Infrastructure

Pedestrian Network

As summarized by *Section 1.4*, there are sidewalks on all roads within the study area i.e. sidewalk along both sides of 112th Street and sidewalk along both sides of 84th Avenue, connecting to transit and local amenities. The pedestrian network is very well established.

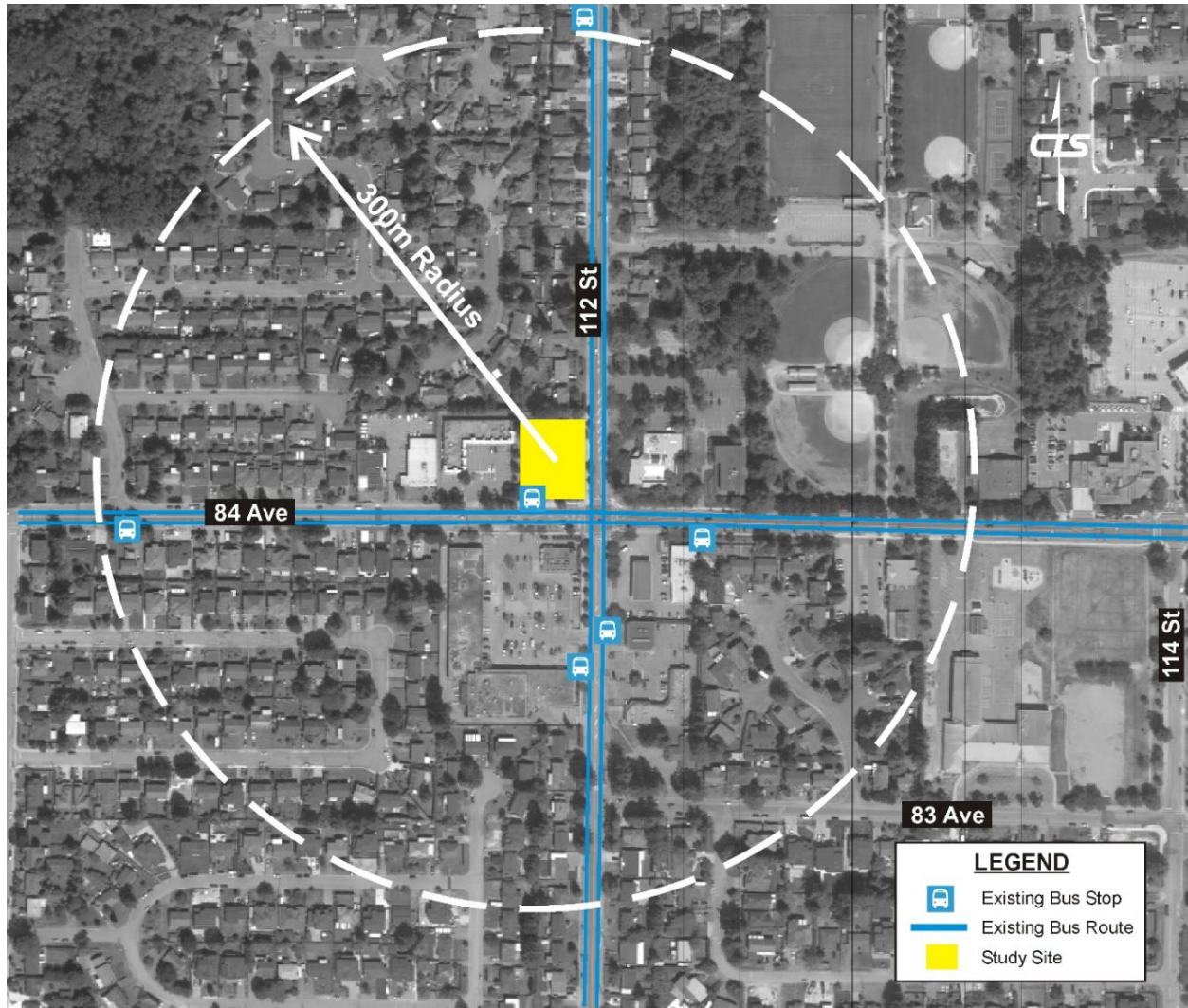
Bicycle Network

As summarized by *Section 1.4*, there are bicycle lanes on 84th Avenue, and 82nd Avenue. With reference the City of Delta *Cycling Master Plan 2023*, 84th Avenue, 112th Street, 82nd Avenue and 116th Street are all intended to accommodate cyclists by the installation of bicycle lanes.

Public Transit

As summarized by *Section 1.4*, 84th Avenue, 112th Street and 116th Street are all transit routes. The proposed mixed-use development site is well serviced by frequent transit. There are bus stops at the front of the site on 84th Avenue and approximately 100 meters from the site on 112th Street. Bus stop locations and bus routes are illustrated by **FIGURE 3**. A transit route diagram for each transit route is included as **APPENDIX B**.

**FIGURE 3
EXISTING BUS ROUTES AND BUS STOP LOCATIONS**



1.6 Study Periods

The weekday AM and PM peak hours were selected as the design hours for this study.

- Weekday AM Peak Hour is 0800 to 0900
- Weekday PM Peak Hour is 1700 to 1800

The following horizon years were selected for this study:

- 2023 (existing base traffic conditions);
- 2028 (base traffic conditions without site traffic);
- 2033 (base traffic conditions without site traffic);
- 2028 (base traffic conditions + site generated traffic volume); and
- 2033 (base traffic conditions + site generated traffic volume).

2.0 BASE TRAFFIC VOLUMES

2023 Base Traffic Volumes

CTS conducted traffic turning movement counts on Wednesday, November 15, 2023, from 0700 to 0900 and 1500 to 1800 to capture both the weekday AM and PM peak periods. The traffic turning movement count data was tabulated and reviewed to ensure data integrity and validity. The tabulated traffic turning movement count data summary sheets are included as **APPENDIX C**.

FIGURE 4 and **FIGURE 5** illustrate the 2023 weekday AM and PM peak hour traffic volumes, respectively.

2028 Base Traffic Volumes

The year 2028 is anticipated to be the build-out year for the proposed mixed-use development. The base traffic volumes from 2023 were factored up by a traffic volume growth rate of 2.0% per annum (simple straight line) to represent 2028 base traffic volumes. Note that the traffic volume from nearby development (see *Section 1.3*) is included in the proposed annual growth rate. **FIGURE 6** and **FIGURE 7** illustrate the 2028 weekday AM and PM peak hour base traffic volumes with no development traffic, respectively.

2033 Base Traffic Volumes

The year 2033 is anticipated to be 5 years post build-out for the proposed mixed-use development. The base traffic volumes from 2023 were factored up by a traffic volume growth rate of 2.0% per annum (simple straight line) to represent 2033 base traffic volumes. Note that the traffic volume from nearby development (see *Section 1.3*) is included in the proposed annual growth rate. **FIGURE 8** and **FIGURE 9** illustrate the 2033 weekday AM and PM peak hour base traffic volumes with no development traffic, respectively.

FIGURE 4
2023 WEEKDAY AM PEAK HOUR BASE TRAFFIC VOLUMES

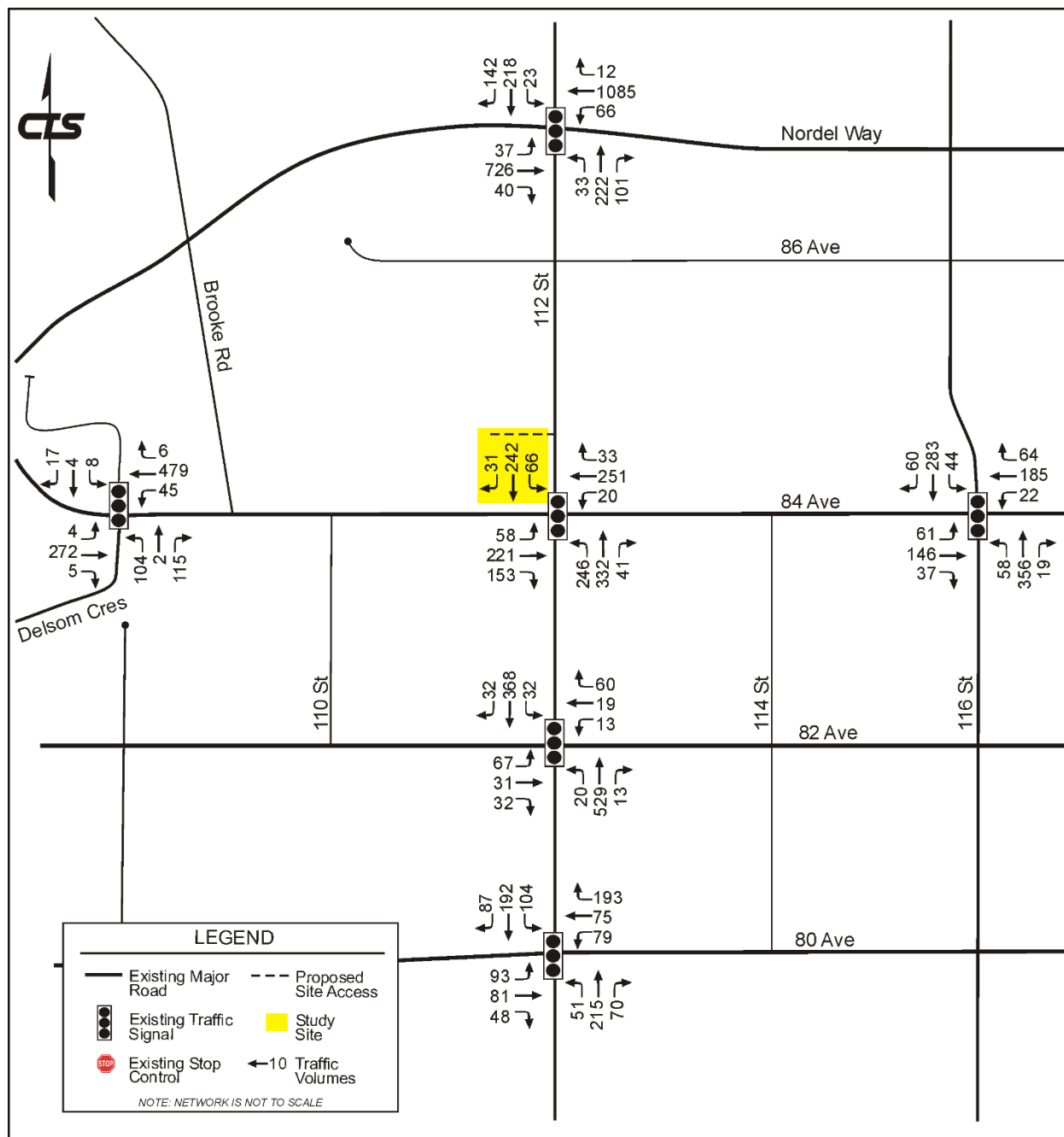


FIGURE 5
2023 WEEKDAY PM PEAK HOUR BASE TRAFFIC VOLUMES

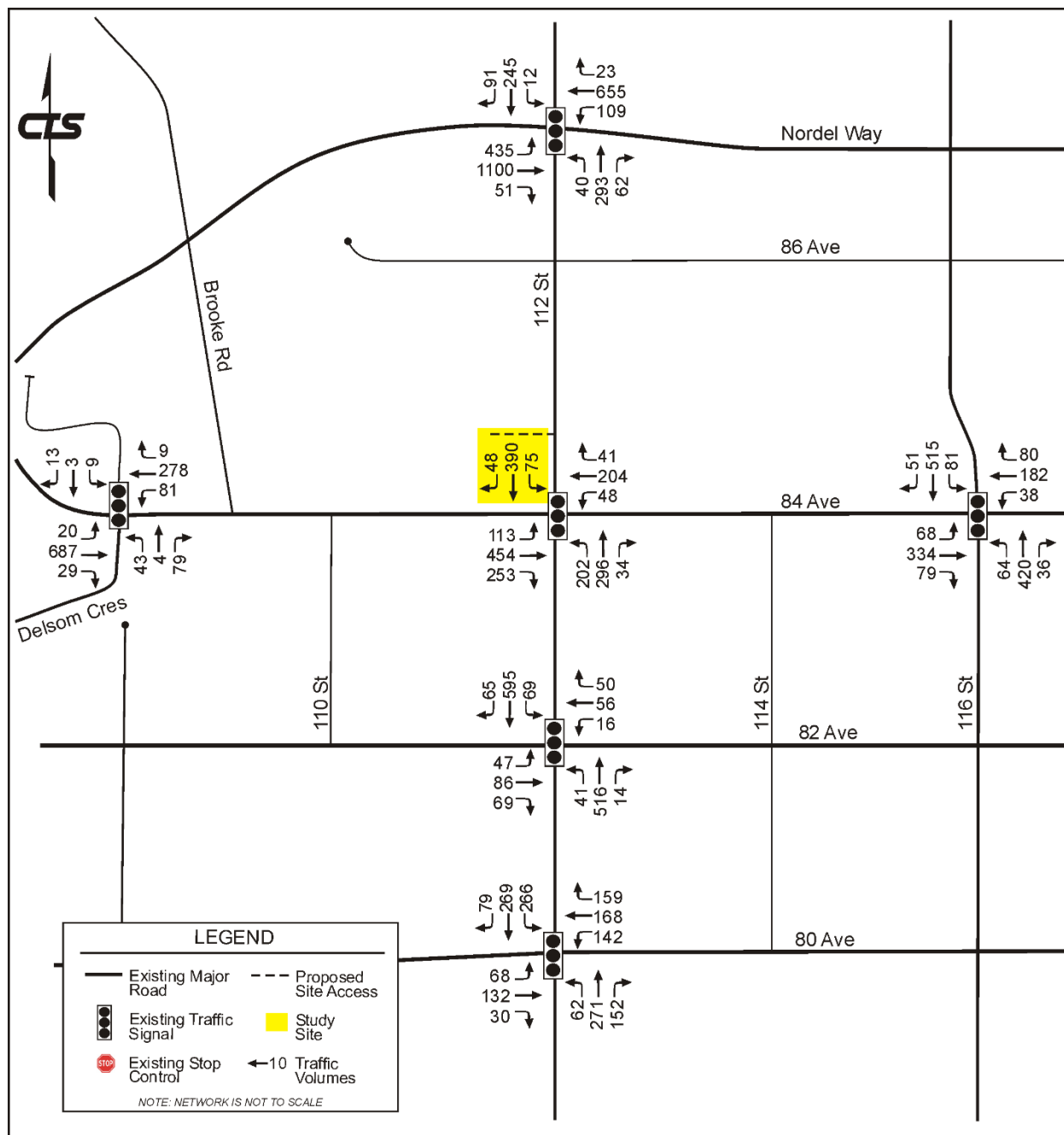


FIGURE 6
2028 WEEKDAY AM PEAK HOUR BASE TRAFFIC VOLUMES

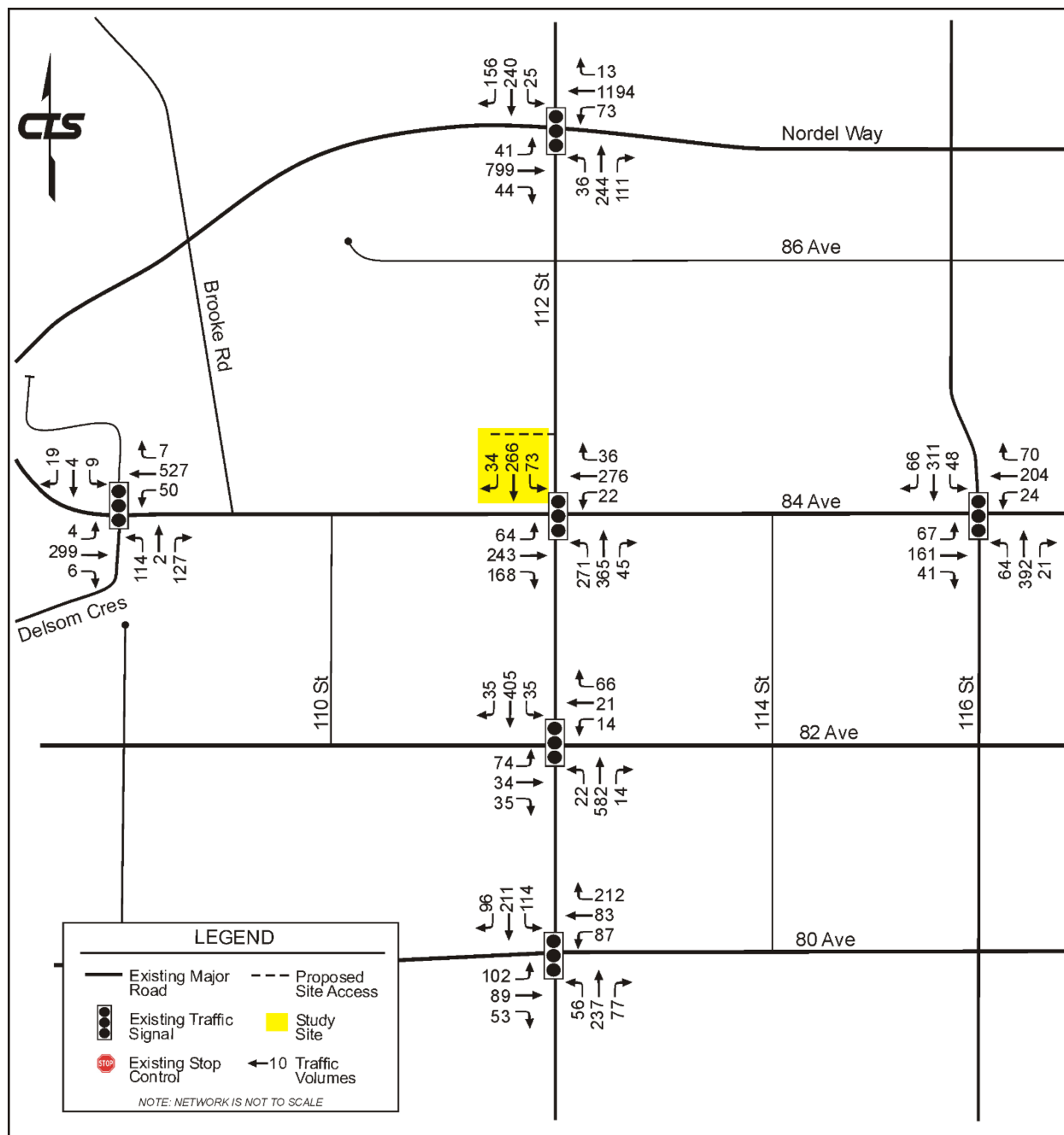


FIGURE 7
2028 WEEKDAY PM PEAK HOUR BASE TRAFFIC VOLUMES

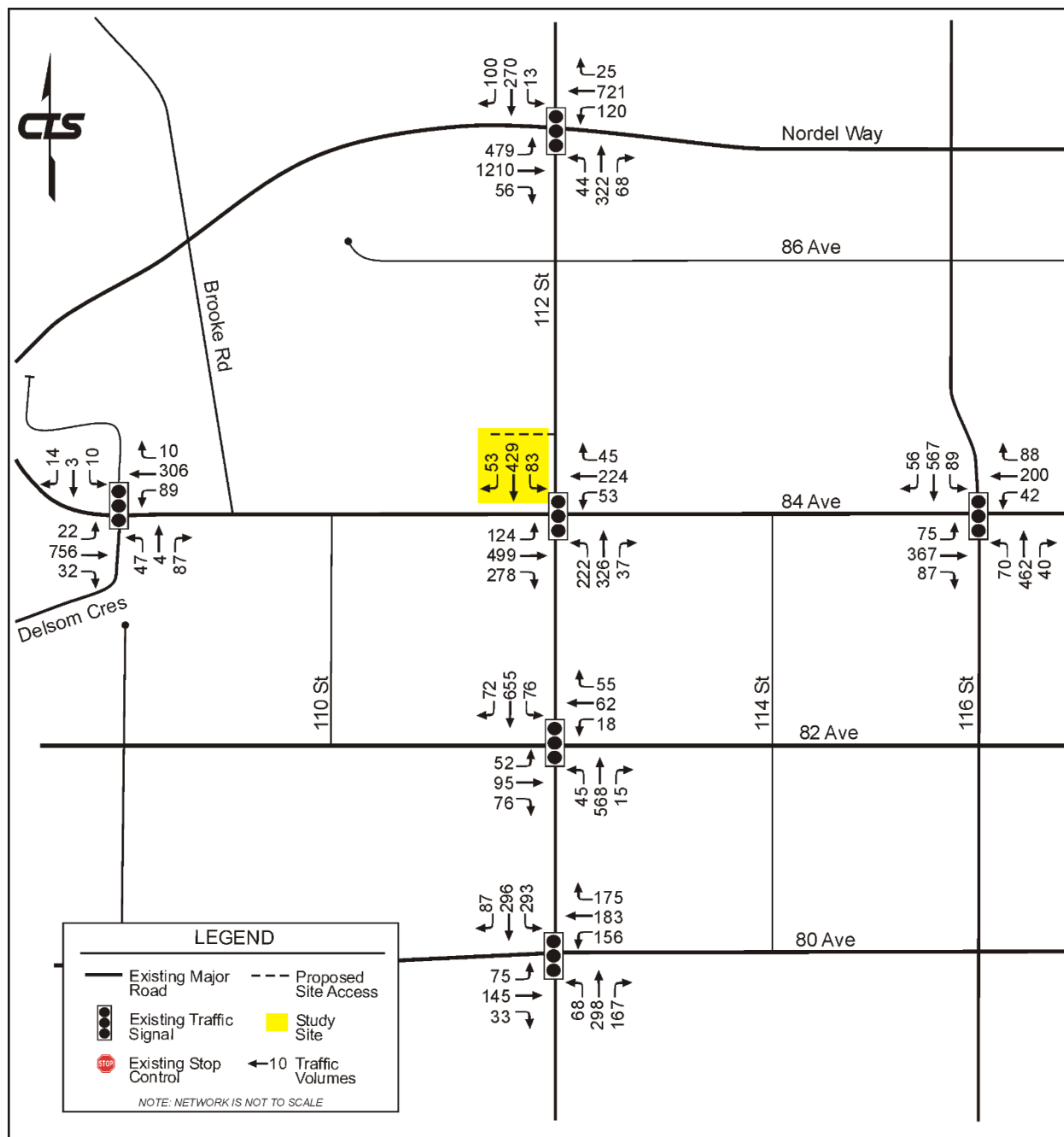


FIGURE 8
2033 WEEKDAY AM PEAK HOUR BASE TRAFFIC VOLUMES

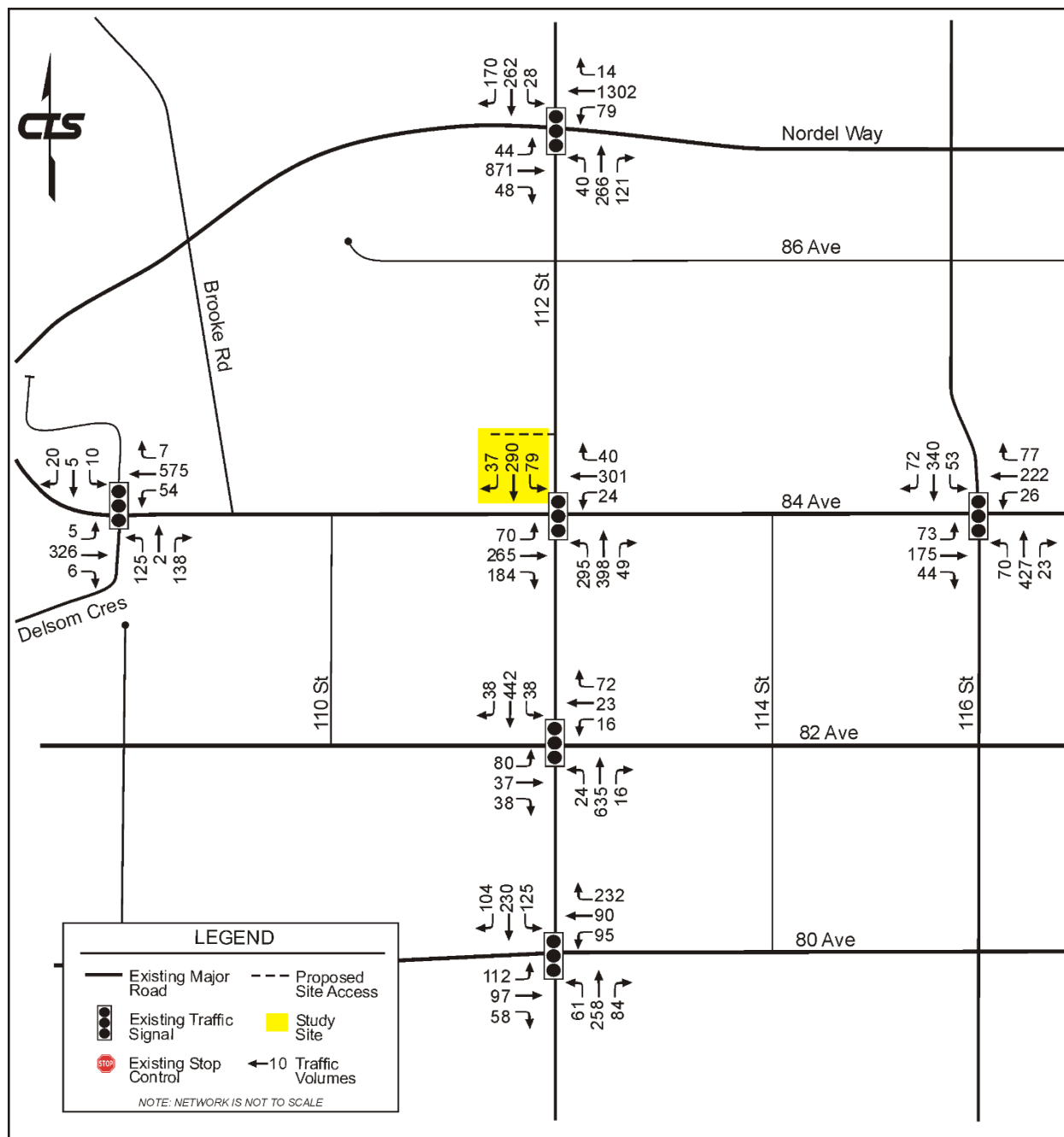
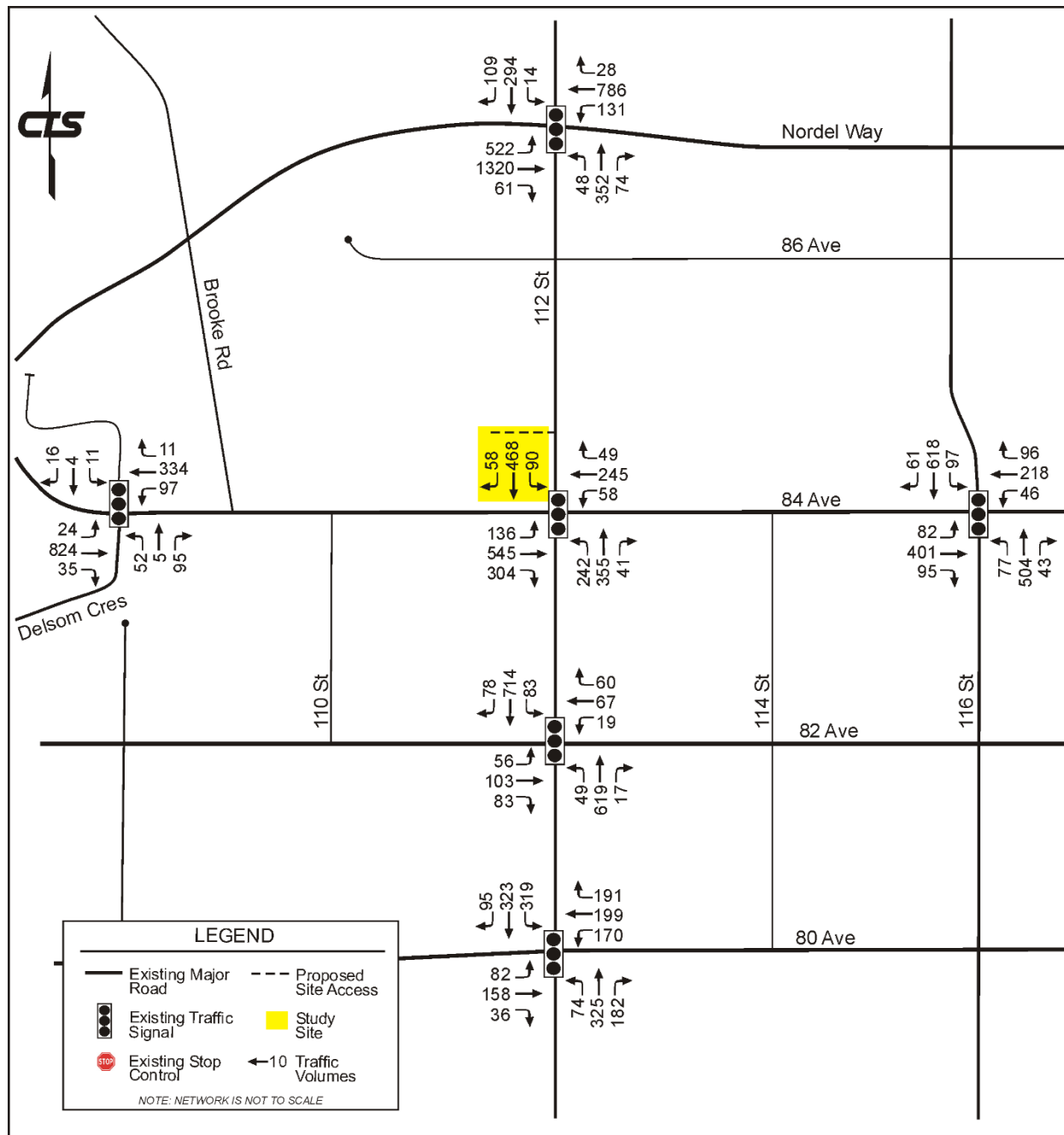


FIGURE 9
2033 WEEKDAY PM PEAK HOUR BASE TRAFFIC VOLUMES



3.0 DEVELOPMENT SITE TRAFFIC VOLUMES

3.1 Trip Generation

The proposed mixed-use development comprises 12,528.26 ft² (1163.91 m²) of ground floor commercial space and a total of eighty-four multi-family residential units. **TABLE 1** summarizes the expected site generated traffic with reference to the Institute of Transportation Engineers (ITE) *Trip Generation Manual 11th Edition, Code 221 – Multi-Family Housing (Mid-Rise), Code 822 – Strip Retail Plaza (<40k), Code 936 – Coffee/Donut Shop without Drive-Through Window, and Code 851 – Convenience Store.*

**TABLE 1
SUMMARY OF DEVELOPMENT SITE GENERATED VEHICLE TRIPS**

Land Use		Peak Hour	Trip Generation Variable	Scope of Development	Vehicle Trip Generation Rate	Trip Rate Source	Directional Split		Peak Hour Volumes (vph)		
							% in	% out	in	out	total
Residential	Multifamily Housing (Mid-Rise)	Weekday Morning	Dwelling Units	84	0.37	ITE 11th Edition Code 221	23%	77%	7	25	32
		Weekday Afternoon			0.39		61%	39%	20	13	33
Commercial Retail	Strip Retail Plaza (<40k)	Weekday Morning	1,000 Sq. Ft. GFA	4.85	2.36	ITE 11th Edition Code 822	60%	40%	7	5	12
		Weekday Afternoon			6.59		50%	50%	16	16	32
Commercial	Coffee Shop without Drive-Through Window	Weekday Morning	1,000 Sq. Ft. GFA	3.21	93.08	ITE 11th Edition Code 936	51%	49%	152	147	299
		Weekday Afternoon			32.29		50%	50%	52	52	104
Commercial	Convenience Store	Weekday Morning	1,000 Sq. Ft. GFA	4.47	62.54	ITE 11th Edition Code 851	50%	50%	The trips for the 7-11, were accounted for by the traffic count data collection.		
		Weekday Afternoon			49.11		51%	49%			
TOTAL WEEKDAY AM PEAK HOUR									166	177	343
TOTAL WEEKDAY PM PEAK HOUR									88	81	169

From **TABLE 1**, the proposed mixed-use development is forecast to generate a total of 343 vehicle trips (166 inbound and 177 outbound) during the weekday AM peak hour and 169 vehicle trips (88 inbound and 81 outbound) during the weekday PM peak hour.

3.2 Development Site Trip Distribution

Trip distribution percentages for site generated vehicle trips to/from for the proposed mixed-use development were developed from existing traffic patterns entering and exiting the study area. The trip distribution percentages for the proposed mixed-use development are summarized by **TABLE 2**.

TABLE 2
TRIP DISTRIBUTION PERCENTAGES
FOR SITE GENERATED TRAFFIC

FROM / TO	WEEKDAY MORNING PEAK HOUR		WEEKDAY AFTERNOON PEAK HOUR	
	INBOUND	OUTBOUND	INBOUND	OUTBOUND
North - 112 Street	20.0%	25.0%	23.8%	20.9%
East - 84 Avenue	17.9%	19.4%	13.6%	26.1%
West - 84 Avenue	25.5%	31.2%	38.0%	21.0%
South - 112 Street	36.5%	24.5%	24.7%	32.0%
TOTAL	100.0%	100.0%	100.0%	100.0%

The trip distribution percentages for the proposed mixed-use development were used to calculate the trip distribution vehicle volumes. The trip distribution vehicle volumes for the proposed mixed-use development are summarized by **TABLE 3**.

TABLE 3
TRIP DISTRIBUTION VEHICLE VOLUMES
FOR SITE GENERATED TRAFFIC

FROM / TO	WEEKDAY MORNING PEAK HOUR		WEEKDAY AFTERNOON PEAK HOUR	
	INBOUND	OUTBOUND	INBOUND	OUTBOUND
North - 112 Street	33	44	21	17
East - 84 Avenue	30	34	12	21
West - 84 Avenue	42	55	33	17
South - 112 Street	61	44	22	26
TOTAL	166	177	88	81
	343		169	

FIGURE 10 and **FIGURE 11** illustrate the development site generated traffic volumes for the proposed mixed-use development for the 2028 weekday AM and PM peak hours.

FIGURE 10
2028 WEEKDAY AM PEAK HOUR SITE GENERATED TRAFFIC VOLUMES

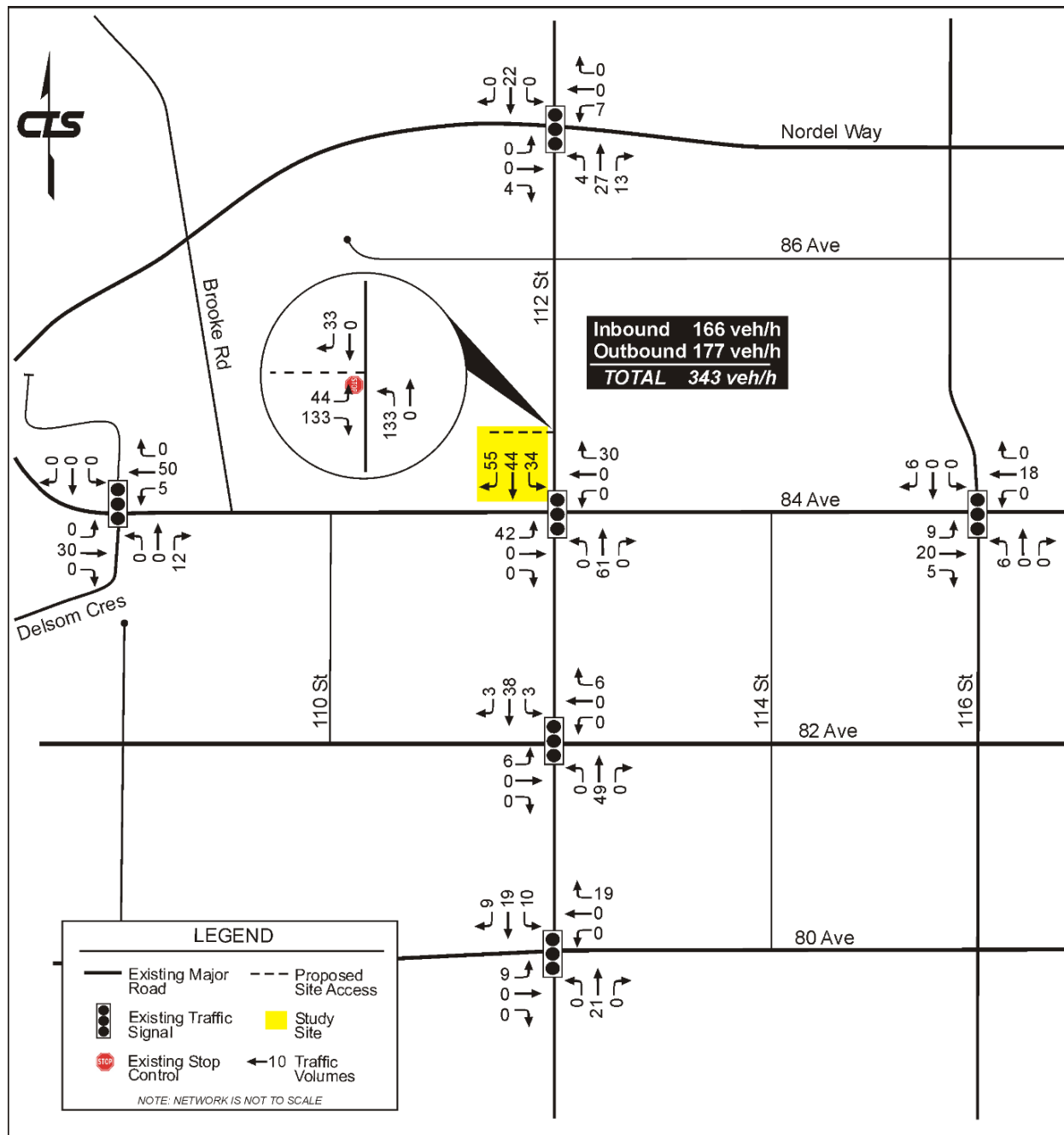
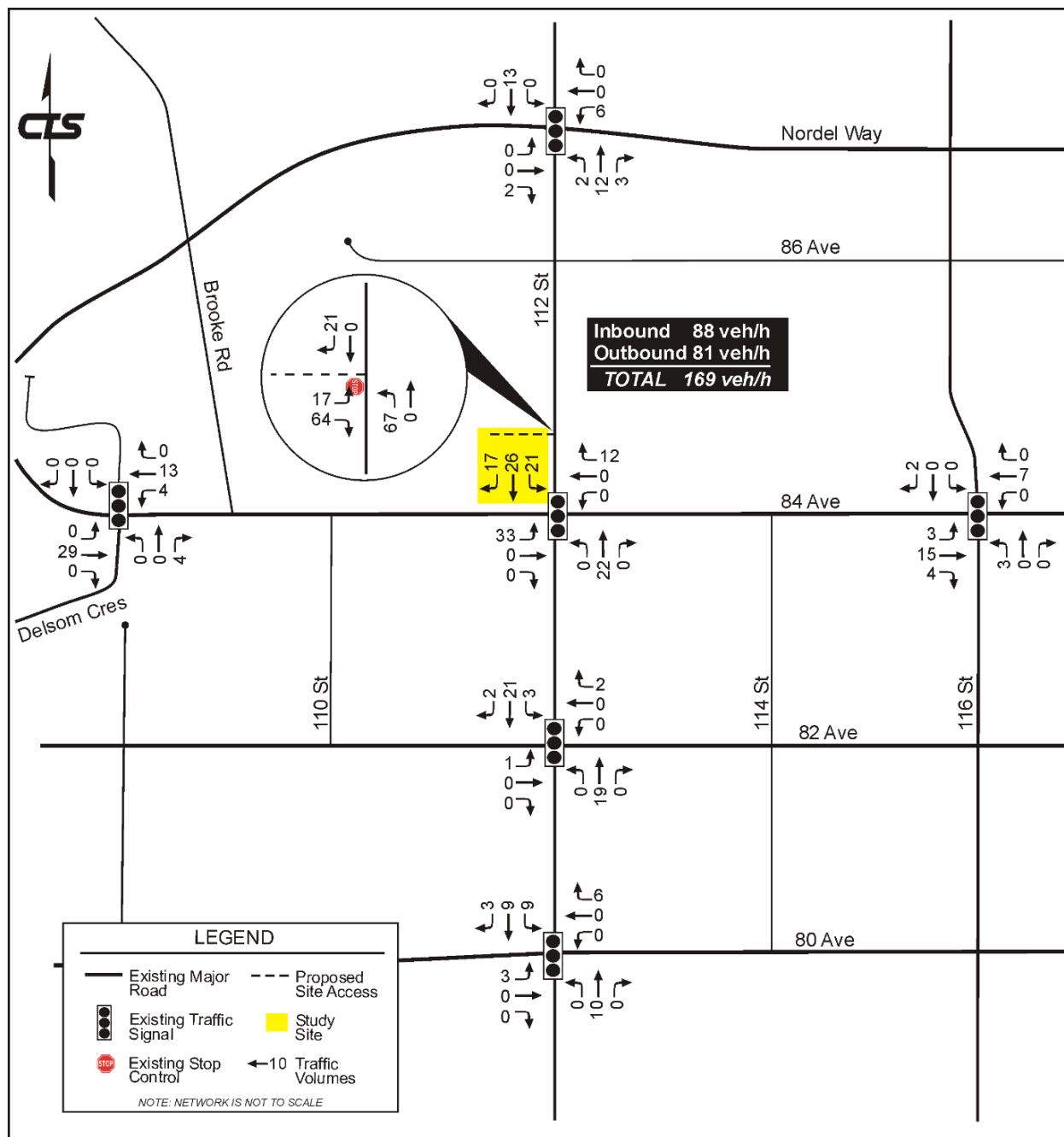


FIGURE 11
2028 WEEKDAY PM PEAK HOUR SITE GENERATED TRAFFIC VOLUMES



4.0 BASE + SITE TRAFFIC VOLUMES

FIGURE 12 and **FIGURE 13** illustrate the total expected traffic volumes for the base + site generated traffic, distributed to the adjacent road network for the year 2028.

FIGURE 14 and **FIGURE 15** illustrate the total expected traffic volumes for the base + site generated traffic, distributed to the adjacent road network for the year 2033 i.e. 5 years post build-out.

FIGURE 12
2028 WEEKDAY AM PEAK HOUR BASE + SITE TRAFFIC VOLUMES

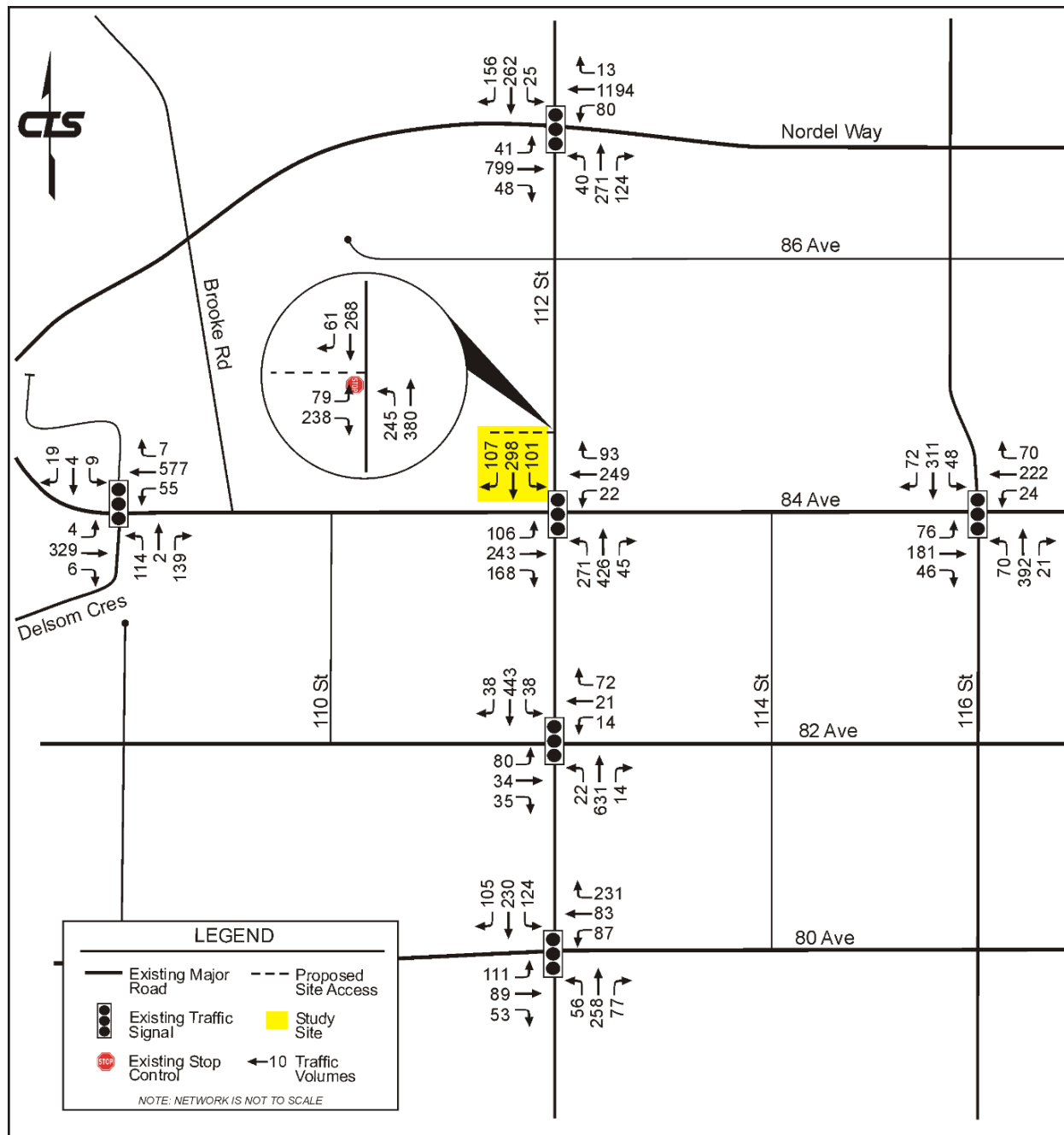


FIGURE 13
2028 WEEKDAY PM PEAK HOUR BASE + SITE TRAFFIC VOLUMES

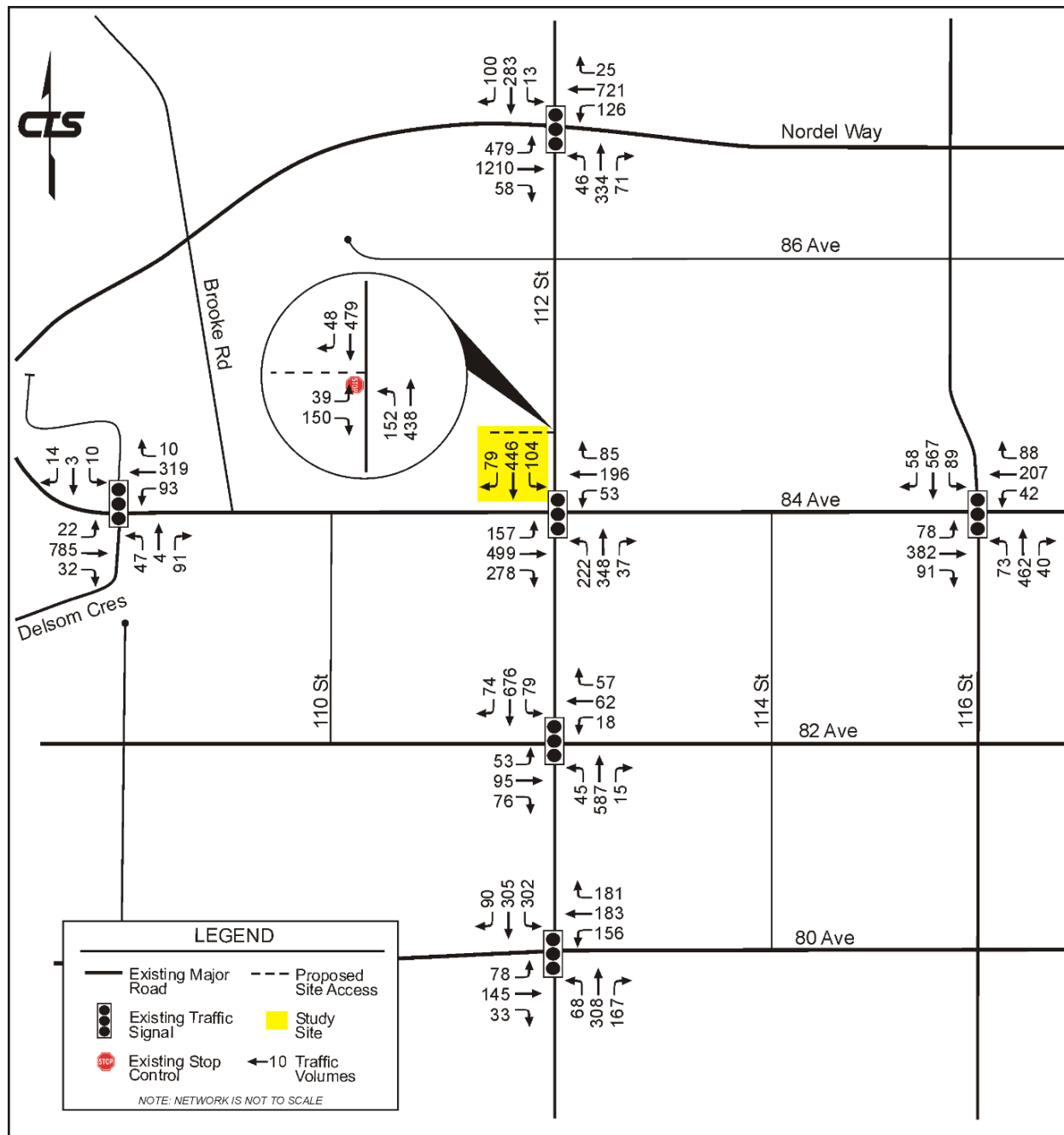


FIGURE 14
2033 WEEDAY AM PEAK HOUR BASE + SITE TRAFFIC VOLUMES

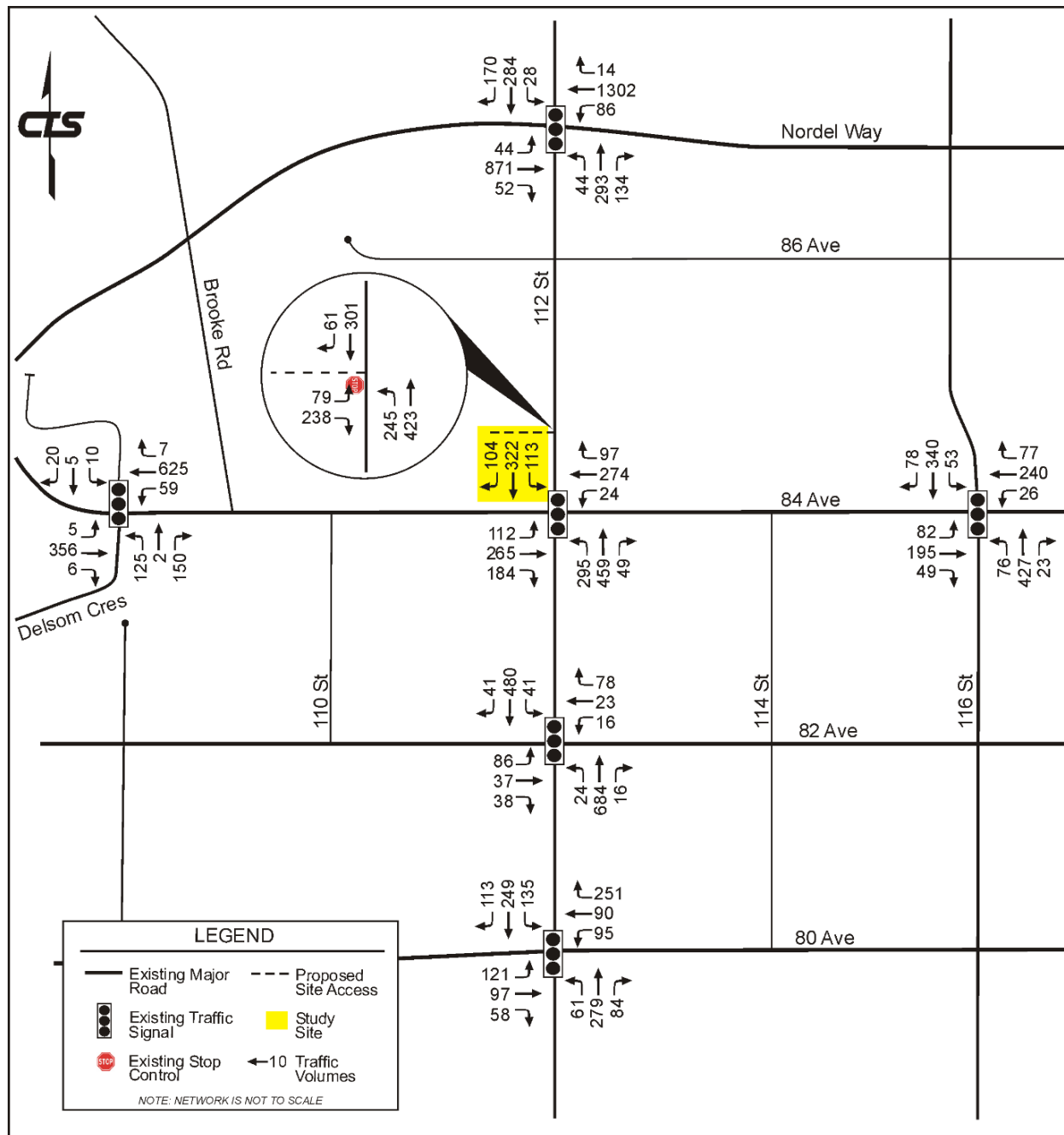
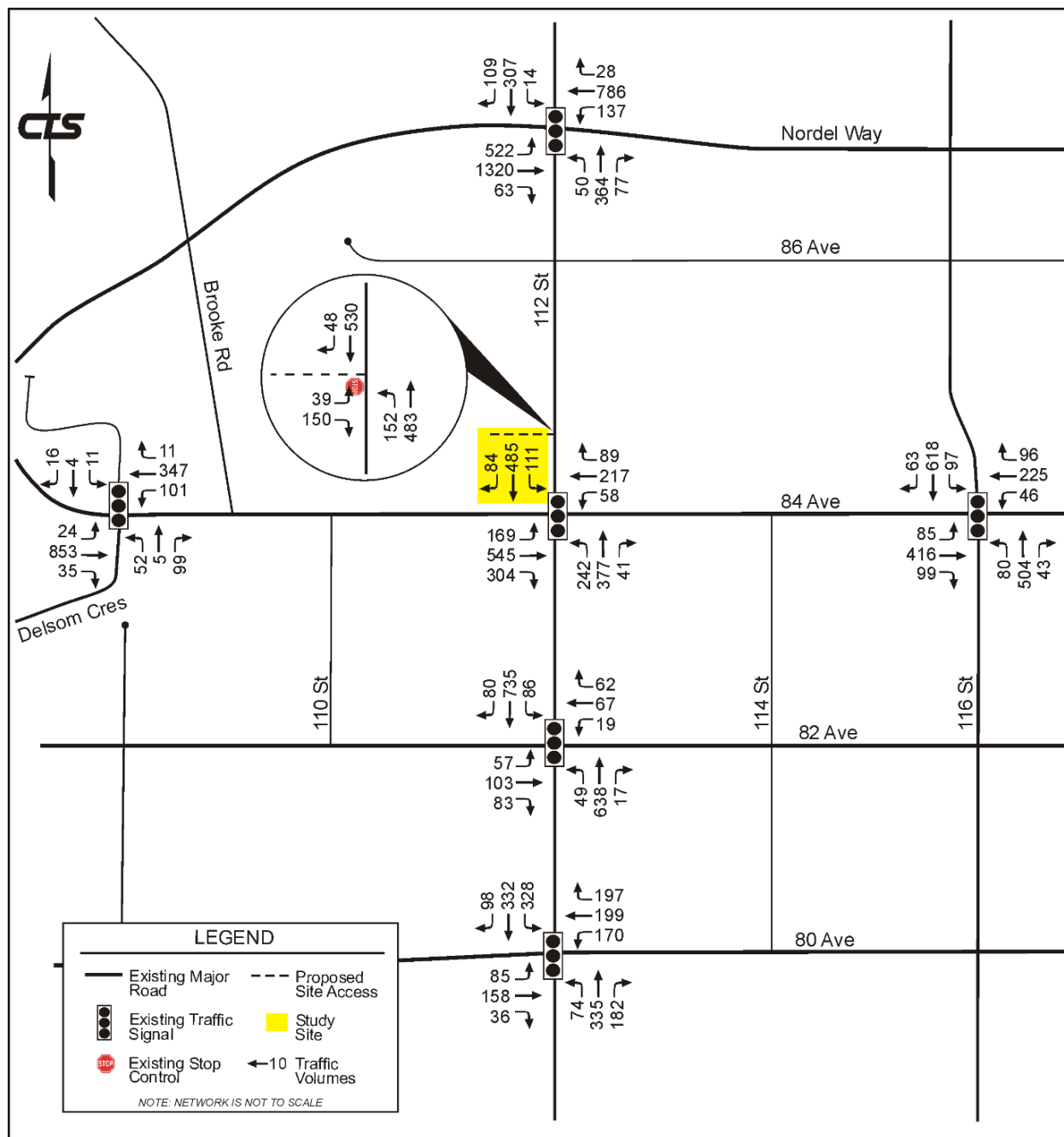


FIGURE 15
2033 WEEKDAY PM PEAK HOUR BASE + SITE TRAFFIC VOLUMES



5.0 TRAFFIC ANALYSIS

5.1 Capacity Analysis

To evaluate the performance of the road network with and without the vehicle trips generated by the proposed mixed-use development, the study area intersections were analysed based on capacity analysis methods from the *Highway Capacity Manual* published by the Transportation Research Board of the National Academies of Science in the United States, i.e. HCS 2024 for the unsignalized intersections and Synchro 11 software for the signalized intersections. This tool conducts a rigorous analysis of peak hour intersection operation based on intersection lane configurations, traffic signal timing and phasing and turning movement volumes. The purpose of the analysis is to identify movements that are or will become problematic under future conditions.

Measures of effectiveness generated by the calculations include the following:

- Volume to capacity ratio (V/C) for each movement or lane group where there are shared lanes. This is the proportion of available capacity used by the expected demand;
- Average delay per vehicle (Delay) in the lane group over the hour analysed. This indicates a weighted average delay in seconds per vehicle for drivers approaching during the hour analysed;
- 95th percentile queue length (meters or vehicles). This indicates the length of the vehicle queues which are not exceeded 95% of the time; and
- Overall intersection Level of Service. This indicates the weighted average delay for the intersection during the hour analysed, converted to a letter representing a range of delays. The ranges of delay corresponding to each Level of Service are summarized by **TABLE 4**.

TABLE 4
LEVEL OF SERVICE AND CORRESPONDING AVERAGE DELAY

Level of Service	Average Delay (Seconds per Vehicle)	
	Signalized Intersection	Unsignalized Intersection
A	0 - 10	0 - 10
B	>10 - 20	>10 - 15
C	>20 - 35	>15 - 25
D	>35 - 55	>25 - 35
E	>55 - 80	>35 - 50
F	>80	>50

5.2 Evaluation Approach

The following assumptions were made with respect to the intersection capacity analysis:

- *Saturation flow rate* = 1,900 passenger cars/hour of green time/lane (pcphgpl)
- *Peak hour factor* (PHF) = 0.87 (AM peak hour) and 0.93 (PM peak hour) were used which were the factors observed from the surveyed intersections.
- Heavy vehicle percentage for roads = 2% which were the percentages observed from the surveys.

Saturation flow rate is the equivalent hourly rate at which previously queued vehicles can traverse an intersection approach under prevailing conditions, assuming that the green signal is always available, and no lost times are experienced. It is a base rate to which adjustment factors are applied.

Peak Hour Factor is a measure of traffic demand fluctuation within the analysis hour. The closer the number is to 1.00, the less fluctuation during the hour.

TABLE 5 to **TABLE 10** summarize and compare the main performance measures of the intersection capacity analysis for signalized intersections and **TABLE 11** compares the main performance measures of the intersection capacity analysis for unsignalized intersections.

Delay time in seconds for each lane group and the 95th percentile queue (vehicle length) was summarized for the unsignalized intersections, wherever the volume to capacity ratio (v/c) and the 95th percentile queue (in meter) was summarized for the signalized intersections. Wherever necessary, attempts at improvements have been made to maintain intersection and approach movement level of service standards for each of the post-development scenarios. The capacity analysis summary sheets are included as **APPENDIX D**.

TABLE 5
CAPACITY ANALYSIS SUMMARY TABLE FOR SIGNALIZED INTERSECTION
NORDEL WAY AND 112 STREET

Intersection	Time of Day	Scenario	Performance Measure	Eastbound			Westbound			Northbound			Southbound			LOS	Notes
				Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
112 Street (N/S) and Nordel Way (E/W)	Weekday Morning Peak Hour	2023 Base	Volumes	37	726	40	66	1085	12	33	222	101	23	218	142	C	Existing signal timing. NB THRT are near capacity.
			V/C	0.16	0.46	0.46	0.19	0.62	0.62	0.22	0.89	0.31	0.59	0.34			
			95% Queue (m)	6.6	72.2	72.2	10.1	117.3	117.3	15.0	109.8	12.5	67.6	14.5			
		2028 Base	Volumes	41	799	44	73	1194	13	36	244	111	25	240	156	C	Existing signal timing. NB THRT are near capacity.
			V/C	0.20	0.51	0.51	0.24	0.69	0.69	0.24	0.94	0.40	0.62	0.37			
			95% Queue (m)	7.0	81.4	81.4	10.9	135.8	135.8	15.9	127.2	14.2	74.6	18.4			
		2028 Base + Site	Volumes	41	799	48	80	1194	13	40	271	124	25	262	156	C	Existing signal timing. NB THRT is over capacity.
			V/C	0.21	0.52	0.52	0.27	0.70	0.70	0.29	1.02	0.39	0.66	0.36			
			95% Queue (m)	7.0	81.7	81.7	11.9	135.8	135.8	17.9	149.1	14.3	81.5	18.4			
		2028 Base + Site (Optimized)	Volumes	41	799	48	80	1194	13	40	271	124	25	262	156	C	Optimized signal timing.
			V/C	0.23	0.59	0.59	0.30	0.78	0.78	0.20	0.84	0.27	0.54	0.31			
			95% Queue (m)	10.1	106.6	106.6	17.1	193.0	193.0	14.1	102.9	11.1	66.4	12.3			
		2033 Base	Volumes	44	871	48	79	1302	14	40	266	121	28	262	170	C	Existing signal timing. NB THRT is over capacity.
			V/C	0.25	0.56	0.56	0.29	0.80	0.80	0.29	1.00	0.43	0.66	0.40			
			95% Queue (m)	7.4	91.2	91.2	11.7	156.4	156.4	17.9	144.6	17.0	81.5	23.4			
		2033 Base + Site	Volumes	44	871	52	86	1302	14	44	293	134	28	284	170	C	Existing signal timing. NB THRT is over capacity.
			V/C	0.25	0.57	0.57	0.32	0.80	0.80	0.37	1.10	0.43	0.72	0.40			
			95% Queue (m)	7.4	91.6	91.6	12.5	156.4	156.4	19.9	166.4	17.0	88.6	23.4			
		2033 Base + Site (Optimized)	Volumes	44	871	52	86	1302	14	44	293	134	28	284	170	C	Optimized signal timing. NB THRT is near capacity.
			V/C	0.30	0.62	0.62	0.35	0.83	0.83	0.26	0.92	0.45	0.59	0.35			
			95% Queue (m)	10.3	122.3	122.3	17.6	200.6	200.6	19.8	158.0	17.2	92.6	26.1			
	Weekday Afternoon Peak Hour	2023 Base	Volumes	435	1100	51	109	655	23	40	293	62	12	245	91	C	Existing signal timing.
			V/C	0.94	0.73	0.73	0.41	0.53	0.53	0.22	0.84	0.12	0.57	0.21			
			95% Queue (m)	125.1	153.2	153.2	16.0	70.0	70.0	14.9	96.8	6.7	64.0	10.0			
		2028 Base	Volumes	479	1210	56	120	721	25	44	322	68	13	270	100	D	Existing signal timing. EBTH, EBTHRT, NBTHRT are near capacity. EBLT is over capacity.
			V/C	1.14	0.88	0.88	0.48	0.59	0.59	0.24	0.87	0.15	0.60	0.22			
			95% Queue (m)	153.8	180.0	180.0	21.3	78.6	78.6	16.1	117.1	7.2	70.7	11.9			
		2028 Base + Site	Volumes	479	1210	58	126	721	25	46	334	71	13	283	100	D	Existing signal timing. EBTH, EBTHRT, NBTHRT are near capacity. EBLT is over capacity.
			V/C	1.16	0.89	0.89	0.49	0.59	0.59	0.26	0.89	0.16	0.62	0.22			
			95% Queue (m)	153.3	180.0	180.0	22.8	78.6	78.6	17.0	124.2	7.3	74.4	11.9			
		2028 Base + Site (Optimized)	Volumes	479	1210	58	126	721	25	46	334	71	13	283	100	D	Optimized signal timing. EBLT is near capacity.
			V/C	0.87	0.80	0.80	0.60	0.83	0.83	0.25	0.84	0.15	0.58	0.20			
			95% Queue (m)	199.7	217.7	217.7	33.6	123.3	123.3	18.6	125.4	7.8	83.9	8.0			
		2033 Base	Volumes	522	1320	61	131	786	28	48	352	74	14	294	109	E	Existing signal timing. EBTH, EBTHRT, NBTHRT are near capacity. EBLT is over capacity.
			V/C	1.38	0.99	0.99	0.51	0.64	0.64	0.28	0.92	0.18	0.62	0.23			
			95% Queue (m)	181.1	205.7	205.7	24.6	87.4	87.4	17.8	134.3	7.8	77.5	12.5			
		2033 Base + Site	Volumes	522	1320	63	137	786	28	50	364	77	14	307	109	E	Existing signal timing. EBTH, EBTHRT, NBTHRT are near capacity. EBLT is over capacity.
			V/C	1.40	1.01	1.01	0.53	0.64	0.64	0.30	0.94	0.18	0.64	0.23			
			95% Queue (m)	180.4	206.2	206.2	26.0	87.4	87.4	18.5	141.4	7.8	81.2	12.5			
		2033 Base + Site (Optimized)	Volumes	522	1320	63	137	786	28	50	364	77	14	307	109	D	Optimized signal timing. EBLT, NBTHRT are near capacity.
			V/C	0.97	0.83	0.83	0.73	0.84	0.84	0.35	0.97	0.24	0.67	0.23			
			95% Queue (m)	192.6	193.3	193.3	49.5	133.4	133.4	24.2	184.3	10.2	106.6	11.4			

Intersection approaching capacity (LOS 'D' or 'E'); or approach demand near capacity (v/c 0.85 to 0.99)

Intersection equals or exceeds capacity (LOS 'F'); or high approach demand over capacity (v/c >= 1.0)

95% Queue length exceeds the capacity of existing storage bay.

TABLE 6
CAPACITY ANALYSIS SUMMARY TABLE FOR SIGNALIZED INTERSECTION
84TH AVENUE AND 112 STREET

Intersection	Time of Day	Scenario	Performance Measure	Eastbound			Westbound			Northbound			Southbound			LOS	Notes
				Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
112 Street (N/S) and 84 Avenue (E/W)	Weekday Morning Peak Hour	2023 Base	Volumes	58	221	153	20	251	33	246	332	41	66	242	31	C	Existing signal timing.
			V/C	0.31	0.47	0.32	0.09	0.62		0.53	0.72		0.42	0.53			
			95% Queue (m)	18.0	50.5	11.9	7.5	64.4		39.7	88.9		21.8	62.2			
		2028 Base	Volumes	64	243	168	22	276	36	271	365	45	73	266	34	C	Existing signal timing.
			V/C	0.37	0.50	0.34	0.10	0.65		0.62	0.77		0.53	0.57			
			95% Queue (m)	20.1	55.3	12.4	8.2	71.5		43.8	100.3		26.0	69.1			
		2028 Base + Site	Volumes	106	243	168	22	249	93	271	426	45	107	298	101	C	Existing signal timing.
			V/C	0.74	0.50	0.34	0.10	0.73		0.72	0.79		0.82	0.69			
			95% Queue (m)	40.5	55.3	12.4	8.2	77.8		51.4	132.4		51.0	96.1			
		2033 Base	Volumes	70	265	184	24	301	40	295	398	49	79	290	37	C	Existing signal timing.
			V/C	0.44	0.54	0.36	0.12	0.70		0.71	0.81		0.60	0.60			
			95% Queue (m)	22.6	60.7	12.8	8.9	79.1		52.5	121.0		35.5	76.3			
		2033 Base + Site	Volumes	112	265	184	24	274	97	295	459	49	113	322	104	D	Existing signal timing. NB are near capacity. SBLT is over capacity.
			V/C	0.84	0.53	0.35	0.12	0.75		0.86	0.86		1.18	0.74			
			95% Queue (m)	47.2	60.7	12.8	8.9	86.1		68.6	149.0		60.2	108.1			
		2033 Base + Site (Optimized)	Volumes	112	265	184	24	274	97	295	459	49	113	322	104	C	Optimized signal timing.
			V/C	0.84	0.53	0.36	0.12	0.76		0.82	0.58		0.48	0.82			
			95% Queue (m)	51.7	67.4	16.3	9.7	95.8		73.0	88.3		33.3	105.4			
	Weekday Afternoon Peak Hour	2023 Base	Volumes	113	454	253	48	204	41	202	296	34	75	390	48	C	Existing signal timing.
			V/C	0.39	0.78	0.45	0.38	0.43		0.58	0.58		0.35	0.79			
			95% Queue (m)	30.8	109.8	31.8	17.6	53.0		31.7	74.8		22.5	105.6			
		2028 Base	Volumes	124	499	278	53	224	45	222	326	37	83	429	53	C	Existing signal timing. SBTHRT is near capacity.
			V/C	0.45	0.84	0.49	0.52	0.46		0.71	0.64		0.42	0.85			
			95% Queue (m)	34.3	137.0	38.0	24.5	58.7		50.0	83.9		25.8	132.5			
		2028 Base + Site	Volumes	157	499	278	53	196	85	222	348	37	104	446	79	C	Existing signal timing. EBTH, SBTHRT is near capacity.
			V/C	0.60	0.85	0.49	0.55	0.50		0.78	0.66		0.55	0.91			
			95% Queue (m)	45.5	137.0	38.0	25.2	59.7		60.1	89.7		33.9	151.8			
		2028 Base + Site (Optimized)	Volumes	157	499	278	53	196	85	222	348	37	104	446	79	C	Optimized signal timing.
			V/C	0.63	0.84	0.53	0.58	0.50		0.70	0.41		0.32	0.84			
			95% Queue (m)	62.1	182.8	64.1	33.0	83.6		56.6	75.9		32.8	160.9			
		2033 Base	Volumes	136	545	304	58	245	49	242	355	41	90	468	58	D	Existing signal timing. EBTH, NBLT, SBTHRT is near capacity.
			V/C	0.52	0.90	0.53	0.70	0.50		0.87	0.68		0.51	0.90			
			95% Queue (m)	39.3	156.5	44.4	30.8	64.6		70.3	92.8		29.6	151.1			
		2033 Base + Site	Volumes	169	545	304	58	217	89	242	377	41	111	485	84	D	Existing signal timing. EBTH, NBLT, SBTHRT is near capacity.
			V/C	0.69	0.91	0.53	0.70	0.53		0.88	0.70		0.65	0.96			
			95% Queue (m)	57.1	156.5	44.4	31.1	66.0		71.9	99.1		43.6	170.8			
		2033 Base + Site (Optimized)	Volumes	169	545	304	58	217	89	242	377	41	111	485	84	D	Optimized signal timing. EBTH is near capacity.
			V/C	0.78	0.97	0.61	0.81	0.57		0.84	0.44		0.33	0.84			
			95% Queue (m)	85.5	227.1	80.2	42.7	96.5		54.6	66.4		28.6	145.8			

Intersection approaching capacity (LOS 'D' or 'E'); or approach demand near capacity (v/c 0.85 to 0.99)

Intersection equals or exceeds capacity (LOS 'F'); or high approach demand over capacity (v/c >= 1.0)

95% Queue length exceeds the capacity of existing storage bay.

TABLE 7
CAPACITY ANALYSIS SUMMARY TABLE FOR SIGNALIZED INTERSECTION
82 AVENUE AND 112 STREET

Intersection	Time of Day	Scenario	Performance Measure	Eastbound			Westbound			Northbound			Southbound			LOS	Notes
				Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
112 Street (N/S) and 82 Avenue (E/W)	Weekday Morning Peak Hour	2023 Base	Volumes	67	31	32	13	19	60	20	529	13	32	368	32	B	Existing signal timing
			V/C	0.43			0.25			0.59			0.48				
			95% Queue (m)	25.7			13.0			72.1			50.9				
		2028 Base	Volumes	74	34	35	14	21	66	22	582	14	35	405	35	B	Existing signal timing
			V/C	0.48			0.27			0.62			0.51				
			95% Queue (m)	31.0			14.8			87.2			60.9				
		2028 Base + Site	Volumes	80	34	35	14	21	72	22	631	14	38	443	38	B	Existing signal timing
			V/C	0.49			0.29			0.66			0.56				
			95% Queue (m)	32.0			15.1			101.9			71.7				
		2033 Base	Volumes	80	37	38	16	23	72	24	635	16	38	442	38	B	Existing signal timing
			V/C	0.53			0.31			0.77			0.63				
			95% Queue (m)	33.4			15.7			107.1			73.3				
		2033 Base + Site	Volumes	86	37	38	16	23	78	24	684	16	41	480	41	B	Existing signal timing
			V/C	0.56			0.32			0.80			0.67				
			95% Queue (m)	34.8			15.9			125.7			86.6				
	Weekday Afternoon Peak Hour	2023 Base	Volumes	47	86	69	16	56	50	41	516	14	69	595	65	B	Existing signal timing
			V/C	0.58			0.32			0.63			0.82				
			95% Queue (m)	39.7			21.1			83.5			155.2				
		2028 Base	Volumes	52	95	76	18	62	55	45	568	15	76	655	72	C	Existing signal timing SB is near capacity
			V/C	0.65			0.36			0.67			0.89				
			95% Queue (m)	44.4			23.7			99.6			183.9				
		2028 Base + Site	Volumes	53	95	76	18	62	57	45	587	15	79	676	74	C	Existing signal timing SB is near capacity
			V/C	0.66			0.37			0.68			0.90				
			95% Queue (m)	44.6			23.9			105.1			194.0				
		2028 Base + Site (Optimized)	Volumes	53	95	76	18	62	57	45	587	15	79	676	74	C	Optimized signal timing.
			V/C	0.72			0.40			0.63			0.84				
			95% Queue (m)	53.1			29.1			115.1			217.7				
		2033 Base	Volumes	56	103	83	19	67	60	49	619	17	83	714	78	C	Existing signal timing SB is near capacity
			V/C	0.72			0.40			0.72			0.95				
			95% Queue (m)	48.7			26.0			120.8			210.9				
		2033 Base + Site	Volumes	57	103	83	19	67	62	49	638	17	86	735	80	C	Existing signal timing SB is near capacity
			V/C	0.72			0.40			0.74			0.98				
			95% Queue (m)	49.2			26.0			137.3			220.0				
		2033 Base + Site (Optimized)	Volumes	57	103	83	19	67	62	49	638	17	86	735	80	C	Optimized signal timing. SB is near capacity
			V/C	0.78			0.44			0.70			0.93				
			95% Queue (m)	78.1			37.8			116.4			241.6				

	Intersection approaching capacity (LOS 'D' or 'E'); or approach demand near capacity (v/c 0.85 to 0.99)
	Intersection equals or exceeds capacity (LOS 'F'); or high approach demand over capacity (v/c >= 1.0)
	95% Queue length exceeds the capacity of existing storage bay.

TABLE 8
CAPACITY ANALYSIS SUMMARY TABLE FOR SIGNALIZED INTERSECTION
80TH AVENUE AND 112TH STREET

Intersection	Time of Day	Scenario	Performance Measure	Eastbound			Westbound			Northbound			Southbound			LOS	Notes
				Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
112 Street (N/S) and 80 Avenue (E/W)	Weekday Morning Peak Hour	2023 Base	Volumes	93	81	48	79	75	193	51	215	70	104	192	87	B	Existing signal timing
			V/C	0.29	0.28		0.26	0.16	0.37	0.14	0.32	0.11	0.19	0.28			
			95% Queue (m)	21.8	22.6		19.2	17.3	13.2	12.6	39.5	3.0	12.2	25.7			
		2028 Base	Volumes	102	89	53	87	83	212	56	237	77	114	211	96	B	Existing signal timing
			V/C	0.37	0.36		0.34	0.21	0.44	0.23	0.52	0.17	0.26	0.39			
			95% Queue (m)	24.4	25.8		21.5	19.3	13.9	13.9	44.6	4.0	13.6	30.0			
		2028 Base + Site	Volumes	111	89	53	87	83	231	56	258	77	124	230	105	B	Existing signal timing
			V/C	0.41	0.35		0.34	0.20	0.46	0.23	0.55	0.17	0.29	0.42			
			95% Queue (m)	27.5	26.7		22.2	20.0	14.6	14.2	50.2	4.0	15.2	34.6			
		2033 Base	Volumes	112	97	58	95	90	232	61	258	84	125	230	104	B	Existing signal timing
			V/C	0.41	0.38		0.37	0.22	0.46	0.25	0.55	0.18	0.29	0.42			
			95% Queue (m)	28.0	29.3		24.4	21.5	14.6	15.6	51.1	5.1	15.5	35.2			
		2033 Base + Site	Volumes	121	97	58	95	90	251	61	279	84	135	249	113	B	Existing signal timing
			V/C	0.44	0.38		0.37	0.22	0.48	0.25	0.58	0.18	0.32	0.45			
			95% Queue (m)	30.4	30.1		24.9	22.0	15.3	15.8	56.2	5.0	16.9	40.0			
	Weekday Afternoon Peak Hour	2023 Base	Volumes	68	132	30	142	166	159	62	271	152	266	269	79	B	Existing signal timing
			V/C	0.26	0.39		0.54	0.41	0.34	0.26	0.60	0.32	0.52	0.37			
			95% Queue (m)	18.6	34.7		36.1	37.9	13.4	17.1	57.9	12.6	34.8	42.1			
		2028 Base	Volumes	75	145	33	156	183	175	68	298	167	293	296	87	B	Existing signal timing
			V/C	0.28	0.42		0.58	0.43	0.36	0.29	0.65	0.34	0.60	0.41			
			95% Queue (m)	20.5	38.1		39.7	41.1	14.0	18.5	64.1	13.2	38.6	47.2			
		2028 Base + Site	Volumes	78	145	33	156	183	181	68	308	167	302	305	90	B	Existing signal timing
			V/C	0.29	0.42		0.59	0.43	0.37	0.29	0.66	0.33	0.62	0.42			
			95% Queue (m)	20.9	38.1		39.7	41.1	14.3	18.5	66.3	13.2	39.9	49.2			
		2033 Base	Volumes	82	158	36	170	199	191	74	325	182	319	323	95	B	Existing signal timing
			V/C	0.31	0.45		0.64	0.45	0.38	0.32	0.69	0.35	0.68	0.45			
			95% Queue (m)	22.1	41.7		44.0	44.5	14.5	20.2	70.5	13.7	43.6	52.8			
		2033 Base + Site	Volumes	85	158	36	170	199	197	74	335	182	328	332	98	B	Existing signal timing
			V/C	0.32	0.45		0.65	0.45	0.39	0.32	0.71	0.35	0.70	0.46			
			95% Queue (m)	22.8	41.7		44.1	44.5	14.8	20.3	72.7	13.7	52.1	55.0			
Intersection approaching capacity (LOS 'D' or 'E'); or approach demand near capacity (v/c 0.85 to 0.99)																	
Intersection equals or exceeds capacity (LOS 'F'); or high approach demand over capacity (v/c >= 1.0)																	
95% Queue length exceeds the capacity of existing storage bay.																	

TABLE 9
CAPACITY ANALYSIS SUMMARY TABLE FOR SIGNALIZED INTERSECTION
84TH AVENUE AT 116 STREET

Intersection	Time of Day	Scenario	Performance Measure	Eastbound			Westbound			Northbound			Southbound			LOS	Notes
				Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
116 Street (N/S) and 84 Avenue (E/W)	Weekday Morning Peak Hour	2023 Base	Volumes	61	146	37	22	185	64	58	356	19	44	283	60	B	Existing signal timing.
			V/C	0.30	0.44		0.09	0.61		0.14	0.44		0.11	0.41			
			95% Queue (m)	13.3	28.0		6.0	38.0		9.6	48.4		7.9	42.0			
		2028 Base	Volumes	67	161	41	24	204	70	64	392	21	48	311	66	B	Existing signal timing.
			V/C	0.34	0.47		0.09	0.63		0.17	0.50		0.14	0.46			
			95% Queue (m)	14.5	30.5		6.4	41.7		11.2	57.4		8.9	49.7			
		2028 Base + Site	Volumes	76	181	46	24	222	70	70	392	21	48	311	72	B	Existing signal timing.
			V/C	0.39	0.50		0.10	0.65		0.19	0.50		0.14	0.47			
			95% Queue (m)	16.2	34.4		6.4	44.8		12.9	61.2		9.5	53.8			
		2033 Base	Volumes	73	175	44	26	222	77	70	427	23	53	340	72	B	Existing signal timing.
			V/C	0.39	0.48		0.10	0.66		0.20	0.55		0.17	0.51			
			95% Queue (m)	15.9	33.1		6.7	46.0		13.1	68.3		10.6	59.6			
		2033 Base + Site	Volumes	82	195	49	26	240	77	76	427	23	53	340	78	B	Existing signal timing.
			V/C	0.45	0.52		0.11	0.68		0.23	0.56		0.17	0.52			
			95% Queue (m)	18.1	37.0		6.7	49.4		14.2	68.3		10.7	60.5			
	Weekday Afternoon Peak Hour	2023 Base	Volumes	68	334	79	38	182	80	64	420	36	81	515	51	B	Existing signal timing.
			V/C	0.23	0.75		0.22	0.48		0.27	0.55		0.25	0.69			
			95% Queue (m)	13.8	67.1		9.7	37.4		13.8	67.3		15.3	95.0			
		2028 Base	Volumes	75	367	87	42	200	88	70	462	40	89	567	56	C	Existing signal timing.
			V/C	0.27	0.80		0.27	0.51		0.39	0.62		0.33	0.77			
			95% Queue (m)	15.3	78.5		10.8	41.8		17.2	76.6		17.9	122.3			
		2028 Base + Site	Volumes	78	382	91	42	207	88	73	462	40	89	567	58	C	Existing signal timing.
			V/C	0.27	0.81		0.29	0.51		0.42	0.63		0.34	0.78			
			95% Queue (m)	15.9	91.5		11.0	43.2		18.6	76.6		18.0	122.9			
		2033 Base	Volumes	82	401	95	46	218	96	77	504	43	97	618	61	C	Existing signal timing. SBTHRT is near capacity.
			V/C	0.30	0.84		0.34	0.53		0.61	0.69		0.43	0.86			
			95% Queue (m)	16.8	98.7		12.4	46.2		28.4	86.6		21.6	140.0			
		2033 Base + Site	Volumes	85	416	99	46	225	96	80	504	43	97	618	63	C	Existing signal timing. EBTHRT, SBTHRT are near capacity.
			V/C	0.31	0.86		0.37	0.54		0.66	0.69		0.44	0.87			
			95% Queue (m)	17.5	104.9		12.9	47.8		30.1	86.6		21.7	140.5			
		2033 Base + Site (Optimized)	Volumes	85	416	99	46	225	96	80	504	43	97	618	63	C	Optimized signal timing.
			V/C	0.32	0.84		0.37	0.53		0.57	0.66		0.41	0.82			
			95% Queue (m)	20.4	108.4		14.8	57.7		33.8	112.2		26.5	176.1			

Intersection approaching capacity (LOS 'D' or 'E'); or approach demand near capacity (v/c 0.85 to 0.99)

Intersection equals or exceeds capacity (LOS 'F'); or high approach demand over capacity (v/c >= 1.0)

95% Queue length exceeds the capacity of existing storage bay.

TABLE 10
CAPACITY ANALYSIS SUMMARY TABLE FOR SIGNALIZED INTERSECTION
84TH AVENUE AT DELSOM CRESCENT

Intersection	Time of Day	Scenario	Performance Measure	Eastbound			Westbound			Northbound			Southbound			LOS	Notes
				Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
Delsom Crescent (N/S) and 84 Avenue (E/W)	Weekday Morning Peak Hour	2023 Base	Volumes	4	272	5	45	479	6	104	2	115	8	4	17	B	Existing signal timing.
			V/C	0.01	0.40	0.01	0.10	0.58		0.40	0.01	0.31	0.04	0.02	0.06		
			95% Queue (m)	2.0	63.8	0.0	9.5	123.0		27.8	2.3	9.1	4.4	4.1	0.0		
		2028 Base	Volumes	4	299	6	50	527	7	114	2	127	9	4	19	B	Existing signal timing.
			V/C	0.01	0.43	0.01	0.11	0.62		0.44	0.01	0.34	0.05	0.02	0.07		
			95% Queue (m)	2.0	71.4	0.0	10.3	153.6		29.9	2.3	11.8	4.6	4.2	0.0		
		2028 Base + Site	Volumes	4	329	6	55	577	7	114	2	139	9	4	19	B	Existing signal timing.
			V/C	0.02	0.46	0.01	0.13	0.68		0.44	0.01	0.38	0.05	0.02	0.07		
			95% Queue (m)	2.0	79.6	0.0	11.1	175.0		29.9	2.3	14.8	4.6	4.2	0.0		
		2033 Base	Volumes	5	326	6	54	575	7	125	2	138	10	5	20	B	Existing signal timing.
			V/C	0.02	0.46	0.01	0.12	0.68		0.46	0.01	0.37	0.05	0.03	0.07		
			95% Queue (m)	2.3	79.6	0.0	11.1	176.4		32.7	2.3	14.5	4.9	4.7	0.0		
		2033 Base + Site	Volumes	5	356	6	59	625	7	125	2	150	10	5	20	C	Existing signal timing.
			V/C	0.02	0.55	0.01	0.15	0.72		0.47	0.01	0.39	0.05	0.03	0.08		
			95% Queue (m)	2.3	87.7	0.0	11.9	196.4		33.7	2.3	15.9	5.1	4.9	0.0		
	Weekday Afternoon Peak Hour	2023 Base	Volumes	20	687	29	81	278	9	43	4	79	9	3	13	B	Existing signal timing.
			V/C	0.03	0.72	0.04	0.26	0.26		0.23	0.02	0.26	0.06	0.02	0.05		
			95% Queue (m)	4.5	205.1	0.0	12.8	57.0		17.0	4.1	0.0	5.9	3.5	0.0		
		2028 Base	Volumes	22	756	32	89	306	10	47	4	87	10	3	14	B	Existing signal timing.
			V/C	0.04	0.80	0.04	0.34	0.29		0.25	0.02	0.29	0.07	0.02	0.06		
			95% Queue (m)	4.9	242.6	0.0	14.1	63.7		18.4	4.2	1.9	6.4	3.6	0.0		
		2028 Base + Site	Volumes	22	785	32	93	319	10	47	4	91	10	3	14	C	Existing signal timing.
			V/C	0.04	0.83	0.04	0.38	0.30		0.25	0.02	0.30	0.07	0.02	0.06		
			95% Queue (m)	4.9	257.7	0.0	14.9	66.9		18.4	4.2	3.0	6.5	3.6	0.0		
		2033 Base	Volumes	24	824	35	97	334	11	52	5	95	11	4	16	C	Existing signal timing. EBTH is near capacity.
			V/C	0.04	0.91	0.05	0.46	0.31		0.29	0.02	0.31	0.07	0.03	0.06		
			95% Queue (m)	5.2	279.5	0.0	23.1	70.8		19.8	4.6	4.0	6.7	4.4	0.0		
		2033 Base + Site	Volumes	24	853	35	101	347	11	52	5	99	11	4	16	C	Existing signal timing. EBTH is near capacity.
			V/C	0.04	0.95	0.05	0.47	0.33		0.29	0.02	0.32	0.07	0.03	0.06		
			95% Queue (m)	5.2	295.8	0.0	24.3	74.1		19.9	4.6	5.0	6.7	4.4	0.0		
		2033 Base + Site (Optimized)	Volumes	24	853	35	101	347	11	52	5	99	11	4	16	B	Optimized signal timing.
			V/C	0.04	0.83	0.04	0.47	0.30		0.39	0.03	0.36	0.08	0.03	0.07		
			95% Queue (m)	4.5	258.1	0.0	16.0	65.1		21.4	4.8	4.5	7.2	4.3	0.0		

Intersection approaching capacity (LOS 'D' or 'E'); or approach demand near capacity (v/c 0.85 to 0.99)

Intersection equals or exceeds capacity (LOS 'F'); or high approach demand over capacity (v/c >= 1.0)

95% Queue length exceeds the capacity of existing storage bay.

TABLE 11
CAPACITY ANALYSIS SUMMARY TABLE FOR UNSIGNALIZED INTERSECTION
SITE ACCESS AND 112TH STREET

Intersection	Time of Day	Scenario	Performance Measure	Eastbound			Westbound			Northbound			Southbound			LOS	Notes
				Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
Site Access on 112th Street (N/S)	Weekday Morning Peak Hour	2028 Base + Site	Volumes	79		238				245	380			268	61	D	EB movements are over capacity.
			Delay	118.8						4.9				0.0			
			95% Queue (veh)	14.2						0.9				0.0			
		2033 Base + Site	Volumes	79		238				245	423			301	61	E	EB movements are over capacity.
			Delay	166.9						4.8				0.0			
			95% Queue (veh)	16.8						1.0				0.0			
	Weekday Afternoon Peak Hour	2028 Base + Site	Volumes	39		150				152	438			479	48	A	OK. EB movements are near capacity.
			Delay	30.2						3.5				0.0			
			95% Queue (veh)	3.7						0.6				0.0			
		2033 Base + Site	Volumes	39		150				152	483			530	48	A	OK. EB movements are near capacity.
			Delay	38.1						3.5				0.0			
			95% Queue (veh)	4.5						0.6				0.0			

Delay = Average Delay (seconds/vehicle)

Intersection approaching capacity (LOS 'D' or 'E'); ; or medium approach delays (25sec to <50sec)

Intersection equals or exceeds capacity (LOS 'F'); or high approach delays (>= 50sec)

95% Queue = UNSIGNALIZED QUEUE IS PER VEHICLE

Based on the capacity analyses summarized by **TABLE 5** through **TABLE 11**, the following observations can be made:

Nordel Way (E/W) and 112th Street (N/S)

- The signalized “+” intersection currently operates at an overall level of service LOS C (Good) during the weekday AM and PM peak hours with the existing traffic signal timing. The northbound through/right-turn movements are near capacity during the weekday AM peak hour. All movements are under capacity during the weekday PM peak hour.
- For the 2028 base traffic condition with existing signal timing, the overall intersection level of service is LOS C (Good) during the weekday AM peak hour and LOS D (Fair) during the weekday PM peak hour. The northbound through/right-turn movements are near capacity during the weekday AM peak hour. The northbound through/right-turn, the eastbound through, and the eastbound right-turn movements are near capacity during the weekday PM peak hour, and the eastbound left-turn movement is over capacity. The 95% queue length exceeds the capacity for the eastbound left-turn storage bay during the weekday PM peak hour.
- For the 2033 base traffic condition with existing signal timing, the overall intersection level of service is LOS C (Good) during the weekday AM peak hour and LOS E (Poor) during the weekday PM peak hour. The northbound through/right-turn movements are over capacity during the weekday AM peak hour. The northbound through/right-turn, the eastbound through, and the eastbound right-turn movements are near capacity during the weekday PM peak hour, and the eastbound left-turn movement is over capacity. The 95% queue length exceeds the capacity for the eastbound left-turn storage bay during the weekday PM peak hour.
- For the 2028 base+site traffic condition i.e. build-out, with existing signal timing, the overall intersection level of service is LOS C (Good) during the weekday AM peak hour and LOS D (Fair) during the weekday PM peak hour. The northbound through/right-turn movements are over capacity during the weekday AM peak hour. The northbound through/right-turn, the eastbound through, and the eastbound right-turn movements are near capacity during the weekday PM peak hour, and the eastbound left-turn movement is over capacity. The 95% queue length exceeds the capacity for the eastbound left-turn storage bay during the weekday PM peak hour.
- Of note, the addition of site traffic in 2028 i.e. build-out, represents a 2.6% (77 vehicles) increase during the weekday AM peak hour intersection volume and 1.1% (38 vehicles) increase during the weekday PM peak hour intersection volume.
- For the 2033 base+site traffic condition i.e. 5 years post build-out, with existing signal timing, the overall intersection level of service is LOS C (Good) during the weekday AM peak hour and LOS E (Poor) during the weekday PM peak hour. The

northbound through/right-turn movements are over capacity during the weekday AM peak hour. The northbound through/right-turn is near capacity, and the eastbound left-turn, though, and right-turn movements are over capacity during the weekday PM peak hour. The 95% queue length exceeds the capacity for the eastbound left-turn storage bay during the weekday PM peak hour.

- Optimized signal timing can improve the overall level of service from LOS E (Poor) to LOS D (Fair) during the 2033 base+site weekday PM peak hour condition.

84th Avenue (E/W) and 112th Street (N/S)

- The signalized “+” intersection currently operates at an overall level of service LOS C (Good) during the weekday AM and PM peak hours with the existing traffic signal timing.
- For the 2028 base traffic condition with existing signal timing, the overall level of service is LOS C (Good) during the weekday AM and PM peak hours. All movements are under capacity during the weekday AM peak hour. The southbound through/right-turn movement is approaching capacity during the weekday PM peak hour. The 95th percentile queue exceeds the southbound left-turn storage during the weekday AM peak hour and the northbound left-turn and the eastbound left-turn storage bay during the weekday PM peak hour.
- For the 2033 base traffic condition with existing signal timing, the overall level of service is LOS C (Good) during the weekday AM peak hour and LOS D (Fair) during the weekday PM peak hour. All movements are under capacity during the weekday AM peak hour. The eastbound through, the northbound left-turn, and the southbound through/right-turn movements are near capacity during the weekday PM peak hour. The 95th percentile queue exceeds the southbound left-turn and the northbound left-turn storage during the weekday AM peak hour, and the eastbound left-turn and the northbound left-turn storage during the weekday PM peak hour.
- For the 2028 base+site traffic condition i.e. build-out, with existing signal timing, the overall level of service is LOS C (Good) during the weekday AM and PM peak hours. All movements are under capacity during the weekday AM peak hour. The eastbound through, and the southbound through/right-turn movements are approaching capacity during the weekday PM peak hour. The 95th percentile queue exceeds the eastbound left-turn, the northbound left-turn, and the southbound left-turn storage during the weekday AM peak hour, and the eastbound left-turn and the northbound left-turn storage during the weekday PM peak hour.
- Of note, the addition of site traffic in 2028 represents a 14.3% (266 vehicles) increase during the weekday AM peak hour intersection volume and a 5.5% (131 vehicles) increase during the weekday PM peak hour intersection volume.
- For the 2033 base+site traffic condition i.e. 5 years post buildout, with existing signal timing, the overall intersection level of service is LOS D (Fair) during the weekday AM and PM peak hours. The northbound all movements are approaching

capacity, and the southbound left-turn movement is over capacity during the weekday AM peak hour. The eastbound through, northbound left-turn and southbound through/right-turn movements are approaching capacity during the weekday PM peak hour. The 95th percentile queue exceeds the eastbound left-turn, the northbound left-turn and the southbound left-turn storage during the weekday AM and PM peak hours.

- Optimized signal timing would improve the overall level of service from LOS D (Fair) to LOS C (Good) during the 2033 base+site weekday AM peak hour condition.

82nd Avenue (E/W) and 112th Street (N/S)

- The signalized “+” intersection currently operates at an overall level of service LOS B (Very Good) during the weekday AM and PM peak hours with the existing traffic signal timing.
- For the 2028 base traffic condition with existing signal timing, the overall level of service is LOS B (Very Good) during the weekday AM peak hour and LOS C (Good) during the weekday PM peak hour. All movements are under capacity during the weekday AM peak hour. The southbound movements are approaching capacity during the weekday PM peak hour.
- For the 2033 base condition with existing signal timing, the overall level of service is LOS B (Very Good) during the weekday AM peak hour and LOS C (Good) during the weekday PM peak hour. All movements are under capacity during the weekday AM peak hour. The southbound movements are approaching capacity during the weekday PM peak hour.
- For the 2028 base+site traffic condition i.e. build-out, with existing signal timing, the overall LOS is at B (Very Good) during the weekday AM and LOS C (Good) during the weekday PM peak hour. All movements are under capacity during the weekday AM peak hour. The southbound movements are approaching capacity during the weekday PM peak hour.
- Optimizing the signal timing would improve the performance for the southbound movements during the weekday PM peak hour.
- Of note, the addition of site traffic in 2028 represents a 7.9% (105 vehicles) increase during the weekday AM peak hour intersection volume and a 2.7% (48 vehicles) increase during the weekday PM peak hour intersection volume.
- For the year 2033 base + site condition i.e. 5 years post buildout, with existing traffic signal timing, the overall level of service is LOS B (Very Good) during the weekday AM peak hour and LOS C (Good) during the weekday PM peak hour. All movements are under capacity during the weekday AM peak hour. The southbound movements are approaching capacity during the weekday PM peak hour.

80th Avenue (E/W) and 112th Street (N/S)

- The signalized “+” intersection currently operates at an overall level of service LOS B (Very Good) during the weekday AM and PM peak hours with existing traffic signal timing.
- For the year 2028 base condition with existing signal timing, the overall level of service is LOS B (Very Good) during the weekday AM and PM peak hours. All movements are under capacity in both peak hours.
- For the year 2033 base condition with existing signal timing, the overall level of service is LOS B (Very Good) during the weekday AM and PM peak hours. All movements are under capacity in both peak hours.
- For the 2028 base+site traffic condition i.e. build-out, with existing signal timing, the overall level of service is LOS B (Very Good) during the weekday AM and PM peak hours. All movements are under capacity in both peak hours.
- Of note, the addition of site traffic in 2028 represents a 6.1% (87 vehicles) increase during the weekday AM peak hour intersection volume and a 2.0% (40 vehicles) increase during the weekday PM peak hour intersection volume.
- For the year 2033 base + site condition i.e. 5 years post buildout, with existing traffic signal timing, the overall level of service is LOS B (Very Good) during the weekday AM and PM peak hours. All movements are under capacity during both AM and PM peak hours.

84th Avenue (E/W) at 116th Street (N/S)

- The signalized “+” intersection currently operates at an overall level of service LOS B (Very Good) during the weekday AM and PM peak hours, with the existing traffic signal timing.
- For the year 2028 base condition with existing signal timing, the overall level of service is LOS B (Very Good) during the weekday AM peak hour and LOS C (Good) during the weekday PM peak hour. All movements are under capacity during the weekday AM and PM peak hours.
- For the year 2033 base condition with existing signal timing, the overall level of service is LOS B (Very Good) during the weekday AM peak hour and LOS C (Good) during the weekday PM peak hour. All movements are under capacity during the weekday AM peak hour. The southbound through/right-turn movement is approaching capacity during the weekday PM peak hour.
- For the 2028 base+site traffic condition i.e. build-out, with existing signal timing, the overall level of service is LOS B (Very Good) during the weekday AM peak hour and LOS C (Good) during the weekday PM peak hour. All movements are under capacity during the weekday AM and PM peak hours.

- Of note, the addition of site traffic in 2028 represents a 4.4% (64 vehicles) increase during the weekday AM peak hour intersection volume and a 1.6% (34 vehicles) increase during the weekday PM peak hour intersection volume.
- For the year 2033 base + site condition i.e. 5 years post buildout, with existing traffic signal timing, the overall intersection level of service is LOS B (Very Good) during the weekday AM peak hour and LOS C (Good) during the weekday PM peak hour. All movements are under capacity during the weekday AM peak hour. The eastbound through/right-turn and the southbound through/right-turn movements are approaching capacity during the weekday PM peak hour.

84th Avenue (E/W) at Delsom Crescent (N/S)

- The signalized “+” intersection currently operates at an overall level of service LOS B (Very Good) during the weekday AM and PM peak hours, with the existing traffic signal timing.
- For the year 2028 base condition with existing signal timing, the overall level of service remains at LOS B (Very Good) during the weekday AM and PM peak hours. All movements are under capacity during the weekday AM and PM peak hours.
- For the year 2033 base condition with existing signal timing, the overall level of service is LOS B (Very Good) during the weekday AM peak hour and LOS C (Good) during the weekday PM peak hour. All movements are under capacity during the weekday AM peak hour. The eastbound through movement is approaching capacity during the weekday PM peak hour.
- For the 2028 base+site traffic condition i.e. build-out, with existing signal timing, the overall level of service is LOS B (Very Good) during the weekday AM peak hour and LOS C (Good) during the weekday PM peak hour. All movements are under capacity during the weekday AM and PM peak hours.
- Of note, the addition of site traffic in 2028 represents an 8.3% (97 vehicles) increase during the weekday AM peak hour intersection volume and a 3.6% (50 vehicles) increase during the weekday PM peak hour intersection volume.
- For the year 2033 base + site condition i.e. 5 years post buildout, with existing traffic signal timing, the overall intersection level of service is LOS C (Good) during the weekday AM and PM peak hours. All movements are under capacity during the weekday AM peak hour. The eastbound through movement are approaching capacity during the weekday PM peak hour.
- Optimized signal timing would improve the overall intersection level of service from LOS C (Good) to LOS B (Very Good) during the weekday PM peak hour.

Site Access (E/W) and 112th Street (N/S)

- For the purpose of this study, it was assumed that there is a shared left-turn/through movement northbound, a shared through/right-turn movement southbound, and a shared left-turn/right-turn movement eastbound.
- The proposed site access is full movement, with STOP control on the site access. For the 2028 base+site traffic condition i.e. build-out, the intersection is expected to operate at an overall level of service LOS D (Fair) during the weekday AM peak hour and LOS A (Excellent) during the PM peak hour. The eastbound movements are over capacity during the weekday AM peak hour. The eastbound movements are near capacity during the weekday PM peak hour.
- For the 2033 base+site traffic condition i.e. 5 years post build-out, the intersection is expected to operate at an overall level of service LOS E (Poor) during the weekday AM peak hour and LOS A (Excellent) during the PM peak hour. The eastbound movements are over capacity during the weekday AM peak hour. The eastbound movements are near capacity during the weekday PM peak hour.
- Of note, the 95th percentile queue length in the northbound direction was less than one vehicle length during the weekday AM and PM peak hours for all scenarios.

6.0 PARKING AND LOADING

6.1 Vehicle Parking (Bylaw)

With reference to the City of Delta *Zoning Bylaw No. 7600, Part 8, Section 8.4.2 – Required Off-Street Parking Spaces*, 148 off-street vehicle parking spaces are required. **TABLE 12** summarizes the vehicle parking space requirement and provision.

TABLE 12
VEHICLE PARKING SUMMARY (BYLAW)

Land Use		Scope	Unit	City of Delta Zoning Bylaw Off-Street Parking Rate	Requirement	Provided
Residential (Apartment)	Resident	20	Number of one-bedroom units	1.3 spaces per one-bedroom unit	26	72
		44	Number of two-bedroom units	1.3 spaces per two-bedroom unit	57	
		2	Number of three-bedroom units	1.5 spaces per three-bedroom unit	3	
		18	Adaptable Unit	1.3 spaces per dwelling unit	23	
	Visitor	84	Number of dwelling units	0.1 space per dwelling unit	8	
Commercial	Retail	865.70	GFA (m2)	3.0 spaces per 100 m2 of GFA	30	75
	Coffee Shop	377.35	GFA (m2)	10 spaces per 100 m ² of GFA	38	
TOTAL					185	147

From **TABLE 12** the development is proposing 147 off-street vehicle parking spaces. The vehicle parking space provision is deficient 38 spaces.

6.2 Vehicle Parking (Metro)

Metro Vancouver's *Regional Parking Study 2018* was an update to the *Apartment Parking Study 2012*, which was the first regional study of apartment parking supply and demand in Metro Vancouver. The *Regional Parking Study 2018* collected data for seventy-three apartment sites across the region during fall/winter 2017 and comprises three components: Parking Facility Survey, Street Parking Survey and Household Survey. The key findings of the *Regional Parking Study 2018* were consistent with those in the 2012 Study, with some new insights about street parking. The key regional findings were as follows:

- The Regional Parking Study found that apartment parking supply exceeds use across the region for both rental and strata buildings, with parking supply exceeding use by 42% for strata apartment buildings and 35% for market rental

apartment buildings.

- b. The overcapacity rate is similar for mixed tenure and mixed rental apartment buildings, with supply over demand by 41%.
- c. Smaller strata or market rental units with less than 800 ft² of living area, tend to have at most one parked vehicle per unit.
- d. Market rental units that are even smaller i.e. less than 600 ft², have the largest oversupply of parking.
- e. For market rental sites, parking utilization near transit (bus or SkyTrain) ranges 0.35 – 0.72, compared to 0.99 for sites further away from the FTN.

Municipalities have reacted to the Metro Vancouver study by reviewing and updating their off-street parking rates. In the City of North Vancouver for example, the previous off-street parking rate for apartments was 0.75 spaces per unit and this was reduced to 0.60 spaces per unit in the most recent update to their zoning bylaw.

Some municipalities have taken a completely different approach to their zoning bylaw off-street parking requirements by removing the minimum requirements all together and permitting applicants to create custom parking strategies for each development with supporting technical rationale.

An alternate parking rate 0.72 parking spaces per unit is technically justified given the findings of the Metro Vancouver *Regional Parking Study 2018*, and excellent access to transit and local amenities. **TABLE 13** summarizes the off-street vehicle parking space requirement with the proposed parking rate.

TABLE 13
VEHICLE PARKING SUMMARY (METRO)

Land Use		Scope	Unit	Residential (Metro Rate) Commercial/Retail (Bylaw Rate)	Requirement	Provided
Residential (Apartment)	Resident	20	Number of one-bedroom units	0.72 spaces per unit	60	72
		44	Number of two-bedroom units			
		2	Number of three-bedroom units			
		18	Adaptable Unit			
	Visitor	84	Number of dwelling units	0.1 space per dwelling unit	8	
Commercial	Retail	865.70	GFA (m ²)	3.0 spaces per 100 m ² of GFA	30	75
	Coffee Shop	377.35	GFA (m ²)	10 spaces per 100 m ² of GFA	38	
TOTAL					136	147

From **TABLE 13**, application of the Metro parking rate gives an excess of 11 vehicle parking spaces.

6.3 Loading

With reference to the City of Delta *Zoning Bylaw No. 7600, Part 9, Section 9.2.1 – Required Loading Spaces*, two (2) loading spaces are required. One for the commercial/retail use and one for the residential use.

The mixed-use development is proposing a single designated loading area on-site along the internal drive aisle, for the commercial/retail use and the residential use. Likewise, garbage/recycling collection is proposed to be on-site within the designated loading area. Solid waste and recycling would be moved from the storage areas within the underground parkade, along the parkade ramp and internal drive aisle to the staging area adjacent to the designated loading area, by a jitney and/or pick-up truck with a lift.

CTS performed swept path analysis for a Medium Single Unit (MSU) truck ingressing the site and designated loading area along the internal drive aisle, re-orientating on-site, and egressing the site along the drive aisle. The swept path analysis is included as **APPENDIX E**.

6.4 Bicycle Parking

With reference to the City of Delta *Zoning Bylaw No. 7600, Part 8, Section 8.6.1 – Required Bicycle Spaces*, eighty-four (84) bicycle parking spaces for residents, five (5) bicycle parking spaces for visitors, and seven (7) bicycle parking spaces for commercial/retail are required. **TABLE 14** summarizes the bicycle parking space requirement and provision.

TABLE 14
BICYCLE PARKING SUMMARY

Land Use		Scope	Unit	City of Delta Zoning Bylaw Off-Street Parking Rate	ByLaw Min Required	Provided
Residential (Apartment)	Resident	84	Number of dwelling units	1.0 space per dwelling unit	84	113
	Visitor	1	Number of buildings	5 spaces per apartment building	5	
Commercial	Retail	7	Number of units	1.0 space per commercial retail unit OR 5.0 apces per building, whichever is the greater number	7	9
TOTAL					96	122

From **TABLE 14**, the development is proposing 122 bicycle parking spaces i.e. 113 bicycle parking spaces for residents and visitors, and 9 bicycle parking spaces for commercial/retail. The Bylaw requirement is exceeded.

7.0 ACCESS

Access to/from the proposed mixed-use development is on 112th Street. With reference to Transportation Association of Canada (TAC) *Geometric Design Guide for Canadian Roads*, Figure 8.8.2: *Suggested Minimum Corner Clearances to Accesses or Public Lanes at Major Intersections*, the minimum site access distance from a signalized intersection, is 25 meters. The proposed site access is located more than 50 meters from the intersection of 84th Avenue and 112th Street. Therefore, the proposed access location meets the minimum corner clearance requirement.

The accepted sight distance requirement is Stopping Sight Distance (SSD). With reference to the Transportation Association of Canada (TAC) *Geometric Design Guide for Canadian Roads*, Table 2.5.2: *Stopping Sight Distance*, the minimum SSD for a road posted at 50 km/h, is 65 meters. **FIGURE 16** illustrates the SSD at the point of access at 65 meters.

**FIGURE 16
SIGHT DISTANCE**

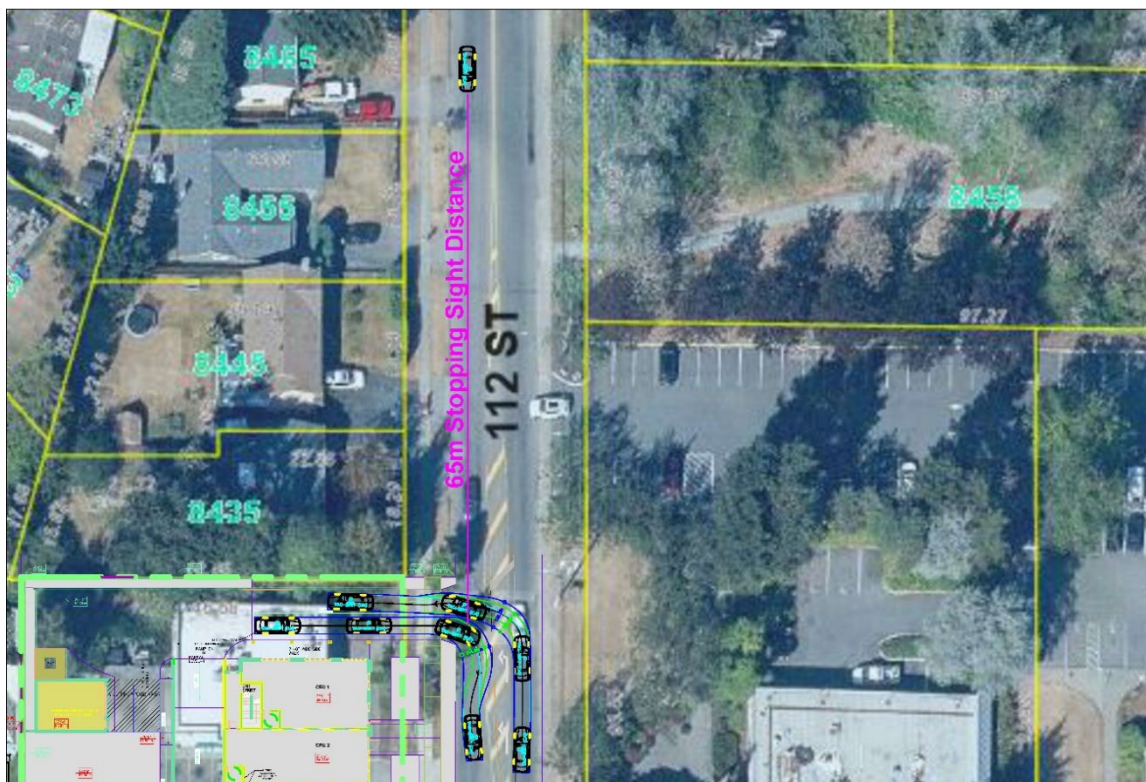
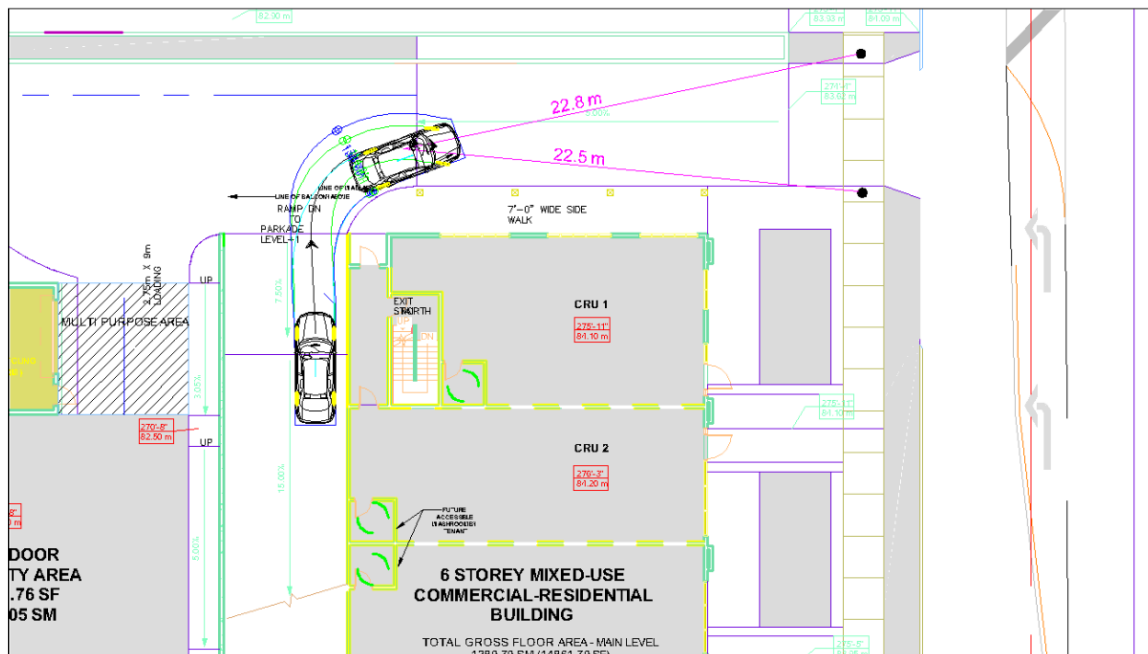


FIGURE 17 illustrates the SSD at the point of access. The SSD as illustrated i.e. 22.8 meters and 22.5 meters, is from a vehicle on the ramp to a pedestrian on the sidewalk.

**FIGURE 17
STOPPING SIGHT DISTANCE AT ACCESS**



With Reference to the Transportation Association of Canada (TAC) *Geometric Design Guide for Canadian Roads*, *Stopping Sight Distance* (formula 2.5.2. and 2.5.3.), the minimum SSD for the speed 15km/h, is 15.2 meters. Therefore, the proposed access location meets the minimum stopping sight distance requirement.

8.0 SUMMARY AND CONCLUSIONS

CTS conducted a Traffic Impact Study for a proposed mixed-use development at 11199 84th Avenue in the City of Delta. For the purpose of this Traffic Impact Study, it was assumed that the development would be fully completed and occupied by the year 2028. Based on the data and analysis, the following can be stated:

- 1) The development site is well served by alternate modes of transport. There are sidewalks on all roads, connecting to nearby transit and local amenities. Also, there are bicycle routes on 84th Avenue, and 82nd Avenue, currently. With reference the City of Delta *Cycling Master Plan 2023*, 116th Street and 112th Street, are to have on-street bicycle lanes in addition to 82nd Avenue, and 84th Avenue.
- 2) The traffic generated by the following nearby developments were captured in the 2.0% annual growth rate:
 - 11448, 11458 & 11480 84th Avenue Development (148 condominiums).
 - North Delta Shopping Center (338 residential units and 8,000m² of commercial).
- 3) The proposed mixed-use development is expected to generate a net total of 343 vehicle trips (166 inbound and 177 outbound) during the weekday AM peak hour and 169 vehicle trips (88 inbound and 81 outbound) during the weekday PM peak hour. For the purpose of this study, vehicle trips generated by the existing convenience store were captured by the traffic count data collection. Hence, no generated vehicle trips were assigned to the convenience store use.
- 4) The signalized intersection of Nordel Way and 112th Street is expected to operate at acceptable levels of service for the base and base+site conditions, with the existing signal timing, other than for the 2033 base and 2033 base+site condition where the overall level of service is LOS E during the weekday PM peak hour. Optimized signal timing would improve the overall level of service for the future base+site conditions. Queue lengths also exceed available storage during the weekday PM peak hour.
- 5) The signalized intersection of 84th Avenue and 112th Street is expected to operate at acceptable levels of service for the base and base+site conditions, with the existing signal timing. Optimized signal timing would improve the overall level of service for the future base+site conditions. Queue lengths also exceed available storage during the weekday AM and PM peak hours.
- 6) The signalized intersection of 82nd Avenue and 112th Street is expected to operate at acceptable levels of service for the base and base+site conditions, with the existing signal timing. Optimized signal timing would improve the overall level of service for the future base+site conditions.
- 7) The signalized intersection of 80th Avenue and 112th Street is expected to operate at acceptable levels of service for the base and base+site conditions, with the existing signal timing. Optimized signal timing would improve the overall level of service for the future base+site conditions.

- 8) The signalized intersection of 116th Street and 84th Avenue is expected to operate at acceptable levels of service for the base and base+site conditions, with the existing signal timing. Optimized signal timing would improve the overall level of service for the future base+site conditions.
- 9) The signalized intersection of Delsom Crescent and 84th Avenue is expected to operate at acceptable levels of service for the base and base+site conditions, with the existing signal timing. Optimized signal timing would improve the overall level of service for the future base+site conditions.
- 10) For the proposed site access on 112th Street, the intersection is expected to operate at level of service LOS A (Excellent) during the weekday AM and PM peak hours.
- 11) With reference to the City of Delta *Zoning Bylaw No. 5700, Part 8, Section 8.4.2 – Required Off - Street Parking Spaces*, the vehicle parking space requirement is deficient 38 spaces, overall.
- 12) Application of the Metro Vancouver's *Regional Parking Study 2018* parking rate for rental units adjacent to frequent transit, gives an 11-vehicle parking space excess, overall.
- 13) With reference to the City of Delta *Zoning Bylaw No. 5700, Part 9, Section 9.2.1 – Required Loading Spaces*, two loading spaces are required. The mixed-use development is proposing a single designated loading area on-site along the internal drive aisle, for the commercial/retail use and the residential use. Likewise, garbage/recycling collection is proposed to be on-site within the designated loading area. Solid waste and recycling would be moved from the storage areas within the underground parkade, along the parkade ramp and internal drive aisle to the staging area adjacent to the designated loading area, by a jitney and/or pick-up truck with a lift.
- 14) With reference to the City of Delta *Zoning Bylaw No. 5700, Part 8, Section 8.6.1 – Required Bicycle Spaces*, the proposed bicycle parking space requirement is met.
- 15) Sight lines to/from the point of access on 112th Street, meet the minimum requirement of 65 meters.
- 16) The sight line between the ramp and sidewalk crossing meet the minimum requirement of 15.2 meters.

9.0 RECOMMENDATIONS

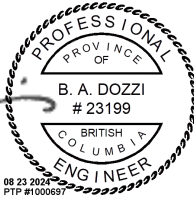
Based on the contents of this Traffic Impact Study, the following is recommended:

1. That the City of Delta accept the data, analysis and conclusions as documented by this study.
2. That sufficient roadway along the 84th Avenue and 112th Street frontages be dedicated to accommodating the pedestrian space as well as the extension of the on-street bikeway network.
3. That the City of Delta continue to monitor the operation of the following intersections and implement operational and/or geometrical improvements when warranted:
 - Nordel Way and 112th Street;
 - 84th Avenue and 112th Street;
 - 82nd Avenue and 112th Street;
 - 84th Avenue and 116th Street; and
 - 84th Avenue and Delsom Crescent.
4. That a STOP bar and STOP sign be installed on the ramp in advance of the sidewalk.
5. That the southbound left-turn storage bay on 112th Street at 84th Avenue be 30 meters with a 15-meter taper and the northbound storage bay on 112th Street at the point of access be 15 meters with a 15-meter taper.

Please contact the undersigned should there be comments related to this Traffic Impact Study and its contents.

Yours truly,

**CREATIVE TRANSPORTATION SOLUTIONS LTD.
PERMIT TO PRACTICE NO. 1000697**

Brent A. Dozzi, P. Eng.
Senior Traffic Engineer and Project Manager

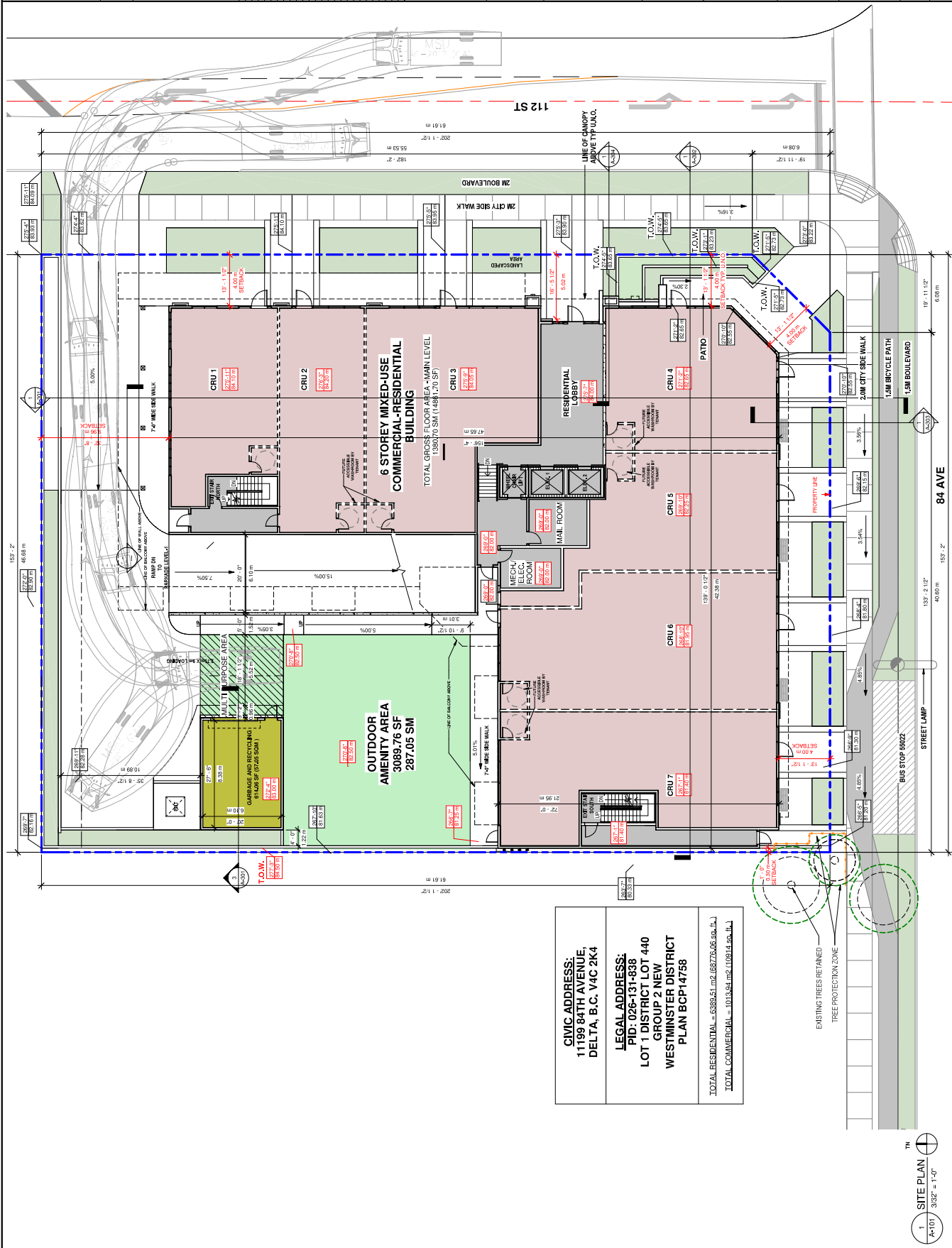
Phone: (604) 936-6190 x237

Email: bdozzi@cts-bc.com

APPENDICES

APPENDIX A

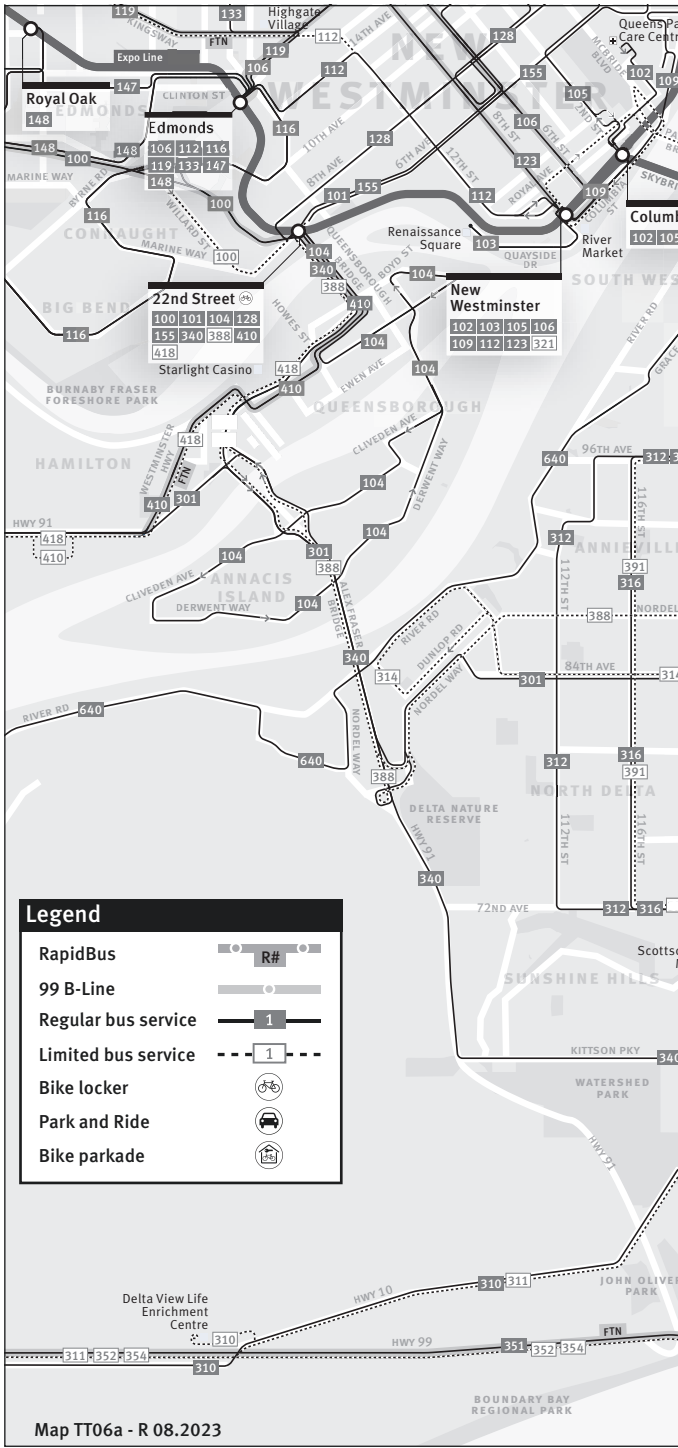
Site Plan



APPENDIX B

Transit Route Maps

Downtown Vancouver Section of Routes



APPENDIX C

Turning Movement Count Summary Sheets

**112 St & Nordel Way**

Wednesday, November 15, 2023

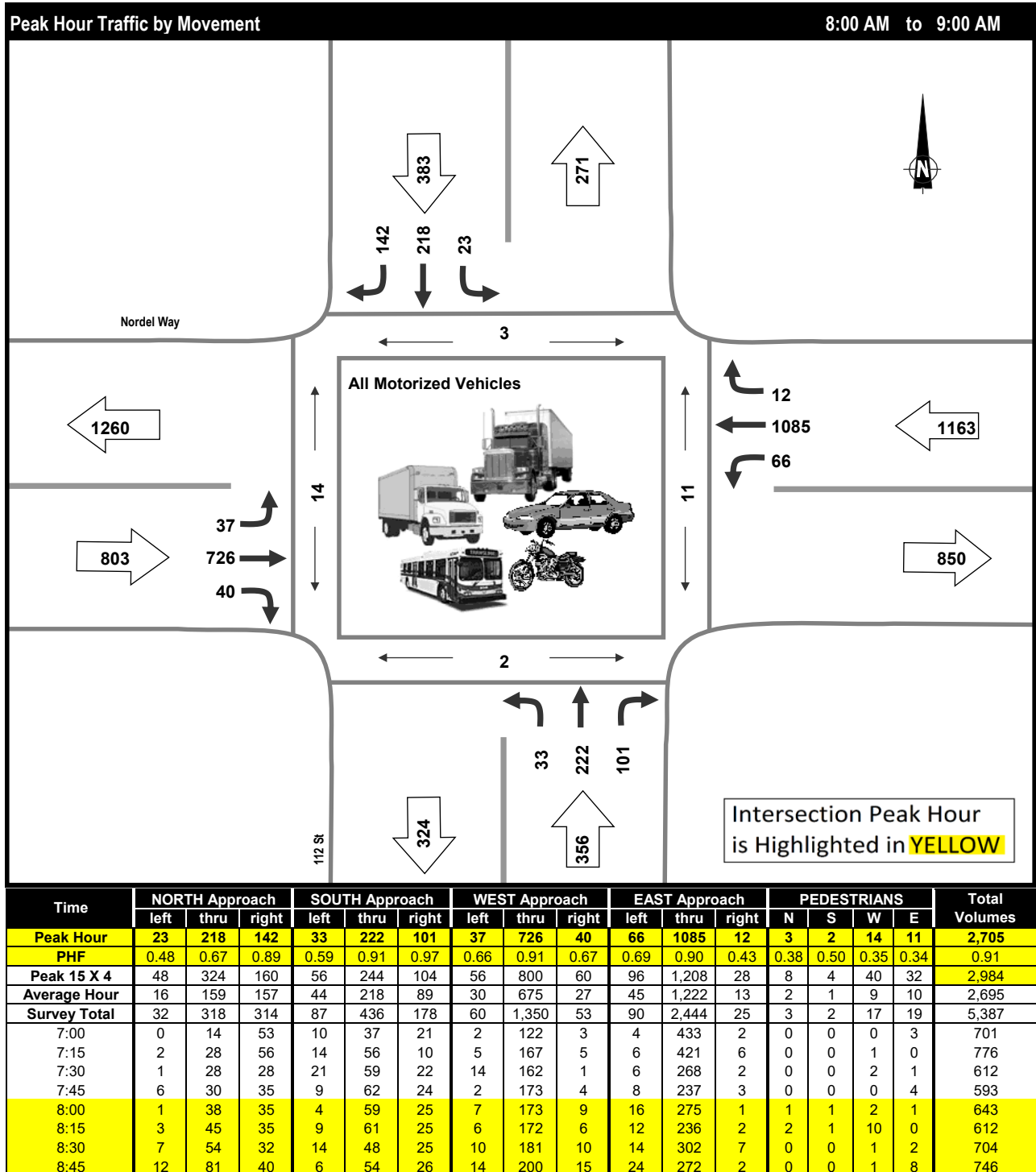
Vehicle Classification Summary

Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear

Time Period	Entering Intersection	Vehicle Classification					Total
		Passenger Cars	Heavy Vehicles (3 or more axles)				
Morning (07:00 - 09:00)	Volume	5,207	180				5,387
	%	96.7%	3.3%				100.0%
	Volume						
	%						
Afternoon (15:00 - 18:00)	Volume	9,855	336				10,191
	%	96.7%	3.3%				100.0%
Total (5 Hours)	Volume	15,062	516				15,578
	%	96.7%	3.3%				100.0%

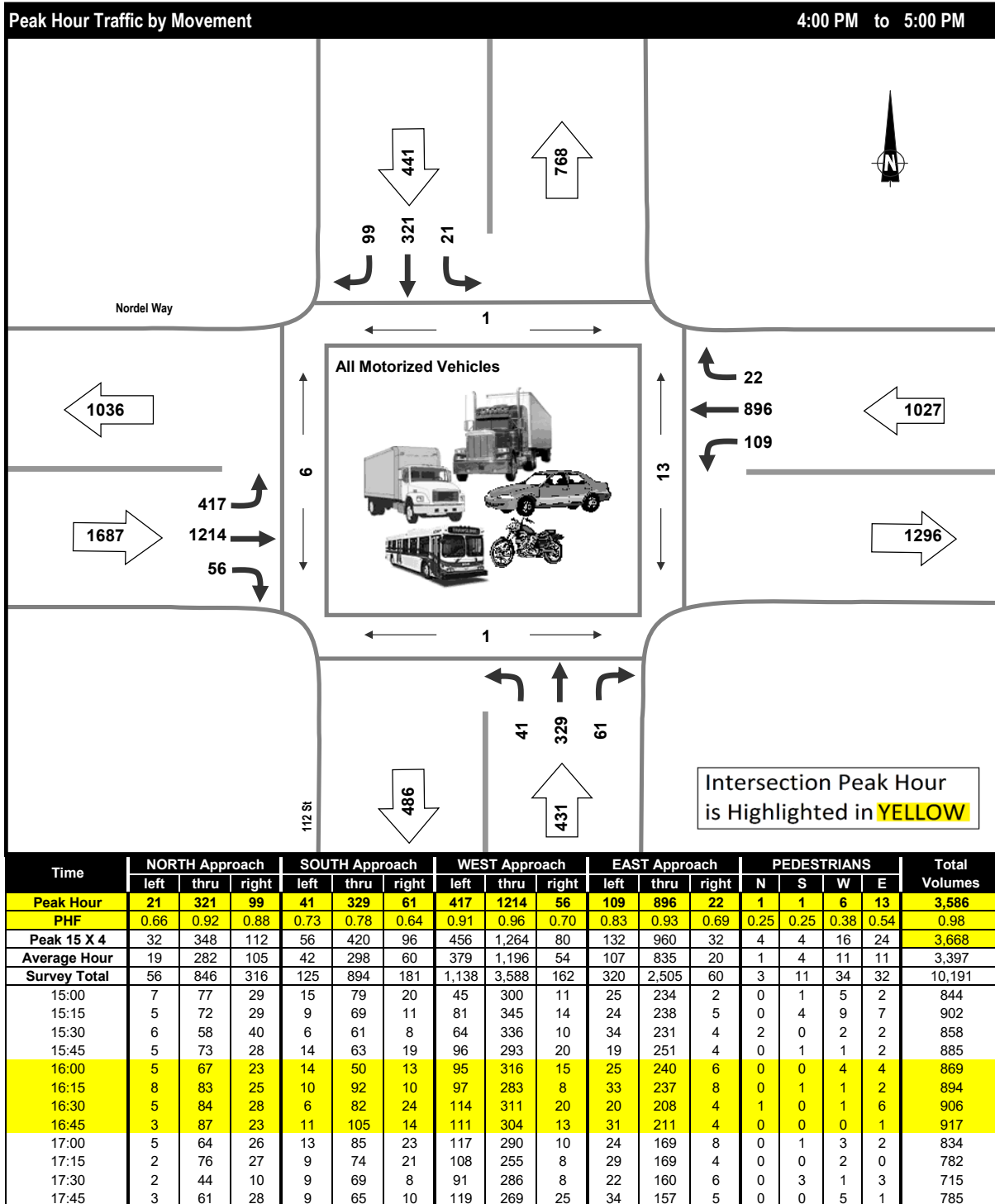
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: All Motorized Vehicles

Morning Peak Period



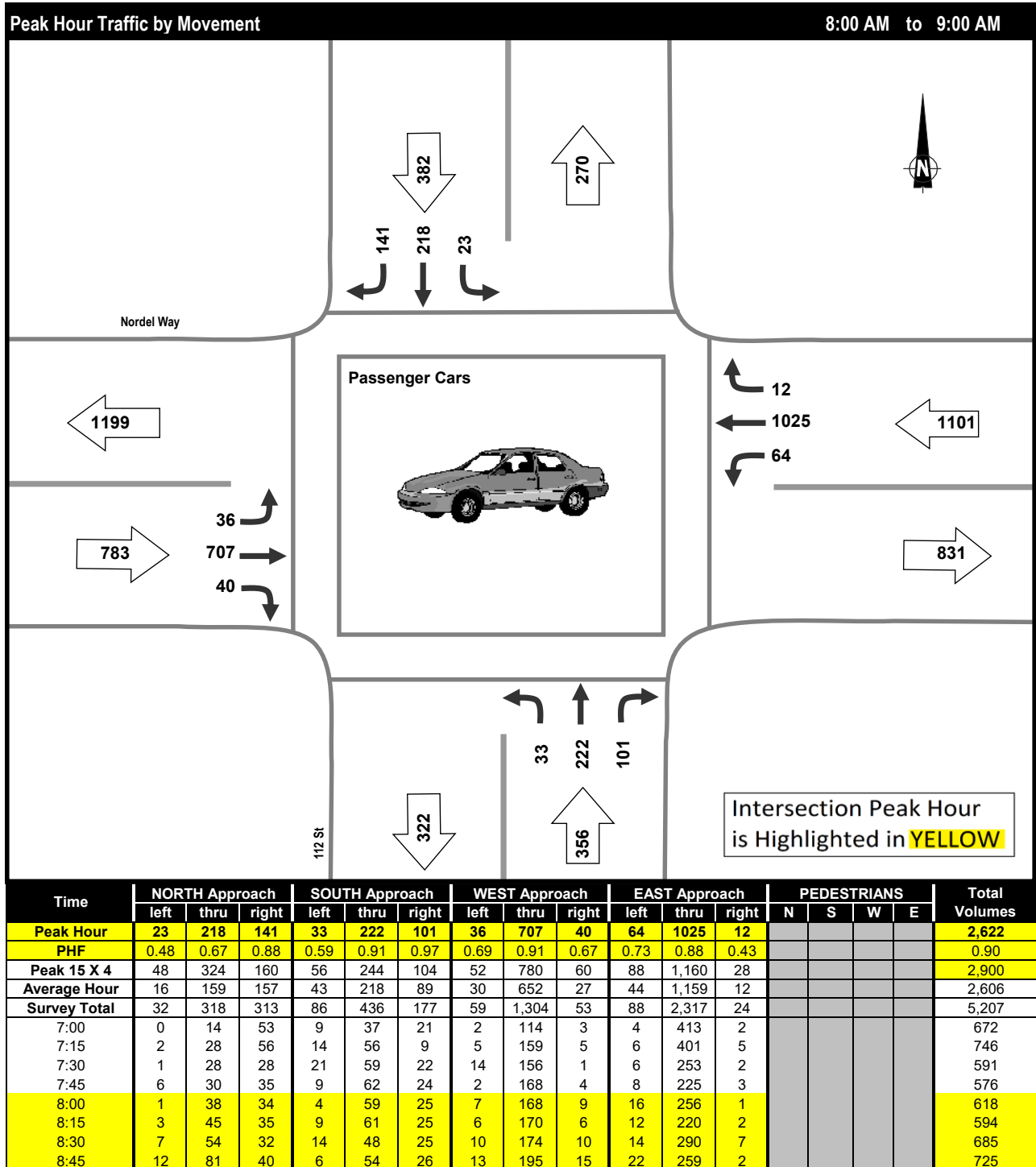
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: All Motorized Vehicles

Afternoon Peak Period



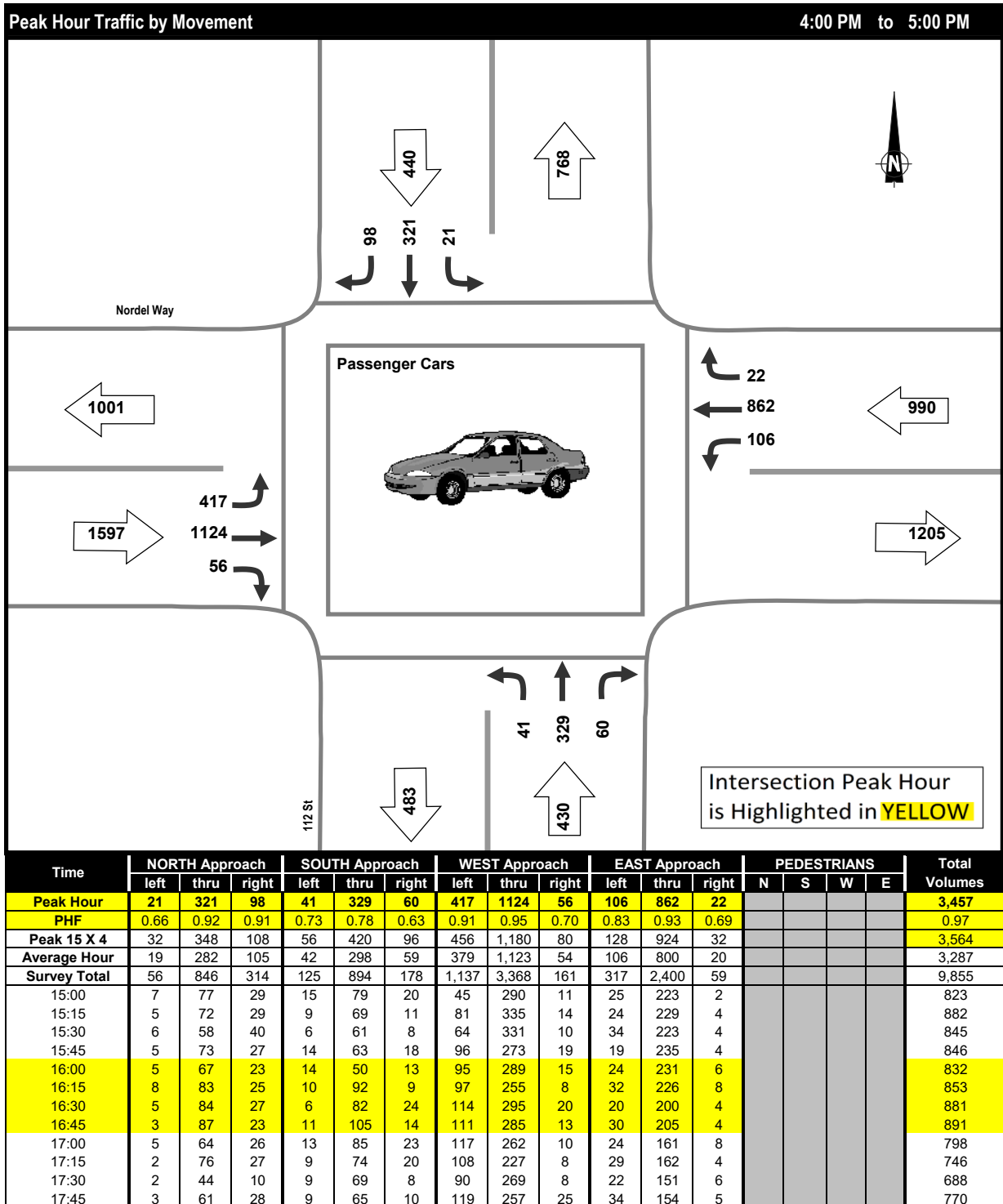
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Passenger Cars

Morning Peak Period



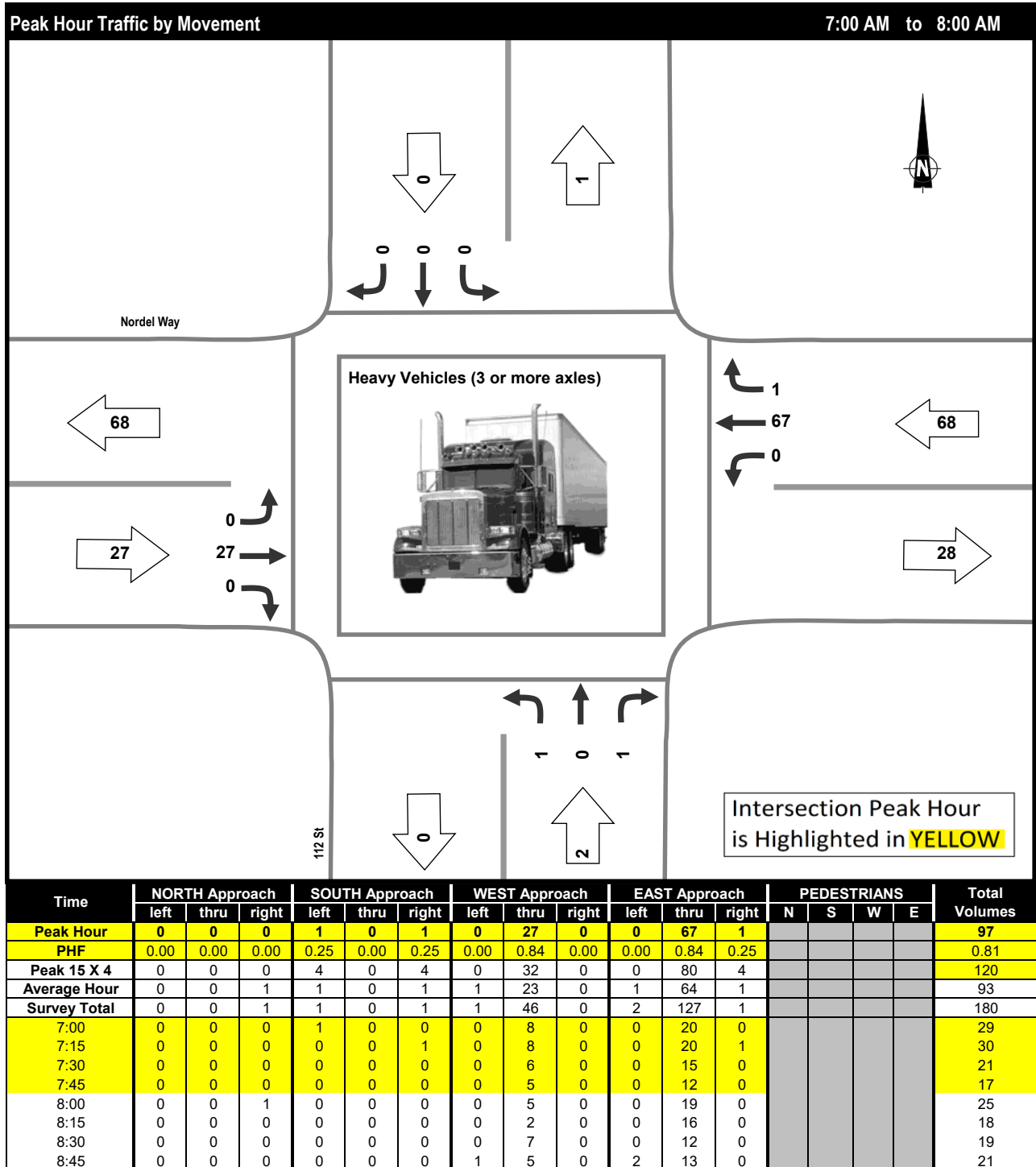
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Passenger Cars

Afternoon Peak Period



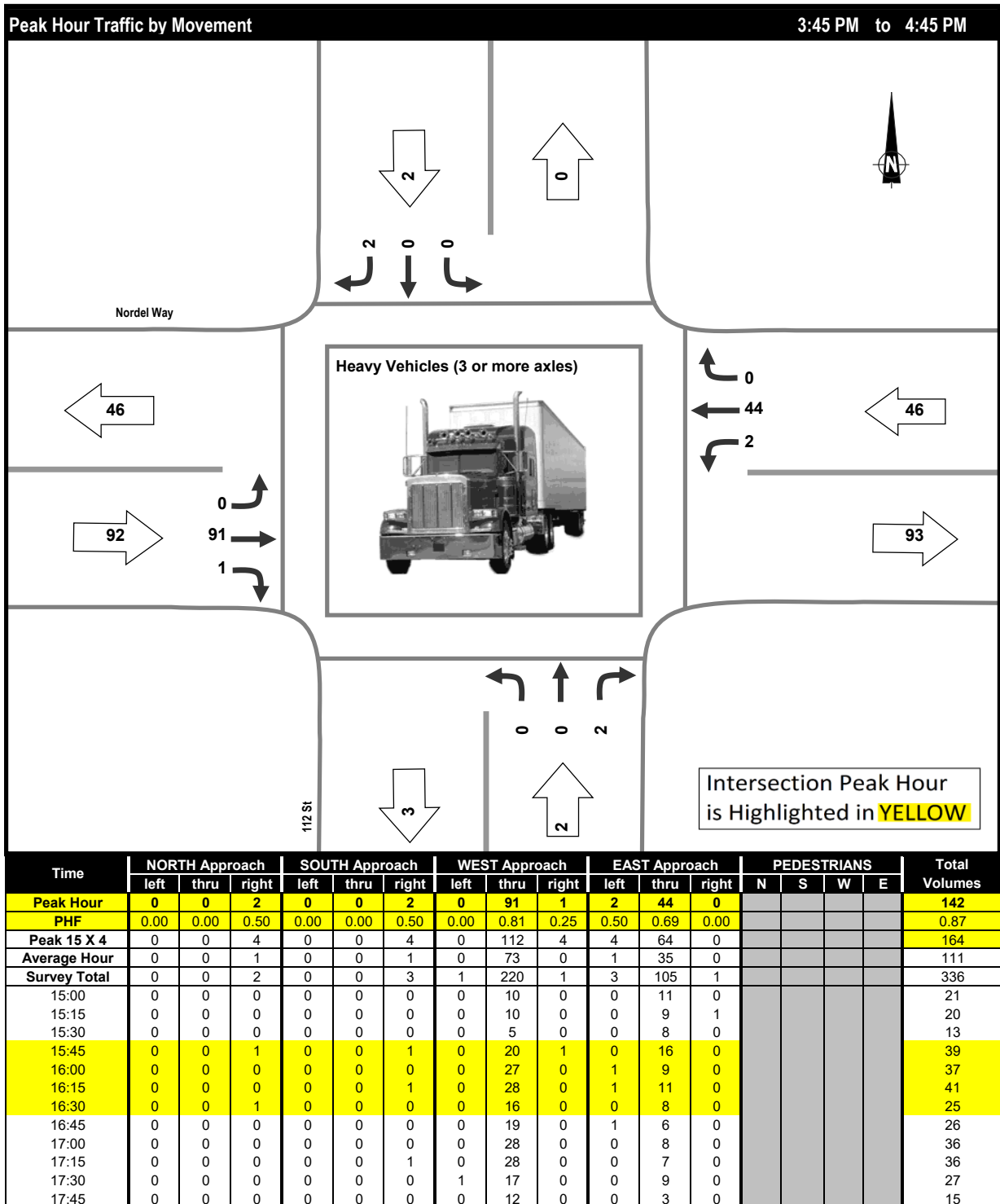
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Heavy Vehicles (3 or more axles)

Morning Peak Period



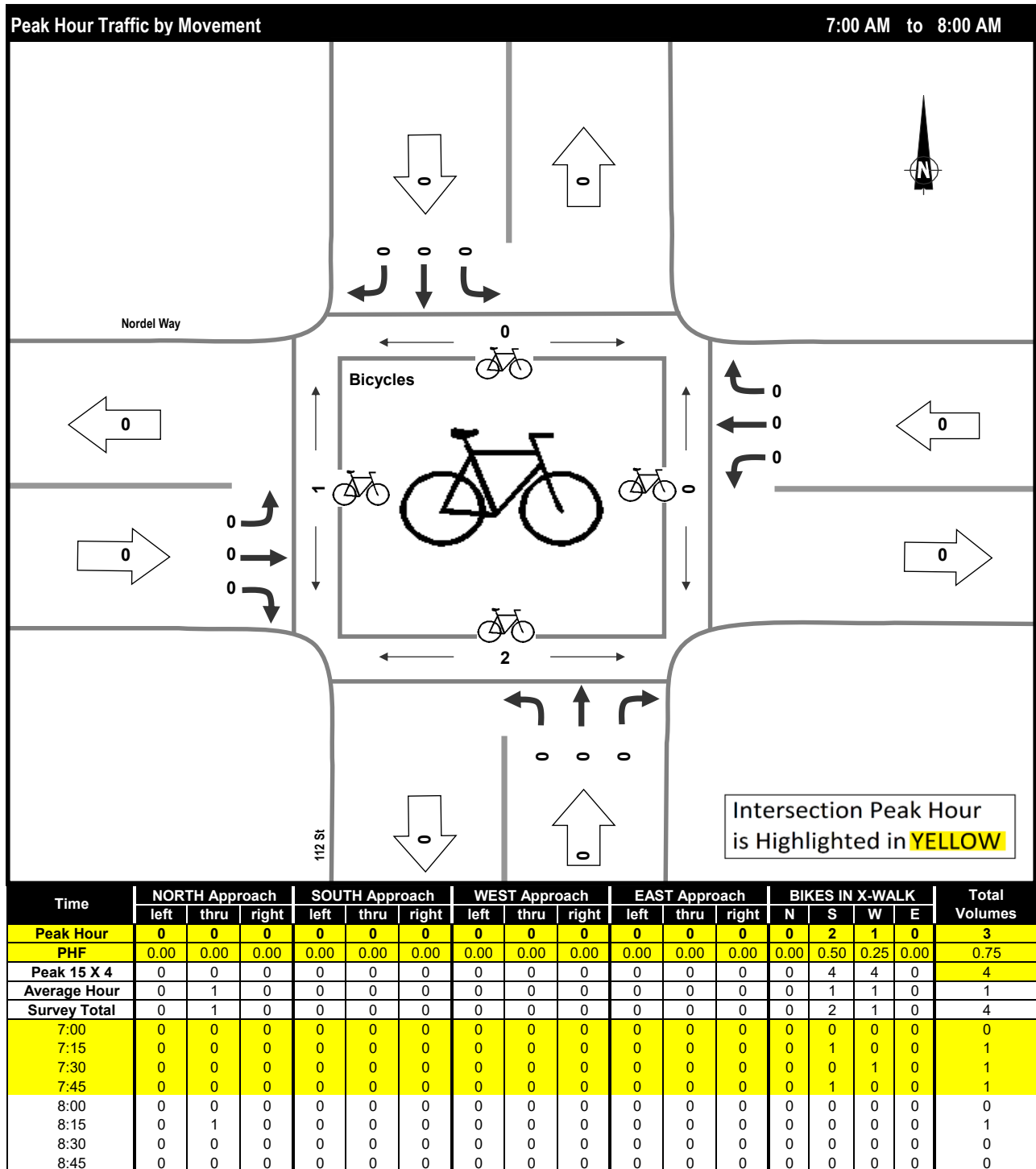
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Heavy Vehicles (3 or more axes)

Afternoon Peak Period

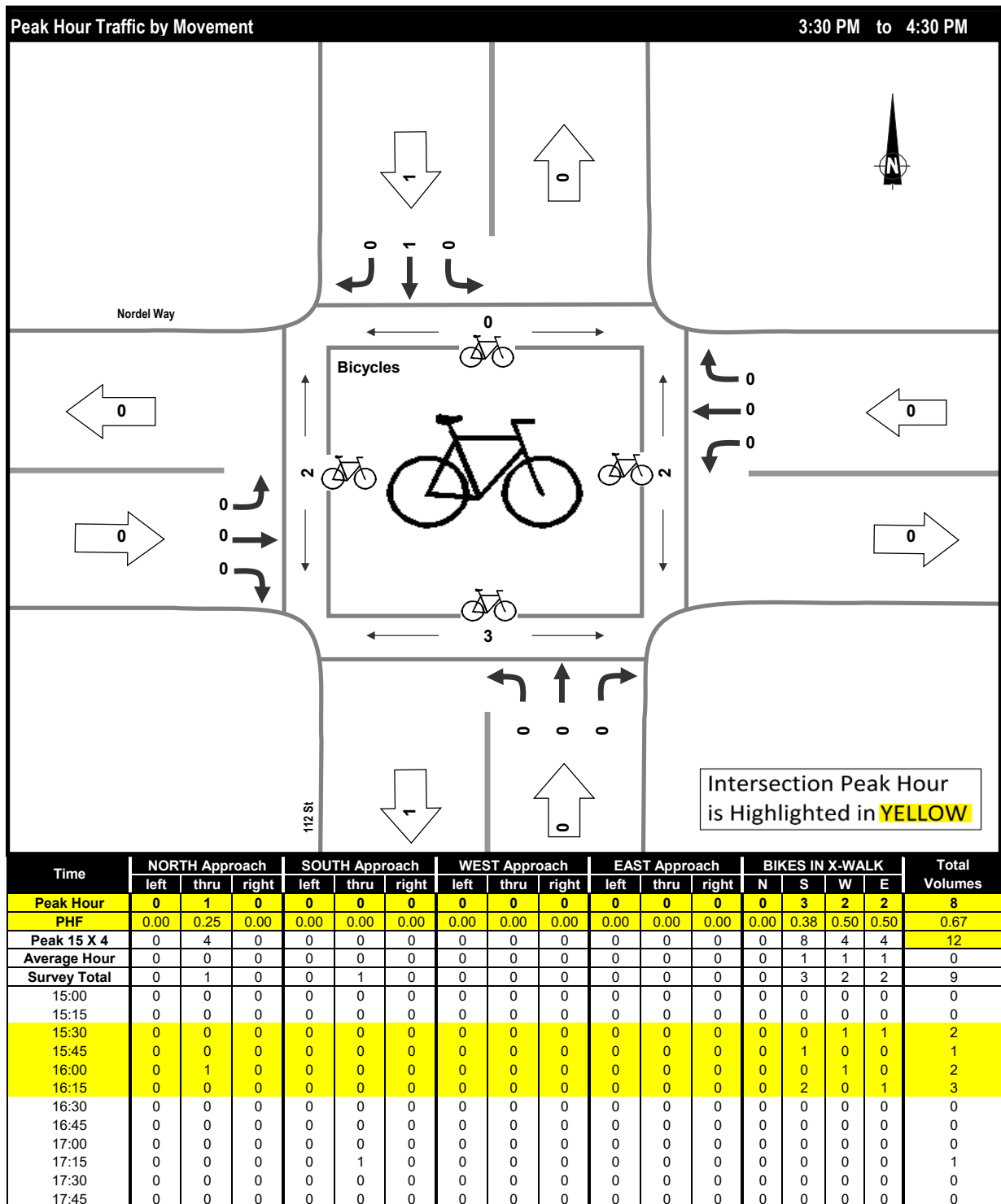


Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Bicycles

Morning Peak Period



Afternoon Peak Period



**112 St & 84 Ave**

Wednesday, November 15, 2023

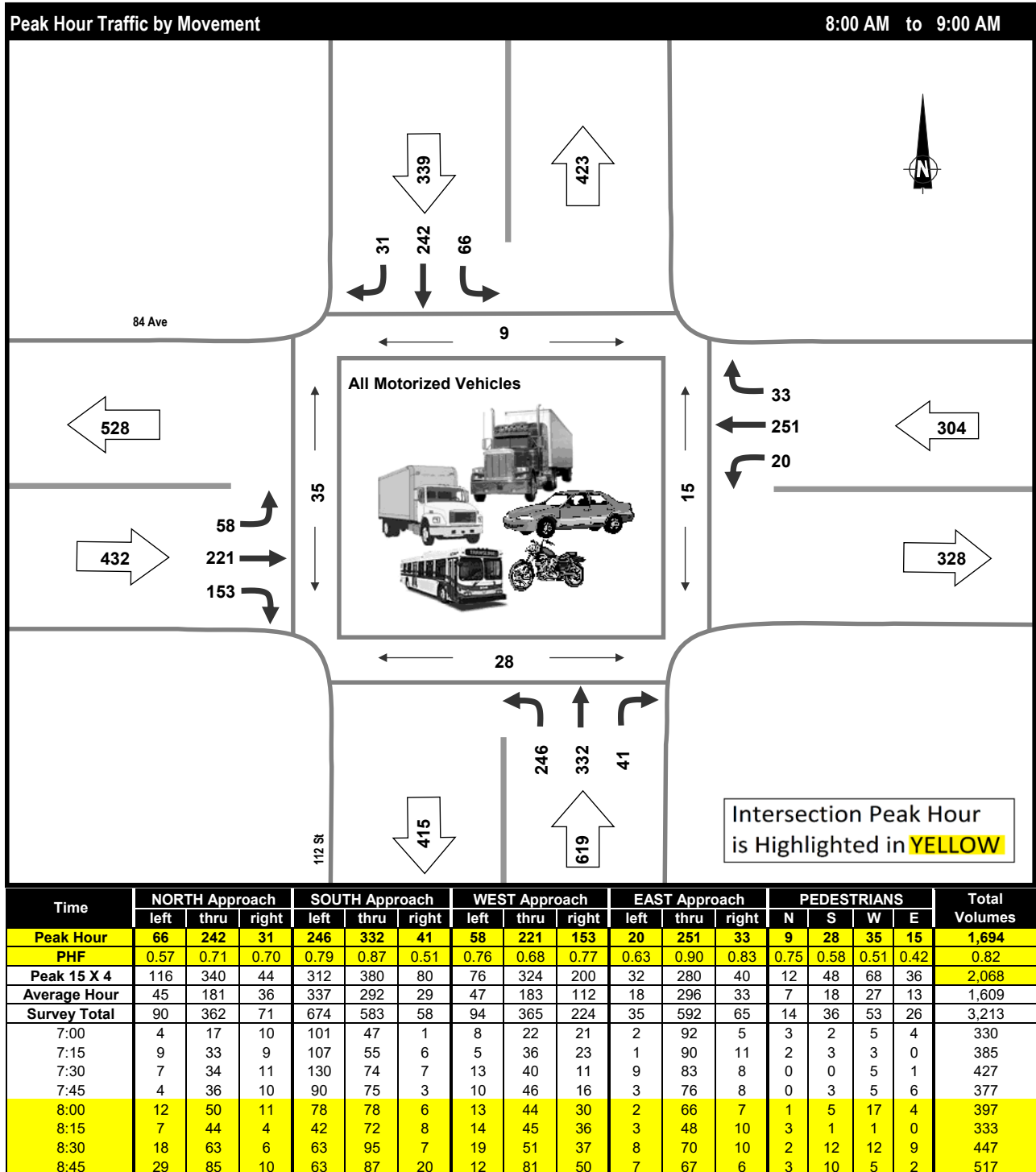
Vehicle Classification Summary

Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear

Time Period	Entering Intersection	Vehicle Classification					Total
		Passenger Cars	Heavy Vehicles (3 or more axes)				
Morning (07:00 - 09:00)	Volume	3,200	13				3,213
	%	99.6%	0.4%				100.0%
	Volume						
	%						
Afternoon (15:00 - 18:00)	Volume	6,345	10				6,355
	%	99.8%	0.2%				100.0%
Total (5 Hours)	Volume	9,545	23				9,568
	%	99.8%	0.2%				100.0%

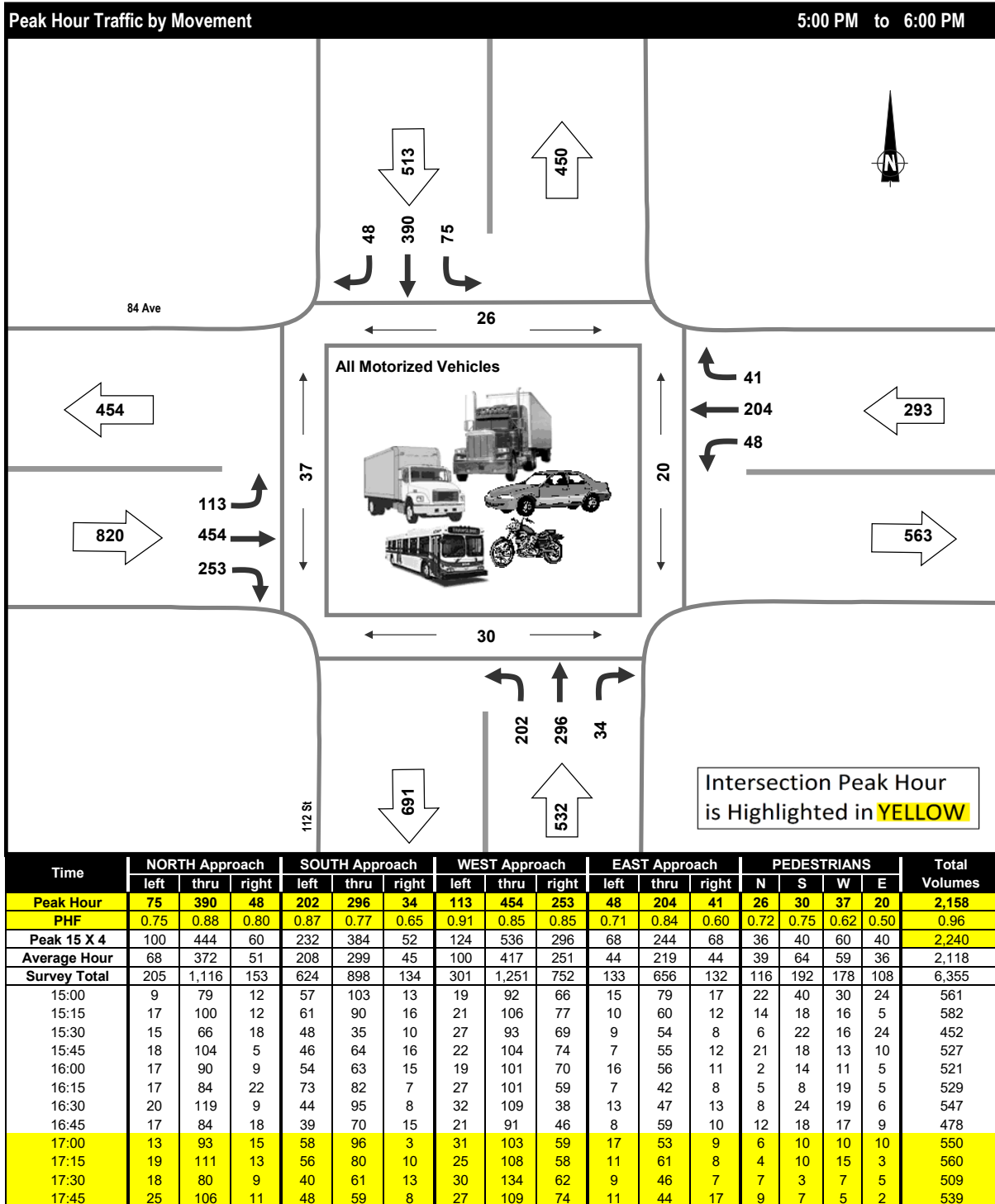
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: All Motorized Vehicles

Morning Peak Period



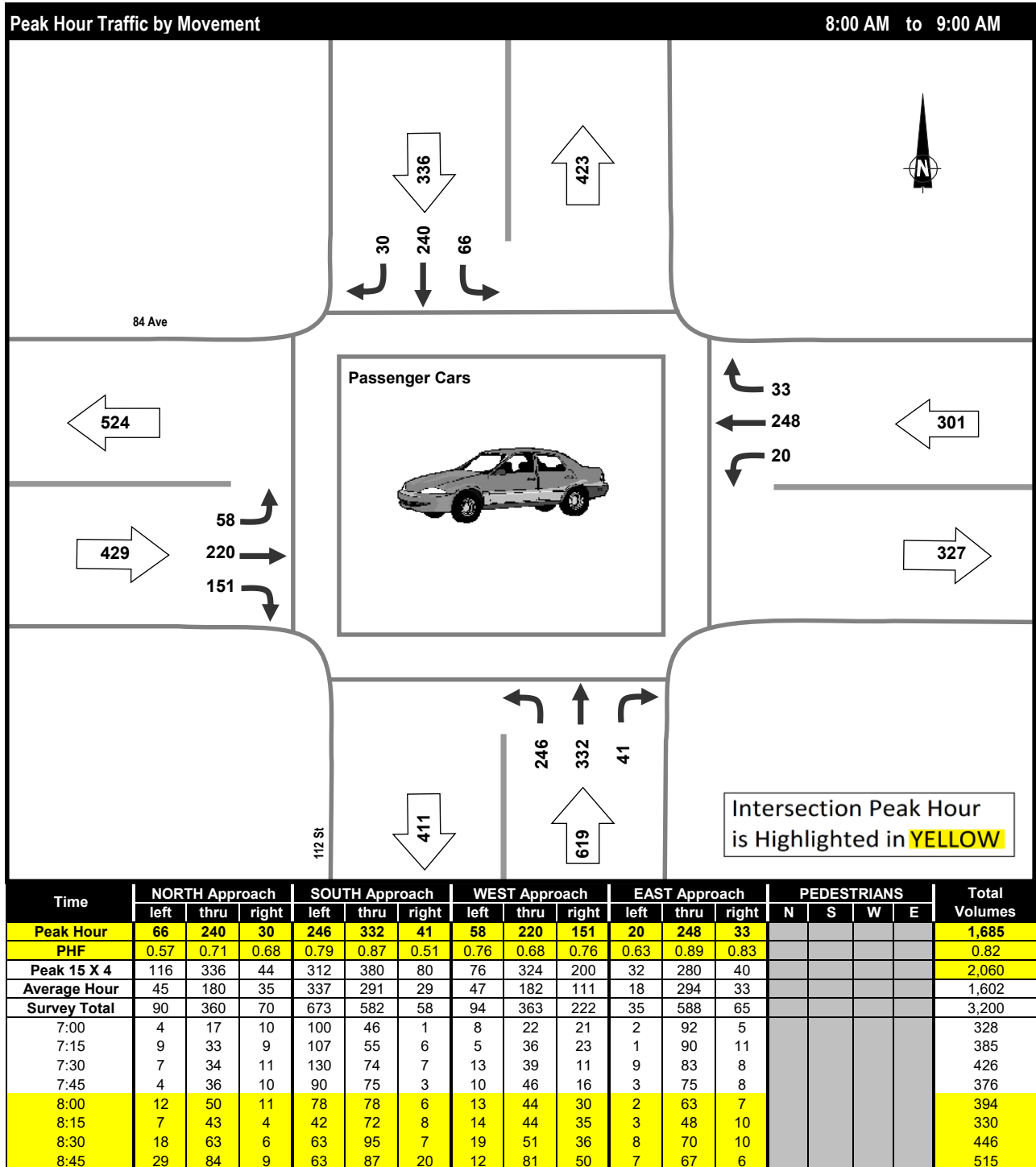
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: All Motorized Vehicles

Afternoon Peak Period



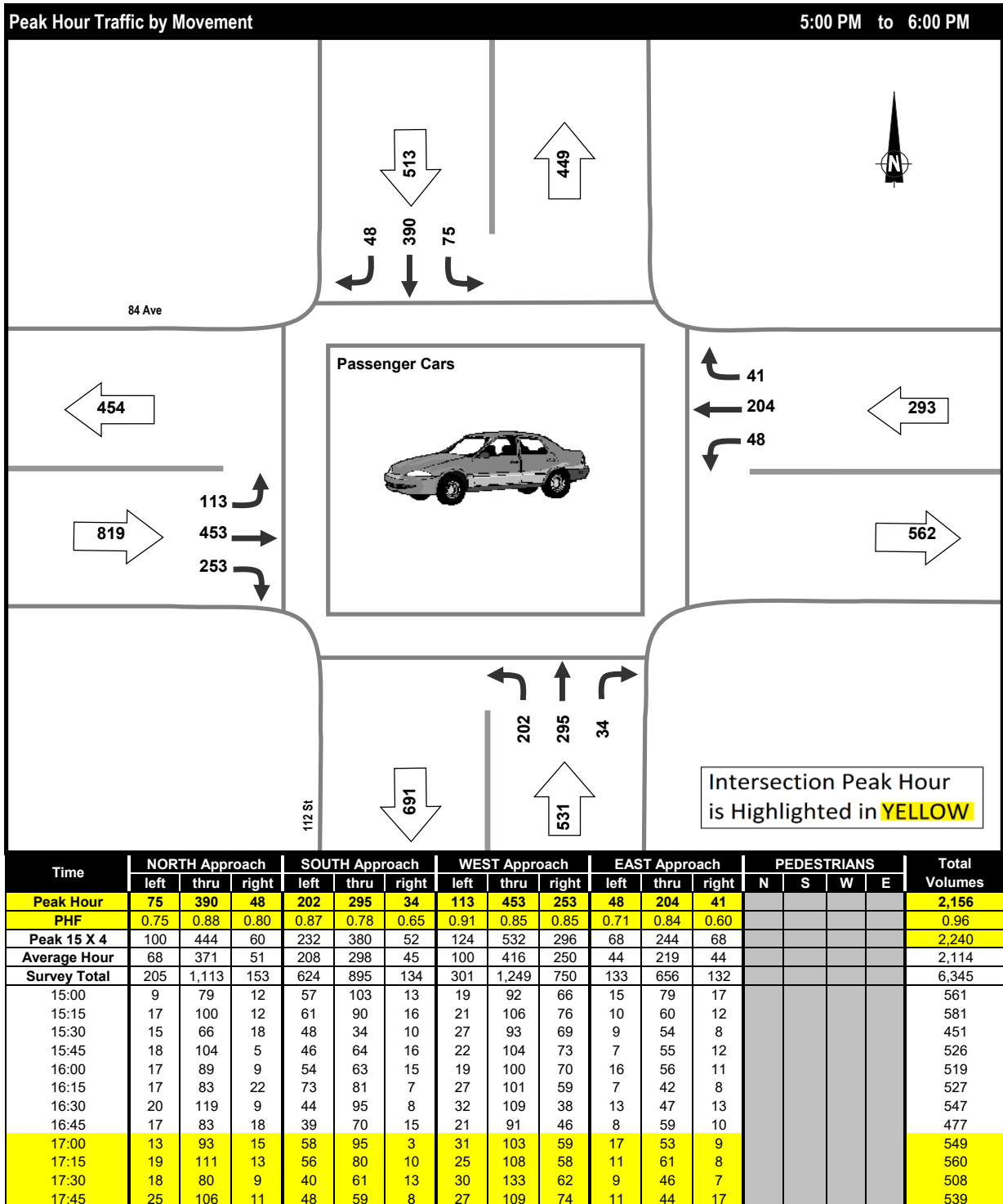
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Passenger Cars

Morning Peak Period



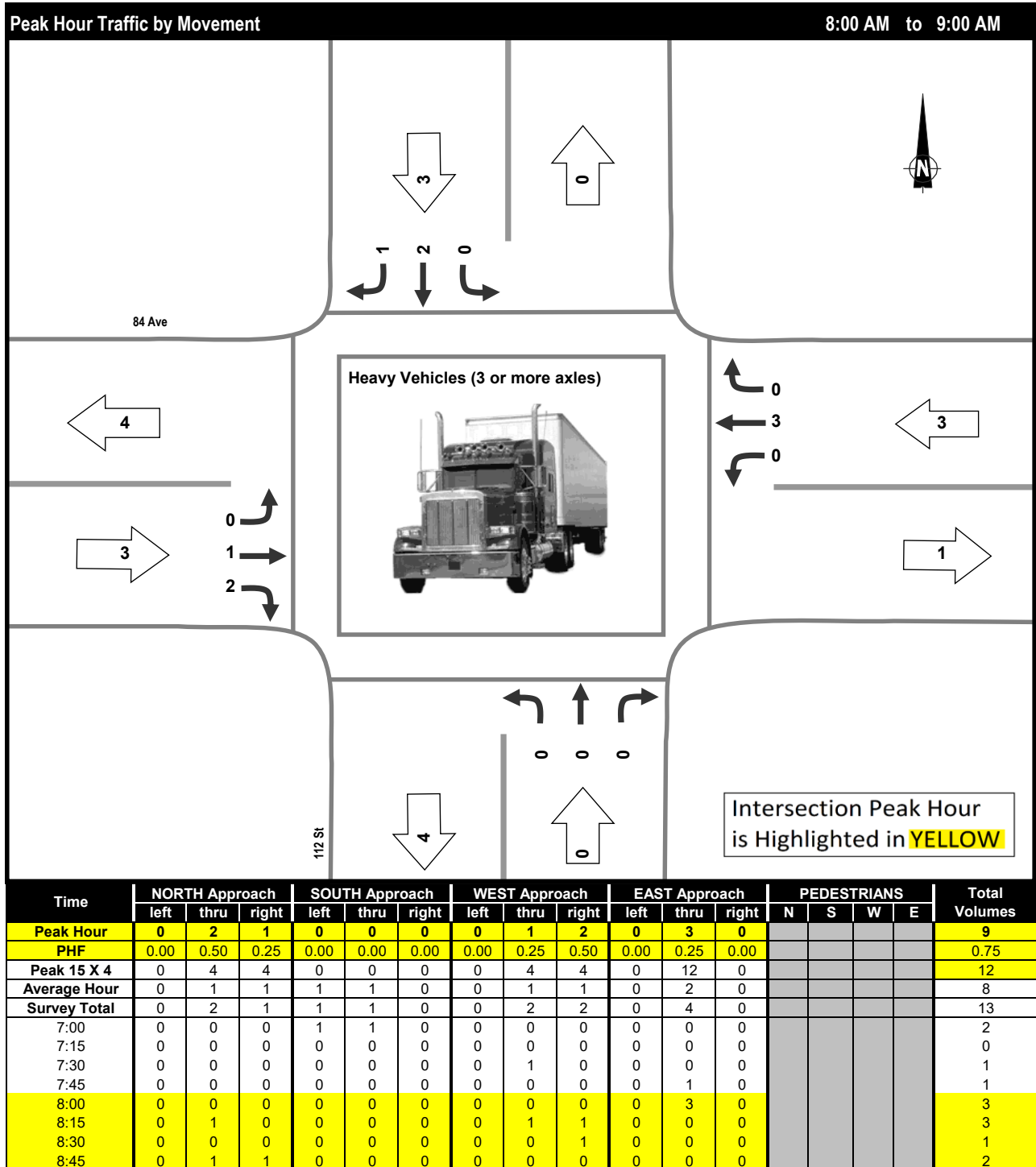
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Passenger Cars

Afternoon Peak Period



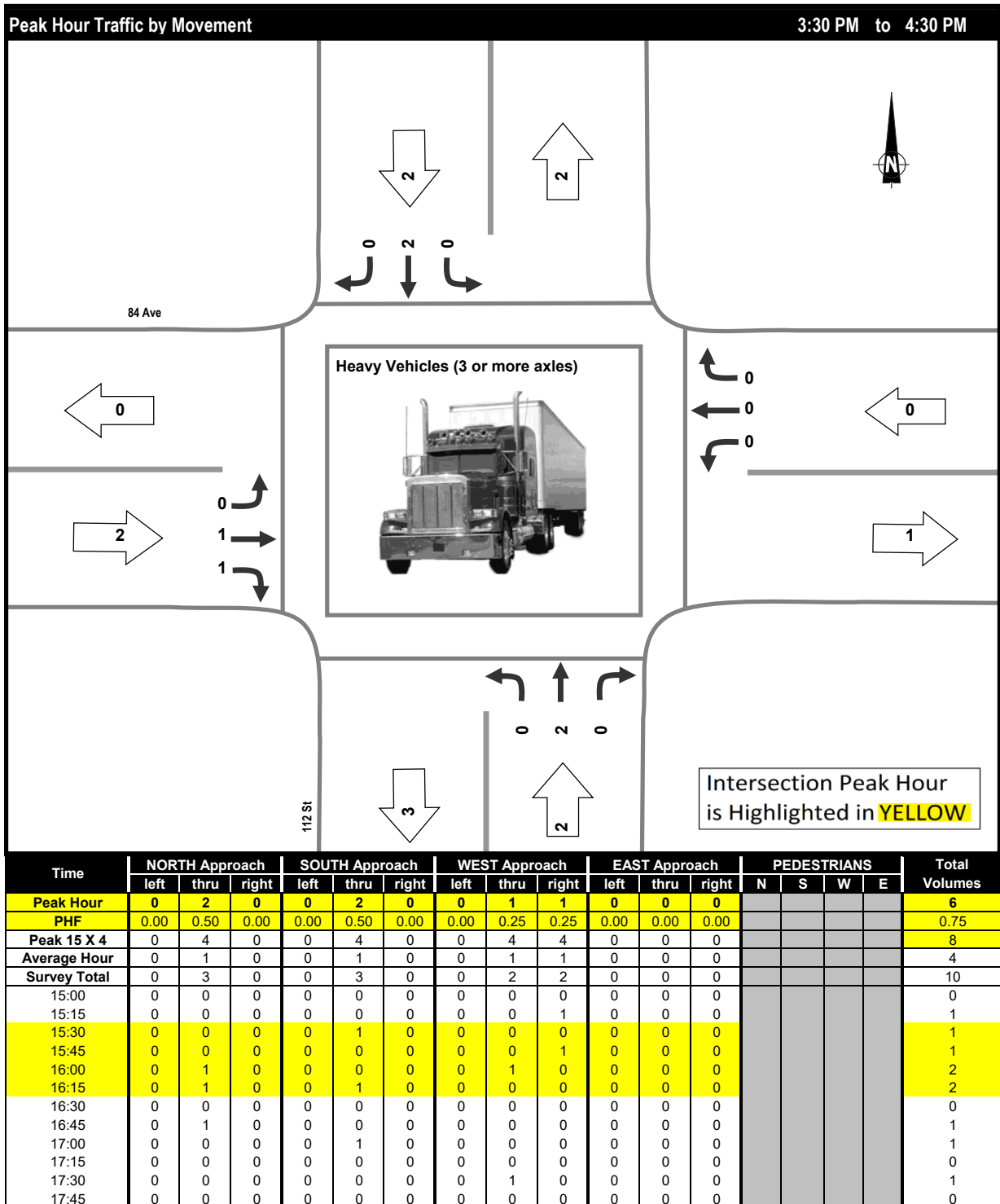
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Heavy Vehicles (3 or more axles)

Morning Peak Period



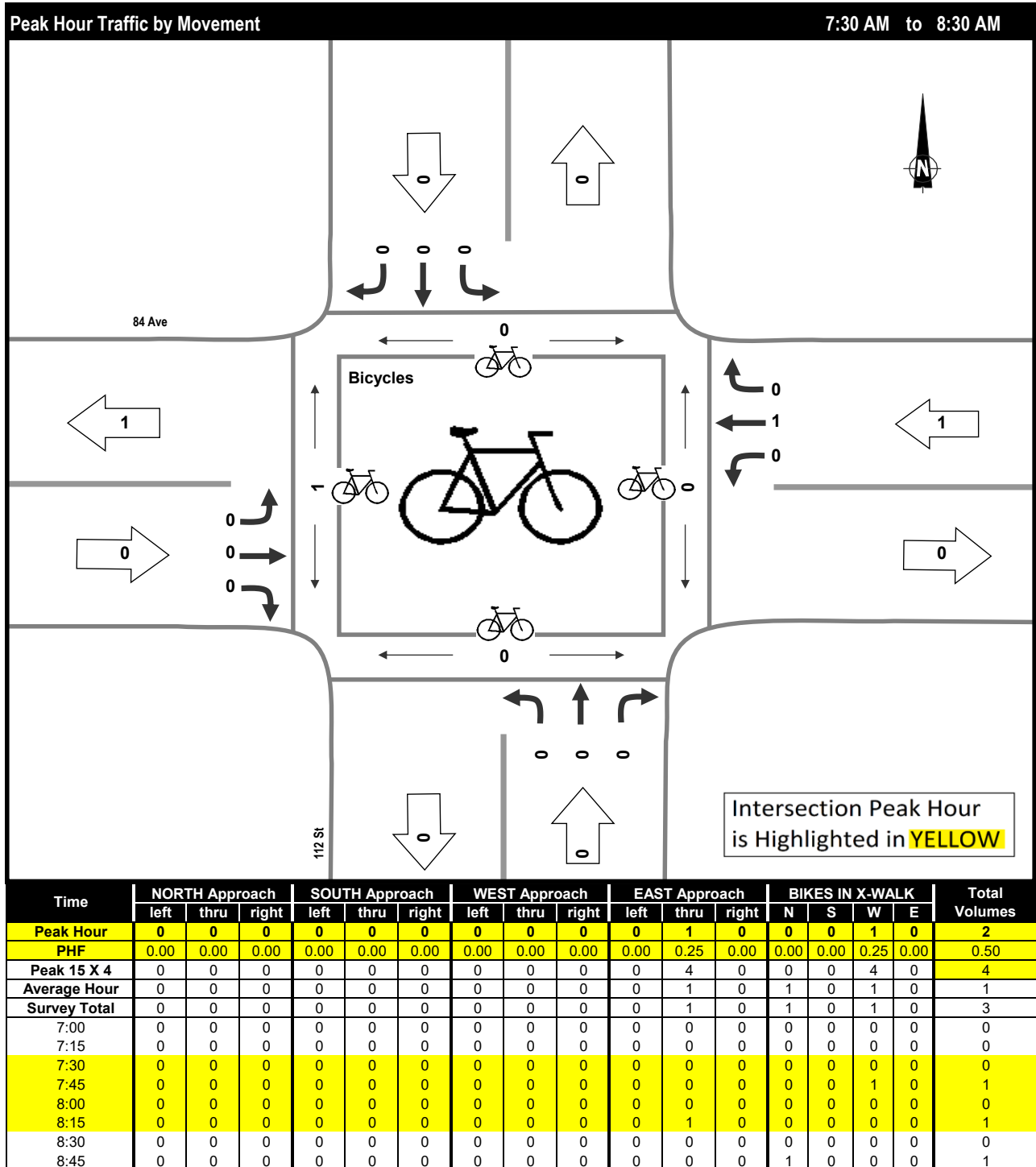
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Heavy Vehicles (3 or more axles)

Afternoon Peak Period

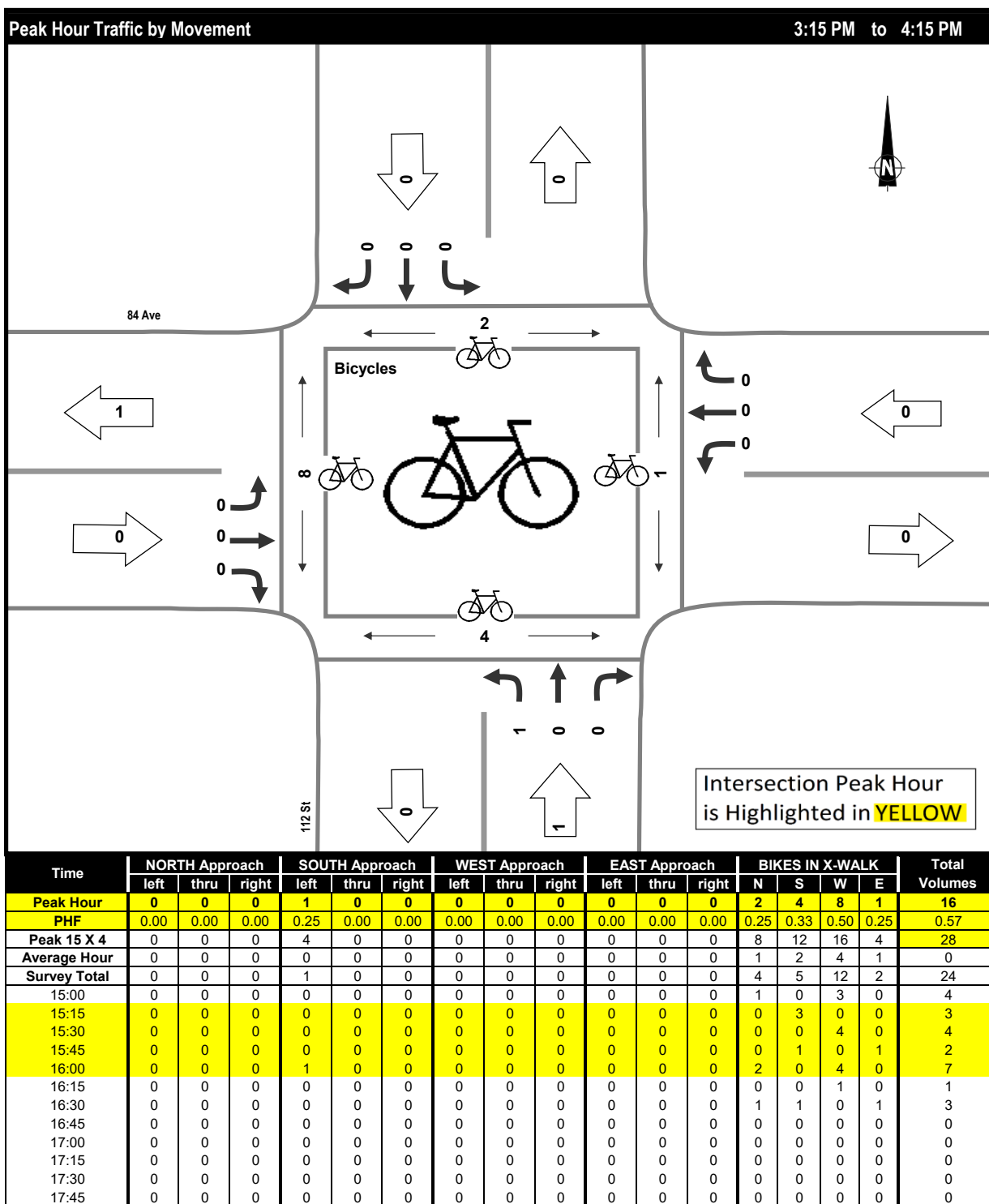


Project: #9120: 11199 84th Avenue TIS
 Municipality: Delta
 Weather: Clear
 Vehicle Class: Bicycles

Morning Peak Period



Afternoon Peak Period



**112 St & 82 Ave**

Wednesday, November 15, 2023

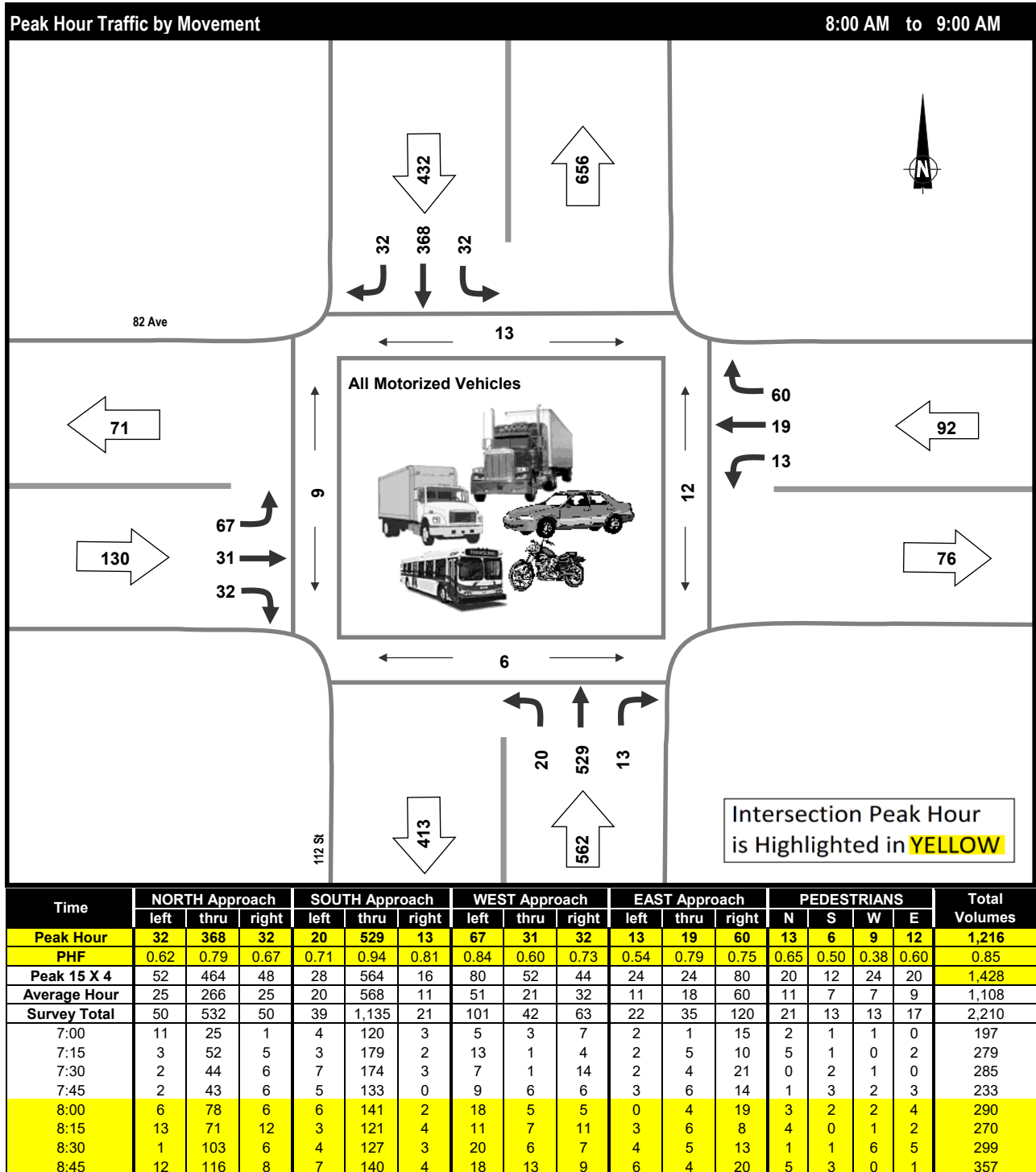
Vehicle Classification Summary

Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear

Time Period	Entering Intersection	Vehicle Classification					Total
		Passenger Cars	Heavy Vehicles (3 or more axles)				
Morning (07:00 - 09:00)	Volume	2,203	7				2,210
	%	99.7%	0.3%				100.0%
	Volume						
	%						
Afternoon (15:00 - 18:00)	Volume	4,709	8				4,717
	%	99.8%	0.2%				100.0%
Total (5 Hours)	Volume	6,912	15				6,927
	%	99.8%	0.2%				100.0%

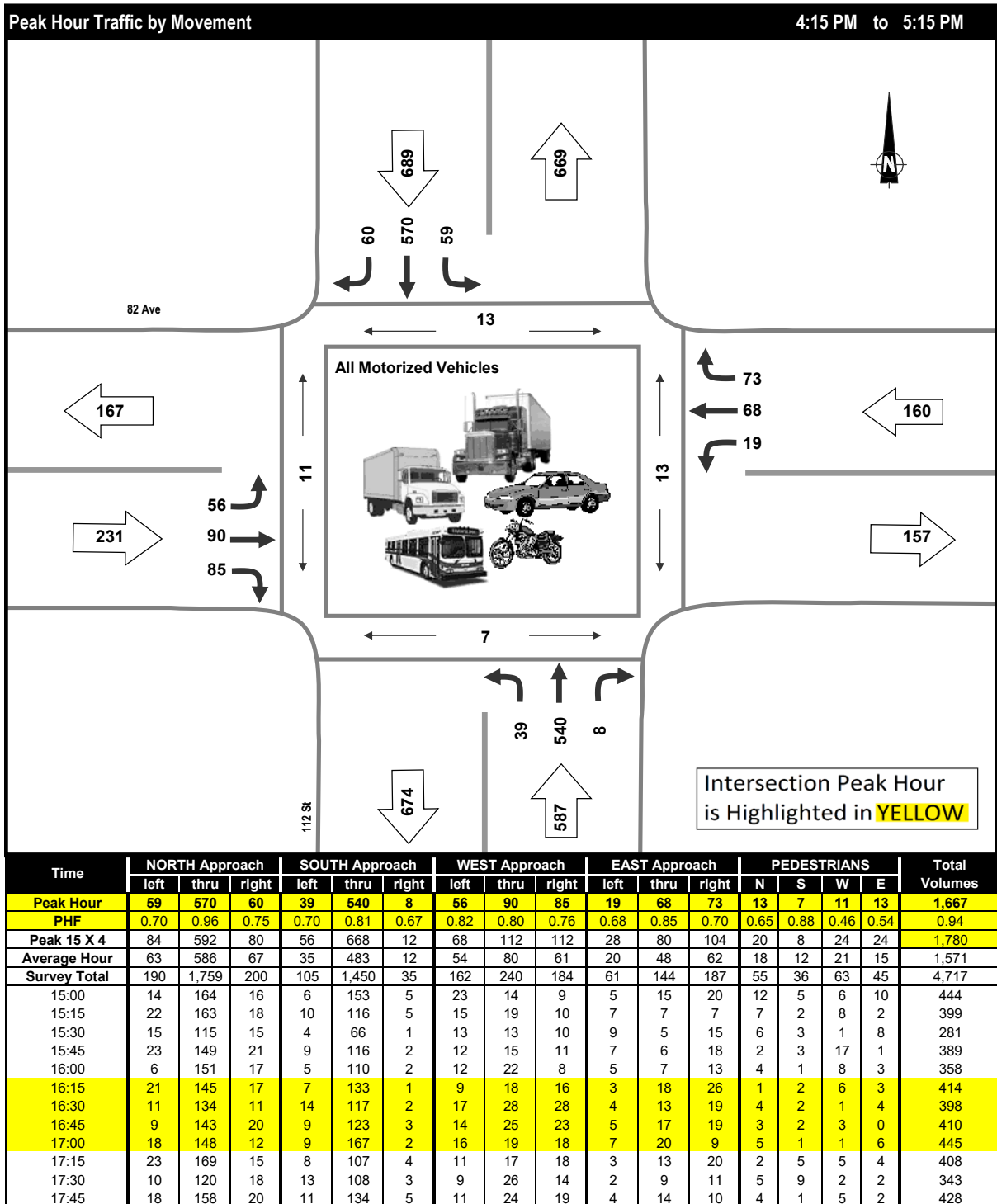
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: All Motorized Vehicles

Morning Peak Period



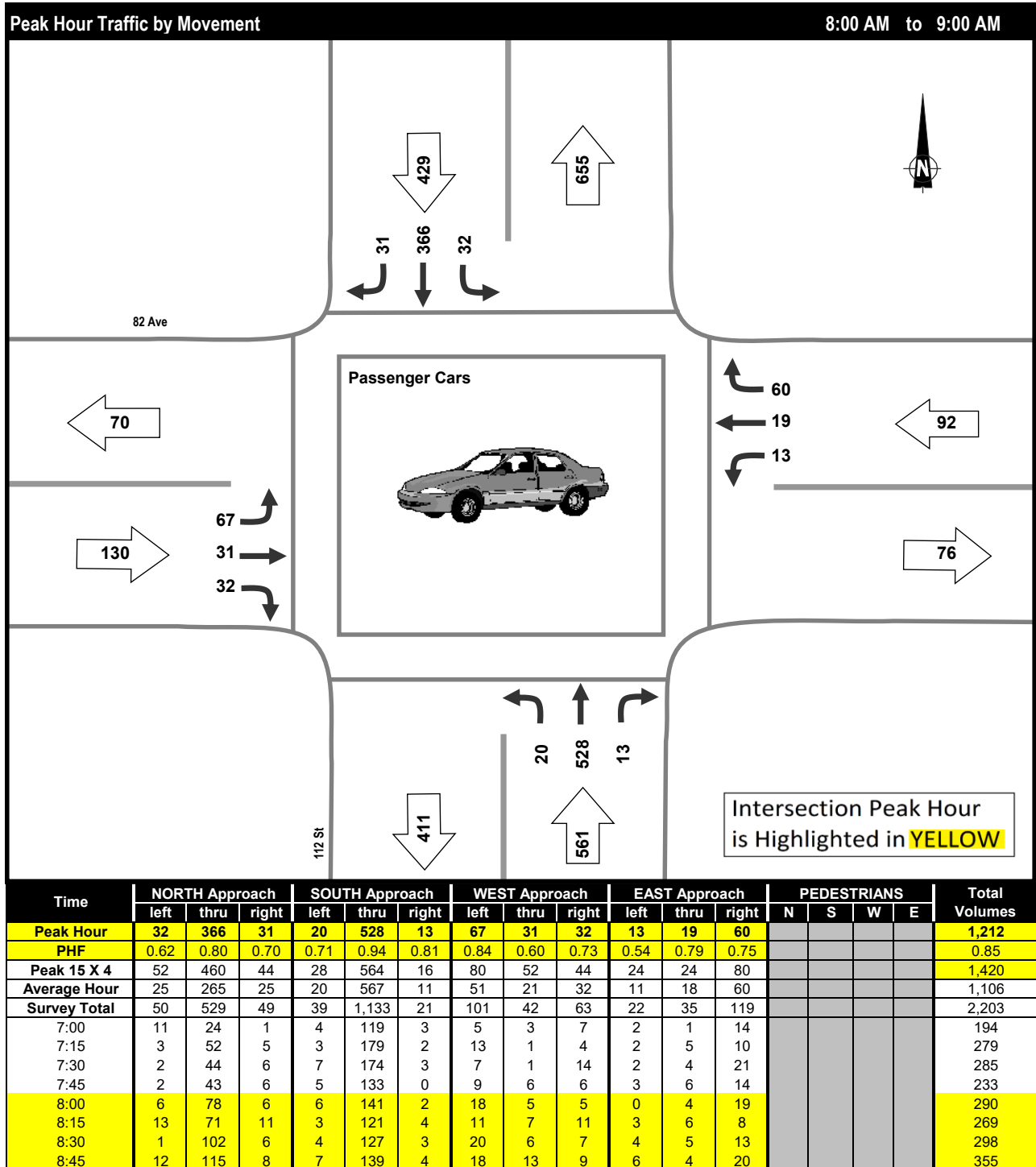
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: All Motorized Vehicles

Afternoon Peak Period



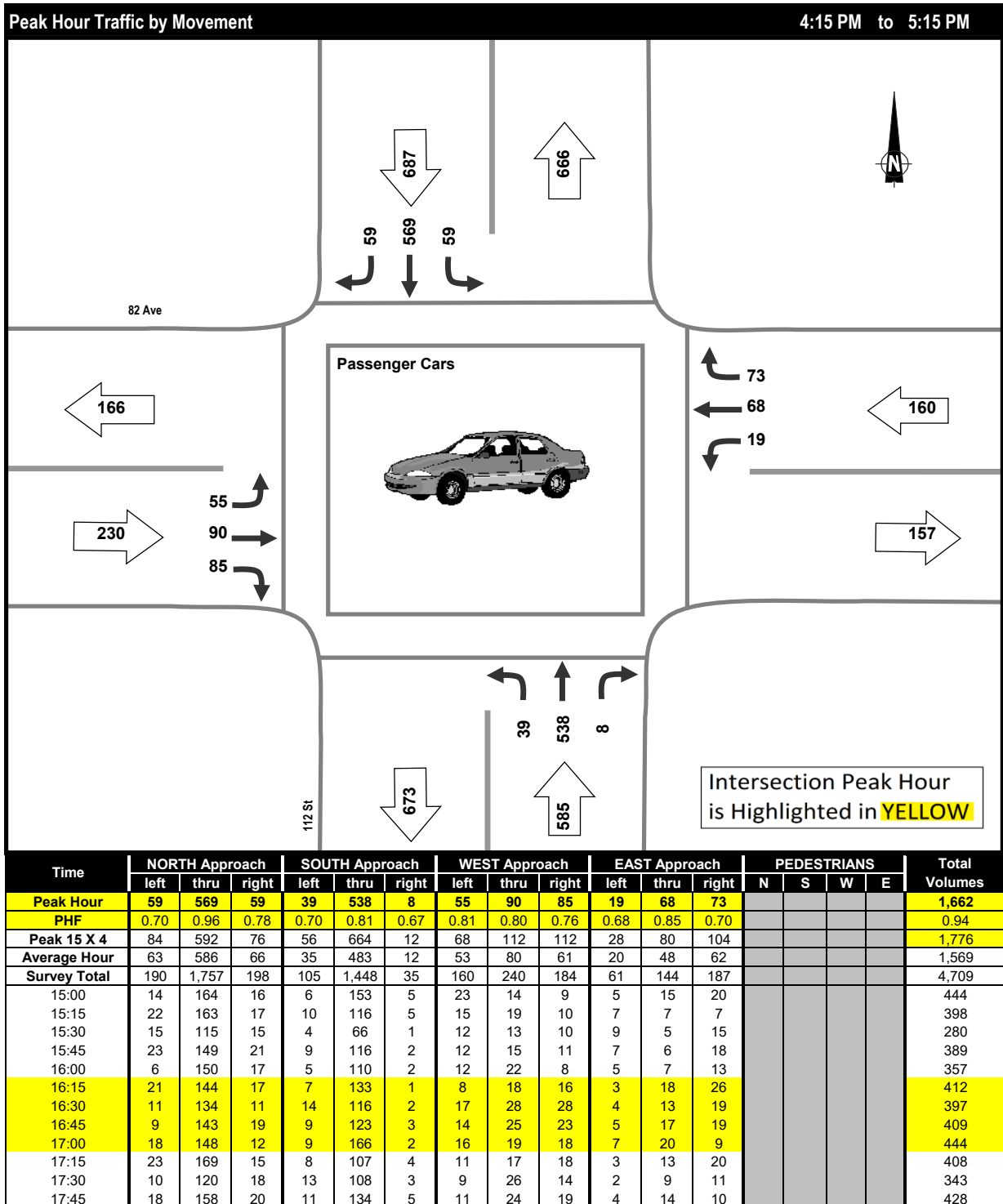
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Passenger Cars

Morning Peak Period



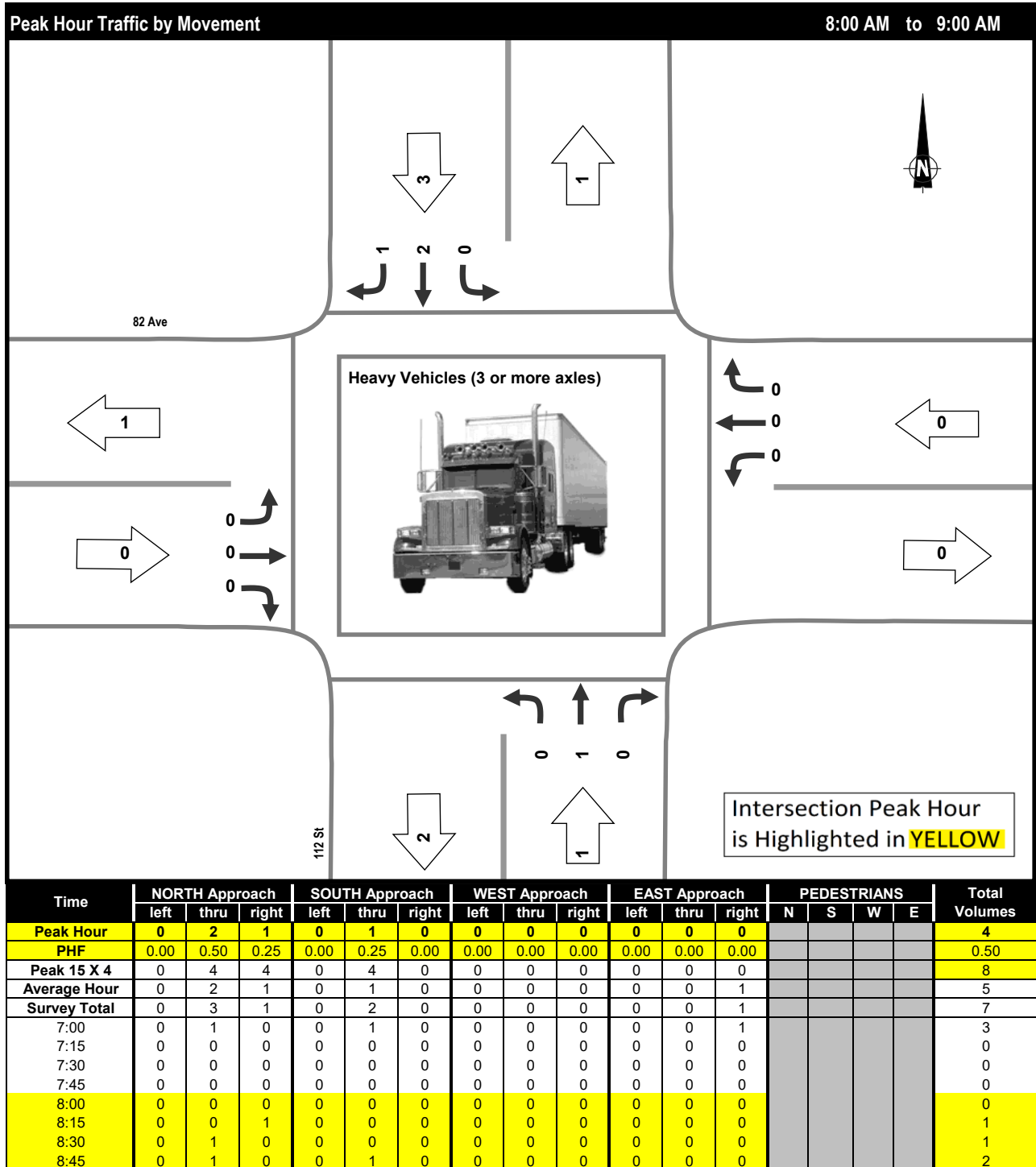
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Passenger Cars

Afternoon Peak Period



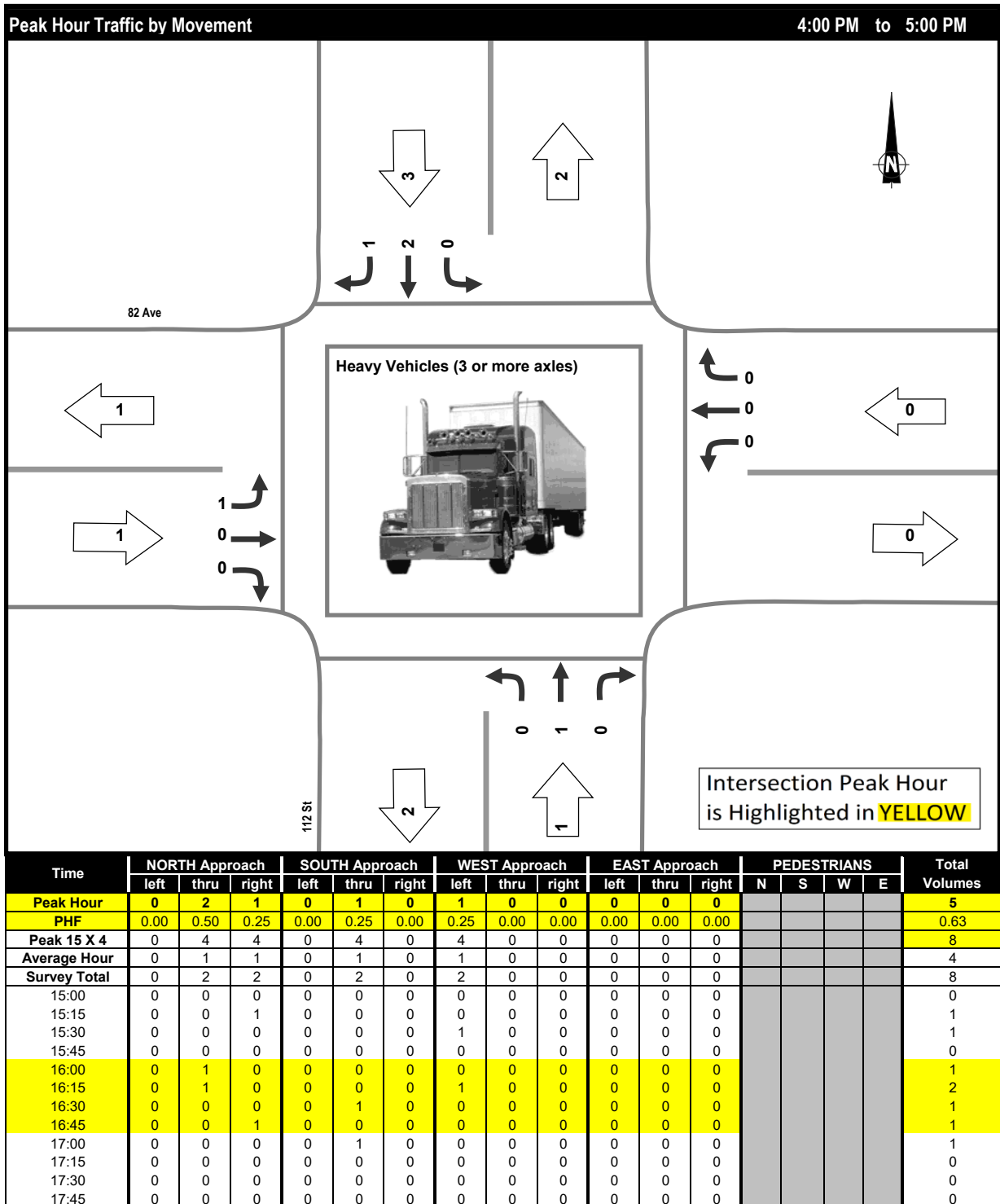
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Heavy Vehicles (3 or more axles)

Morning Peak Period

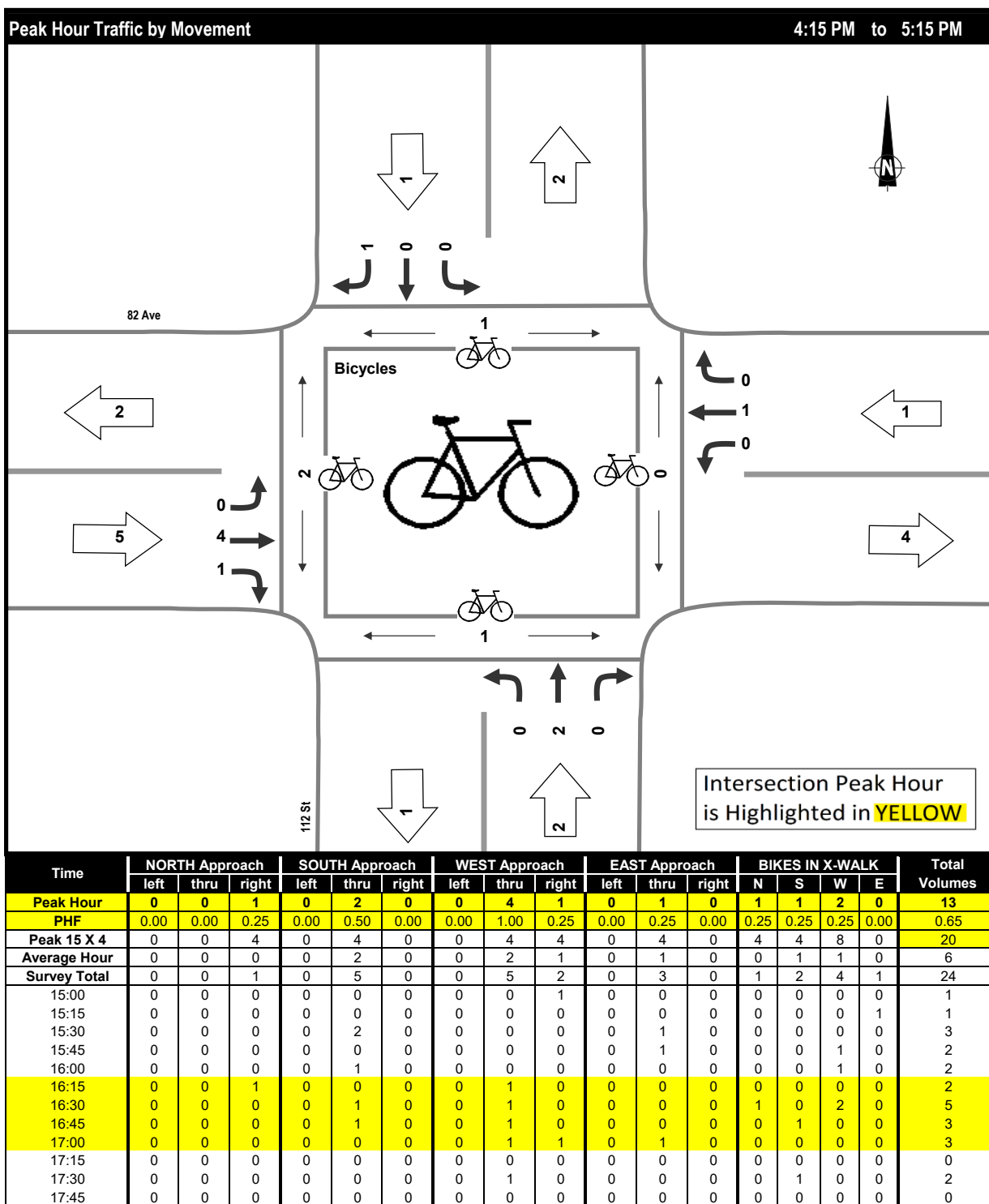


Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Heavy Vehicles (3 or more axles)

Afternoon Peak Period



Afternoon Peak Period



**112 St & 80 Ave**

Wednesday, November 15, 2023

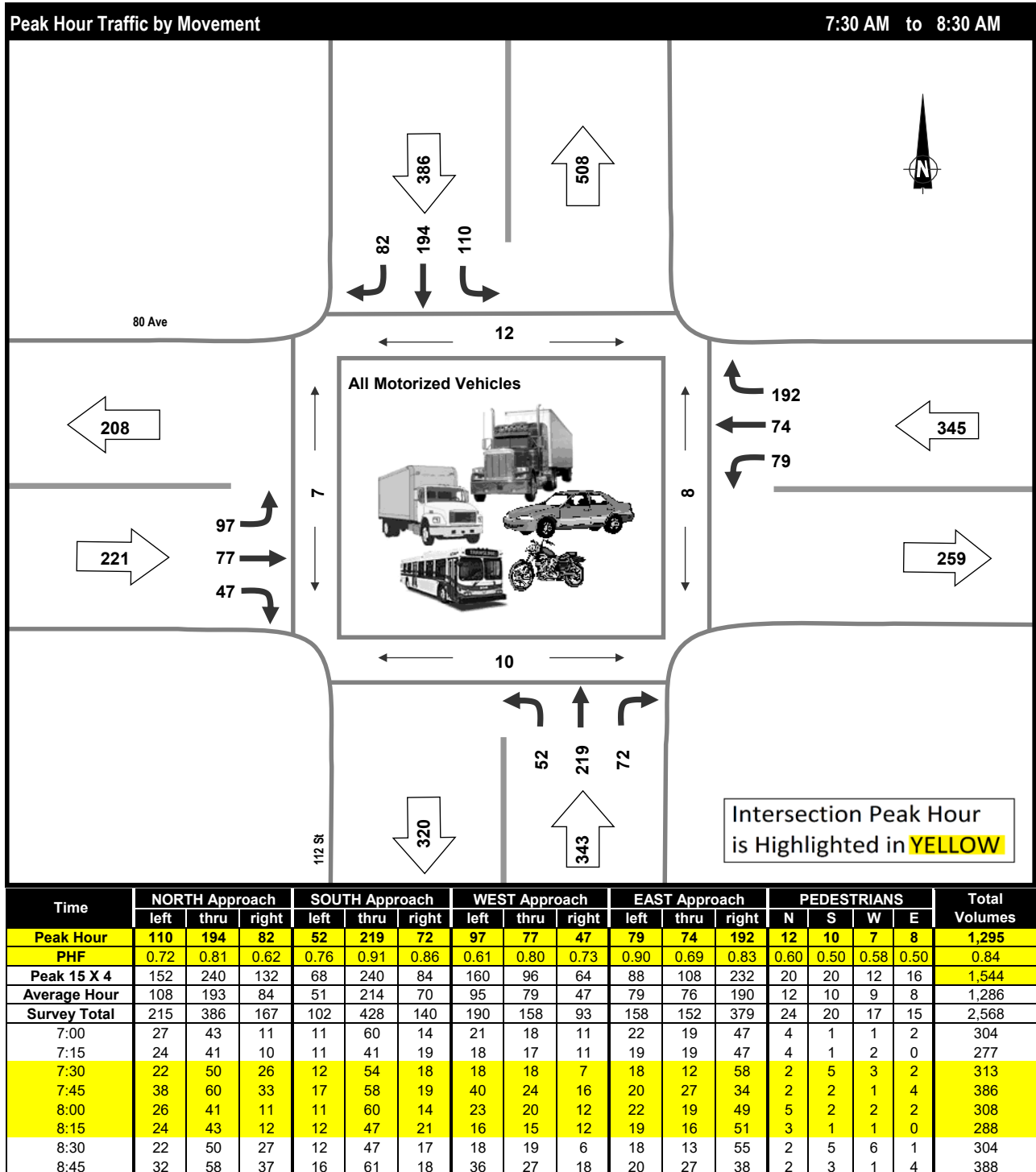
Vehicle Classification Summary

Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear

Time Period	Entering Intersection	Vehicle Classification					Total
		Passenger Cars	Heavy Vehicles (3 or more axles)				
Morning (07:00 - 09:00)	Volume	2,552	16				2,568
	%	99.4%	0.6%				100.0%
	Volume						
	%						
Afternoon (15:00 - 18:00)	Volume	5,226	10				5,236
	%	99.8%	0.2%				100.0%
Total (5 Hours)	Volume	7,778	26				7,804
	%	99.7%	0.3%				100.0%

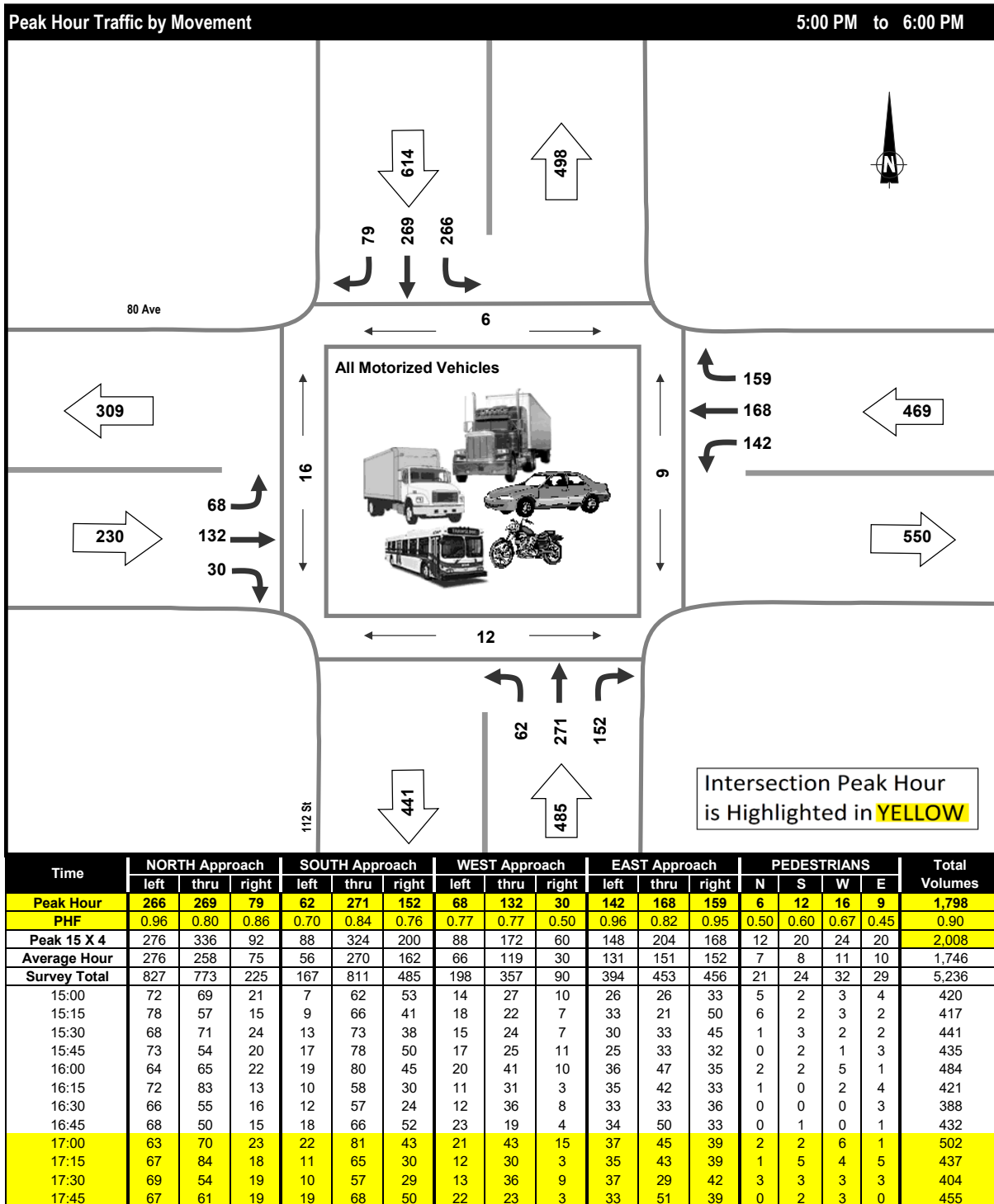
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: All Motorized Vehicles

Morning Peak Period



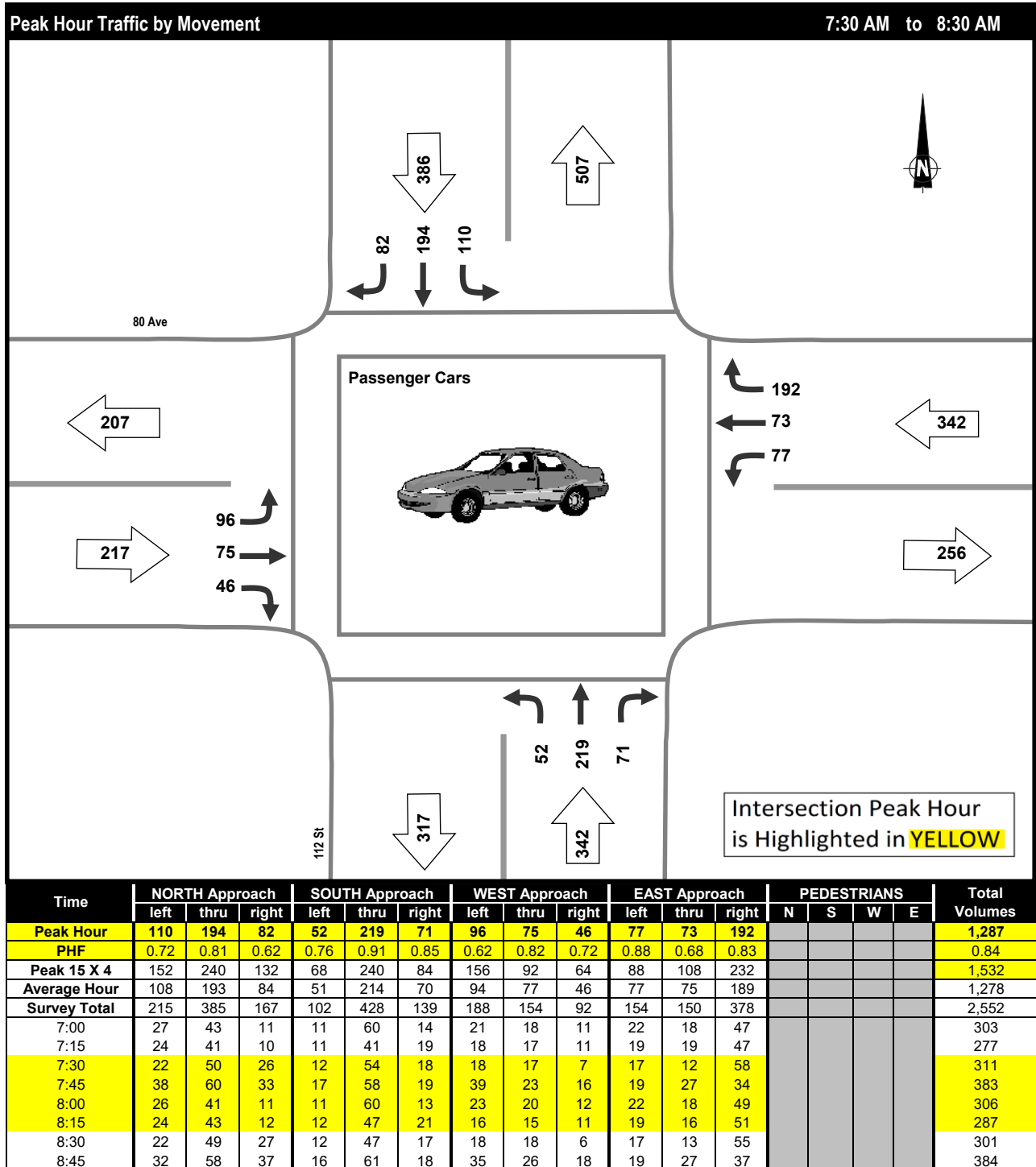
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: All Motorized Vehicles

Afternoon Peak Period



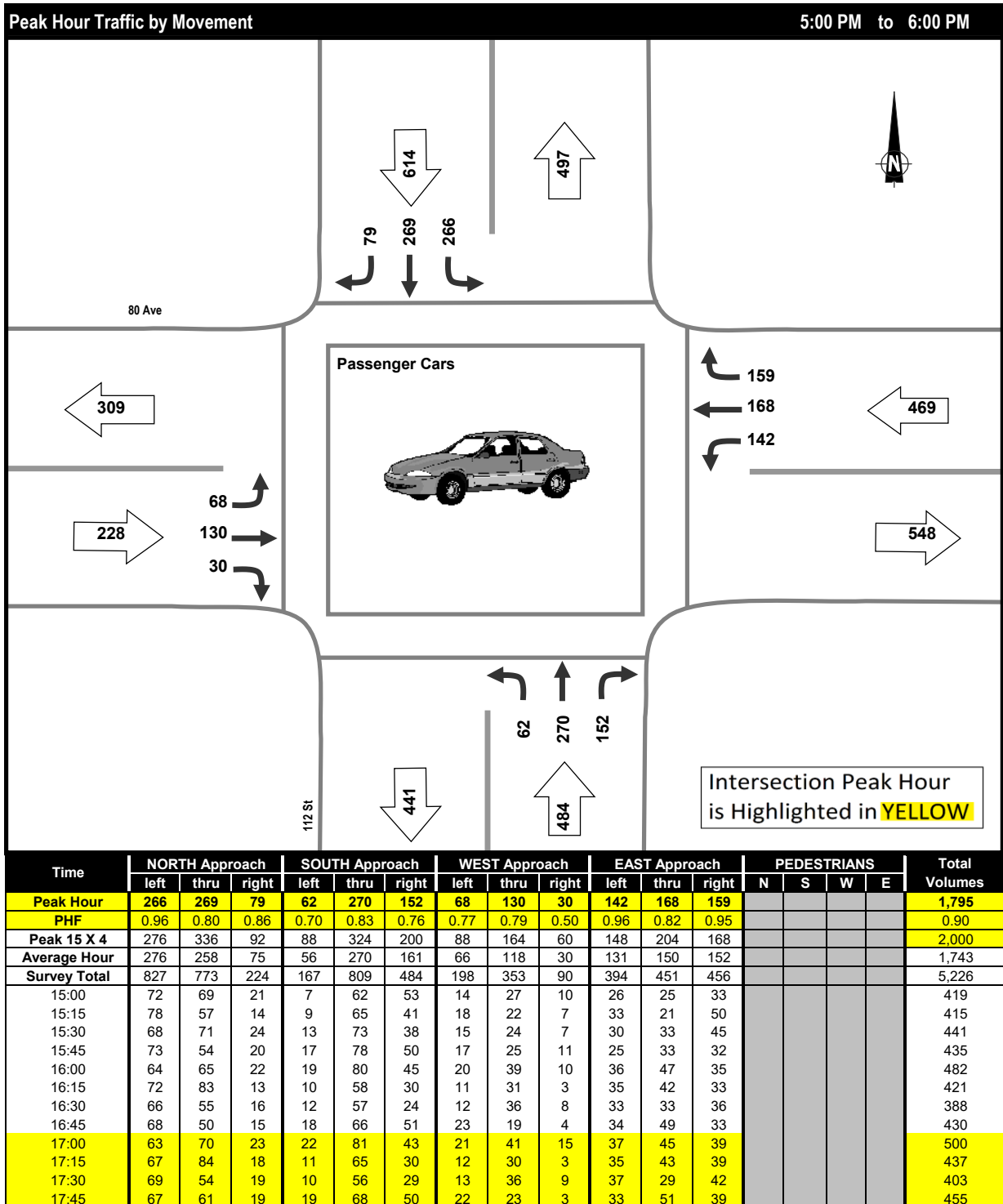
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Passenger Cars

Morning Peak Period



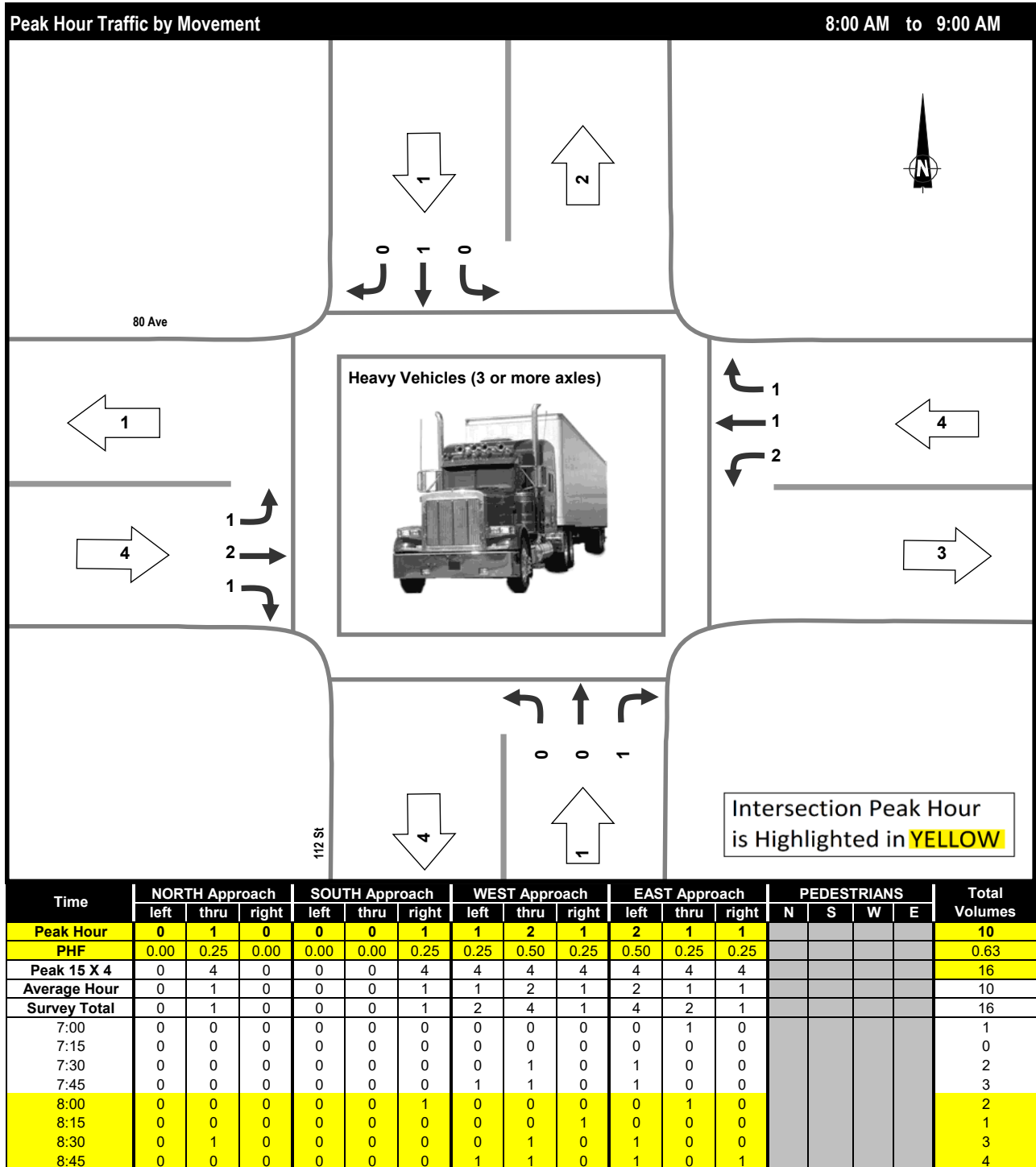
Project: #9120: 11199 84th Avenue TIS
 Municipality: Delta
 Weather: Clear
 Vehicle Class: Passenger Cars

Afternoon Peak Period



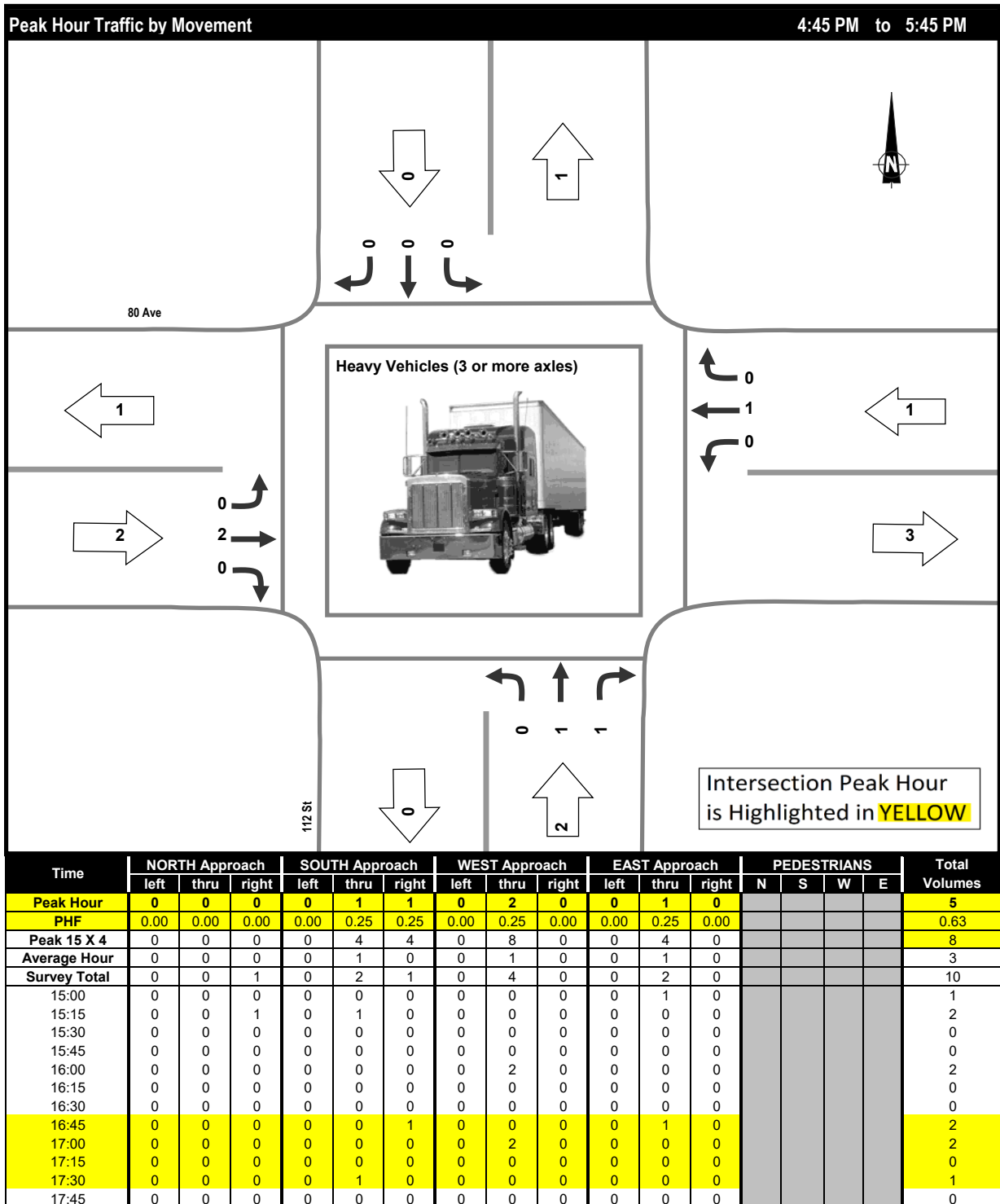
Project: #9120: 11199 84th Avenue TIS
 Municipality: Delta
 Weather: Clear
 Vehicle Class: Heavy Vehicles (3 or more axles)

Morning Peak Period



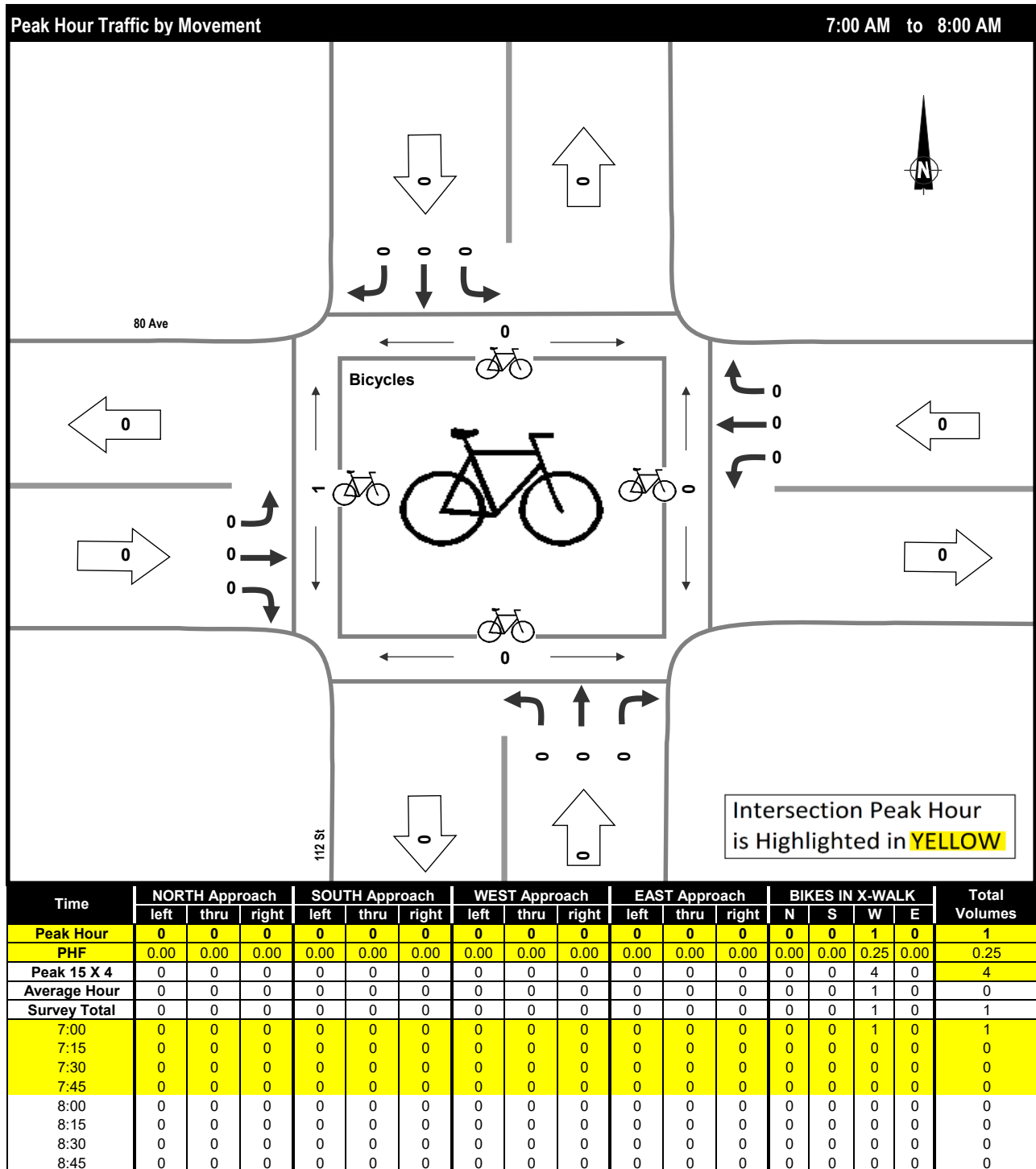
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Heavy Vehicles (3 or more axles)

Afternoon Peak Period



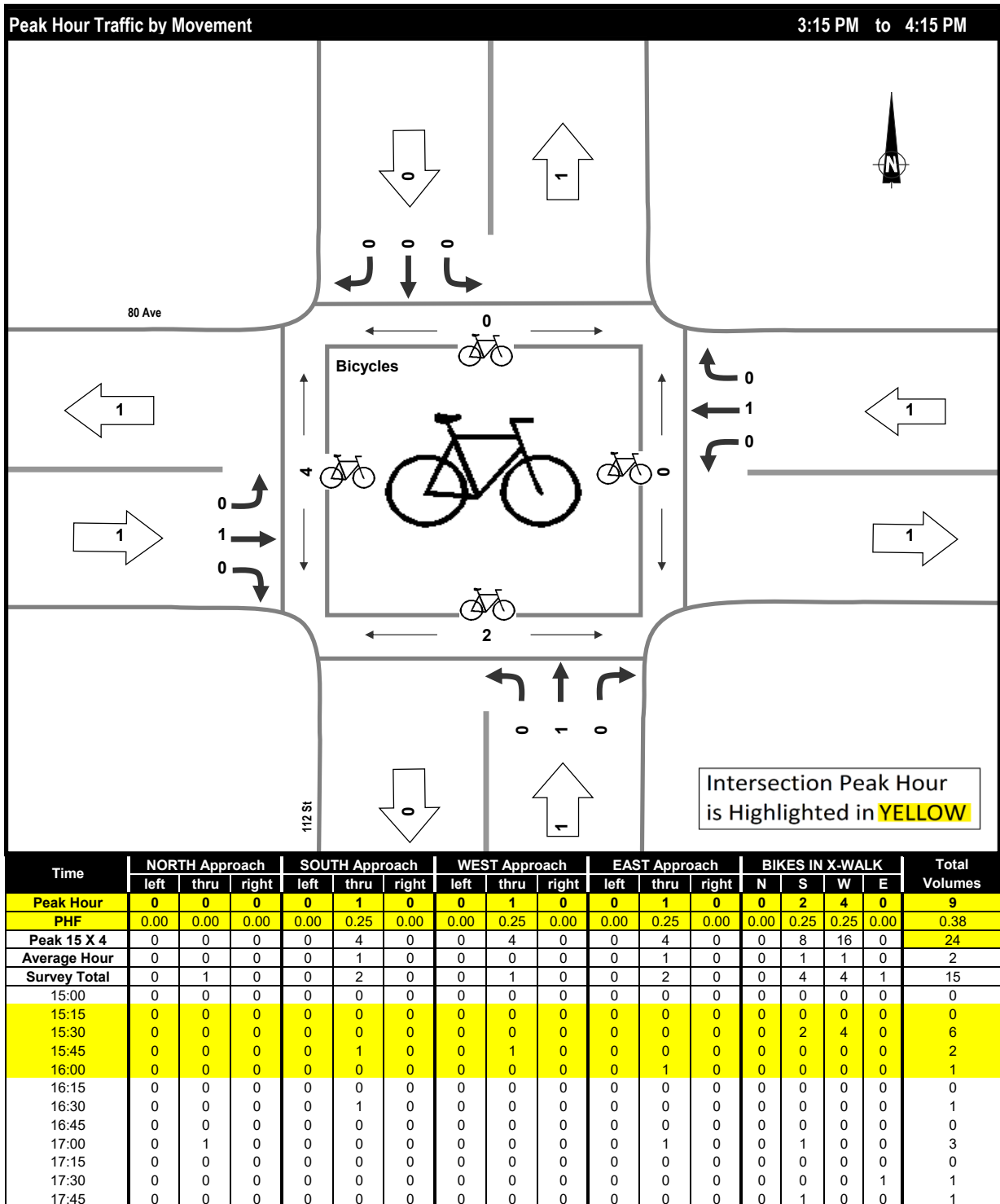
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Bicycles

Morning Peak Period



Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Bicycles

Afternoon Peak Period



**116 St & 84 Ave**

Wednesday, November 15, 2023

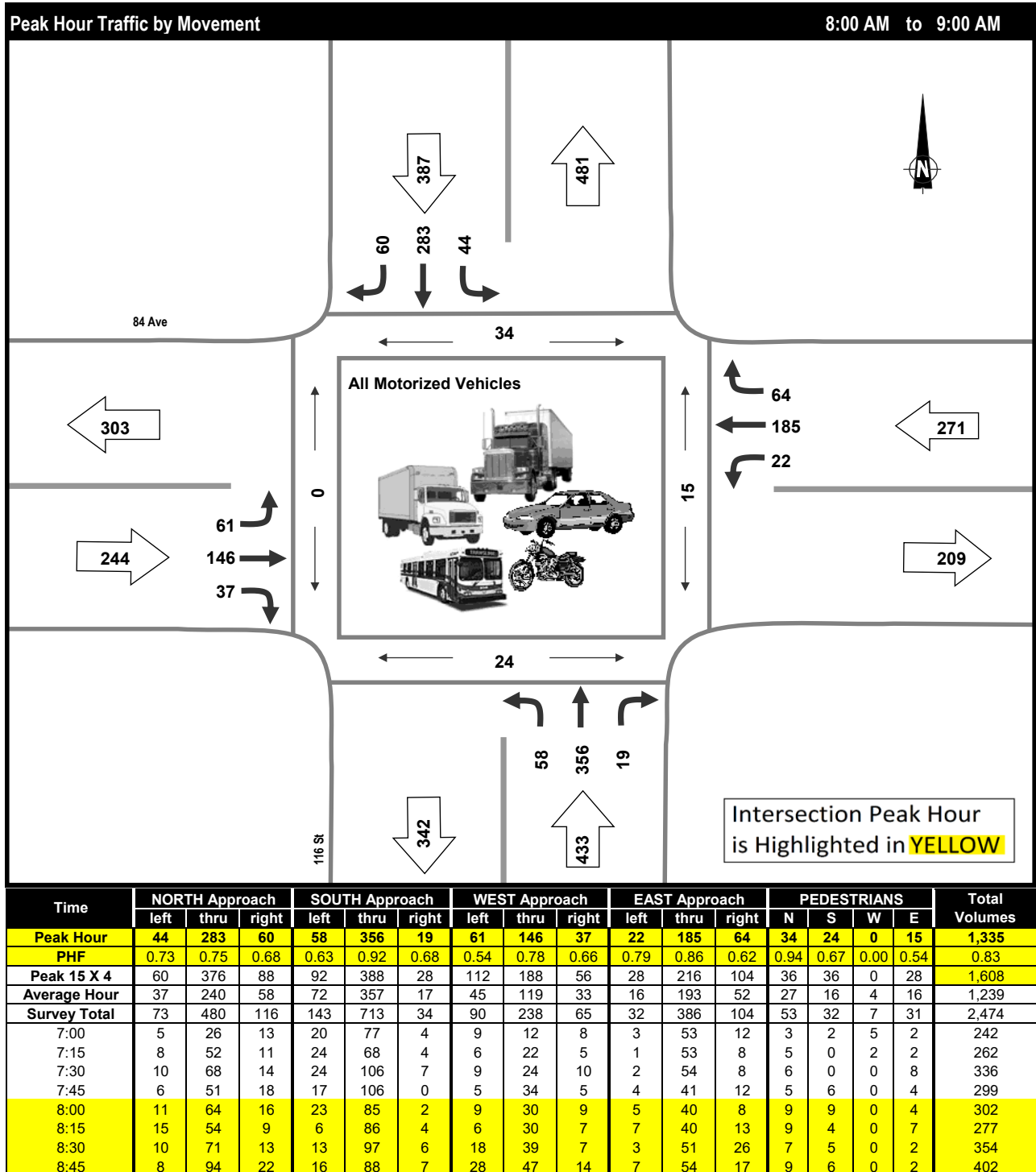
Vehicle Classification Summary

Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear

Time Period	Entering Intersection	Vehicle Classification					Total
		Passenger Cars	Heavy Vehicles (3 or more axles)				
Morning (07:00 - 09:00)	Volume	2,461	13				2,474
	%	99.5%	0.5%				100.0%
	Volume						
	%						
Afternoon (15:00 - 18:00)	Volume	5,715	9				5,724
	%	99.8%	0.2%				100.0%
Total (5 Hours)	Volume	8,176	22				8,198
	%	99.7%	0.3%				100.0%

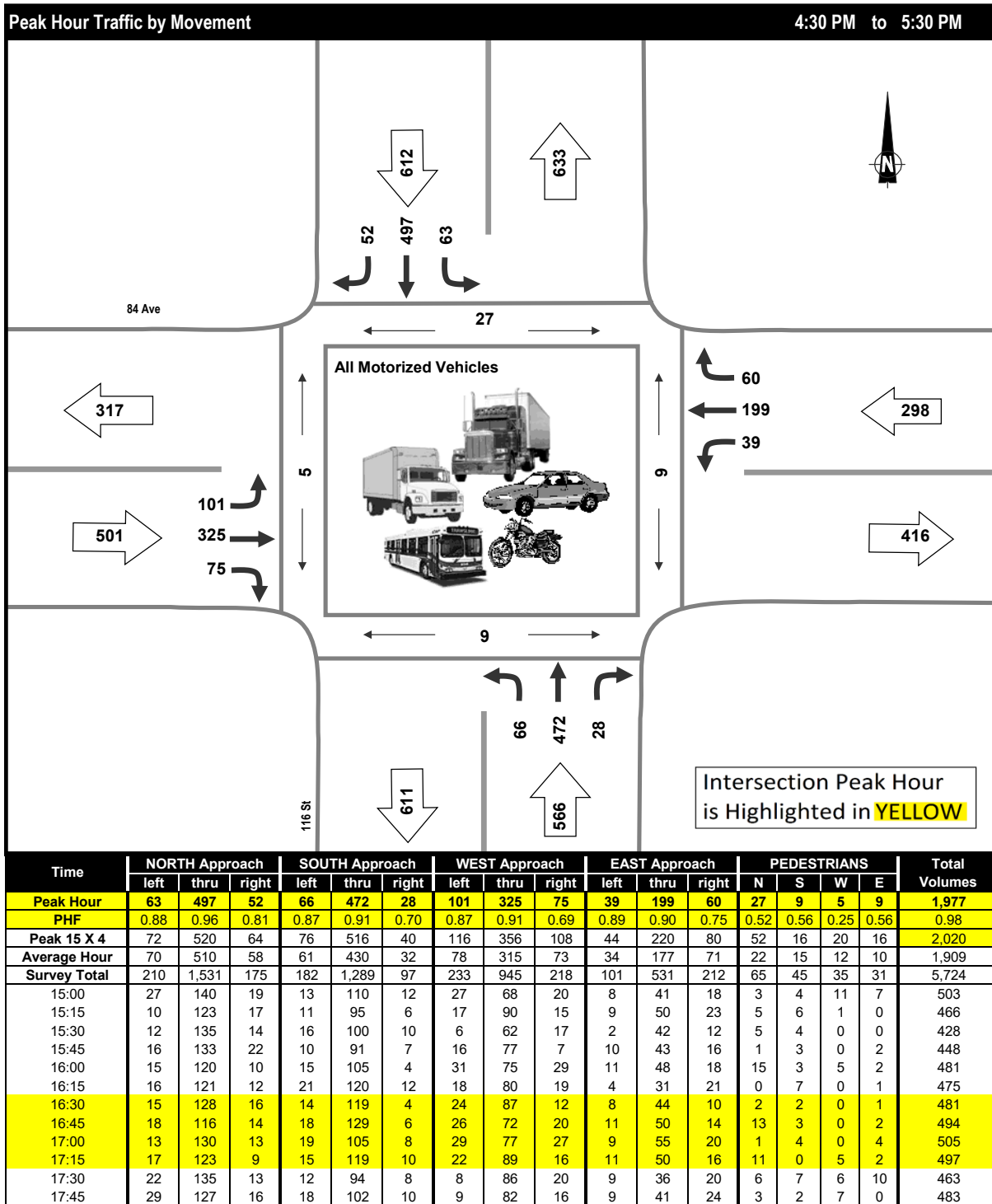
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: All Motorized Vehicles

Morning Peak Period



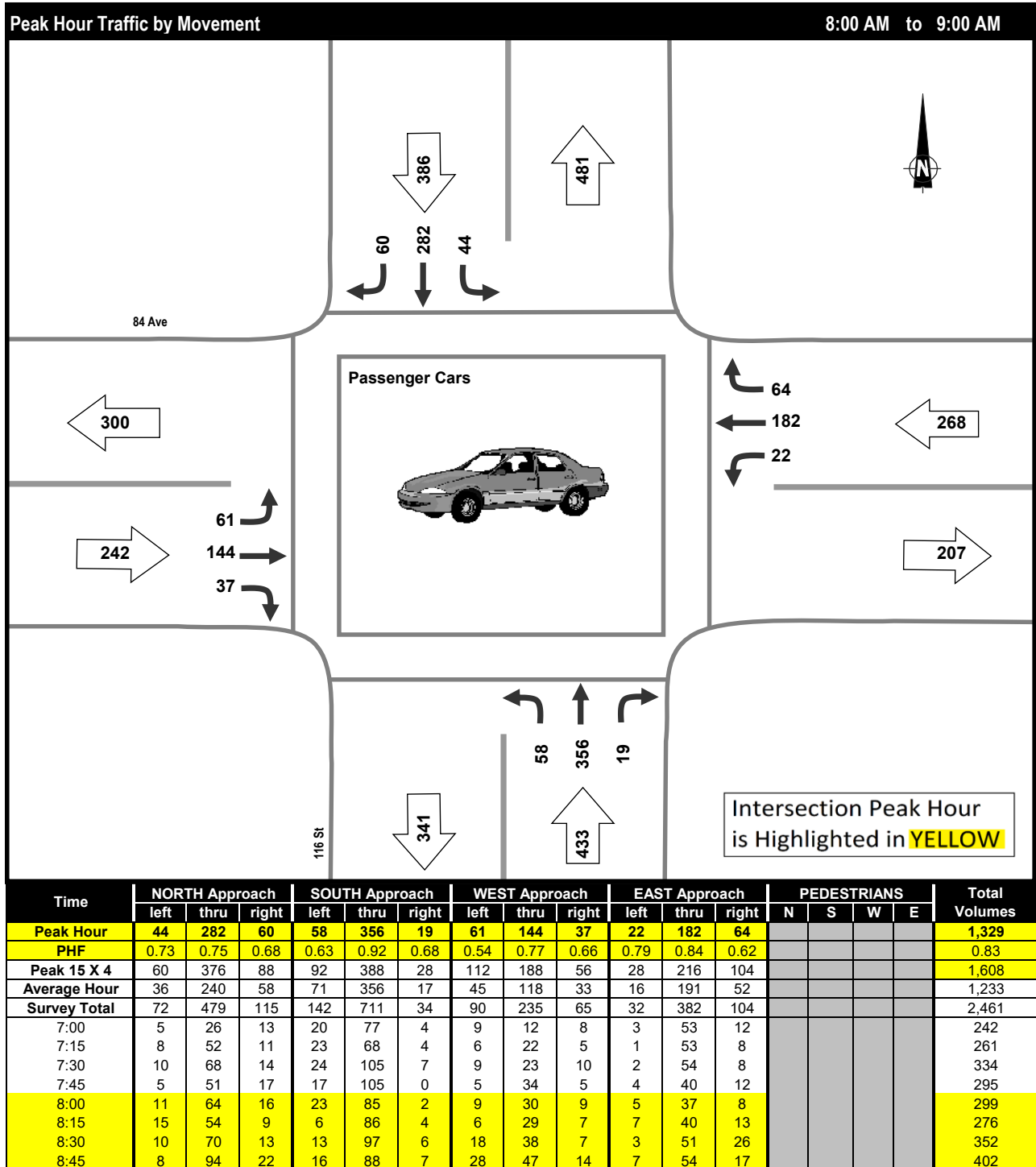
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: All Motorized Vehicles

Afternoon Peak Period



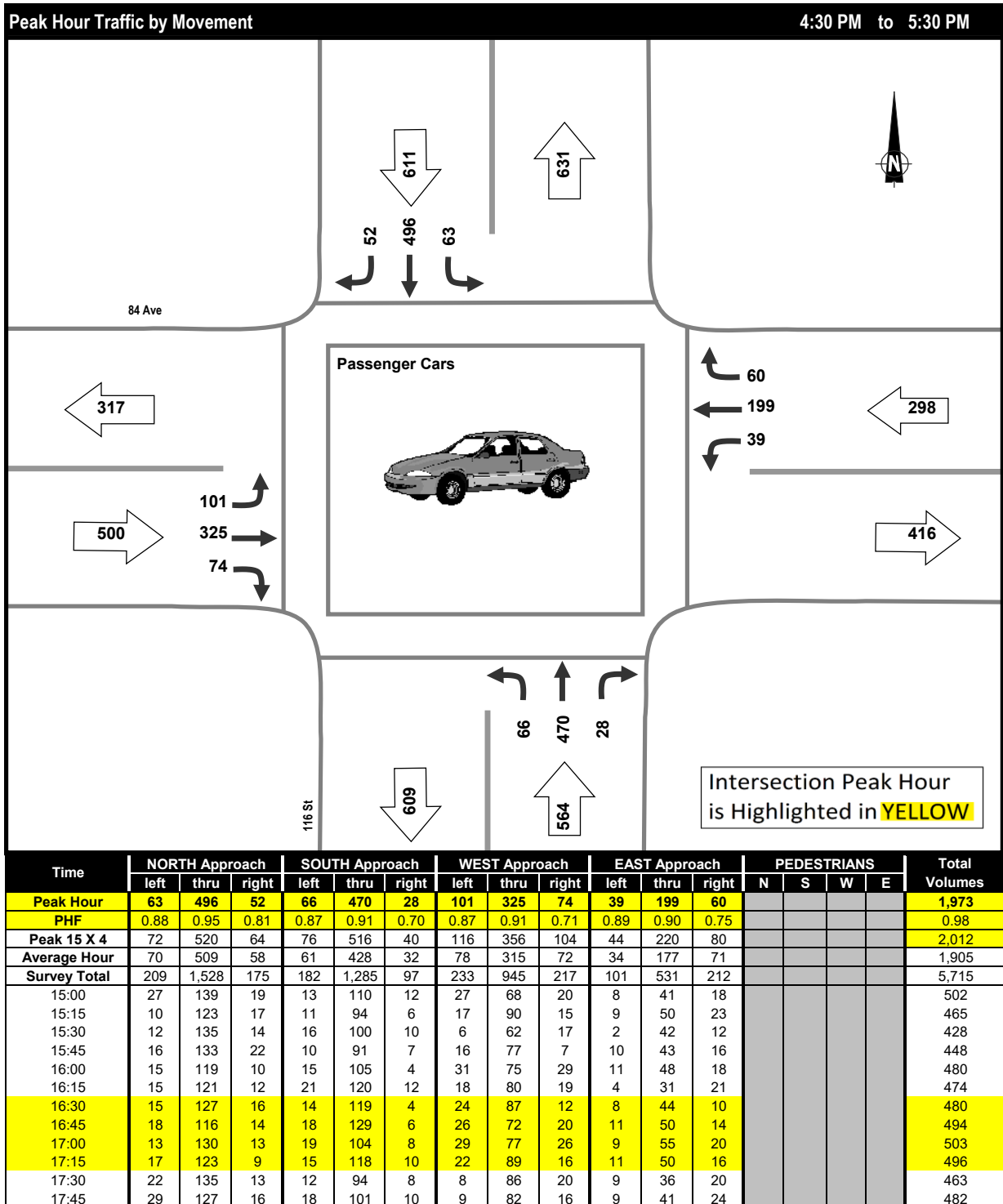
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Passenger Cars

Morning Peak Period



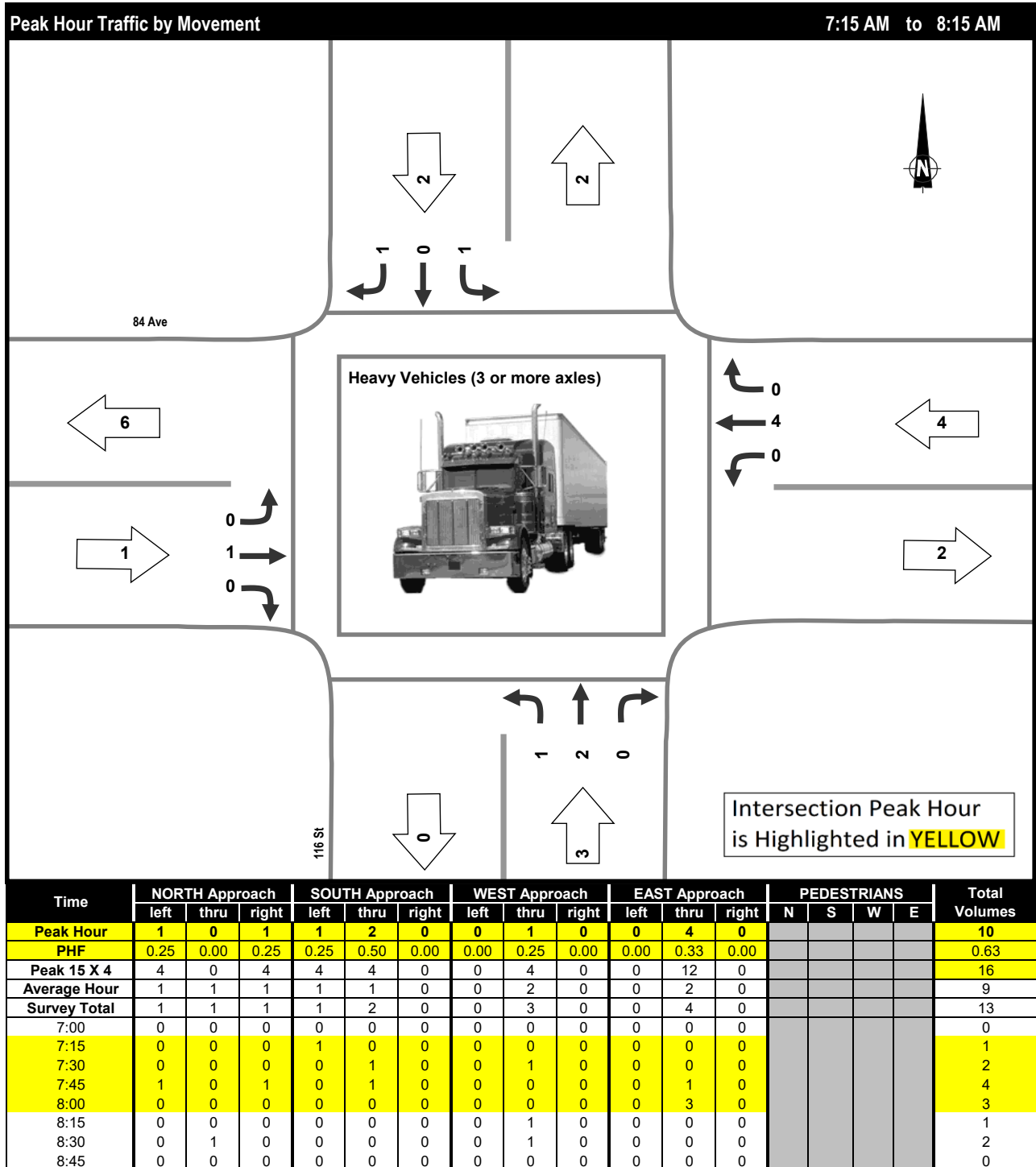
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Passenger Cars

Afternoon Peak Period



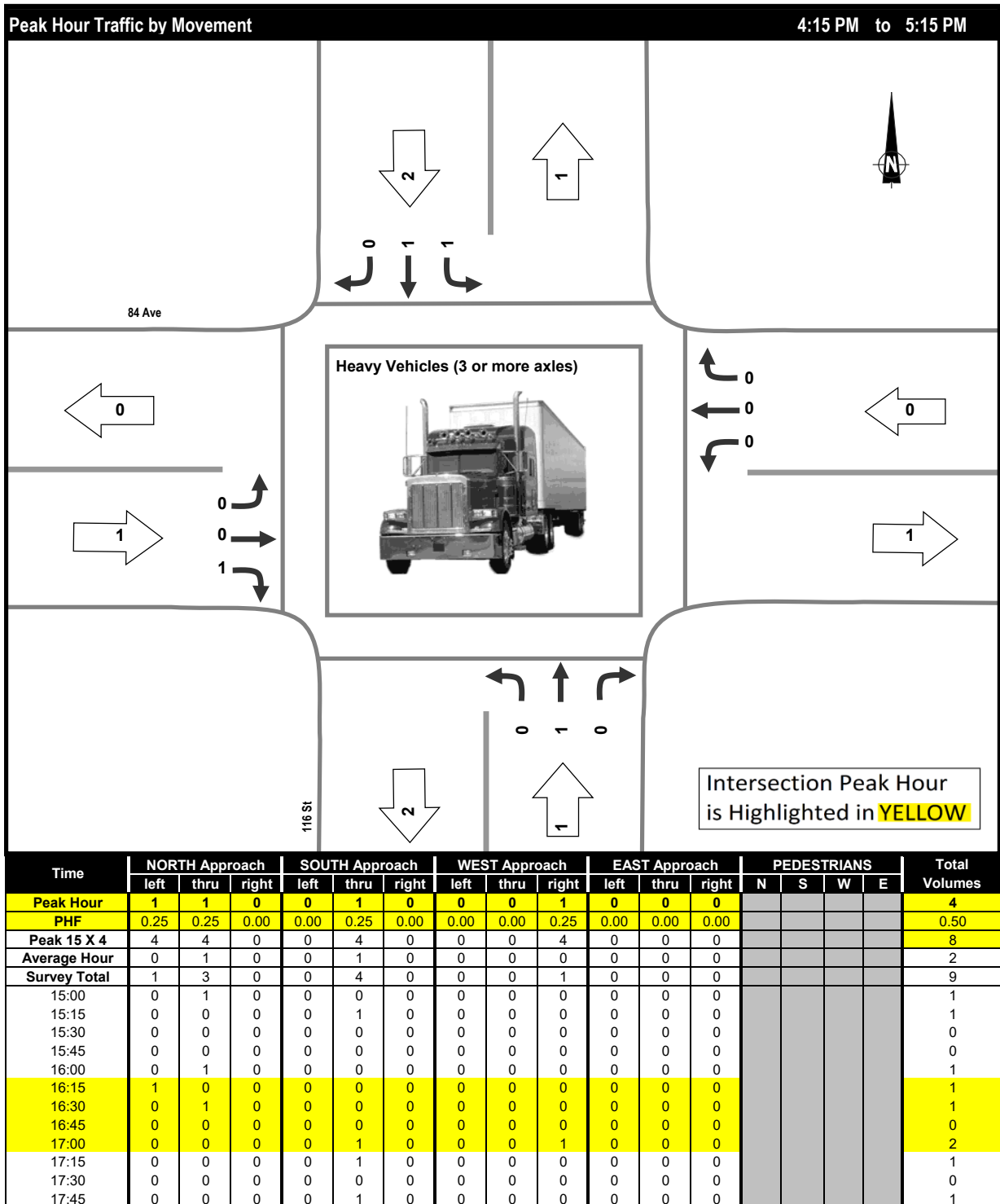
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Heavy Vehicles (3 or more axles)

Morning Peak Period



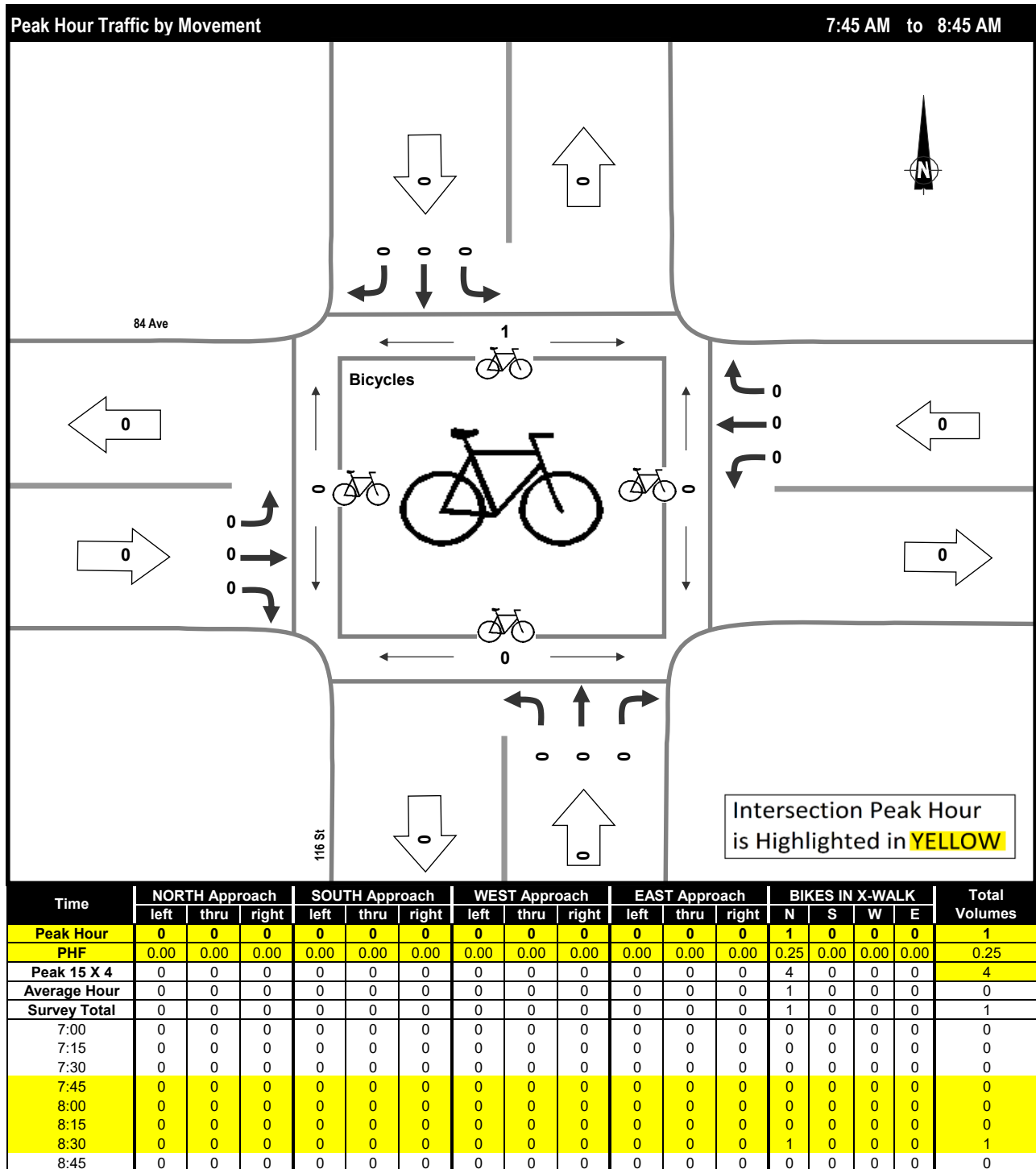
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Heavy Vehicles (3 or more axles)

Afternoon Peak Period



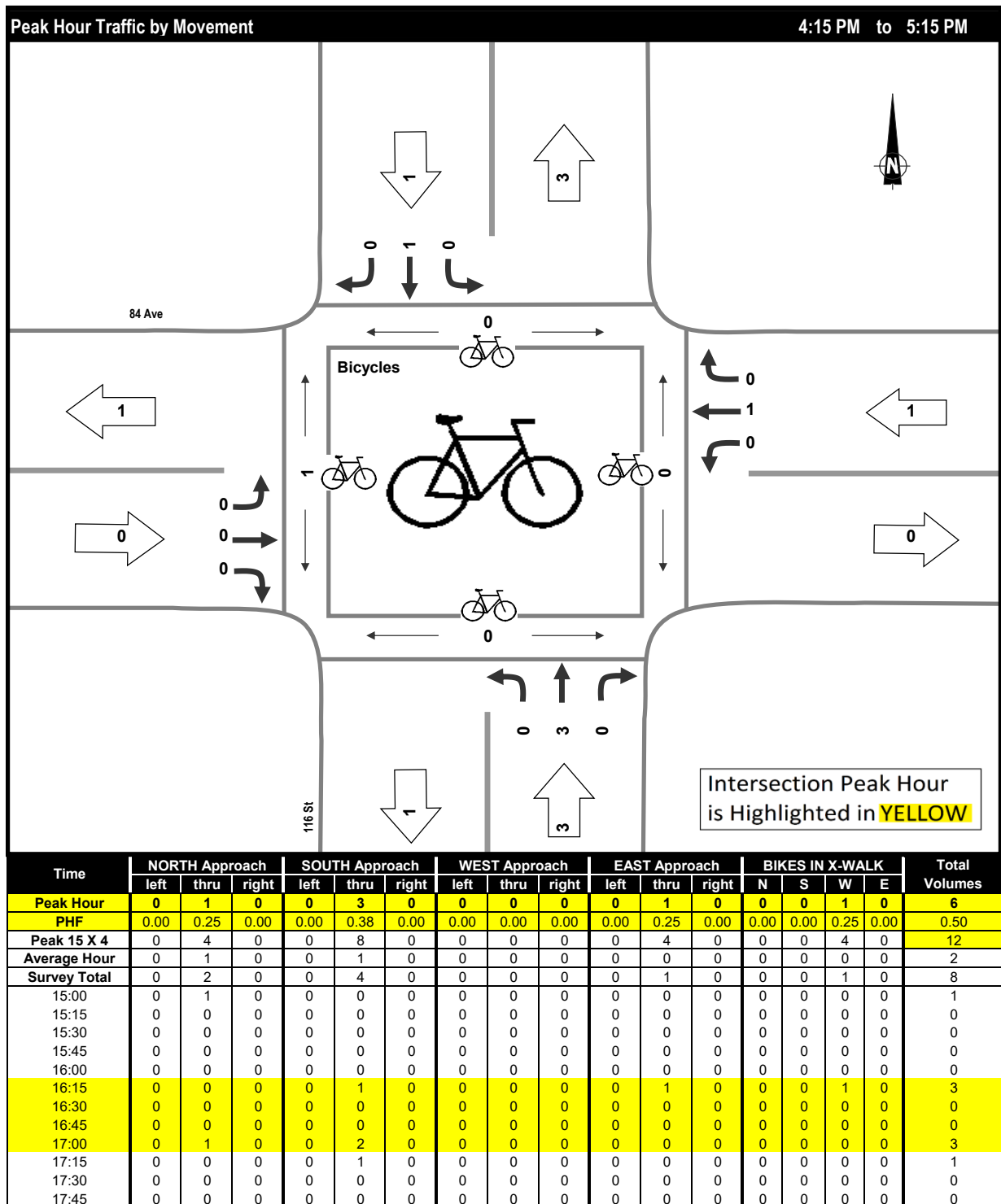
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Bicycles

Morning Peak Period



Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Bicycles

Afternoon Peak Period





Delsom Crescent & 84 Ave

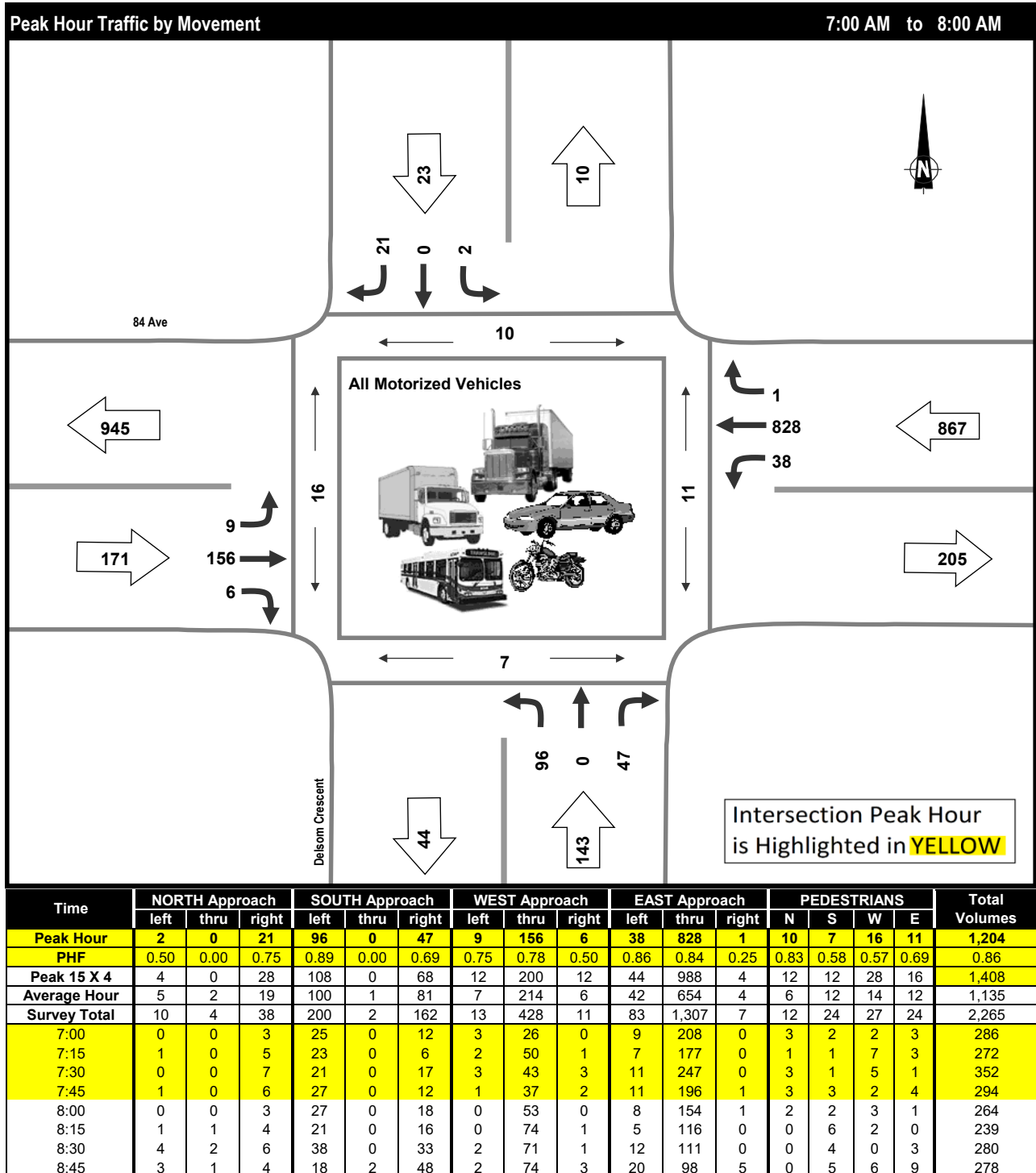
Wednesday, November 15, 2023

Vehicle Classification Summary

Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear

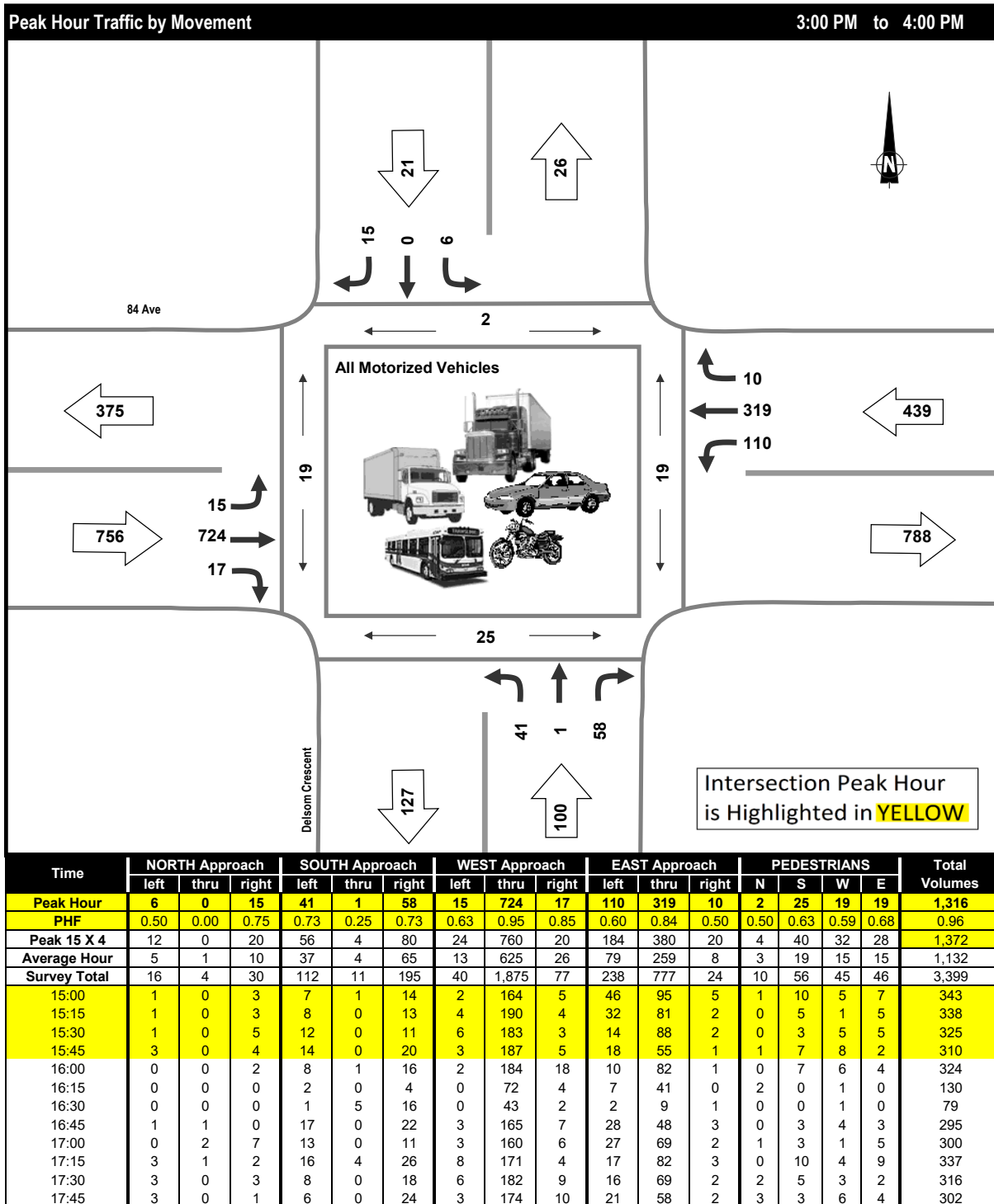
Time Period	Entering Intersection	Vehicle Classification					Total
		Passenger Cars	Heavy Vehicles (3 or more axles)				
Morning (07:00 - 09:00)	Volume	2,254	11				2,265
	%	99.5%	0.5%				100.0%
	Volume						
	%						
Afternoon (15:00 - 18:00)	Volume	3,388	11				3,399
	%	99.7%	0.3%				100.0%
Total (5 Hours)	Volume	5,642	22				5,664
	%	99.6%	0.4%				100.0%

Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: All Motorized Vehicles



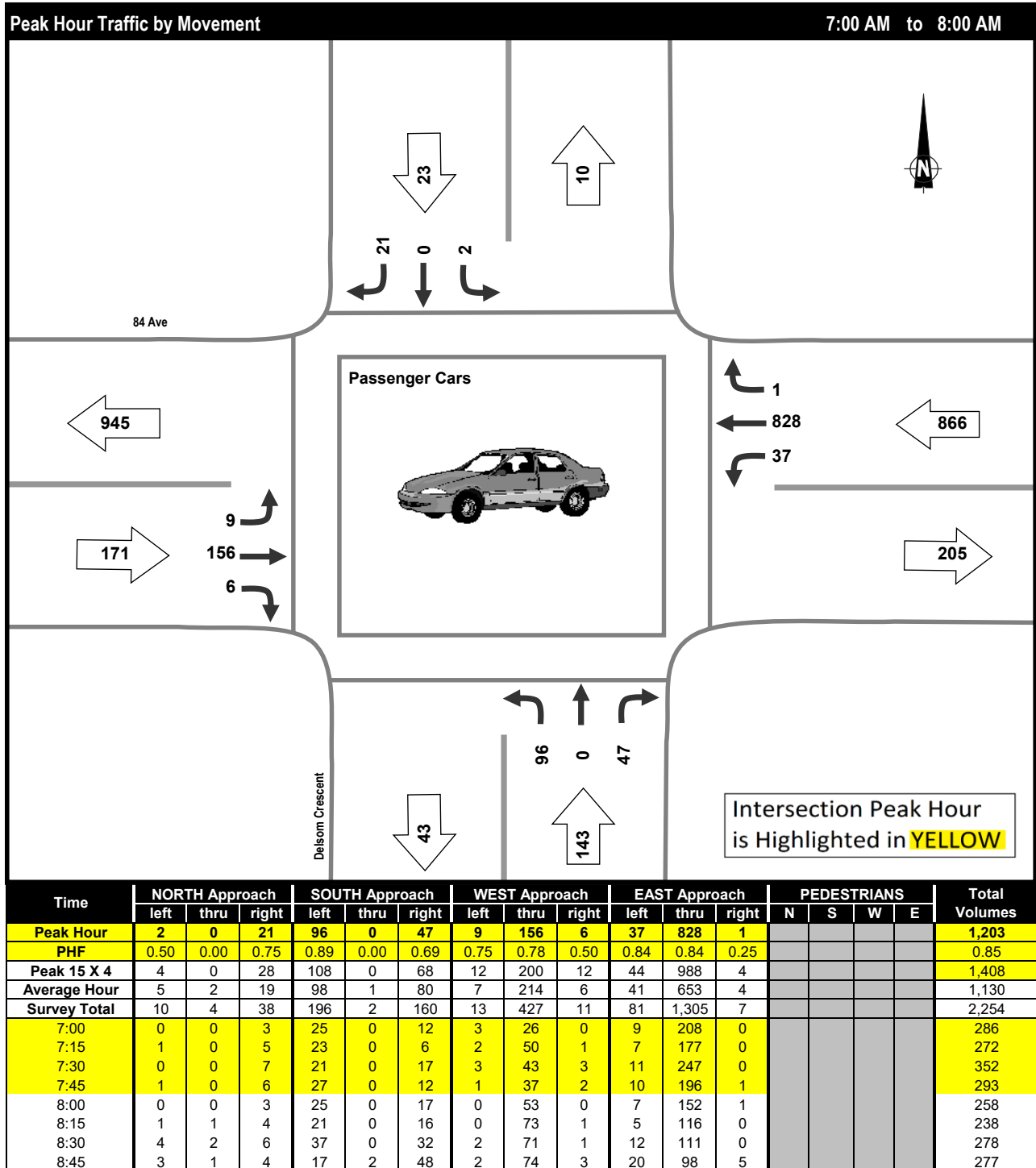
Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: All Motorized Vehicles

Afternoon Peak Period

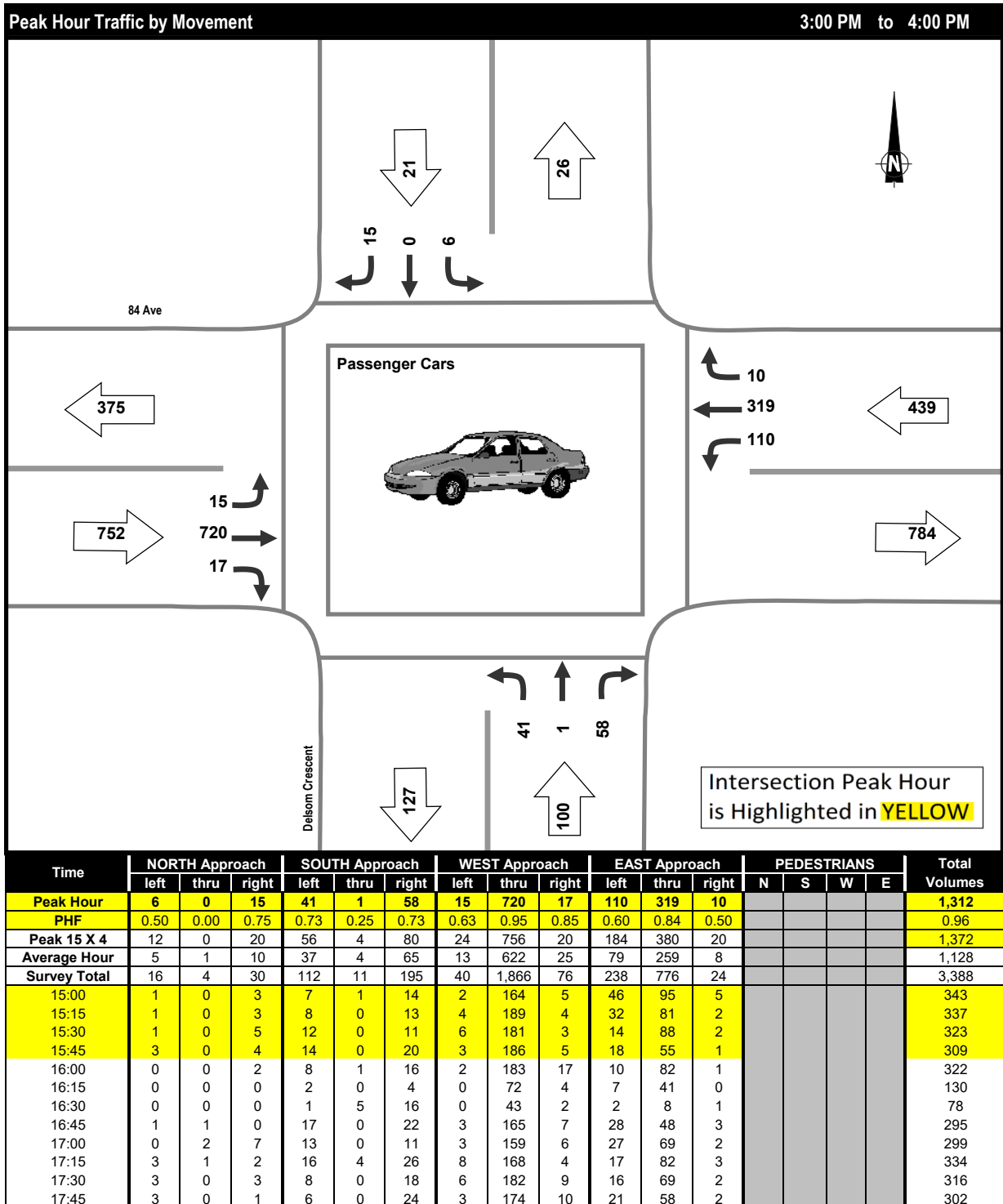


Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Passenger Cars

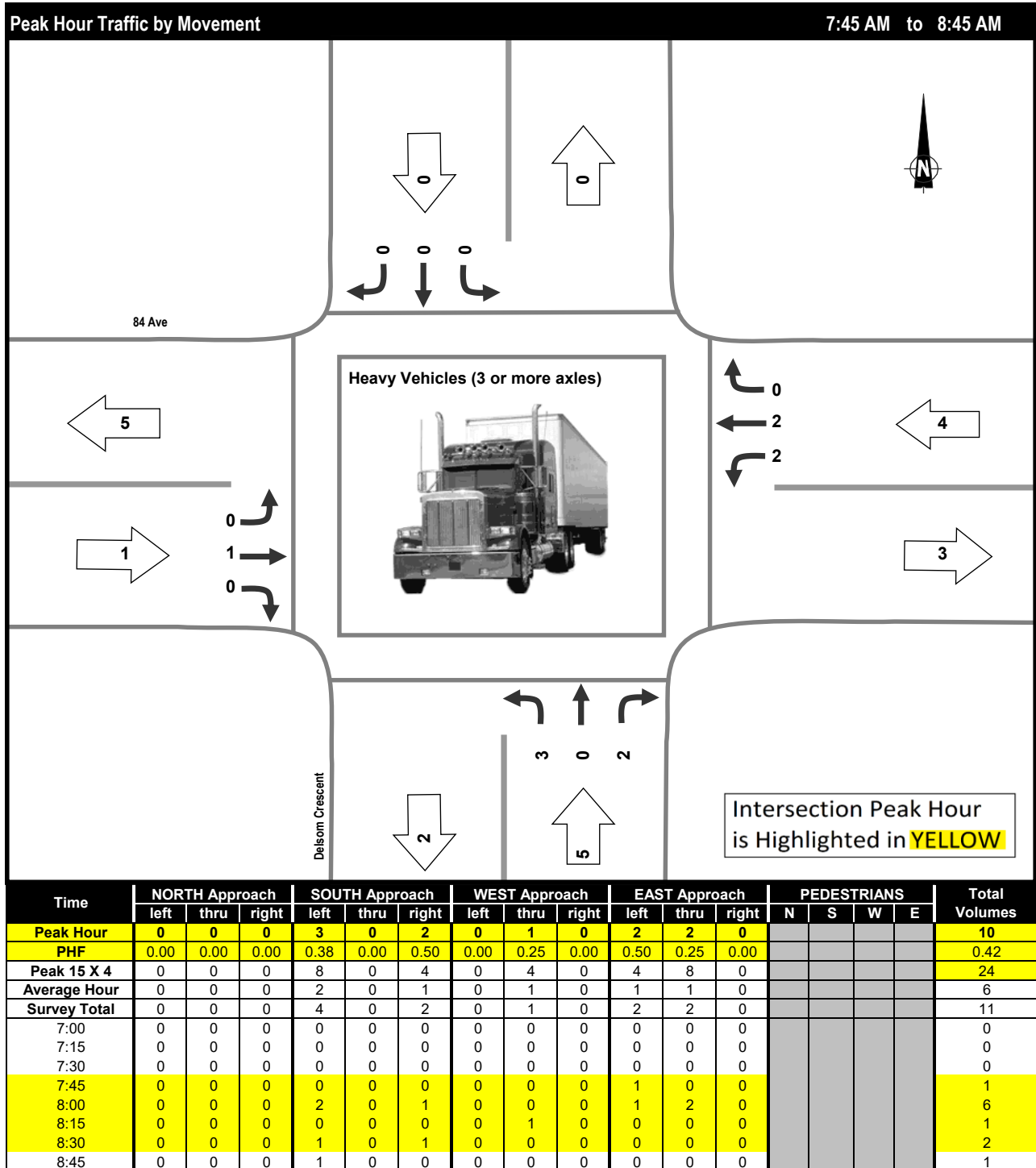
Morning Peak Period



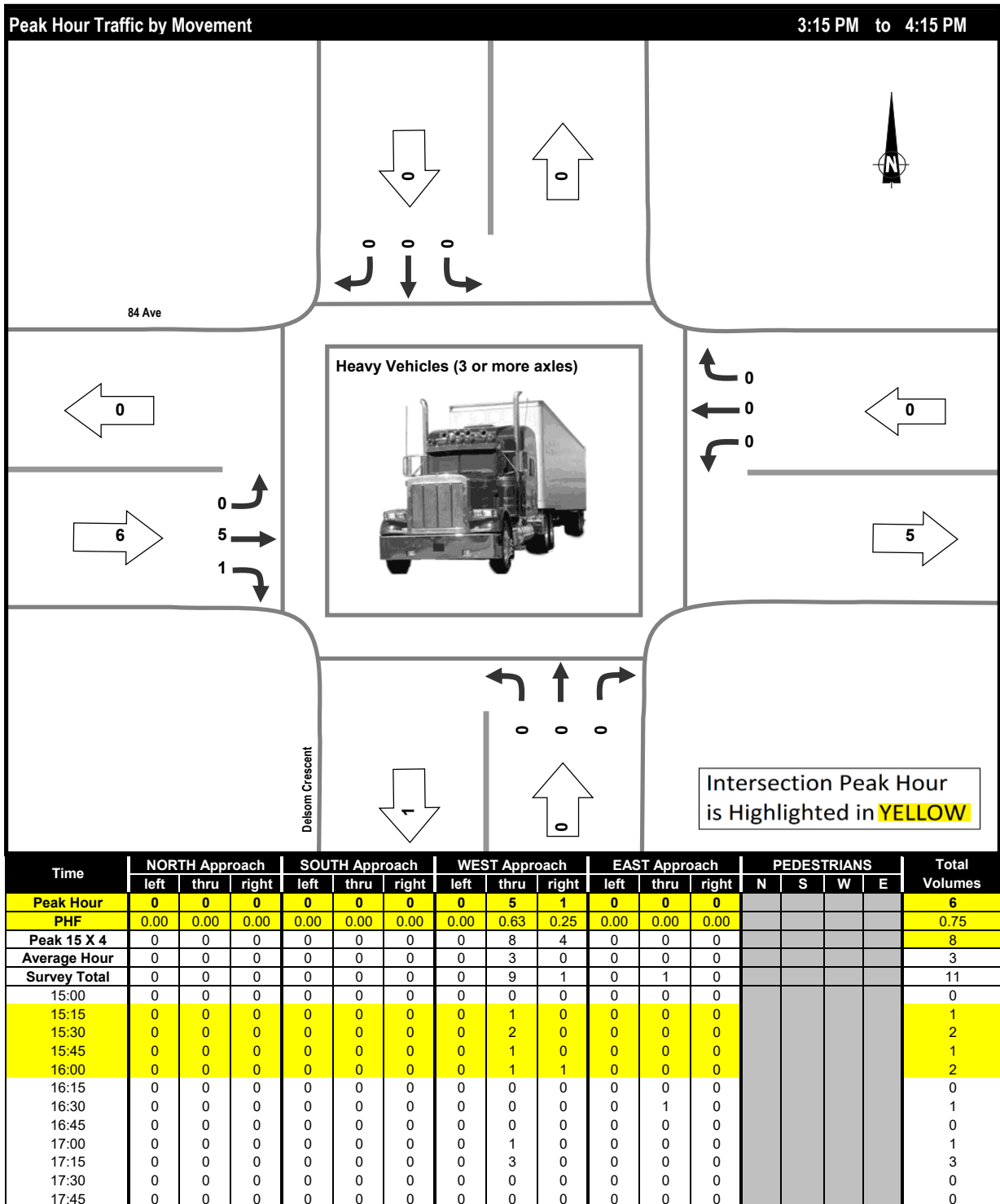
Project: #9120: 11199 84th Avenue TIS
 Municipality: Delta
 Weather: Clear
 Vehicle Class: Passenger Cars

Afternoon Peak Period


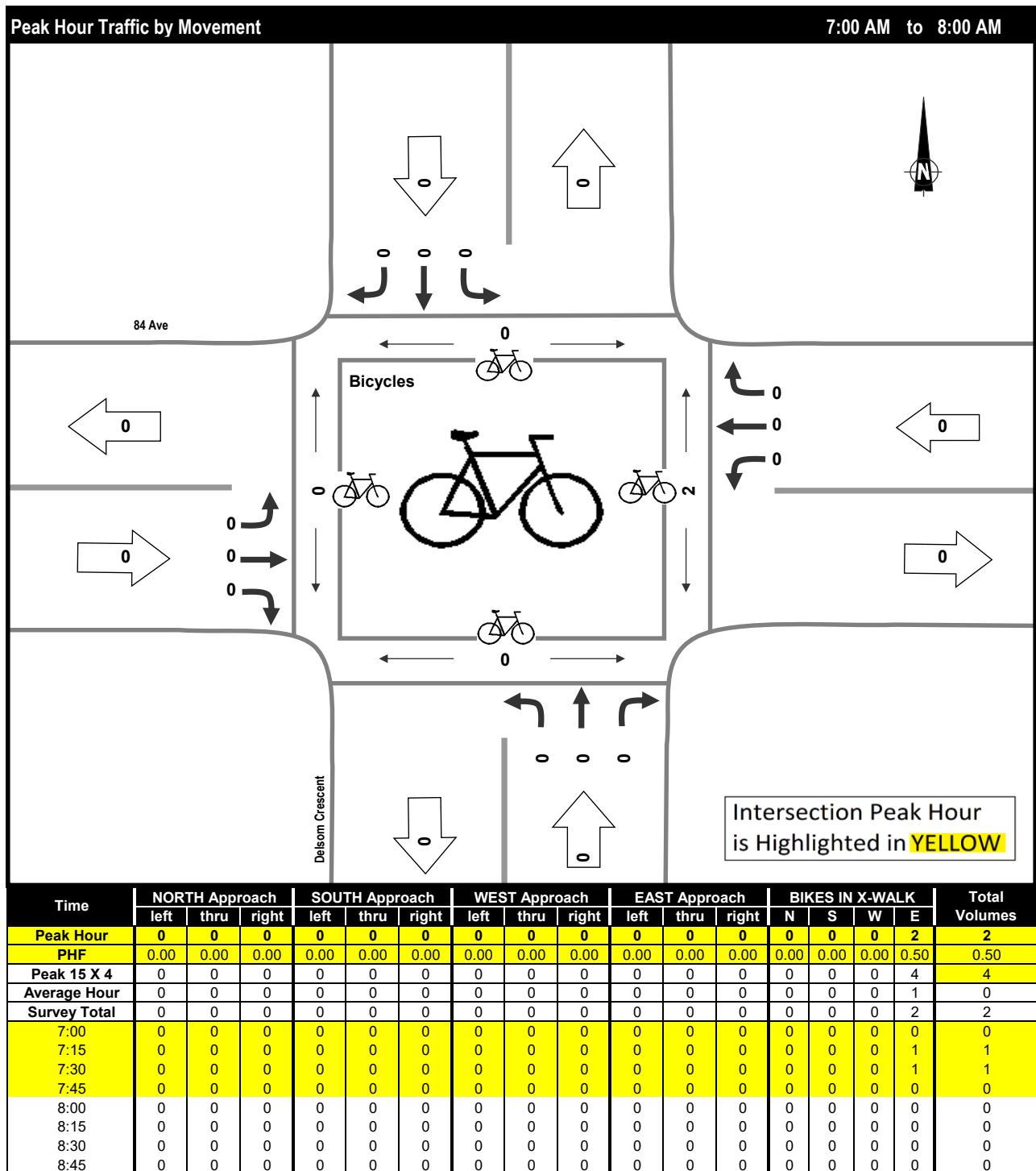
Project: #9120: 11199 84th Avenue TIS
 Municipality: Delta
 Weather: Clear
 Vehicle Class: Heavy Vehicles (3 or more axles)

Morning Peak Period


Project: #9120: 11199 84th Avenue TIS
 Municipality: Delta
 Weather: Clear
 Vehicle Class: Heavy Vehicles (3 or more axles)

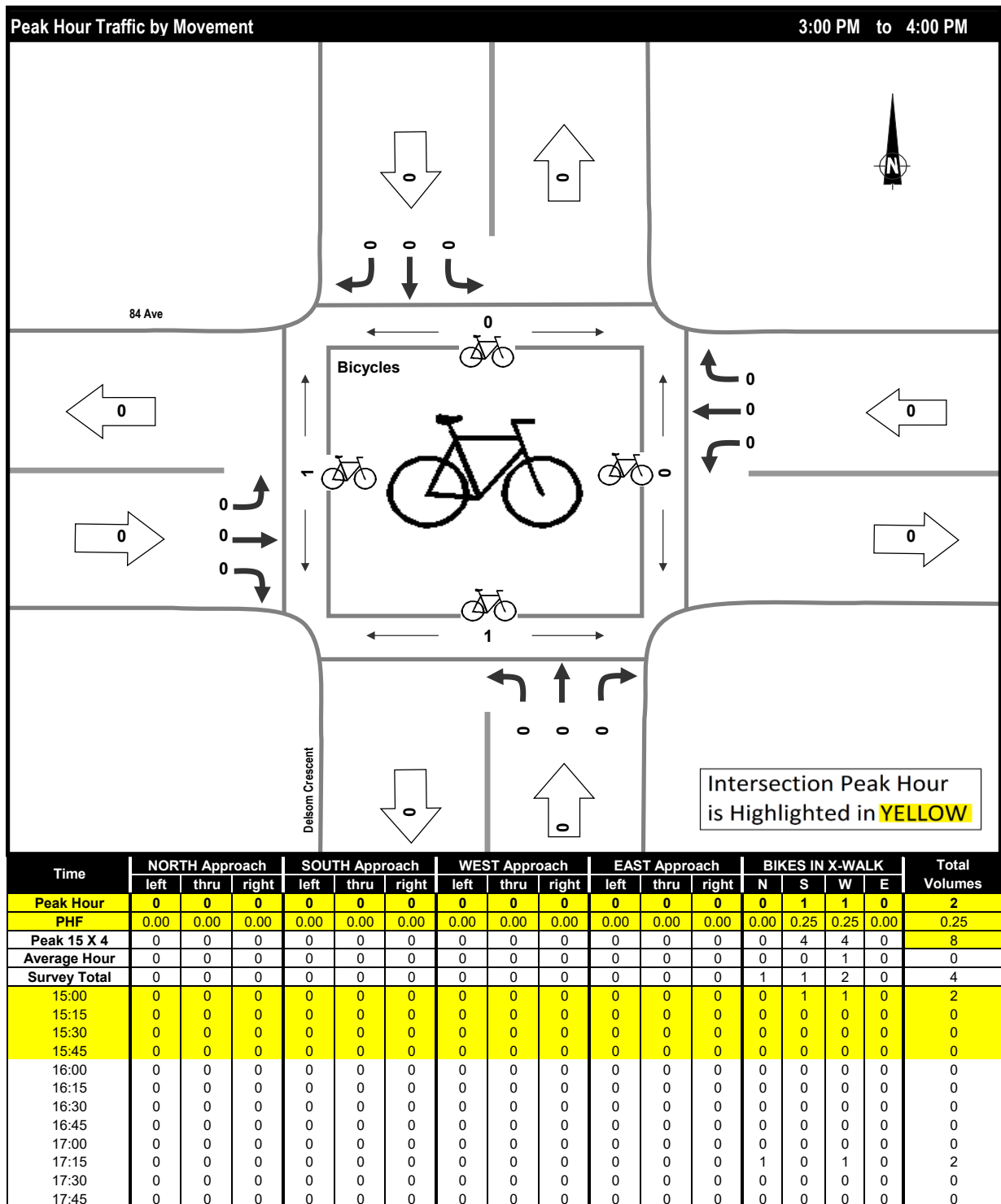
Afternoon Peak Period


Morning Peak Period



Project: #9120: 11199 84th Avenue TIS
Municipality: Delta
Weather: Clear
Vehicle Class: Bicycles

Afternoon Peak Period



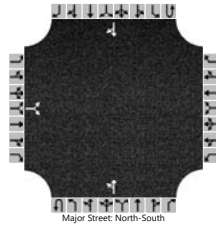
APPENDIX D

Capacity Analysis Summary Sheets

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	RC	Intersection	Site Access on 112 Street
Agency/Co.	CTS	Jurisdiction	Delta, BC
Date Performed	Base+Site	East/West Street	Site Access
Analysis Year	2028	North/South Street	112 Street
Time Analyzed	Wkdy AM Peak Hour	Peak Hour Factor	0.87
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9120 - 11199 84th Avenue Traffic Impact Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	10	11	12		7	8	9		1U	1	2	3	4U	4	5	6
Number of Lanes	0	1	0		0	0	0	0	0	1	0	0	0	1	0	
Configuration			LR							LT						TR
Volume (veh/h)		79		238						245	380				268	61
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2					4.1							
Critical Headway (sec)		6.43		6.23					4.13							
Base Follow-Up Headway (sec)		3.5		3.3					2.2							
Follow-Up Headway (sec)		3.53		3.33					2.23							

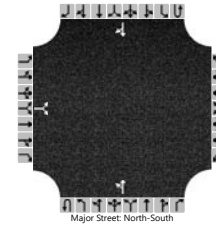
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			364						282							
Capacity, c (veh/h)			328						1175							
v/c Ratio			1.11						0.24							
95% Queue Length, Q ₉₅ (veh)			14.2						0.9							
95% Queue Length, Q ₉₅ (ft)			363.5						23.0							
Control Delay (s/veh)			118.8						9.0	2.2						
Level of Service (LOS)			F						A	A						
Approach Delay (s/veh)	118.8								4.9							
Approach LOS	F								A							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	RC	Intersection	Site Access on 112 Street
Agency/Co.	CTS	Jurisdiction	Delta, BC
Date Performed	Base+Site	East/West Street	Site Access
Analysis Year	2033	North/South Street	112 Street
Time Analyzed	Wkdy AM Peak Hour	Peak Hour Factor	0.87
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9120 - 11199 84th Avenue Traffic Impact Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	10	11	12		7	8	9		1U	1	2	3	4U	4	5	6
Number of Lanes	0	1	0		0	0	0	0	0	1	0	0	0	1	0	
Configuration			LR							LT						TR
Volume (veh/h)		79		238						245	423				301	61
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2					4.1							
Critical Headway (sec)		6.43		6.23					4.13							
Base Follow-Up Headway (sec)		3.5		3.3					2.2							
Follow-Up Headway (sec)		3.53		3.33					2.23							

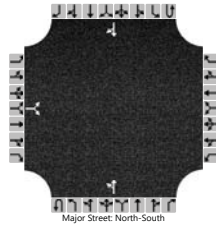
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			364						282							
Capacity, c (veh/h)			296						1138							
v/c Ratio			1.23						0.25							
95% Queue Length, Q ₉₅ (veh)			16.8						1.0							
95% Queue Length, Q ₉₅ (ft)			430.1						25.6							
Control Delay (s/veh)			166.9						9.2	2.3						
Level of Service (LOS)			F						A	A						
Approach Delay (s/veh)	166.9								4.8							
Approach LOS	F								A							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	RC	Intersection	Site Access on 112 Street
Agency/Co.	CTS	Jurisdiction	Delta, BC
Date Performed	Base+Site	East/West Street	Site Access
Analysis Year	2028	North/South Street	112 Street
Time Analyzed	Wkdy PM Peak Hour	Peak Hour Factor	0.93
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9120 - 11199 84th Avenue Traffic Impact Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	10	11	12		7	8	9		1U	1	2	3	4U	4	5	6
Number of Lanes	0	1	0		0	0	0	0	0	1	0	0	0	1	0	
Configuration			LR							LT						TR
Volume (veh/h)	39		150						152	438				479	48	
Percent Heavy Vehicles (%)	3		3						3							
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2					4.1							
Critical Headway (sec)		6.43		6.23					4.13							
Base Follow-Up Headway (sec)		3.5		3.3					2.2							
Follow-Up Headway (sec)		3.53		3.33					2.23							

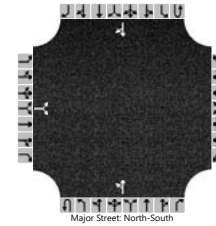
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			203						163							
Capacity, c (veh/h)			340						1000							
v/c Ratio			0.60						0.16							
95% Queue Length, Q ₉₅ (veh)			3.7						0.6							
95% Queue Length, Q ₉₅ (ft)			94.7						15.4							
Control Delay (s/veh)			30.2						9.3	1.5						
Level of Service (LOS)			D						A	A						
Approach Delay (s/veh)	30.2								3.5							
Approach LOS	D								A							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	RC	Intersection	Site Access on 112 Street
Agency/Co.	CTS	Jurisdiction	Delta, BC
Date Performed	Base+Site	East/West Street	Site Access
Analysis Year	2033	North/South Street	112 Street
Time Analyzed	Wkdy PM Peak Hour	Peak Hour Factor	0.93
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9120 - 11199 84th Avenue Traffic Impact Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	10	11	12		7	8	9		1U	1	2	3	4U	4	5	6
Number of Lanes	0	1	0		0	0	0	0	0	1	0	0	0	1	0	
Configuration			LR							LT						TR
Volume (veh/h)	39		150						152	483				530	48	
Percent Heavy Vehicles (%)	3		3						3							
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2					4.1							
Critical Headway (sec)		6.43		6.23					4.13							
Base Follow-Up Headway (sec)		3.5		3.3					2.2							
Follow-Up Headway (sec)		3.53		3.33					2.23							

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			203						163							
Capacity, c (veh/h)			303						954							
v/c Ratio			0.67						0.17							
95% Queue Length, Q ₉₅ (veh)			4.5						0.6							
95% Queue Length, Q ₉₅ (ft)			115.2						15.4							
Control Delay (s/veh)			38.1						9.5	1.7						
Level of Service (LOS)			E						A	A						
Approach Delay (s/veh)	38.1								3.5							
Approach LOS	E								A							

Lanes, Volumes, Timings
1: 112 St & Nordel Way

2023 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	37	726	40	66	1085	12	33	222	101	23	218	142
Future Volume (vph)	37	726	40	66	1085	12	33	222	101	23	218	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	40.0		0.0	65.0		0.0	55.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00			0.99	0.99		0.99		0.97
Frnt		0.992			0.998			0.953				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3506	0	1770	3531	0	1770	1760	0	1770	1863	1583
Flt Permitted	0.145			0.257			0.421			0.198		
Satd. Flow (perm)	270	3506	0	478	3531	0	775	1760	0	366	1863	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			2			22				163
Link Speed (k/h)		50			50			50				50
Link Distance (m)		586.9			376.8			664.0				159.0
Travel Time (s)		42.3			27.1			47.8				11.4
Confl. Peds. (#/hr)	3		2	2		3	14		11	11		14
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	880	0	76	1261	0	38	371	0	26	251	163
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
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)	12.7	26.2		12.7	27.2		25.6	25.6		25.6	25.6	25.6
Total Split (s)	13.0	57.0		13.0	57.0		30.0	30.0		30.0	30.0	30.0
Total Split (%)	13.0%	57.0%		13.0%	57.0%		30.0%	30.0%		30.0%	30.0%	30.0%
Maximum Green (s)	7.3	50.8		7.3	50.8		24.4	24.4		24.4	24.4	24.4
Yellow Time (s)	3.3	3.8		3.3	3.8		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.4	2.4		2.4	2.4		2.3	2.3		2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.7	6.2		5.7	6.2		5.6	5.6		5.6	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		13.0			14.0		13.0	13.0		13.0	13.0	13.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	61.3	55.0		62.5	57.6		22.8	22.8		22.8	22.8	22.8
Actuated g/C Ratio	0.61	0.55		0.62	0.58		0.23	0.23		0.23	0.23	0.23
v/c Ratio	0.16	0.46		0.19	0.62		0.22	0.89		0.31	0.59	0.34
Control Delay	8.0	15.4		7.9	17.2		34.0	59.1		42.6	40.5	7.1

Lanes, Volumes, Timings
1: 112 St & Nordel Way

2023 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	8.0	15.4		7.9	17.2		34.0	59.1		42.6	40.5	7.1
LOS	A	B		A	B		C	E		D	D	A
Approach Delay		15.1			16.7			56.8			28.2	
Approach LOS		B			B			E			C	
Queue Length 50th (m)	2.9	58.7		5.3	98.9		6.2	68.0		4.3	44.9	0.0
Queue Length 95th (m)	6.6	72.2		10.1	117.3		15.0	#109.8		12.5	67.6	14.5
Internal Link Dist (m)		562.9			352.8			640.0			135.0	
Turn Bay Length (m)	125.0			40.0			65.0			55.0		45.0
Base Capacity (vph)	275	1932		393	2035		189	446		89	454	496
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.16	0.46		0.19	0.62		0.20	0.83		0.29	0.55	0.33

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	38 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.89
Intersection Signal Delay:	23.1
Intersection Capacity Utilization:	78.2%
ICU Level of Service:	D
Analysis Period (min):	15
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.

Splits and Phases: 1: 112 St & Nordel Way



Lanes, Volumes, Timings
1: 112 St & Nordel Way

2028 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰
Traffic Volume (vph)	41	799	44	73	1194	13	36	244	111	25	240	156
Future Volume (vph)	41	799	44	73	1194	13	36	244	111	25	240	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	40.0		0.0	65.0		0.0	55.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00		1.00	0.99	0.99		0.99		0.97
Frnt		0.992			0.998			0.953				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3506	0	1770	3531	0	1770	1760	0	1770	1863	1583
Flt Permitted	0.108			0.220			0.387			0.168		
Satd. Flow (perm)	201	3506	0	409	3531	0	713	1760	0	311	1863	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			2			22				161
Link Speed (k/h)		60			60			50				50
Link Distance (m)		586.9			376.8			664.0				159.0
Travel Time (s)		35.2			22.6			47.8				11.4
Confl. Peds. (#/hr)	3		2	2		3	14		11	11		14
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	969	0	84	1387	0	41	408	0	29	276	179
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
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)	12.7	26.2		12.7	27.2		25.6	25.6		25.6	25.6	25.6
Total Split (s)	13.0	57.0		13.0	57.0		30.0	30.0		30.0	30.0	30.0
Total Split (%)	13.0%	57.0%		13.0%	57.0%		30.0%	30.0%		30.0%	30.0%	30.0%
Maximum Green (s)	7.3	50.8		7.3	50.8		24.4	24.4		24.4	24.4	24.4
Yellow Time (s)	3.3	3.8		3.3	3.8		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.4	2.4		2.4	2.4		2.3	2.3		2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.7	6.2		5.7	6.2		5.6	5.6		5.6	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		13.0			14.0		13.0	13.0		13.0	13.0	13.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	60.3	54.0		61.5	56.6		23.8	23.8		23.8	23.8	23.8
Actuated g/C Ratio	0.60	0.54		0.62	0.57		0.24	0.24		0.24	0.24	0.24
v/c Ratio	0.20	0.51		0.24	0.69		0.24	0.94		0.40	0.62	0.37
Control Delay	8.8	16.5		8.6	19.2		34.9	66.3		49.6	41.0	9.0

Lanes, Volumes, Timings
1: 112 St & Nordel Way

2028 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	8.8	16.5		8.6	19.2		34.9	66.3		49.6	41.0	9.0
LOS	A	B		A	B		C	E		D	D	A
Approach Delay		16.2			18.6			63.5			29.6	
Approach LOS		B			B			E			C	
Queue Length 50th (m)	3.2	67.0		5.8	115.3		6.7	77.3		5.0	50.2	2.8
Queue Length 95th (m)	7.0	81.4		10.9	135.8		15.9	#127.2		14.2	74.6	18.4
Internal Link Dist (m)		562.9			352.8			640.0			135.0	
Turn Bay Length (m)	125.0			40.0			65.0			55.0		45.0
Base Capacity (vph)	235	1896		351	1999		173	446		75	454	495
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.20	0.51		0.24	0.69		0.24	0.91		0.39	0.61	0.36

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	38 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.94
Intersection Signal Delay:	25.3
Intersection Capacity Utilization	83.8%
ICU Level of Service	E
Analysis Period (min)	15
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.

Splits and Phases: 1: 112 St & Nordel Way



Lanes, Volumes, Timings
1: 112 St & Nordel Way

2028 Base+Site
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	41	799	48	80	1194	13	40	271	124	25	262	156
Future Volume (vph)	41	799	48	80	1194	13	40	271	124	25	262	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	40.0		0.0	65.0		0.0	55.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00			0.99	0.99		1.00		0.97
Frt		0.992			0.998			0.953				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3506	0	1770	3531	0	1770	1759	0	1770	1863	1583
Flt Permitted	0.105			0.217			0.350			0.164		
Satd. Flow (perm)	196	3506	0	404	3531	0	645	1759	0	304	1863	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			2			22				161
Link Speed (k/h)		60			60			50				50
Link Distance (m)		586.9			376.8			664.0				159.0
Travel Time (s)		35.2			22.6			47.8				11.4
Confl. Peds. (#/hr)	3		2	2		3	14		11	11		14
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	973	0	92	1387	0	46	454	0	29	301	179
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
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)	12.7	26.2		12.7	27.2		25.6	25.6		25.6	25.6	25.6
Total Split (s)	13.0	57.0		13.0	57.0		30.0	30.0		30.0	30.0	30.0
Total Split (%)	13.0%	57.0%		13.0%	57.0%		30.0%	30.0%		30.0%	30.0%	30.0%
Maximum Green (s)	7.3	50.8		7.3	50.8		24.4	24.4		24.4	24.4	24.4
Yellow Time (s)	3.3	3.8		3.3	3.8		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.4	2.4		2.4	2.4		2.3	2.3		2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.7	6.2		5.7	6.2		5.6	5.6		5.6	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		13.0			14.0		13.0	13.0		13.0	13.0	13.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	59.7	53.4		60.9	56.0		24.4	24.4		24.4	24.4	24.4
Actuated g/C Ratio	0.60	0.53		0.61	0.56		0.24	0.24		0.24	0.24	0.24
v/c Ratio	0.21	0.52		0.27	0.70		0.29	1.02		0.39	0.66	0.36
Control Delay	8.9	16.8		8.9	19.6		36.9	84.9		49.4	42.2	8.9

Lanes, Volumes, Timings
1: 112 St & Nordel Way

2028 Base+Site
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	8.9	16.8		8.9	19.6		36.9	84.9		49.4	42.2	8.9
LOS	A	B		A	B		D	F		D	D	A
Approach Delay		16.4			18.9			80.4			30.9	
Approach LOS		B			B			F			C	
Queue Length 50th (m)	3.2	67.3		6.4	115.3		7.7	~92.2		5.0	55.6	2.8
Queue Length 95th (m)	7.0	81.7		11.9	135.8		17.9	#149.1		14.3	81.5	18.4
Internal Link Dist (m)		562.9			352.8			640.0			135.0	
Turn Bay Length (m)		125.0			40.0			65.0			55.0	45.0
Base Capacity (vph)	231	1876		345	1978		157	445		74	454	495
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.20	0.52		0.27	0.70		0.29	1.02		0.39	0.66	0.36

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	38 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.02
Intersection Signal Delay:	28.7
Intersection Capacity Utilization	86.5%
ICU Level of Service	E
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite.
	Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.

Splits and Phases: 1: 112 St & Nordel Way



Lanes, Volumes, Timings
1: 112 St & Nordel Way

2033 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	44	871	48	79	1302	14	40	266	121	28	262	170
Future Volume (vph)	44	871	48	79	1302	14	40	266	121	28	262	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	40.0		0.0	65.0		0.0	55.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00		1.00		0.99	0.99	1.00		0.97
Frnt		0.992			0.998			0.953				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3506	0	1770	3531	0	1770	1760	0	1770	1863	1583
Flt Permitted	0.076			0.193			0.350			0.164		
Satd. Flow (perm)	142	3506	0	359	3531	0	645	1760	0	304	1863	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			2			22				154
Link Speed (k/h)		60			60			50				50
Link Distance (m)		586.9			376.8			664.0				159.0
Travel Time (s)		35.2			22.6			47.8				11.4
Confl. Peds. (#/hr)	3		2	2		3	14		11	11		14
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	1056	0	91	1513	0	46	445	0	32	301	195
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
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)	12.7	26.2		12.7	27.2		25.6	25.6		25.6	25.6	25.6
Total Split (s)	13.0	57.0		13.0	57.0		30.0	30.0		30.0	30.0	30.0
Total Split (%)	13.0%	57.0%		13.0%	57.0%		30.0%	30.0%		30.0%	30.0%	30.0%
Maximum Green (s)	7.3	50.8		7.3	50.8		24.4	24.4		24.4	24.4	24.4
Yellow Time (s)	3.3	3.8		3.3	3.8		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.4	2.4		2.4	2.4		2.3	2.3		2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.7	6.2		5.7	6.2		5.6	5.6		5.6	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		13.0			14.0		13.0	13.0		13.0	13.0	13.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	59.7	53.4		59.8	53.5		24.4	24.4		24.4	24.4	24.4
Actuated g/C Ratio	0.60	0.53		0.60	0.54		0.24	0.24		0.24	0.24	0.24
v/c Ratio	0.25	0.56		0.29	0.80		0.29	1.00		0.43	0.66	0.40
Control Delay	10.1	17.6		9.3	24.0		36.9	79.4		52.6	42.2	11.2

Lanes, Volumes, Timings
1: 112 St & Nordel Way

2033 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	10.1	17.6		9.3	24.0		36.9	79.4		52.6	42.2	11.2
LOS	B	B		A	C		D	E		D	D	B
Approach Delay		17.2			23.1			75.5			31.4	
Approach LOS		B			C			E			C	
Queue Length 50th (m)	3.5	75.6		6.4	133.5		7.7	87.2		5.5	55.6	6.5
Queue Length 95th (m)	7.4	91.2		11.7	156.4		17.9	#144.6		#17.0	81.5	23.4
Internal Link Dist (m)		562.9			352.8			640.0			135.0	
Turn Bay Length (m)	125.0			40.0			65.0			55.0		45.0
Base Capacity (vph)	204	1875		317	1888		157	446		74	454	489
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.25	0.56		0.29	0.80		0.29	1.00		0.43	0.66	0.40

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	38 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.00
Intersection Signal Delay:	29.4
Intersection Capacity Utilization	89.1%
ICU Level of Service	E
Analysis Period (min)	15
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.

Splits and Phases: 1: 112 St & Nordel Way



Lanes, Volumes, Timings
1: 112 St & Nordel Way

2033 Base+Site
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	44	871	52	86	1302	14	44	293	134	28	284	170
Future Volume (vph)	44	871	52	86	1302	14	44	293	134	28	284	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	40.0		0.0	65.0		0.0	55.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00			0.99	0.99				0.97
Frnt		0.992			0.998			0.953				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3506	0	1770	3531	0	1770	1760	0	1770	1863	1583
Flt Permitted	0.076			0.191			0.307			0.164		
Satd. Flow (perm)	142	3506	0	356	3531	0	566	1760	0	305	1863	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			2			22				154
Link Speed (k/h)		60			60			50				50
Link Distance (m)		586.9			376.8			664.0				159.0
Travel Time (s)		35.2			22.6			47.8				11.4
Confl. Peds. (#/hr)	3		2	2		3	14		11	11		14
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	1061	0	99	1513	0	51	491	0	32	326	195
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
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)	12.7	26.2		12.7	27.2		25.6	25.6		25.6	25.6	25.6
Total Split (s)	13.0	57.0		13.0	57.0		30.0	30.0		30.0	30.0	30.0
Total Split (%)	13.0%	57.0%		13.0%	57.0%		30.0%	30.0%		30.0%	30.0%	30.0%
Maximum Green (s)	7.3	50.8		7.3	50.8		24.4	24.4		24.4	24.4	24.4
Yellow Time (s)	3.3	3.8		3.3	3.8		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.4	2.4		2.4	2.4		2.3	2.3		2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.7	6.2		5.7	6.2		5.6	5.6		5.6	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		13.0			14.0		13.0	13.0		13.0	13.0	13.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	59.7	53.4		59.8	53.5		24.4	24.4		24.4	24.4	24.4
Actuated g/C Ratio	0.60	0.53		0.60	0.54		0.24	0.24		0.24	0.24	0.24
v/c Ratio	0.25	0.57		0.32	0.80		0.37	1.10		0.43	0.72	0.40
Control Delay	10.1	17.6		9.7	24.0		40.6	108.2		52.6	44.8	11.2

Lanes, Volumes, Timings
1: 112 St & Nordel Way

2033 Base+Site
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	10.1	17.6		9.7	24.0		40.6	108.2		52.6	44.8	11.2
LOS	B	B		A	C		D	F		D	D	B
Approach Delay		17.2			23.1			101.9			33.4	
Approach LOS		B			C			F			C	
Queue Length 50th (m)	3.5	76.1		7.0	133.5		8.7	~111.1		5.5	61.1	6.5
Queue Length 95th (m)	7.4	91.6		12.5	156.4		19.9	#166.4		#17.0	88.6	23.4
Internal Link Dist (m)		562.9			352.8			640.0			135.0	
Turn Bay Length (m)	125.0			40.0			65.0			55.0		45.0
Base Capacity (vph)	204	1876		315	1888		138	446		74	454	489
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.25	0.57		0.31	0.80		0.37	1.10		0.43	0.72	0.40

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	38 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.10
Intersection Signal Delay:	34.1
Intersection Capacity Utilization	91.3%
ICU Level of Service	F
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite.
	Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.

Splits and Phases: 1: 112 St & Nordel Way



Lanes, Volumes, Timings
1: 112 St & Nordel Way

2028 Base+Site (Optimized)
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	41	799	48	80	1194	13	40	271	124	25	262	156
Future Volume (vph)	41	799	48	80	1194	13	40	271	124	25	262	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	40.0		0.0	65.0		0.0	55.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00			0.99	0.99		0.99		0.97
Frnt		0.992			0.998			0.953				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3506	0	1770	3531	0	1770	1759	0	1770	1863	1583
Flt Permitted	0.087			0.188			0.412			0.197		
Satd. Flow (perm)	162	3506	0	350	3531	0	759	1759	0	365	1863	1531
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			1			26				179
Link Speed (k/h)		60			60			50				50
Link Distance (m)		586.9			376.8			664.0				159.0
Travel Time (s)		35.2			22.6			47.8				11.4
Confl. Peds. (#/hr)	3		2	2		3	14		11	11		14
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	973	0	92	1387	0	46	454	0	29	301	179
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
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)	12.7	26.2		12.7	27.2		25.6	25.6		25.6	25.6	25.6
Total Split (s)	12.8	44.0		13.0	44.2		43.0	43.0		43.0	43.0	43.0
Total Split (%)	12.8%	44.0%		13.0%	44.2%		43.0%	43.0%		43.0%	43.0%	43.0%
Maximum Green (s)	7.1	37.8		7.3	38.0		37.4	37.4		37.4	37.4	37.4
Yellow Time (s)	3.3	3.8		3.3	3.8		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.4	2.4		2.4	2.4		2.3	2.3		2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.7	6.2		5.7	6.2		5.6	5.6		5.6	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		13.0			14.0		13.0	13.0		13.0	13.0	13.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	53.7	47.2		56.1	50.4		29.8	29.8		29.8	29.8	29.8
Actuated g/C Ratio	0.54	0.47		0.56	0.50		0.30	0.30		0.30	0.30	0.30
v/c Ratio	0.23	0.59		0.30	0.78		0.20	0.84		0.27	0.54	0.31
Control Delay	13.7	23.3		13.2	27.4		26.2	44.7		31.2	32.3	4.9

Lanes, Volumes, Timings
1: 112 St & Nordel Way

2028 Base+Site (Optimized)
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	13.7	23.3		13.2	27.4		26.2	44.7		31.2	32.3	4.9
LOS	B	C		B	C		C	D		C	C	A
Approach Delay		22.8			26.6			43.0			22.6	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	3.8	78.9		7.7	131.8		6.9	81.2		4.5	50.8	0.0
Queue Length 95th (m)	10.1	106.6		17.1	#193.0		14.1	102.9		11.1	66.4	12.3
Internal Link Dist (m)		562.9			352.8			640.0			135.0	
Turn Bay Length (m)		125.0			40.0			65.0			55.0	45.0
Base Capacity (vph)	206	1657		312	1781		283	674		136	696	684
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.23	0.59		0.29	0.78		0.16	0.67		0.21	0.43	0.26

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.84
Intersection Signal Delay:	27.2
Intersection Capacity Utilization	86.5%
ICU Level of Service	E
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1: 112 St & Nordel Way



Lanes, Volumes, Timings
1: 112 St & Nordel Way

2033 Base+Site (Optimized)
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰	↰
Traffic Volume (vph)	44	871	52	86	1302	14	44	293	134	28	284	170
Future Volume (vph)	44	871	52	86	1302	14	44	293	134	28	284	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	40.0		0.0	65.0		0.0	55.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.99	0.99				0.96
Frt		0.992			0.998			0.953				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3506	0	1770	3531	0	1770	1758	0	1770	1863	1583
Flt Permitted	0.069			0.162			0.357			0.130		
Satd. Flow (perm)	129	3506	0	302	3531	0	657	1758	0	242	1863	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			1			20				141
Link Speed (k/h)		60			60			50				50
Link Distance (m)		586.9			376.8			664.0				159.0
Travel Time (s)		35.2			22.6			47.8				11.4
Confl. Peds. (#/hr)	3		2	2		3	14		11	11		14
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	1061	0	99	1513	0	51	491	0	32	326	195
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
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)	12.7	26.2		12.7	27.2		25.6	25.6		25.6	25.6	25.6
Total Split (s)	13.0	60.9		15.1	63.0		44.0	44.0		44.0	44.0	44.0
Total Split (%)	10.8%	50.8%		12.6%	52.5%		36.7%	36.7%		36.7%	36.7%	36.7%
Maximum Green (s)	7.3	54.7		9.4	56.8		38.4	38.4		38.4	38.4	38.4
Yellow Time (s)	3.3	3.8		3.3	3.8		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.4	2.4		2.4	2.4		2.3	2.3		2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.7	6.2		5.7	6.2		5.6	5.6		5.6	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		13.0			14.0		13.0	13.0		13.0	13.0	13.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	65.9	58.2		70.0	62.2		35.6	35.6		35.6	35.6	35.6
Actuated g/C Ratio	0.55	0.48		0.58	0.52		0.30	0.30		0.30	0.30	0.30
v/c Ratio	0.30	0.62		0.35	0.83		0.26	0.92		0.45	0.59	0.35
Control Delay	15.8	25.4		14.1	30.9		34.9	62.0		55.0	40.3	11.5

Lanes, Volumes, Timings
1: 112 St & Nordel Way

2033 Base+Site (Optimized)
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	15.8	25.4		14.1	30.9		34.9	62.0		55.0	40.3	11.5
LOS	B	C		B	C		C	E		D	D	B
Approach Delay		25.0			29.9			59.5			31.0	
Approach LOS		C			C			E			C	
Queue Length 50th (m)	5.1	104.7		10.2	176.9		9.3	109.5		6.2	66.4	9.4
Queue Length 95th (m)	10.3	122.3		17.6	200.6		19.8	#158.0		17.2	92.6	26.1
Internal Link Dist (m)		562.9			352.8			640.0			135.0	
Turn Bay Length (m)	125.0			40.0			65.0			55.0		45.0
Base Capacity (vph)	171	1702		291	1830		210	576		77	596	583
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.30	0.62		0.34	0.83		0.24	0.85		0.42	0.55	0.33

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.92
Intersection Signal Delay:	32.8
Intersection Capacity Utilization	91.3%
ICU Level of Service	F
Analysis Period (min)	15
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.

Splits and Phases: 1: 112 St & Nordel Way



Lanes, Volumes, Timings
1: 112 St & Nordel Way

2023 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	435	1100	51	109	655	23	40	293	62	12	245	91
Future Volume (vph)	435	1100	51	109	655	23	40	293	62	12	245	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	40.0		0.0	65.0		0.0	55.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00					0.99	1.00		1.00		0.97
Frnt		0.993			0.995			0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3510	0	1770	3522	0	1770	1808	0	1770	1863	1583
Flt Permitted	0.241			0.140			0.437			0.232		
Satd. Flow (perm)	449	3510	0	261	3522	0	807	1808	0	431	1863	1541
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	6			5			12					108
Link Speed (k/h)	60			60			50			50		
Link Distance (m)	586.9			376.8			664.0			159.0		
Travel Time (s)	35.2			22.6			47.8			11.4		
Confl. Peds. (#/hr)			4	4			11		6	6		11
Confl. Bikes (#/hr)								1				
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	468	1238	0	117	729	0	43	382	0	13	263	98
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
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)	12.7	26.2		12.7	27.2		25.6	25.6		25.6	25.6	25.6
Total Split (s)	18.0	41.0		18.0	41.0		31.0	31.0		31.0	31.0	31.0
Total Split (%)	20.0%	45.6%		20.0%	45.6%		34.4%	34.4%		34.4%	34.4%	34.4%
Maximum Green (s)	12.3	34.8		12.3	34.8		25.4	25.4		25.4	25.4	25.4
Yellow Time (s)	3.3	3.8		3.3	3.8		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.4	2.4		2.4	2.4		2.3	2.3		2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.7	6.2		5.7	6.2		5.6	5.6		5.6	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		13.0			14.0		13.0	13.0		13.0	13.0	13.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	54.5	43.5		44.5	34.8		22.3	22.3		22.3	22.3	22.3
Actuated g/C Ratio	0.61	0.48		0.49	0.39		0.25	0.25		0.25	0.25	0.25
v/c Ratio	0.94	0.73		0.41	0.53		0.22	0.84		0.12	0.57	0.21
Control Delay	45.4	24.2		13.1	23.0		28.4	47.6		27.6	34.3	5.6

Lanes, Volumes, Timings
1: 112 St & Nordel Way

2023 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	45.4	24.2		13.1	23.0		28.4	47.6		27.6	34.3	5.6
LOS	D	C		B	C		C	D		C	C	A
Approach Delay		30.0			21.6			45.7			26.6	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	44.5	98.4		8.1	52.5		6.1	62.5		1.8	41.0	0.0
Queue Length 95th (m) #125.1	153.2			16.0	70.0		14.9	#96.8		6.7	64.0	10.0
Internal Link Dist (m)		562.9			352.8			640.0			135.0	
Turn Bay Length (m)	125.0			40.0			65.0			55.0		45.0
Base Capacity (vph)	497	1701		344	1364		227	518		121	525	512
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.94	0.73		0.34	0.53		0.19	0.74		0.11	0.50	0.19

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 26 (29%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 29.5

Intersection LOS: C

Intersection Capacity Utilization 87.3%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: 112 St & Nordel Way



Lanes, Volumes, Timings
1: 112 St & Nordel Way

2028 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	479	1210	58	120	721	25	44	322	68	13	270	100
Future Volume (vph)	479	1210	58	120	721	25	44	322	68	13	270	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	40.0		0.0	65.0		0.0	55.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00					0.99	1.00		1.00		0.97
Frnt	0.993			0.995			0.974					0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3510	0	1770	3522	0	1770	1808	0	1770	1863	1583
Flt Permitted	0.213			0.115			0.405			0.196		
Satd. Flow (perm)	397	3510	0	214	3522	0	748	1808	0	364	1863	1541
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	6			4			12					108
Link Speed (k/h)	60			60			50			50		
Link Distance (m)	586.9			376.8			664.0			159.0		
Travel Time (s)	35.2			22.6			47.8			11.4		
Confl. Peds. (#/hr)			4	4			11		6	6		11
Confl. Bikes (#/hr)								1				
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	515	1363	0	129	802	0	47	419	0	14	290	108
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		8			4		4
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
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)	12.7	26.2		12.7	27.2		25.6	25.6		25.6	25.6	25.6
Total Split (s)	18.0	41.0		18.0	41.0		31.0	31.0		31.0	31.0	31.0
Total Split (%)	20.0%	45.6%		20.0%	45.6%		34.4%	34.4%		34.4%	34.4%	34.4%
Maximum Green (s)	12.3	34.8		12.3	34.8		25.4	25.4		25.4	25.4	25.4
Yellow Time (s)	3.3	3.8		3.3	3.8		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.4	2.4		2.4	2.4		2.3	2.3		2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.7	6.2		5.7	6.2		5.6	5.6		5.6	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		13.0			14.0		13.0	13.0		13.0	13.0	13.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	52.8	39.6		44.8	34.8		23.5	23.5		23.5	23.5	23.5
Actuated g/C Ratio	0.59	0.44		0.50	0.39		0.26	0.26		0.26	0.26	0.26
v/c Ratio	1.14	0.88		0.48	0.59		0.24	0.87		0.15	0.60	0.22
Control Delay	108.9	32.6		16.8	24.0		28.9	50.9		28.8	34.4	6.5

Lanes, Volumes, Timings
1: 112 St & Nordel Way

2028 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	108.9	32.6		16.8	24.0		28.9	50.9		28.8	34.4	6.5
LOS	F	C		B	C		C	D		C	C	A
Approach Delay		53.5			23.0			48.7			26.9	
Approach LOS		D			C			D			C	
Queue Length 50th (m)	~85.5	119.7		9.5	59.3		6.6	68.8		1.9	44.8	0.0
Queue Length 95th (m)	#153.8	#180.0		21.3	78.6		16.1	#117.1		7.2	70.7	11.9
Internal Link Dist (m)		562.9			352.8			640.0			135.0	
Turn Bay Length (m)	125.0			40.0			65.0			55.0		45.0
Base Capacity (vph)	450	1546		325	1364		211	518		102	525	512
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.14	0.88		0.40	0.59		0.22	0.81		0.14	0.55	0.21

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 26 (29%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 42.2

Intersection LOS: D

Intersection Capacity Utilization 93.5%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: 112 St & Nordel Way



Lanes, Volumes, Timings
1: 112 St & Nordel Way

2028 Base+Site
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	479	1210	58	126	721	25	46	334	71	13	283	100
Future Volume (vph)	479	1210	58	126	721	25	46	334	71	13	283	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	40.0		0.0	65.0		0.0	55.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00					0.99	1.00		1.00		0.97
Frnt		0.993			0.995			0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3510	0	1770	3522	0	1770	1808	0	1770	1863	1583
Flt Permitted	0.215			0.115			0.385			0.178		
Satd. Flow (perm)	400	3510	0	214	3522	0	711	1808	0	331	1863	1541
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			4			12				108
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		586.9			376.8			664.0			159.0	
Travel Time (s)		35.2			22.6			47.8			11.4	
Confl. Peds. (#/hr)			4	4			11		6	6		11
Confl. Bikes (#/hr)								1				
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	515	1363	0	135	802	0	49	435	0	14	304	108
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
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)	12.7	26.2		12.7	27.2		25.6	25.6		25.6	25.6	25.6
Total Split (s)	18.0	41.0		18.0	41.0		31.0	31.0		31.0	31.0	31.0
Total Split (%)	20.0%	45.6%		20.0%	45.6%		34.4%	34.4%		34.4%	34.4%	34.4%
Maximum Green (s)	12.3	34.8		12.3	34.8		25.4	25.4		25.4	25.4	25.4
Yellow Time (s)	3.3	3.8		3.3	3.8		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.4	2.4		2.4	2.4		2.3	2.3		2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.7	6.2		5.7	6.2		5.6	5.6		5.6	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		13.0			14.0		13.0	13.0		13.0	13.0	13.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	52.2	39.0		44.9	34.8		23.8	23.8		23.8	23.8	23.8
Actuated g/C Ratio	0.58	0.43		0.50	0.39		0.26	0.26		0.26	0.26	0.26
v/c Ratio	1.16	0.89		0.49	0.59		0.26	0.89		0.16	0.62	0.22
Control Delay	115.9	33.9		17.5	24.0		29.5	53.1		29.7	34.8	6.4

Lanes, Volumes, Timings
1: 112 St & Nordel Way

2028 Base+Site
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	115.9	33.9		17.5	24.0		29.5	53.1		29.7	34.8	6.4
LOS	F	C		B	C		C	D		C	C	A
Approach Delay		56.4			23.0			50.7			27.4	
Approach LOS		E			C			D			C	
Queue Length 50th (m)	~85.4	120.4		10.0	59.3		6.9	72.4		1.9	47.3	0.0
Queue Length 95th (m)	#153.3	#180.0		22.8	78.6		17.0	#124.2		7.3	74.4	11.9
Internal Link Dist (m)		562.9			352.8			640.0			135.0	
Turn Bay Length (m)	125.0			40.0			65.0			55.0		45.0
Base Capacity (vph)	443	1525		325	1364		200	518		93	525	512
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.16	0.89		0.42	0.59		0.24	0.84		0.15	0.58	0.21

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	26 (29%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.16
Intersection Signal Delay:	43.9
Intersection Capacity Utilization	94.3%
ICU Level of Service	F
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.	
#	95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.	

Splits and Phases: 1: 112 St & Nordel Way



Lanes, Volumes, Timings
1: 112 St & Nordel Way

2033 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	522	1320	61	131	786	28	48	352	74	14	294	109
Future Volume (vph)	522	1320	61	131	786	28	48	352	74	14	294	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	40.0		0.0	65.0		0.0	55.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00					0.99	1.00		1.00		
Frnt	0.993			0.995			0.974					0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3510	0	1770	3522	0	1770	1808	0	1770	1863	1583
Flt Permitted	0.187			0.115			0.375			0.163		
Satd. Flow (perm)	348	3510	0	214	3522	0	693	1808	0	303	1863	1541
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	6			5			12					117
Link Speed (k/h)	60			60			50			50		
Link Distance (m)	586.9			376.8			664.0			159.0		
Travel Time (s)	35.2			22.6			47.8			11.4		
Confl. Peds. (#/hr)		4	4				11		6	6		11
Confl. Bikes (#/hr)								1				
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	561	1485	0	141	875	0	52	458	0	15	316	117
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		8			4		4
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
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)	12.7	26.2		12.7	27.2		25.6	25.6		25.6	25.6	25.6
Total Split (s)	18.0	41.0		18.0	41.0		31.0	31.0		31.0	31.0	31.0
Total Split (%)	20.0%	45.6%		20.0%	45.6%		34.4%	34.4%		34.4%	34.4%	34.4%
Maximum Green (s)	12.3	34.8		12.3	34.8		25.4	25.4		25.4	25.4	25.4
Yellow Time (s)	3.3	3.8		3.3	3.8		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.4	2.4		2.4	2.4		2.3	2.3		2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.7	6.2		5.7	6.2		5.6	5.6		5.6	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		13.0			14.0		13.0	13.0		13.0	13.0	13.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	51.2	38.2		45.1	34.8		24.5	24.5		24.5	24.5	24.5
Actuated g/C Ratio	0.57	0.42		0.50	0.39		0.27	0.27		0.27	0.27	0.27
v/c Ratio	1.38	0.99		0.51	0.64		0.28	0.92		0.18	0.62	0.23
Control Delay	207.9	49.5		18.3	25.0		29.9	56.0		31.1	34.7	6.3

Lanes, Volumes, Timings
1: 112 St & Nordel Way

2033 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	207.9	49.5		18.3	25.0		29.9	56.0		31.1	34.7	6.3
LOS	F	D		B	C		C	E		C	C	A
Approach Delay		92.9			24.1			53.3			27.1	
Approach LOS		F			C			D			C	
Queue Length 50th (m)~112.3 ~142.9				10.5	66.5		7.3	77.6		2.1	49.6	0.0
Queue Length 95th (m)#181.1 #205.7				24.6	87.4		17.8	#134.3		7.8	77.5	12.5
Internal Link Dist (m)		562.9			352.8			640.0			135.0	
Turn Bay Length (m)	125.0			40.0			65.0			55.0		45.0
Base Capacity (vph)	406	1494		325	1364		195	518		85	525	518
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.38	0.99		0.43	0.64		0.27	0.88		0.18	0.60	0.23

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 26 (29%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.38

Intersection Signal Delay: 63.2

Intersection LOS: E

Intersection Capacity Utilization 99.8%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: 112 St & Nordel Way



Lanes, Volumes, Timings
1: 112 St & Nordel Way

2033 Base+Site
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	522	1320	63	137	786	28	50	364	77	14	307	109
Future Volume (vph)	522	1320	63	137	786	28	50	364	77	14	307	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	40.0		0.0	65.0		0.0	55.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00					0.99	1.00		1.00		0.97
Frnt	0.993			0.995			0.974			0.850		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3510	0	1770	3522	0	1770	1808	0	1770	1863	1583
Flt Permitted	0.189			0.115			0.357			0.161		
Satd. Flow (perm)	352	3510	0	214	3522	0	660	1808	0	299	1863	1541
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	6			5			12					117
Link Speed (k/h)	60			60			50			50		
Link Distance (m)	586.9			376.8			664.0			159.0		
Travel Time (s)	35.2			22.6			47.8			11.4		
Confl. Peds. (#/hr)		4	4				11		6	6		11
Confl. Bikes (#/hr)								1				
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	561	1487	0	147	875	0	54	474	0	15	330	117
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
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)	12.7	26.2		12.7	27.2		25.6	25.6		25.6	25.6	25.6
Total Split (s)	18.0	41.0		18.0	41.0		31.0	31.0		31.0	31.0	31.0
Total Split (%)	20.0%	45.6%		20.0%	45.6%		34.4%	34.4%		34.4%	34.4%	34.4%
Maximum Green (s)	12.3	34.8		12.3	34.8		25.4	25.4		25.4	25.4	25.4
Yellow Time (s)	3.3	3.8		3.3	3.8		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.4	2.4		2.4	2.4		2.3	2.3		2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.7	6.2		5.7	6.2		5.6	5.6		5.6	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		13.0			14.0		13.0	13.0		13.0	13.0	13.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	50.8	37.8		45.2	34.8		24.8	24.8		24.8	24.8	24.8
Actuated g/C Ratio	0.56	0.42		0.50	0.39		0.28	0.28		0.28	0.28	0.28
v/c Ratio	1.40	1.01		0.53	0.64		0.30	0.94		0.18	0.64	0.23
Control Delay	214.2	52.9		19.1	25.0		30.7	59.5		31.1	35.3	6.2

Lanes, Volumes, Timings
1: 112 St & Nordel Way

2033 Base+Site
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	214.2	52.9		19.1	25.0		30.7	59.5		31.1	35.3	6.2
LOS	F	D		B	C		C	E		C	D	A
Approach Delay		97.1			24.2			56.6			27.8	
Approach LOS		F			C			E			C	
Queue Length 50th (m)~112.0 ~145.7				11.0	66.5		7.7	81.3		2.1	52.3	0.0
Queue Length 95th (m)#180.4 #206.2				26.0	87.4		18.5	#141.4		7.8	81.2	12.5
Internal Link Dist (m)		562.9			352.8			640.0			135.0	
Turn Bay Length (m)	125.0			40.0			65.0			55.0		45.0
Base Capacity (vph)	401	1477		325	1364		186	518		84	525	518
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.40	1.01		0.45	0.64		0.29	0.92		0.18	0.63	0.23

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 26 (29%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.40

Intersection Signal Delay: 65.6

Intersection LOS: E

Intersection Capacity Utilization 100.6%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: 112 St & Nordel Way



Lanes, Volumes, Timings
1: 112 St & Nordel Way

2028 Base+Site (Optimized)
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	479	1210	58	126	721	25	46	334	71	13	283	100
Future Volume (vph)	479	1210	58	126	721	25	46	334	71	13	283	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	40.0		0.0	65.0		0.0	55.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00					0.99	1.00		1.00		0.97
Frnt	0.993			0.995			0.974					0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3509	0	1770	3522	0	1770	1807	0	1770	1863	1583
Flt Permitted	0.111			0.144			0.373			0.181		
Satd. Flow (perm)	207	3509	0	268	3522	0	688	1807	0	336	1863	1534
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			3			10				133
Link Speed (k/h)		60			60			50				50
Link Distance (m)		586.9			376.8			664.0				159.0
Travel Time (s)		35.2			22.6			47.8				11.4
Confl. Peds. (#/hr)			4	4			11		6	6		11
Confl. Bikes (#/hr)								1				
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	515	1363	0	135	802	0	49	435	0	14	304	108
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
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)	12.7	26.2		12.7	27.2		25.6	25.6		25.6	25.6	25.6
Total Split (s)	32.0	55.6		15.4	39.0		49.0	49.0		49.0	49.0	49.0
Total Split (%)	26.7%	46.3%		12.8%	32.5%		40.8%	40.8%		40.8%	40.8%	40.8%
Maximum Green (s)	26.3	49.4		9.7	32.8		43.4	43.4		43.4	43.4	43.4
Yellow Time (s)	3.3	3.8		3.3	3.8		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.4	2.4		2.4	2.4		2.3	2.3		2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.7	6.2		5.7	6.2		5.6	5.6		5.6	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		13.0			14.0		13.0	13.0		13.0	13.0	13.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	74.8	58.3		43.5	32.8		33.9	33.9		33.9	33.9	33.9
Actuated g/C Ratio	0.62	0.49		0.36	0.27		0.28	0.28		0.28	0.28	0.28
v/c Ratio	0.87	0.80		0.60	0.83		0.25	0.84		0.15	0.58	0.20
Control Delay	46.8	31.8		32.5	49.6		34.1	53.9		32.8	40.4	3.4

Lanes, Volumes, Timings
1: 112 St & Nordel Way

2028 Base+Site (Optimized)
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	46.8	31.8		32.5	49.6		34.1	53.9		32.8	40.4	3.4
LOS	D	C		C	D		C	D		C	D	A
Approach Delay		35.9			47.1			51.9			30.8	
Approach LOS		D			D			D			C	
Queue Length 50th (m)	101.3	147.5		12.8	98.2		9.4	99.3		2.6	64.5	0.0
Queue Length 95th (m) #199.7 #217.7				33.6	123.3		18.6	125.4		7.8	83.9	8.0
Internal Link Dist (m)		562.9			352.8			640.0			135.0	
Turn Bay Length (m)	125.0			40.0			65.0			55.0		45.0
Base Capacity (vph)	594	1707		232	964		248	659		121	673	639
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.87	0.80		0.58	0.83		0.20	0.66		0.12	0.45	0.17

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.87
Intersection Signal Delay:	40.2
Intersection Capacity Utilization	94.3%
ICU Level of Service	F
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1: 112 St & Nordel Way



Lanes, Volumes, Timings
1: 112 St & Nordel Way

2033 Base+Site (Optimized)
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	522	1320	63	137	786	28	50	364	77	14	307	109
Future Volume (vph)	522	1320	63	137	786	28	50	364	77	14	307	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	40.0		0.0	65.0		0.0	55.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00			0.99	1.00				0.97
Frnt		0.993			0.995			0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3509	0	1770	3522	0	1770	1807	0	1770	1863	1583
Flt Permitted	0.100			0.112			0.313			0.125		
Satd. Flow (perm)	186	3509	0	208	3522	0	578	1807	0	233	1863	1534
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			3			9				133
Link Speed (k/h)		60			60			50				50
Link Distance (m)		586.9			376.8			664.0				159.0
Travel Time (s)		35.2			22.6			47.8				11.4
Confl. Peds. (#/hr)			4	4			11		6	6		11
Confl. Bikes (#/hr)								1				
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	561	1487	0	147	875	0	54	474	0	15	330	117
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
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)	12.7	26.2		12.7	27.2		25.6	25.6		25.6	25.6	25.6
Total Split (s)	41.0	67.0		15.4	41.4		37.6	37.6		37.6	37.6	37.6
Total Split (%)	34.2%	55.8%		12.8%	34.5%		31.3%	31.3%		31.3%	31.3%	31.3%
Maximum Green (s)	35.3	60.8		9.7	35.2		32.0	32.0		32.0	32.0	32.0
Yellow Time (s)	3.3	3.8		3.3	3.8		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.4	2.4		2.4	2.4		2.3	2.3		2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.7	6.2		5.7	6.2		5.6	5.6		5.6	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		13.0			14.0		13.0	13.0		13.0	13.0	13.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	76.7	61.0		45.6	35.6		32.0	32.0		32.0	32.0	32.0
Actuated g/C Ratio	0.64	0.51		0.38	0.30		0.27	0.27		0.27	0.27	0.27
v/c Ratio	0.97	0.83		0.73	0.84		0.35	0.97		0.24	0.67	0.23
Control Delay	63.6	30.3		49.8	47.8		43.5	77.5		46.3	46.8	5.4

Lanes, Volumes, Timings
1: 112 St & Nordel Way

2033 Base+Site (Optimized)
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	63.6	30.3		49.8	47.8		43.5	77.5		46.3	46.8	5.4
LOS	E	C		D	D		D	E		D	D	A
Approach Delay		39.4			48.1			74.0			36.3	
Approach LOS		D			D			E			D	
Queue Length 50th (m)	118.6	160.0		18.4	106.8		10.9	114.7		2.9	73.1	0.0
Queue Length 95th (m)	#192.6	193.3		#49.5	133.4		24.2	#184.3		10.2	106.6	11.4
Internal Link Dist (m)		562.9			352.8			640.0			135.0	
Turn Bay Length (m)	125.0			40.0			65.0			55.0		45.0
Base Capacity (vph)	584	1787		205	1047		154	488		62	496	506
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.96	0.83		0.72	0.84		0.35	0.97		0.24	0.67	0.23

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.97
Intersection Signal Delay:	45.7
Intersection Capacity Utilization	100.6%
ICU Level of Service	G
Analysis Period (min)	15
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.

Splits and Phases: 1: 112 St & Nordel Way



Lanes, Volumes, Timings
2: 112 St & 84 Ave

2023 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	58	221	153	20	251	33	246	332	41	66	242	31
Future Volume (vph)	58	221	153	20	251	33	246	332	41	66	242	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		30.0	60.0		0.0	45.0		0.0	25.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.92	0.96	1.00		0.96	0.99		0.99	0.99	
Frnt			0.850		0.983			0.984			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1823	0	1770	1822	0	1770	1811	0
Flt Permitted	0.406			0.519			0.462			0.308		
Satd. Flow (perm)	749	1863	1464	932	1823	0	824	1822	0	566	1811	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			176		9			8			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		610.1			783.6			422.9			664.0	
Travel Time (s)		43.9			56.4			30.4			47.8	
Confl. Peds. (#/hr)	9		28	28		9	35		15	15		35
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	254	176	23	327	0	283	429	0	76	314	0
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA		Perm	NA		
Protected Phases		3			3		2	1			1	
Permitted Phases	3		3	3			1			1		
Detector Phase	3	3	3	3	3		2	1		1	1	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.2	26.2	26.2	26.2	26.2		15.2	24.5		24.5	24.5	
Total Split (s)	35.0	35.0	35.0	35.0	35.0		15.0	35.0		35.0	35.0	
Total Split (%)	41.2%	41.2%	41.2%	41.2%	41.2%		17.6%	41.2%		41.2%	41.2%	
Maximum Green (s)	29.8	29.8	29.8	29.8	29.8		9.8	29.5		29.5	29.5	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		1.9	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2	5.2	5.2	5.2		5.2	5.5		5.5	5.5	
Lead/Lag							Lag	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0	
Recall Mode	None	None	None	None	None		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	14.0			12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0		0	0	
Act Effct Green (s)	19.8	19.8	19.8	19.8	19.8		32.7	22.2		22.2	22.2	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29		0.48	0.32		0.32	0.32	
v/c Ratio	0.31	0.47	0.32	0.09	0.62		0.53	0.72		0.42	0.53	
Control Delay	24.4	23.9	5.2	19.6	26.6		17.4	28.7		27.7	22.9	

Lanes, Volumes, Timings
2: 112 St & 84 Ave

2023 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.4	23.9	5.2	19.6	26.6		17.4	28.7		27.7	22.9	
LOS	C	C	A	B	C		B	C		C	C	
Approach Delay		17.4			26.1			24.2			23.9	
Approach LOS		B			C			C			C	
Queue Length 50th (m)	7.0	28.1	0.0	2.3	36.8		18.3	48.5		7.7	32.6	
Queue Length 95th (m)	18.0	50.5	11.9	7.5	64.4		39.7	88.9		21.8	62.2	
Internal Link Dist (m)		586.1			759.6			398.9			640.0	
Turn Bay Length (m)	20.0		30.0	60.0			45.0			25.0		
Base Capacity (vph)	337	840	756	420	826		532	817		252	812	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.20	0.30	0.23	0.05	0.40		0.53	0.53		0.30	0.39	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 68.8

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 22.7

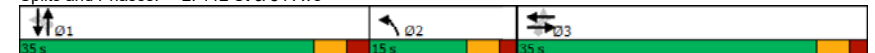
Intersection LOS: C

Intersection Capacity Utilization 71.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: 112 St & 84 Ave



Lanes, Volumes, Timings
2: 112 St & 84 Ave

2028 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	64	243	168	22	276	36	271	365	45	73	266	34
Future Volume (vph)	64	243	168	22	276	36	271	365	45	73	266	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		30.0	60.0		0.0	45.0		0.0	25.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.92	0.97	1.00		0.96	0.99		0.99	0.99	
Frnt			0.850		0.983			0.983			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1823	0	1770	1820	0	1770	1811	0
Flt Permitted	0.364			0.480			0.421			0.259		
Satd. Flow (perm)	672	1863	1464	864	1823	0	754	1820	0	477	1811	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			193		8			8			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		610.1			783.6			422.9			664.0	
Travel Time (s)		43.9			56.4			30.4			47.8	
Confl. Peds. (#/hr)	9		28	28		9	35		15	15		35
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	279	193	25	358	0	311	472	0	84	345	0
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA		Perm	NA		
Protected Phases		3			3		2	1			1	
Permitted Phases	3		3	3			1			1		
Detector Phase	3	3	3	3	3		2	1		1	1	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.2	26.2	26.2	26.2	26.2		15.2	24.5		24.5	24.5	
Total Split (s)	35.0	35.0	35.0	35.0	35.0		15.0	35.0		35.0	35.0	
Total Split (%)	41.2%	41.2%	41.2%	41.2%	41.2%		17.6%	41.2%		41.2%	41.2%	
Maximum Green (s)	29.8	29.8	29.8	29.8	29.8		9.8	29.5		29.5	29.5	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		1.9	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2	5.2	5.2	5.2		5.2	5.5		5.5	5.5	
Lead/Lag							Lag	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0	
Recall Mode	None	None	None	None	None		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0			7.0	7.0	
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	14.0			12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0			0	0	
Act Effct Green (s)	21.6	21.6	21.6	21.6	21.6		34.6	24.1		24.1	24.1	
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.30		0.48	0.33		0.33	0.33	
v/c Ratio	0.37	0.50	0.34	0.10	0.65		0.62	0.77		0.53	0.57	
Control Delay	26.8	24.7	5.0	19.9	28.1		21.8	31.8		35.2	24.3	

Lanes, Volumes, Timings
2: 112 St & 84 Ave

2028 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.8	24.7	5.0	19.9	28.1		21.8	31.8		35.2	24.3	
LOS	C	C	A	B	C		C	C		D	C	
Approach Delay		18.0			27.6			27.8			26.4	
Approach LOS		B			C			C			C	
Queue Length 50th (m)	8.7	34.4	0.0	2.7	45.5		23.1	59.6		9.7	39.6	
Queue Length 95th (m)	20.1	55.3	12.4	8.2	71.5		43.8	100.3		26.0	69.1	
Internal Link Dist (m)		586.1			759.6			398.9			640.0	
Turn Bay Length (m)	20.0		30.0	60.0			45.0			25.0		
Base Capacity (vph)	286	795	735	368	782		503	773		201	769	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.26	0.35	0.26	0.07	0.46		0.62	0.61		0.42	0.45	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 72.3

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 25.0

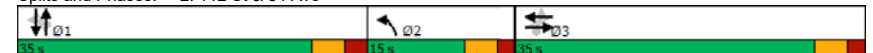
Intersection LOS: C

Intersection Capacity Utilization 74.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: 112 St & 84 Ave



Lanes, Volumes, Timings
2: 112 St & 84 Ave

2028 Base+Site
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	106	243	168	22	249	93	271	426	45	107	298	101
Future Volume (vph)	106	243	168	22	249	93	271	426	45	107	298	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		30.0	60.0		0.0	45.0		0.0	25.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.92	0.97	0.99		0.97	0.99		0.99	0.98	
Frt			0.850		0.959			0.986			0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1767	0	1770	1827	0	1770	1748	0
Flt Permitted	0.298			0.464			0.308			0.217		
Satd. Flow (perm)	551	1863	1464	835	1767	0	558	1827	0	401	1748	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			193		24			7			22	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		610.1			783.6			422.9			664.0	
Travel Time (s)		43.9			56.4			30.4			47.8	
Confl. Peds. (#/hr)	9		28	28		9	35		15	15		35
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	279	193	25	393	0	311	542	0	123	459	0
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA		Perm	NA		
Protected Phases		3			3		2	1			1	
Permitted Phases	3		3	3			1			1		
Detector Phase	3	3	3	3	3		2	1		1	1	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.2	26.2	26.2	26.2	26.2		15.2	24.5		24.5	24.5	
Total Split (s)	35.0	35.0	35.0	35.0	35.0		15.0	35.0		35.0	35.0	
Total Split (%)	41.2%	41.2%	41.2%	41.2%	41.2%		17.6%	41.2%		41.2%	41.2%	
Maximum Green (s)	29.8	29.8	29.8	29.8	29.8		9.8	29.5		29.5	29.5	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		1.9	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2	5.2	5.2	5.2		5.2	5.5		5.5	5.5	
Lead/Lag							Lag	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0	
Recall Mode	None	None	None	None	None		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	14.0			12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0		0	0	
Act Effct Green (s)	23.5	23.5	23.5	23.5	23.5		39.8	29.7		29.7	29.7	
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.30		0.50	0.38		0.38	0.38	
v/c Ratio	0.74	0.50	0.34	0.10	0.73		0.72	0.79		0.82	0.69	
Control Delay	53.0	25.9	4.9	20.2	31.3		30.7	33.0		67.3	27.5	

Lanes, Volumes, Timings
2: 112 St & 84 Ave

2028 Base+Site
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	53.0	25.9	4.9	20.2	31.3		30.7	33.0		67.3	27.5	
LOS	D	C	A	C	C		C	C		E	C	
Approach Delay		24.6			30.7			32.2			35.9	
Approach LOS		C			C			C			D	
Queue Length 50th (m)	17.1	35.9	0.0	2.8	51.5		24.6	75.3		17.6	58.4	
Queue Length 95th (m)	#40.5	55.3	12.4	8.2	77.8		#51.4	#132.4		#51.0	96.1	
Internal Link Dist (m)		586.1			759.6			398.9			640.0	
Turn Bay Length (m)	20.0		30.0	60.0			45.0			25.0		
Base Capacity (vph)	208	707	675	316	685		432	690		150	670	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.59	0.39	0.29	0.08	0.57		0.72	0.79		0.82	0.69	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 79

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 31.0

Intersection LOS: C

Intersection Capacity Utilization 82.6%

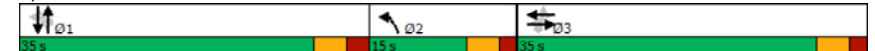
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: 112 St & 84 Ave



Lanes, Volumes, Timings
2: 112 St & 84 Ave

2033 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	70	265	184	24	301	40	295	398	49	79	290	37
Future Volume (vph)	70	265	184	24	301	40	295	398	49	79	290	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		30.0	60.0		0.0	45.0		0.0	25.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.92	0.97	1.00		0.96	0.99		0.99	0.99	
Frt			0.850		0.982			0.984			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1821	0	1770	1822	0	1770	1811	0
Flt Permitted	0.319			0.441			0.384			0.217		
Satd. Flow (perm)	589	1863	1464	795	1821	0	690	1822	0	400	1811	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			211		9			8			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		610.1			783.6			422.9			664.0	
Travel Time (s)		43.9			56.4			30.4			47.8	
Confl. Peds. (#/hr)	9		28	28		9	35		15	15		35
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	305	211	28	392	0	339	513	0	91	376	0
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA		Perm	NA		
Protected Phases		3			3		2	1			1	
Permitted Phases	3		3	3			1			1		
Detector Phase	3	3	3	3	3		2	1		1	1	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.2	26.2	26.2	26.2	26.2		15.2	24.5		24.5	24.5	
Total Split (s)	35.0	35.0	35.0	35.0	35.0		15.0	35.0		35.0	35.0	
Total Split (%)	41.2%	41.2%	41.2%	41.2%	41.2%		17.6%	41.2%		41.2%	41.2%	
Maximum Green (s)	29.8	29.8	29.8	29.8	29.8		9.8	29.5		29.5	29.5	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		1.9	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2	5.2	5.2	5.2		5.2	5.5		5.5	5.5	
Lead/Lag							Lag	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0	
Recall Mode	None	None	None	None	None		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	14.0			12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0		0	0	
Act Effct Green (s)	23.1	23.1	23.1	23.1	23.1		36.2	25.9		25.9	25.9	
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.31		0.48	0.34		0.34	0.34	
v/c Ratio	0.44	0.54	0.36	0.12	0.70		0.71	0.81		0.66	0.60	
Control Delay	30.4	25.7	4.9	20.4	29.9		28.0	35.0		49.6	25.5	

Lanes, Volumes, Timings
2: 112 St & 84 Ave

2033 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	30.4	25.7	4.9	20.4	29.9		28.0	35.0		49.6	25.5	
LOS	C	C	A	C	C		C	C		D	C	
Approach Delay		19.0			29.3			32.2			30.2	
Approach LOS		B			C			C			C	
Queue Length 50th (m)	10.1	39.9	0.0	3.2	53.2		27.3	69.6		11.7	45.9	
Queue Length 95th (m)	22.6	60.7	12.8	8.9	79.1		#52.5	#121.0		#35.5	76.3	
Internal Link Dist (m)		586.1			759.6			398.9			640.0	
Turn Bay Length (m)	20.0		30.0	60.0			45.0			25.0		
Base Capacity (vph)	238	755	719	322	744		476	736		160	732	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.34	0.40	0.29	0.09	0.53		0.71	0.70		0.57	0.51	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 75.3

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 27.9

Intersection LOS: C

Intersection Capacity Utilization 78.5%

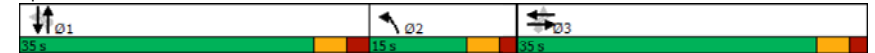
ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: 112 St & 84 Ave



Lanes, Volumes, Timings
2: 112 St & 84 Ave

2033 Base+Site
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	112	265	184	24	274	97	295	459	49	113	322	104
Future Volume (vph)	112	265	184	24	274	97	295	459	49	113	322	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		30.0	60.0		0.0	45.0		0.0	25.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.92	0.97	0.99		0.97	0.99		0.98		
Frnt			0.850		0.961			0.986			0.963	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1772	0	1770	1827	0	1770	1751	0
Flt Permitted	0.268			0.435			0.264			0.161		
Satd. Flow (perm)	496	1863	1464	785	1772	0	479	1827	0	300	1751	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			211		23			7			21	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		610.1			783.6			422.9			664.0	
Travel Time (s)		43.9			56.4			30.4			47.8	
Confl. Peds. (#/hr)	9		28	28		9	35		15	15		35
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	305	211	28	426	0	339	584	0	130	490	0
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA		Perm	NA		
Protected Phases		3			3		2	1			1	
Permitted Phases	3		3	3			1			1		
Detector Phase	3	3	3	3	3		2	1		1	1	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.2	26.2	26.2	26.2	26.2		15.2	24.5		24.5	24.5	
Total Split (s)	35.0	35.0	35.0	35.0	35.0		15.0	35.0		35.0	35.0	
Total Split (%)	41.2%	41.2%	41.2%	41.2%	41.2%		17.6%	41.2%		41.2%	41.2%	
Maximum Green (s)	29.8	29.8	29.8	29.8	29.8		9.8	29.5		29.5	29.5	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		1.9	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2	5.2	5.2	5.2		5.2	5.5		5.5	5.5	
Lead/Lag							Lag	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0	
Recall Mode	None	None	None	None	None		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0			7.0	7.0	
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	14.0			12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0			0	0	
Act Effct Green (s)	25.0	25.0	25.0	25.0	25.0		39.8	29.6		29.6	29.6	
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.31		0.50	0.37		0.37	0.37	
v/c Ratio	0.84	0.53	0.35	0.12	0.75		0.86	0.86		1.18	0.74	
Control Delay	68.6	26.2	4.8	20.3	32.5		46.2	39.8		173.8	30.9	

Lanes, Volumes, Timings
2: 112 St & 84 Ave

2033 Base+Site
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	68.6	26.2	4.8	20.3	32.5		46.2	39.8		173.8	30.9	
LOS	E	C	A	C	C		D	D		F	C	
Approach Delay		27.7			31.8			42.2			60.9	
Approach LOS		C			C			D			E	
Queue Length 50th (m)	19.1	39.9	0.0	3.2	57.6		30.5	90.6		~27.3	69.3	
Queue Length 95th (m)	#47.2	60.7	12.8	8.9	86.1		#68.6	#149.0		#60.2	#108.1	
Internal Link Dist (m)		586.1			759.6			398.9			640.0	
Turn Bay Length (m)	20.0		30.0	60.0			45.0			25.0		
Base Capacity (vph)	184	693	677	292	674		395	677		110	658	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.70	0.44	0.31	0.10	0.63		0.86	0.86		1.18	0.74	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 80.4

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.18

Intersection Signal Delay: 41.2

Intersection LOS: D

Intersection Capacity Utilization 86.8%

ICU Level of Service E

Analysis Period (min) 15

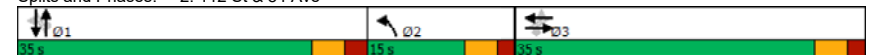
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: 112 St & 84 Ave



Lanes, Volumes, Timings
2: 112 St & 84 Ave

2033 Base+Site (Optimized)
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Traffic Volume (vph)	112	265	184	24	274	97	295	459	49	113	322	104
Future Volume (vph)	112	265	184	24	274	97	295	459	49	113	322	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		30.0	60.0		0.0	45.0		0.0	25.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.92	0.97	0.99			0.99		0.98	0.98	
Frnt			0.850		0.961			0.986			0.963	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1771	0	1770	1827	0	1770	1749	0
Flt Permitted	0.270			0.436			0.190			0.444		
Satd. Flow (perm)	499	1863	1459	786	1771	0	354	1827	0	814	1749	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			193		21			10			21	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		610.1			783.6			422.9			664.0	
Travel Time (s)		43.9			56.4			30.4			47.8	
Confl. Peds. (#/hr)	9		28	28		9	35		15	15		35
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	305	211	28	426	0	339	584	0	130	490	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.2	26.2	26.2	26.2	26.2		15.2	24.5		24.5	24.5	
Total Split (s)	34.0	34.0	34.0	34.0	34.0		17.0	56.0		39.0	39.0	
Total Split (%)	37.8%	37.8%	37.8%	37.8%	37.8%		18.9%	62.2%		43.3%	43.3%	
Maximum Green (s)	28.8	28.8	28.8	28.8	28.8		11.8	50.5		33.5	33.5	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		1.9	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2	5.2	5.2	5.2		5.2	5.5		5.5	5.5	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0	
Recall Mode	None	None	None	None	None		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0			7.0	7.0	
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	14.0			12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0		0	0	
Act Effct Green (s)	24.8	24.8	24.8	24.8	24.8		44.4	44.1		26.7	26.7	
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.31		0.56	0.55		0.33	0.33	
v/c Ratio	0.84	0.53	0.36	0.12	0.76		0.82	0.58		0.48	0.82	
Control Delay	70.2	27.4	6.6	22.7	34.1		31.8	14.8		28.5	36.1	

Lanes, Volumes, Timings
2: 112 St & 84 Ave

2033 Base+Site (Optimized)
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	70.2	27.4	6.6	22.7	34.1		31.8	14.8		28.5	36.1	
LOS	E	C	A	C	C		C	B		C	D	
Approach Delay		29.1			33.4			21.1			34.5	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	19.8	41.4	2.1	3.3	60.3		30.9	62.7		17.4	72.8	
Queue Length 95th (m)	#51.7	67.4	16.3	9.7	95.8		#73.0	88.3		33.3	105.4	
Internal Link Dist (m)		586.1			759.6			398.9			640.0	
Turn Bay Length (m)	20.0		30.0	60.0			45.0			25.0		
Base Capacity (vph)	184	689	661	290	669		411	1188		350	764	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.70	0.44	0.32	0.10	0.64		0.82	0.49		0.37	0.64	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 79.9

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 28.3

Intersection LOS: C

Intersection Capacity Utilization 86.8%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: 112 St & 84 Ave



Lanes, Volumes, Timings
2: 112 St & 84 Ave

2023 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	113	454	253	48	204	41	202	296	34	75	390	48
Future Volume (vph)	113	454	253	48	204	41	202	296	34	75	390	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		30.0	60.0		0.0	45.0		0.0	25.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97		0.92	0.98		0.99	0.97	0.99		0.98	0.99	
Frt			0.850		0.975			0.984			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1794	0	1770	1821	0	1770	1811	0
Flt Permitted	0.515			0.227			0.242			0.391		
Satd. Flow (perm)	928	1863	1457	415	1794	0	439	1821	0	713	1811	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			173		13			8			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		610.1			783.6			422.9			664.0	
Travel Time (s)		43.9			56.4			30.4			47.8	
Confl. Peds. (#/hr)	26		30	30		26	37		20	20		37
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	488	272	52	263	0	217	355	0	81	471	0
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA		Perm	NA		
Protected Phases		3			3		2	1			1	
Permitted Phases	3		3	3			1			1		
Detector Phase	3	3	3	3	3		2	1		1	1	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.2	26.2	26.2	26.2	26.2		15.2	24.5		24.5	24.5	
Total Split (s)	35.0	35.0	35.0	35.0	35.0		15.0	35.0		35.0	35.0	
Total Split (%)	41.2%	41.2%	41.2%	41.2%	41.2%		17.6%	41.2%		41.2%	41.2%	
Maximum Green (s)	29.8	29.8	29.8	29.8	29.8		9.8	29.5		29.5	29.5	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		1.9	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2	5.2	5.2	5.2		5.2	5.5		5.5	5.5	
Lead/Lag							Lag	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0	
Recall Mode	None	None	None	None	None		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0			7.0	7.0	
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	14.0			12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0			0	0	
Act Effct Green (s)	25.9	25.9	25.9	25.9	25.9		35.5	25.2		25.2	25.2	
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33		0.46	0.33		0.33	0.33	
v/c Ratio	0.39	0.78	0.45	0.38	0.43		0.58	0.59		0.35	0.79	
Control Delay	25.1	33.9	10.7	30.0	22.1		27.1	26.4		25.7	34.7	

Lanes, Volumes, Timings
2: 112 St & 84 Ave

2023 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.1	33.9	10.7	30.0	22.1		27.1	26.4		25.7	34.7	
LOS	C	C	B	C	C		C	C		C	C	
Approach Delay		25.5			23.4			26.6			33.4	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	15.4	72.3	11.6	6.5	31.9		18.8	47.4		10.1	68.7	
Queue Length 95th (m)	30.8	109.8	31.8	17.6	53.0		31.7	74.8		22.5	105.6	
Internal Link Dist (m)		586.1			759.6			398.9			640.0	
Turn Bay Length (m)	20.0		30.0	60.0			45.0			25.0		
Base Capacity (vph)	365	733	678	163	714		373	714		277	710	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.33	0.67	0.40	0.32	0.37		0.58	0.50		0.29	0.66	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 77.4

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 27.4

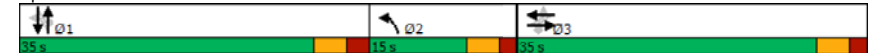
Intersection LOS: C

Intersection Capacity Utilization 84.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 2: 112 St & 84 Ave



Lanes, Volumes, Timings
2: 112 St & 84 Ave

2028 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	124	499	278	53	224	45	222	326	37	83	429	53
Future Volume (vph)	124	499	278	53	224	45	222	326	37	83	429	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		30.0	60.0		0.0	45.0		0.0	25.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97		0.92	0.98	0.99		0.98	0.99		0.98	0.99	
Frt			0.850		0.975			0.985			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1794	0	1770	1823	0	1770	1811	0
Flt Permitted	0.479			0.174			0.191			0.348		
Satd. Flow (perm)	865	1863	1457	319	1794	0	348	1823	0	636	1811	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			172		13			7			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		610.1			783.6			422.9			664.0	
Travel Time (s)		43.9			56.4			30.4			47.8	
Confl. Peds. (#/hr)	26		30	30		26	37		20	20		37
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	133	537	299	57	289	0	239	391	0	89	518	0
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA		Perm	NA		
Protected Phases		3			3		2	1			1	
Permitted Phases	3		3	3			1			1		
Detector Phase	3	3	3	3	3		2	1		1	1	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.2	26.2	26.2	26.2	26.2		15.2	24.5		24.5	24.5	
Total Split (s)	35.0	35.0	35.0	35.0	35.0		15.0	35.0		35.0	35.0	
Total Split (%)	41.2%	41.2%	41.2%	41.2%	41.2%		17.6%	41.2%		41.2%	41.2%	
Maximum Green (s)	29.8	29.8	29.8	29.8	29.8		9.8	29.5		29.5	29.5	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		1.9	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2	5.2	5.2	5.2		5.2	5.5		5.5	5.5	
Lead/Lag							Lag	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0	
Recall Mode	None	None	None	None	None		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	14.0			12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0		0	0	
Act Effct Green (s)	27.6	27.6	27.6	27.6	27.6		37.2	27.0		27.0	27.0	
Actuated g/C Ratio	0.34	0.34	0.34	0.34	0.34		0.46	0.33		0.33	0.33	
v/c Ratio	0.45	0.84	0.49	0.52	0.46		0.71	0.64		0.42	0.85	
Control Delay	27.0	38.7	12.1	42.5	23.0		37.6	28.0		28.7	39.6	

Lanes, Volumes, Timings
2: 112 St & 84 Ave

2028 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	27.0	38.7	12.1	42.5	23.0		37.6	28.0		28.7	39.6	
LOS	C	D	B	D	C		D	C		C	D	
Approach Delay		28.9			26.2			31.7			38.0	
Approach LOS		C			C			C			D	
Queue Length 50th (m)	17.2	82.5	15.2	7.6	35.8		21.0	53.7		11.4	78.4	
Queue Length 95th (m)	34.3	#137.0	38.0	#24.5	58.7		#50.0	83.9		25.8	#132.5	
Internal Link Dist (m)		586.1			759.6			398.9			640.0	
Turn Bay Length (m)	20.0		30.0	60.0			45.0			25.0		
Base Capacity (vph)	323	696	652	118	679		335	679		235	675	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.41	0.77	0.46	0.48	0.43		0.71	0.58		0.38	0.77	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 80.6

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 31.4

Intersection LOS: C

Intersection Capacity Utilization 90.6%

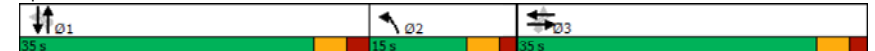
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: 112 St & 84 Ave



Lanes, Volumes, Timings
2: 112 St & 84 Ave

2028 Base+Site
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	157	499	278	53	196	85	222	348	37	104	446	79
Future Volume (vph)	157	499	278	53	196	85	222	348	37	104	446	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		30.0	60.0		0.0	45.0		0.0	25.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97		0.92	0.98	0.98			0.99		0.98	0.98	
Frt			0.850		0.955			0.986			0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1740	0	1770	1825	0	1770	1792	0
Flt Permitted	0.459			0.168			0.146			0.325		
Satd. Flow (perm)	830	1863	1457	308	1740	0	272	1825	0	595	1792	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			172		28			7			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		610.1			783.6			422.9			664.0	
Travel Time (s)		43.9			56.4			30.4			47.8	
Confl. Peds. (#/hr)	26		30	30		26	37		20	20		37
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	169	537	299	57	302	0	239	414	0	112	565	0
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA		Perm	NA		
Protected Phases		3			3		2	1			1	
Permitted Phases	3		3	3			1			1		
Detector Phase	3	3	3	3	3		2	1		1	1	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.2	26.2	26.2	26.2	26.2		15.2	24.5		24.5	24.5	
Total Split (s)	35.0	35.0	35.0	35.0	35.0		15.0	35.0		35.0	35.0	
Total Split (%)	41.2%	41.2%	41.2%	41.2%	41.2%		17.6%	41.2%		41.2%	41.2%	
Maximum Green (s)	29.8	29.8	29.8	29.8	29.8		9.8	29.5		29.5	29.5	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		1.9	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2	5.2	5.2	5.2		5.2	5.5		5.5	5.5	
Lead/Lag							Lag	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0	
Recall Mode	None	None	None	None	None		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	14.0			12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0		0	0	
Act Effct Green (s)	27.8	27.8	27.8	27.8	27.8		38.3	28.1		28.1	28.1	
Actuated g/C Ratio	0.34	0.34	0.34	0.34	0.34		0.47	0.34		0.34	0.34	
v/c Ratio	0.60	0.85	0.49	0.55	0.50		0.78	0.66		0.55	0.91	
Control Delay	33.0	39.6	12.2	45.5	22.7		45.7	28.6		34.5	46.3	

Lanes, Volumes, Timings
2: 112 St & 84 Ave

2028 Base+Site
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	33.0	39.6	12.2	45.5	22.7		45.7	28.6		34.5	46.3	
LOS	C	D	B		D		C			C	D	
Approach Delay		30.4			26.3			34.9			44.4	
Approach LOS		C			C			C			D	
Queue Length 50th (m)	23.2	82.5	15.2	7.7	35.9		21.0	57.8		15.2	88.9	
Queue Length 95th (m)	45.5	#137.0	38.0	#25.2	59.7		#60.1	89.7		33.9	#151.8	
Internal Link Dist (m)		586.1			759.6			398.9			640.0	
Turn Bay Length (m)	20.0		30.0	60.0			45.0			25.0		
Base Capacity (vph)	303	683	643	112	655		307	666		215	657	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.56	0.79	0.47	0.51	0.46		0.78	0.62		0.52	0.86	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 81.8

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 34.4

Intersection LOS: C

Intersection Capacity Utilization 93.2%

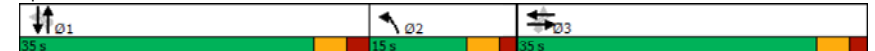
ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: 112 St & 84 Ave



Lanes, Volumes, Timings
2: 112 St & 84 Ave

2033 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	136	545	304	58	245	49	242	355	41	90	468	58
Future Volume (vph)	136	545	304	58	245	49	242	355	41	90	468	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		30.0	60.0		0.0	45.0		0.0	25.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97		0.92		0.99		0.99		0.99	0.98		0.99
Frnt			0.850		0.975				0.985			0.984
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1794	0	1770	1823	0	1770	1813	0
Flt Permitted	0.444			0.139			0.142			0.307		
Satd. Flow (perm)	803	1863	1457	259	1794	0	265	1823	0	562	1813	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			173		13			7			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		610.1			783.6			422.9			664.0	
Travel Time (s)		43.9			56.4			30.4			47.8	
Confl. Peds. (#/hr)	26		30	30		26	37		20	20		37
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	146	586	327	62	316	0	260	426	0	97	565	0
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA		Perm	NA		
Protected Phases		3			3		2	1			1	
Permitted Phases	3		3	3			1			1		
Detector Phase	3	3	3	3	3		2	1		1	1	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.2	26.2	26.2	26.2	26.2		15.2	24.5		24.5	24.5	
Total Split (s)	35.0	35.0	35.0	35.0	35.0		15.0	35.0		35.0	35.0	
Total Split (%)	41.2%	41.2%	41.2%	41.2%	41.2%		17.6%	41.2%		41.2%	41.2%	
Maximum Green (s)	29.8	29.8	29.8	29.8	29.8		9.8	29.5		29.5	29.5	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		1.9	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2	5.2	5.2	5.2		5.2	5.5		5.5	5.5	
Lead/Lag							Lag	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0	
Recall Mode	None	None	None	None	None		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0			7.0	7.0	
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	14.0			12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0		0	0	
Act Effct Green (s)	28.8	28.8	28.8	28.8	28.8		38.4	28.3		28.3	28.3	
Actuated g/C Ratio	0.35	0.35	0.35	0.35	0.35		0.46	0.34		0.34	0.34	
v/c Ratio	0.52	0.90	0.53	0.70	0.50		0.87	0.68		0.51	0.91	
Control Delay	30.1	46.0	13.5	65.9	23.9		56.9	29.6		33.1	46.5	

Lanes, Volumes, Timings
2: 112 St & 84 Ave

2033 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	30.1	46.0	13.5	65.9	23.9		56.9	29.6		33.1	46.5	
LOS	C	D	B		E	C	E	C		C	D	
Approach Delay		33.7			30.8			40.0			44.5	
Approach LOS		C			C			D			D	
Queue Length 50th (m)	19.5	93.6	18.8	8.9	40.0		23.2	60.1		12.9	88.9	
Queue Length 95th (m)	39.3	#156.5	44.4	#30.8	64.6		#70.3	92.8		29.6	#151.1	
Internal Link Dist (m)		586.1			759.6			398.9			640.0	
Turn Bay Length (m)	20.0		30.0	60.0			45.0			25.0		
Base Capacity (vph)	289	671	636	93	655		300	655		200	652	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.51	0.87	0.51	0.67	0.48		0.87	0.65		0.48	0.87	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 82.9

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 37.4

Intersection LOS: D

Intersection Capacity Utilization 96.5%

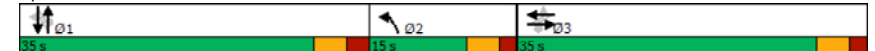
ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: 112 St & 84 Ave



Lanes, Volumes, Timings
2: 112 St & 84 Ave

2033 Base+Site
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	169	545	304	58	217	89	242	377	41	111	485	84
Future Volume (vph)	169	545	304	58	217	89	242	377	41	111	485	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		30.0	60.0		0.0	45.0		0.0	25.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97		0.92		0.98			0.99		0.98		0.99
Frnt			0.850		0.956			0.985			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1743	0	1770	1823	0	1770	1795	0
Flt Permitted	0.424			0.137			0.136			0.286		
Satd. Flow (perm)	768	1863	1457	255	1743	0	253	1823	0	524	1795	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			173		27			7			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		610.1			783.6			422.9			664.0	
Travel Time (s)		43.9			56.4			30.4			47.8	
Confl. Peds. (#/hr)	26		30	30		26	37		20	20		37
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	182	586	327	62	329	0	260	449	0	119	612	0
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA		Perm	NA		
Protected Phases		3			3		2	1			1	
Permitted Phases	3		3	3			1			1		
Detector Phase	3	3	3	3	3		2	1		1	1	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.2	26.2	26.2	26.2	26.2		15.2	24.5		24.5	24.5	
Total Split (s)	35.0	35.0	35.0	35.0	35.0		15.0	35.0		35.0	35.0	
Total Split (%)	41.2%	41.2%	41.2%	41.2%	41.2%		17.6%	41.2%		41.2%	41.2%	
Maximum Green (s)	29.8	29.8	29.8	29.8	29.8		9.8	29.5		29.5	29.5	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		1.9	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2	5.2	5.2	5.2		5.2	5.5		5.5	5.5	
Lead/Lag							Lag	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0	
Recall Mode	None	None	None	None	None		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	14.0			12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0		0	0	
Act Effct Green (s)	29.1	29.1	29.1	29.1	29.1		39.6	29.5		29.5	29.5	
Actuated g/C Ratio	0.35	0.35	0.35	0.35	0.35		0.47	0.35		0.35	0.35	
v/c Ratio	0.69	0.91	0.53	0.70	0.53		0.88	0.70		0.65	0.96	
Control Delay	39.4	47.4	13.5	68.5	23.9		60.1	30.3		43.3	56.4	

Lanes, Volumes, Timings
2: 112 St & 84 Ave

2033 Base+Site
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	39.4	47.4	13.5	68.5	23.9		60.1	30.3		43.3	56.4	
LOS	D	D	B	E	C		E	C		D	E	
Approach Delay		35.9			31.0			41.3			54.3	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	26.1	93.6	18.8	9.0	40.2		27.3	64.5		16.9	100.0	
Queue Length 95th (m)	#57.1	#156.5	44.4	#31.1	66.0		#71.9	99.1		#43.6	#170.8	
Internal Link Dist (m)		586.1			759.6			398.9			640.0	
Turn Bay Length (m)	20.0		30.0	60.0			45.0			25.0		
Base Capacity (vph)	271	659	627	90	633		295	642		183	635	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.67	0.89	0.52	0.69	0.52		0.88	0.70		0.65	0.96	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 84.3

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 41.1

Intersection LOS: D

Intersection Capacity Utilization 99.1%

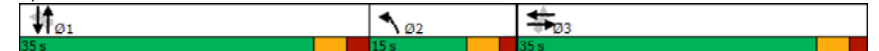
ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: 112 St & 84 Ave



Lanes, Volumes, Timings
2: 112 St & 84 Ave

2028 Base+Site (Optimized)
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	157	499	278	53	196	85	222	348	37	104	446	79
Future Volume (vph)	157	499	278	53	196	85	222	348	37	104	446	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		30.0	60.0		0.0	45.0		0.0	25.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.96		0.90		0.97			0.99		0.96		0.98
Frnt			0.850		0.955			0.986			0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1729	0	1770	1822	0	1770	1783	0
Flt Permitted	0.439			0.155			0.154			0.520		
Satd. Flow (perm)	788	1863	1419	289	1729	0	287	1822	0	934	1783	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120		20			7			9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		610.1			783.6			422.9			664.0	
Travel Time (s)		43.9			56.4			30.4			47.8	
Confl. Peds. (#/hr)	26		30	30		26	37		20	20		37
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	169	537	299	57	302	0	239	414	0	112	565	0
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA	0
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2		6			
Detector Phase	4	4	4	8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.2	26.2	26.2	26.2	26.2		15.2	24.5		24.5	24.5	
Total Split (s)	46.0	46.0	46.0	46.0	46.0		18.0	74.0		56.0	56.0	
Total Split (%)	38.3%	38.3%	38.3%	38.3%	38.3%		15.0%	61.7%		46.7%	46.7%	
Maximum Green (s)	40.8	40.8	40.8	40.8	40.8		12.8	68.5		50.5	50.5	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		1.9	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2	5.2	5.2	5.2		5.2	5.5		5.5	5.5	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0	
Recall Mode	None	None	None	None	None		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	14.0			12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	35.0	35.0	35.0	35.0	35.0		56.6	56.3		38.2	38.2	
Actuated g/C Ratio	0.34	0.34	0.34	0.34	0.34		0.55	0.55		0.37	0.37	
v/c Ratio	0.63	0.84	0.53	0.58	0.50		0.70	0.41		0.32	0.84	
Control Delay	42.4	46.0	20.6	57.1	29.5		26.1	15.1		26.4	41.8	

Lanes, Volumes, Timings
2: 112 St & 84 Ave

2028 Base+Site (Optimized)
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	42.4	46.0	20.6	57.1	29.5		26.1	15.1		26.4	41.8	
LOS	D	D	C	E	C		C	B		C	D	
Approach Delay		37.9			33.9			19.1			39.3	
Approach LOS		D			C			B			D	
Queue Length 50th (m)	30.2	105.7	29.8	10.0	47.6		27.2	52.1		17.7	113.2	
Queue Length 95th (m)	62.1	#182.8	64.1	#33.0	83.6		#56.6	75.9		32.8	160.9	
Internal Link Dist (m)		586.1			759.6			398.9			640.0	
Turn Bay Length (m)	20.0		30.0	60.0			45.0			25.0		
Base Capacity (vph)	325	769	656	119	726		350	1266		477	916	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.52	0.70	0.46	0.48	0.42		0.68	0.33		0.23	0.62	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 102.3

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 33.1

Intersection LOS: C

Intersection Capacity Utilization 93.2%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: 112 St & 84 Ave



Lanes, Volumes, Timings
2: 112 St & 84 Ave

2033 Base+Site (Optimized)
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	169	545	304	58	217	89	242	377	41	111	485	84
Future Volume (vph)	169	545	304	58	217	89	242	377	41	111	485	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		30.0	60.0		0.0	45.0		0.0	25.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97		0.90		0.97			0.99		0.97		0.98
Frnt			0.850		0.956			0.985			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1732	0	1770	1820	0	1770	1786	0
Flt Permitted	0.396			0.128			0.146			0.503		
Satd. Flow (perm)	715	1863	1419	238	1732	0	272	1820	0	905	1786	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			107		17			9			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		610.1			783.6			422.9			664.0	
Travel Time (s)		43.9			56.4			30.4			47.8	
Confl. Peds. (#/hr)	26		30	30		26	37		20	20		37
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	182	586	327	62	329	0	260	449	0	119	612	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.2	26.2	26.2	26.2	26.2		15.2	24.5		24.5	24.5	
Total Split (s)	36.0	36.0	36.0	36.0	36.0		15.0	84.0		69.0	69.0	
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%		12.5%	70.0%		57.5%	57.5%	
Maximum Green (s)	30.8	30.8	30.8	30.8	30.8		9.8	78.5		63.5	63.5	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		1.9	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2	5.2	5.2	5.2		5.2	5.5		5.5	5.5	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0	
Recall Mode	None	None	None	None	None		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	14.0			12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0		0	0	
Act Effct Green (s)	31.2	31.2	31.2	31.2	31.2		54.0	53.7		38.6	38.6	
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33		0.56	0.56		0.40	0.40	
v/c Ratio	0.78	0.97	0.61	0.81	0.57		0.84	0.44		0.33	0.84	
Control Delay	57.1	64.0	25.7	97.3	32.3		38.9	13.0		21.4	36.4	

Lanes, Volumes, Timings
2: 112 St & 84 Ave

2033 Base+Site (Optimized)
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	57.1	64.0	25.7	97.3	32.3		38.9	13.0		21.4	36.4	
LOS	E	E	C	F	C		D	B		C	D	
Approach Delay		51.4			42.6			22.5			34.0	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	31.7	111.0	35.2	10.9	49.7		23.8	46.0		15.4	102.5	
Queue Length 95th (m)	#85.5	#227.1	80.2	#42.7	96.5		#54.6	66.4		28.6	145.8	
Internal Link Dist (m)		586.1			759.6			398.9			640.0	
Turn Bay Length (m)	20.0		30.0	60.0			45.0			25.0		
Base Capacity (vph)	232	606	534	77	575		308	1511		607	1202	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.78	0.97	0.61	0.81	0.57		0.84	0.30		0.20	0.51	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 95.7

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 38.9

Intersection LOS: D

Intersection Capacity Utilization 99.1%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: 112 St & 84 Ave



Lanes, Volumes, Timings
3: 112 St & 82 Ave

2023 Base
Timing Plan: Wkdy AM Peak Hr

	↗	→	↘	↙	←	↖	↗	→	↘	↙	←	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	67	31	32	13	19	60	20	529	13	32	368	32
Future Volume (vph)	67	31	32	13	19	60	20	529	13	32	368	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-1%			-2%			-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.97			1.00			1.00	
Frt		0.967			0.912			0.997			0.990	
Flt Protected		0.975			0.993			0.998			0.996	
Satd. Flow (prot)	0	1725	0	0	1646	0	0	1870	0	0	1841	0
Flt Permitted		0.783			0.927			0.976			0.931	
Satd. Flow (perm)	0	1371	0	0	1535	0	0	1828	0	0	1720	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			69			3			10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			374.1			399.4			422.9	
Travel Time (s)		17.5			26.9			28.8			30.4	
Confl. Peds. (#/hr)	13		6	6		13	9		12	12		9
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	150	0	0	106	0	0	646	0	0	497	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.4	24.4		24.4	24.4		23.4	23.4		23.4	23.4	
Total Split (s)	25.0	25.0		25.0	25.0		45.0	45.0		45.0	45.0	
Total Split (%)	35.7%	35.7%		35.7%	35.7%		64.3%	64.3%		64.3%	64.3%	
Maximum Green (s)	19.6	19.6		19.6	19.6		39.6	39.6		39.6	39.6	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.4			5.4			5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		10.1			10.1			25.3			25.3	
Actuated g/C Ratio		0.24			0.24			0.60			0.60	
v/c Ratio		0.43			0.25			0.59			0.48	
Control Delay		18.0			9.3			10.5			8.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		18.0			9.3			10.5			8.9	

Lanes, Volumes, Timings
3: 112 St & 82 Ave

2023 Base
Timing Plan: Wkdy AM Peak Hr

	↗	→	↘	↙	←	↖	↗	→	↘	↙	←	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		B			A			B			A	
Approach Delay		18.0			9.3			10.5			8.9	
Approach LOS		B			A			B			A	
Queue Length 50th (m)		7.3			2.0			30.9			21.2	
Queue Length 95th (m)		25.7			13.0			72.1			50.9	
Internal Link Dist (m)		218.7			350.1			375.4			398.9	
Turn Bay Length (m)												
Base Capacity (vph)		692			797			1644			1548	
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		0.22			0.13			0.39			0.32	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 42

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 10.7

Intersection LOS: B

Intersection Capacity Utilization 58.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: 112 St & 82 Ave



Lanes, Volumes, Timings
3: 112 St & 82 Ave

2028 Base
Timing Plan: Wkdy AM Peak Hr

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	74	34	35	14	21	66	22	582	14	35	405	35
Future Volume (vph)	74	34	35	14	21	66	22	582	14	35	405	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-1%			-2%			-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.97			1.00			1.00	
Frt		0.967			0.912			0.997			0.990	
Flt Protected		0.975			0.993			0.998			0.996	
Satd. Flow (prot)	0	1726	0	0	1646	0	0	1870	0	0	1841	0
Flt Permitted		0.776			0.940			0.974			0.925	
Satd. Flow (perm)	0	1359	0	0	1556	0	0	1825	0	0	1709	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			76			3			9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			374.1			399.4			422.9	
Travel Time (s)		17.5			26.9			28.8			30.4	
Confl. Peds. (#/hr)	13		6	6		13	9		12	12		9
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	164	0	0	116	0	0	710	0	0	546	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.4	24.4		24.4	24.4		23.4	23.4		23.4	23.4	
Total Split (s)	25.0	25.0		25.0	25.0		45.0	45.0		45.0	45.0	
Total Split (%)	35.7%	35.7%		35.7%	35.7%		64.3%	64.3%		64.3%	64.3%	
Maximum Green (s)	19.6	19.6		19.6	19.6		39.6	39.6		39.6	39.6	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.4			5.4			5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		10.9			10.9			28.4			28.4	
Actuated g/C Ratio		0.24			0.24			0.62			0.62	
v/c Ratio		0.48			0.27			0.62			0.51	
Control Delay		20.6			10.1			11.3			9.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		20.6			10.1			11.3			9.4	

Lanes, Volumes, Timings
3: 112 St & 82 Ave

2028 Base
Timing Plan: Wkdy AM Peak Hr

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		C			B			B			A	
Approach Delay		20.6			10.1			11.3			9.4	
Approach LOS		C			B			B			A	
Queue Length 50th (m)		9.4			2.5			38.3			26.0	
Queue Length 95th (m)		31.0			14.8			87.2			60.9	
Internal Link Dist (m)		218.7			350.1			375.4			398.9	
Turn Bay Length (m)												
Base Capacity (vph)		643			763			1559			1461	
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		0.26			0.15			0.46			0.37	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 45.7

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 11.5

Intersection LOS: B

Intersection Capacity Utilization 62.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: 112 St & 82 Ave



Lanes, Volumes, Timings
3: 112 St & 82 Ave

2028 Base+Site
Timing Plan: Wkdy AM Peak Hr

	↗	→	↘	↖	←	↙	↘	↖	↗	↘	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	80	34	35	14	21	72	22	631	14	38	443	38
Future Volume (vph)	80	34	35	14	21	72	22	631	14	38	443	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-1%			-2%			-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.97			1.00			1.00	
Frt		0.968			0.909			0.997			0.990	
Flt Protected		0.974			0.994			0.998			0.996	
Satd. Flow (prot)	0	1726	0	0	1640	0	0	1870	0	0	1841	0
Flt Permitted		0.812			0.946			0.974			0.917	
Satd. Flow (perm)	0	1424	0	0	1560	0	0	1825	0	0	1694	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			83			3			9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			374.1			399.4			422.9	
Travel Time (s)		17.5			26.9			28.8			30.4	
Confl. Peds. (#/hr)	13		6	6		13	9		12	12		9
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	171	0	0	123	0	0	766	0	0	597	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.4	24.4		24.4	24.4		23.4	23.4		23.4	23.4	
Total Split (s)	25.0	25.0		25.0	25.0		45.0	45.0		45.0	45.0	
Total Split (%)	35.7%	35.7%		35.7%	35.7%		64.3%	64.3%		64.3%	64.3%	
Maximum Green (s)	19.6	19.6		19.6	19.6		39.6	39.6		39.6	39.6	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.4			5.4			5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		11.4			11.4			30.6			30.6	
Actuated g/C Ratio		0.24			0.24			0.63			0.63	
v/c Ratio		0.49			0.29			0.66			0.56	
Control Delay		21.2			10.1			12.3			10.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		21.2			10.1			12.3			10.2	

Lanes, Volumes, Timings
3: 112 St & 82 Ave

2028 Base+Site
Timing Plan: Wkdy AM Peak Hr

	↗	→	↘	↖	←	↙	↘	↖	↗	↘	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		C			B			B			B	
Approach Delay		21.2			10.1			12.3			10.2	
Approach LOS		C			B			B			B	
Queue Length 50th (m)		10.9			2.7			45.2			31.2	
Queue Length 95th (m)		31.9			15.1			101.9			71.7	
Internal Link Dist (m)		218.7			350.1			375.4			398.9	
Turn Bay Length (m)												
Base Capacity (vph)		628			721			1512			1404	
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		0.27			0.17			0.51			0.43	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 48.4

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 12.3

Intersection LOS: B

Intersection Capacity Utilization 66.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: 112 St & 82 Ave



Lanes, Volumes, Timings
3: 112 St & 82 Ave

2033 Base
Timing Plan: Wkdy AM Peak Hr

	↗	→	↘	↙	←	↖	↗	→	↘	↙	←	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	80	37	38	16	23	72	24	635	16	38	442	38
Future Volume (vph)	80	37	38	16	23	72	24	635	16	38	442	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-1%			-2%			-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.97			1.00			1.00	
Frt		0.967			0.912			0.997			0.990	
Flt Protected		0.975			0.993			0.998			0.996	
Satd. Flow (prot)	0	1726	0	0	1646	0	0	1870	0	0	1841	0
Flt Permitted		0.809			0.934			0.970			0.915	
Satd. Flow (perm)	0	1418	0	0	1546	0	0	1817	0	0	1690	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			83			3			9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			374.1			399.4			422.9	
Travel Time (s)		17.5			26.9			28.8			30.4	
Confl. Peds. (#/hr)	13		6	6		13	9		12	12		9
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	179	0	0	127	0	0	776	0	0	596	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.4	24.4		24.4	24.4		23.4	23.4		23.4	23.4	
Total Split (s)	25.0	25.0		25.0	25.0		45.0	45.0		45.0	45.0	
Total Split (%)	35.7%	35.7%		35.7%	35.7%		64.3%	64.3%		64.3%	64.3%	
Maximum Green (s)	19.6	19.6		19.6	19.6		39.6	39.6		39.6	39.6	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.4			5.4			5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		11.7			11.7			28.9			28.9	
Actuated g/C Ratio		0.23			0.23			0.56			0.56	
v/c Ratio		0.53			0.31			0.77			0.63	
Control Delay		22.4			10.6			15.6			11.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		22.4			10.6			15.6			11.9	

Lanes, Volumes, Timings
3: 112 St & 82 Ave

2033 Base
Timing Plan: Wkdy AM Peak Hr

	↗	→	↘	↙	←	↖	↗	→	↘	↙	←	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		C			B			B			B	
Approach Delay		22.4			10.6			15.6			11.9	
Approach LOS		C			B			B			B	
Queue Length 50th (m)		11.8			3.0			47.7			32.0	
Queue Length 95th (m)		33.4			15.7			107.1			73.3	
Internal Link Dist (m)		218.7			350.1			375.4			398.9	
Turn Bay Length (m)												
Base Capacity (vph)		572			659			1435			1335	
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		0.31			0.19			0.54			0.45	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 51.8

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 14.6

Intersection LOS: B

Intersection Capacity Utilization 66.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: 112 St & 82 Ave



Lanes, Volumes, Timings
3: 112 St & 82 Ave

2033 Base+Site
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	86	37	38	16	23	78	24	684	16	41	480	41
Future Volume (vph)	86	37	38	16	23	78	24	684	16	41	480	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-1%			-2%			-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.97			1.00			1.00	
Frt		0.968			0.909			0.997			0.990	
Flt Protected		0.974			0.993			0.998			0.996	
Satd. Flow (prot)	0	1726	0	0	1639	0	0	1870	0	0	1841	0
Flt Permitted		0.810			0.937			0.970			0.908	
Satd. Flow (perm)	0	1421	0	0	1545	0	0	1817	0	0	1678	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			90			3			9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			374.1			399.4			422.9	
Travel Time (s)		17.5			26.9			28.8			30.4	
Confl. Peds. (#/hr)	13		6	6		13	9		12	12		9
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	186	0	0	134	0	0	832	0	0	646	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.4	24.4		24.4	24.4		23.4	23.4		23.4	23.4	
Total Split (s)	25.0	25.0		25.0	25.0		45.0	45.0		45.0	45.0	
Total Split (%)	35.7%	35.7%		35.7%	35.7%		64.3%	64.3%		64.3%	64.3%	
Maximum Green (s)	19.6	19.6		19.6	19.6		39.6	39.6		39.6	39.6	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.4			5.4			5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		12.3			12.3			31.8			31.8	
Actuated g/C Ratio		0.22			0.22			0.58			0.58	
v/c Ratio		0.56			0.32			0.80			0.67	
Control Delay		24.6			10.8			17.4			12.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		24.6			10.8			17.4			12.9	

Lanes, Volumes, Timings
3: 112 St & 82 Ave

2033 Base+Site
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		C			B			B			B	
Approach Delay		24.6			10.8			17.4			12.9	
Approach LOS		C			B			B			B	
Queue Length 50th (m)		14.2			3.5			57.4			38.8	
Queue Length 95th (m)		34.8			15.9			125.7			86.6	
Internal Link Dist (m)		218.7			350.1			375.4			398.9	
Turn Bay Length (m)												
Base Capacity (vph)		536			625			1351			1249	
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		0.35			0.21			0.62			0.52	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 55.3

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 16.0

Intersection LOS: B

Intersection Capacity Utilization 70.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: 112 St & 82 Ave



Lanes, Volumes, Timings
3: 112 St & 82 Ave

2023 Base
Timing Plan: Wkdy PM Peak Hr

	↗	→	↘	↙	←	↖	↗	→	↘	↙	←	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	47	86	69	16	56	50	41	516	14	69	595	65
Future Volume (vph)	47	86	69	16	56	50	41	516	14	69	595	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-1%			-2%			-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.98			1.00			1.00	
Frt		0.954			0.944			0.997			0.988	
Flt Protected		0.988			0.994			0.996			0.995	
Satd. Flow (prot)	0	1709	0	0	1720	0	0	1866	0	0	1833	0
Flt Permitted		0.898			0.947			0.916			0.900	
Satd. Flow (perm)	0	1545	0	0	1635	0	0	1715	0	0	1657	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			50			3			12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			374.1			399.4			422.9	
Travel Time (s)		17.5			26.9			28.8			30.4	
Confl. Peds. (#/hr)	16		16	16		16	13		14	14		13
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	217	0	0	131	0	0	614	0	0	784	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.4	24.4		24.4	24.4		23.4	23.4		23.4	23.4	
Total Split (s)	25.0	25.0		25.0	25.0		45.0	45.0		45.0	45.0	
Total Split (%)	35.7%	35.7%		35.7%	35.7%		64.3%	64.3%		64.3%	64.3%	
Maximum Green (s)	19.6	19.6		19.6	19.6		39.6	39.6		39.6	39.6	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.4			5.4			5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		12.3			12.3			31.6			31.6	
Actuated g/C Ratio		0.22			0.22			0.57			0.57	
v/c Ratio		0.58			0.32			0.63			0.82	
Control Delay		23.7			15.5			11.8			19.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		23.7			15.5			11.8			19.4	

Lanes, Volumes, Timings
3: 112 St & 82 Ave

2023 Base
Timing Plan: Wkdy PM Peak Hr

	↗	→	↘	↙	←	↖	↗	→	↘	↙	←	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		C			B			B			B	
Approach Delay		23.7			15.5			11.8			19.4	
Approach LOS		C			B			B			B	
Queue Length 50th (m)		16.5			6.9			36.4			55.9	
Queue Length 95th (m)		39.7			21.1			83.5			#155.2	
Internal Link Dist (m)		218.7			350.1			375.4			398.9	
Turn Bay Length (m)												
Base Capacity (vph)		596			637			1285			1244	
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		0.36			0.21			0.48			0.63	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 55.2

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 17.0

Intersection LOS: B

Intersection Capacity Utilization 82.6%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: 112 St & 82 Ave



Lanes, Volumes, Timings
3: 112 St & 82 Ave

2028 Base
Timing Plan: Wkdy PM Peak Hr

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	52	95	76	18	62	55	45	568	15	76	655	72
Future Volume (vph)	52	95	76	18	62	55	45	568	15	76	655	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-1%			-2%			-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.98			1.00			1.00	
Frt		0.954			0.945			0.997			0.988	
Flt Protected		0.988			0.993			0.996			0.995	
Satd. Flow (prot)	0	1709	0	0	1721	0	0	1866	0	0	1833	0
Flt Permitted		0.901			0.945			0.906			0.887	
Satd. Flow (perm)	0	1550	0	0	1634	0	0	1697	0	0	1633	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			49			3			12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			374.1			399.4			422.9	
Travel Time (s)		17.5			26.9			28.8			30.4	
Confl. Peds. (#/hr)	16		16	16		16	13		14	14		13
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	240	0	0	145	0	0	675	0	0	863	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.4	24.4		24.4	24.4		23.4	23.4		23.4	23.4	
Total Split (s)	25.0	25.0		25.0	25.0		45.0	45.0		45.0	45.0	
Total Split (%)	35.7%	35.7%		35.7%	35.7%		64.3%	64.3%		64.3%	64.3%	
Maximum Green (s)	19.6	19.6		19.6	19.6		39.6	39.6		39.6	39.6	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.4			5.4			5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		13.3			13.3			35.6			35.6	
Actuated g/C Ratio		0.22			0.22			0.59			0.59	
v/c Ratio		0.65			0.36			0.67			0.89	
Control Delay		27.2			17.2			13.1			25.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		27.2			17.2			13.1			25.1	

Lanes, Volumes, Timings
3: 112 St & 82 Ave

2028 Base
Timing Plan: Wkdy PM Peak Hr

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		C			B			B			C	
Approach Delay		27.2			17.2			13.1			25.1	
Approach LOS		C			B			B			C	
Queue Length 50th (m)		23.1			10.1			46.0			74.0	
Queue Length 95th (m)		44.4			23.7			99.6			#183.9	
Internal Link Dist (m)		218.7			350.1			375.4			398.9	
Turn Bay Length (m)												
Base Capacity (vph)		545			581			1152			1111	
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		0.44			0.25			0.59			0.78	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 60.1

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 20.6

Intersection LOS: C

Intersection Capacity Utilization 89.4%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: 112 St & 82 Ave



Lanes, Volumes, Timings
3: 112 St & 82 Ave

2028 Base+Site
Timing Plan: Wkdy PM Peak Hr

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	53	95	76	18	62	57	45	587	15	79	676	74
Future Volume (vph)	53	95	76	18	62	57	45	587	15	79	676	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-1%			-2%			-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.98			1.00			1.00	
Frt		0.954			0.944			0.997			0.988	
Flt Protected		0.988			0.994			0.997			0.995	
Satd. Flow (prot)	0	1709	0	0	1720	0	0	1868	0	0	1833	0
Flt Permitted		0.897			0.944			0.905			0.883	
Satd. Flow (perm)	0	1544	0	0	1630	0	0	1695	0	0	1625	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			51			3			12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			374.1			399.4			422.9	
Travel Time (s)		17.5			26.9			28.8			30.4	
Confl. Peds. (#/hr)	16		16	16		16	13		14	14		13
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	241	0	0	147	0	0	695	0	0	892	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.4	24.4		24.4	24.4		23.4	23.4		23.4	23.4	
Total Split (s)	25.0	25.0		25.0	25.0		45.0	45.0		45.0	45.0	
Total Split (%)	35.7%	35.7%		35.7%	35.7%		64.3%	64.3%		64.3%	64.3%	
Maximum Green (s)	19.6	19.6		19.6	19.6		39.6	39.6		39.6	39.6	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.4			5.4			5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		13.5			13.5			37.8			37.8	
Actuated g/C Ratio		0.22			0.22			0.61			0.61	
v/c Ratio		0.66			0.37			0.68			0.90	
Control Delay		28.5			17.2			13.2			26.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		28.5			17.2			13.2			26.9	

Lanes, Volumes, Timings
3: 112 St & 82 Ave

2028 Base+Site
Timing Plan: Wkdy PM Peak Hr

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		C			B			B			C	
Approach Delay		28.5			17.2			13.2			26.9	
Approach LOS		C			B			B			C	
Queue Length 50th (m)		23.3			10.1			48.6			80.3	
Queue Length 95th (m)		44.6			23.9			105.1			#194.0	
Internal Link Dist (m)		218.7			350.1			375.4			398.9	
Turn Bay Length (m)												
Base Capacity (vph)		519			556			1097			1055	
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		0.46			0.26			0.63			0.85	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 62.2

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 21.6

Intersection LOS: C

Intersection Capacity Utilization 92.0%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: 112 St & 82 Ave



Lanes, Volumes, Timings
3: 112 St & 82 Ave

2033 Base
Timing Plan: Wkdy PM Peak Hr

	↗	→	↘	↙	←	↖	↗	→	↘	↙	←	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	56	103	83	19	67	60	49	619	17	83	714	78
Future Volume (vph)	56	103	83	19	67	60	49	619	17	83	714	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-1%			-2%			-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.98			1.00			1.00	
Frt		0.954			0.944			0.997			0.988	
Flt Protected		0.989			0.994			0.996			0.995	
Satd. Flow (prot)	0	1711	0	0	1720	0	0	1866	0	0	1833	0
Flt Permitted		0.889			0.938			0.892			0.877	
Satd. Flow (perm)	0	1530	0	0	1620	0	0	1671	0	0	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			50			3			12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			374.1			399.4			422.9	
Travel Time (s)		17.5			26.9			28.8			30.4	
Confl. Peds. (#/hr)	16		16	16		16	13		14	14		13
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	260	0	0	157	0	0	737	0	0	941	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.4	24.4		24.4	24.4		23.4	23.4		23.4	23.4	
Total Split (s)	25.0	25.0		25.0	25.0		45.0	45.0		45.0	45.0	
Total Split (%)	35.7%	35.7%		35.7%	35.7%		64.3%	64.3%		64.3%	64.3%	
Maximum Green (s)	19.6	19.6		19.6	19.6		39.6	39.6		39.6	39.6	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.4			5.4			5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		14.2			14.2			39.8			39.8	
Actuated g/C Ratio		0.22			0.22			0.61			0.61	
v/c Ratio		0.72			0.40			0.72			0.95	
Control Delay		31.4			17.7			15.1			33.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		31.4			17.7			15.1			33.6	

Lanes, Volumes, Timings
3: 112 St & 82 Ave

2033 Base
Timing Plan: Wkdy PM Peak Hr

	↗	→	↘	↙	←	↖	↗	→	↘	↙	←	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		C			B			B			C	
Approach Delay		31.4			17.7			15.1			33.6	
Approach LOS		C			B			B			C	
Queue Length 50th (m)		25.9			11.3			56.6			95.8	
Queue Length 95th (m)		48.7			26.0			#120.8			#210.9	
Internal Link Dist (m)		218.7			350.1			375.4			398.9	
Turn Bay Length (m)												
Base Capacity (vph)		490			526			1026			995	
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		0.53			0.30			0.72			0.95	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 64.8

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 25.6

Intersection LOS: C

Intersection Capacity Utilization 98.4%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: 112 St & 82 Ave



Lanes, Volumes, Timings
3: 112 St & 82 Ave

2033 Base+Site
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	57	103	83	19	67	62	49	638	17	86	735	80
Future Volume (vph)	57	103	83	19	67	62	49	638	17	86	735	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-1%			-2%			-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.98			1.00			1.00	
Frt		0.954			0.943			0.997			0.988	
Flt Protected		0.988			0.994			0.997			0.995	
Satd. Flow (prot)	0	1709	0	0	1718	0	0	1868	0	0	1833	0
Flt Permitted		0.885			0.938			0.891			0.875	
Satd. Flow (perm)	0	1523	0	0	1617	0	0	1669	0	0	1611	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			52			3			12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			374.1			399.4			422.9	
Travel Time (s)		17.5			26.9			28.8			30.4	
Confl. Peds. (#/hr)	16		16	16		16	13		14	14		13
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	261	0	0	159	0	0	757	0	0	968	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.4	24.4		24.4	24.4		23.4	23.4		23.4	23.4	
Total Split (s)	25.0	25.0		25.0	25.0		45.0	45.0		45.0	45.0	
Total Split (%)	35.7%	35.7%		35.7%	35.7%		64.3%	64.3%		64.3%	64.3%	
Maximum Green (s)	19.6	19.6		19.6	19.6		39.6	39.6		39.6	39.6	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.4			5.4			5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		14.2			14.2			39.7			39.7	
Actuated g/C Ratio		0.22			0.22			0.61			0.61	
v/c Ratio		0.72			0.40			0.74			0.98	
Control Delay		31.7			17.6			16.0			39.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		31.7			17.6			16.0			39.6	

Lanes, Volumes, Timings
3: 112 St & 82 Ave

2033 Base+Site
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
LOS		C			B			B			D	
Approach Delay		31.7			17.6			16.0			39.6	
Approach LOS		C			B			B			D	
Queue Length 50th (m)		26.1			11.3			59.8			103.8	
Queue Length 95th (m)		49.2			26.0			#137.3			#220.0	
Internal Link Dist (m)		218.7			350.1			375.4			398.9	
Turn Bay Length (m)												
Base Capacity (vph)		488			527			1024			992	
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		0.53			0.30			0.74			0.98	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 64.8

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 28.7

Intersection LOS: C

Intersection Capacity Utilization 101.4%

ICU Level of Service G

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: 112 St & 82 Ave



Lanes, Volumes, Timings
3: 112 St & 82 Ave

2028 Base+Site (Optimized)
Timing Plan: Wkdy PM Peak Hr

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	53	95	76	18	62	57	45	587	15	79	676	74
Future Volume (vph)	53	95	76	18	62	57	45	587	15	79	676	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-1%			-2%			-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97			0.97			1.00			0.99	
Frt		0.954			0.944			0.997			0.988	
Flt Protected		0.988			0.994			0.997			0.995	
Satd. Flow (prot)	0	1703	0	0	1713	0	0	1868	0	0	1831	0
Flt Permitted		0.881			0.936			0.903			0.881	
Satd. Flow (perm)	0	1508	0	0	1608	0	0	1692	0	0	1620	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			42			2			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			374.1			399.4			422.9	
Travel Time (s)		17.5			26.9			28.8			30.4	
Confl. Peds. (#/hr)	16		16	16		16	13		14	14		13
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	241	0	0	147	0	0	695	0	0	892	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.4	24.4		24.4	24.4		23.4	23.4		23.4	23.4	
Total Split (s)	40.0	40.0		40.0	40.0		55.0	55.0		55.0	55.0	
Total Split (%)	42.1%	42.1%		42.1%	42.1%		57.9%	57.9%		57.9%	57.9%	
Maximum Green (s)	34.6	34.6		34.6	34.6		49.6	49.6		49.6	49.6	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.4			5.4			5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		15.7			15.7			49.8			49.8	
Actuated g/C Ratio		0.21			0.21			0.65			0.65	
v/c Ratio		0.72			0.40			0.63			0.84	
Control Delay		36.9			21.6			12.2			21.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		36.9			21.6			12.2			21.4	

Lanes, Volumes, Timings
3: 112 St & 82 Ave

2028 Base+Site (Optimized)
Timing Plan: Wkdy PM Peak Hr

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		D			C			B			C	
Approach Delay		36.9			21.6			12.2			21.4	
Approach LOS		D			C			B			C	
Queue Length 50th (m)		29.8			13.6			53.7			89.4	
Queue Length 95th (m)		53.1			29.1			115.1			#217.7	
Internal Link Dist (m)		218.7			350.1			375.4			398.9	
Turn Bay Length (m)												
Base Capacity (vph)		702			754			1103			1059	
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		0.34			0.19			0.63			0.84	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 76.4

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 20.1

Intersection LOS: C

Intersection Capacity Utilization 92.0%

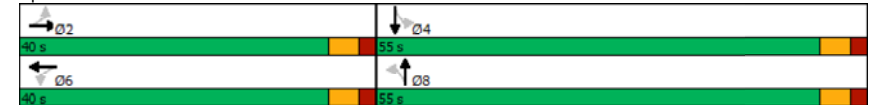
ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: 112 St & 82 Ave



Lanes, Volumes, Timings
3: 112 St & 82 Ave

2033 Base+Site (Optimized)
Timing Plan: Wkdy PM Peak Hr

	↗	→	↘	↙	←	↖	↗	→	↘	↙	←	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	57	103	83	19	67	62	49	638	17	86	735	80
Future Volume (vph)	57	103	83	19	67	62	49	638	17	86	735	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-1%			-2%			-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97			0.97			1.00			0.99	
Frt		0.954			0.943			0.997			0.988	
Flt Protected		0.988			0.994			0.997			0.995	
Satd. Flow (prot)	0	1704	0	0	1711	0	0	1868	0	0	1832	0
Flt Permitted		0.867			0.930			0.889			0.869	
Satd. Flow (perm)	0	1487	0	0	1597	0	0	1665	0	0	1599	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			37			3			12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			374.1			399.4			422.9	
Travel Time (s)		17.5			26.9			28.8			30.4	
Confl. Peds. (#/hr)	16		16	16		16	13		14	14		13
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	261	0	0	159	0	0	757	0	0	968	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	24.4	24.4		24.4	24.4		23.4	23.4		23.4	23.4	
Total Split (s)	25.0	25.0		25.0	25.0		65.0	65.0		65.0	65.0	
Total Split (%)	27.8%	27.8%		27.8%	27.8%		72.2%	72.2%		72.2%	72.2%	
Maximum Green (s)	19.6	19.6		19.6	19.6		59.6	59.6		59.6	59.6	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.4			5.4			5.4			5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		16.8			16.8			51.6			51.6	
Actuated g/C Ratio		0.21			0.21			0.65			0.65	
v/c Ratio		0.78			0.44			0.70			0.93	
Control Delay		46.3			27.1			13.5			29.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		46.3			27.1			13.5			29.7	

Lanes, Volumes, Timings
3: 112 St & 82 Ave

2033 Base+Site (Optimized)
Timing Plan: Wkdy PM Peak Hr

	↗	→	↘	↙	←	↖	↗	→	↘	↙	←	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		D			C			B			C	
Approach Delay		46.3			27.1			13.5			29.7	
Approach LOS		D			C			B			C	
Queue Length 50th (m)		40.3			18.9			74.9			131.2	
Queue Length 95th (m)		#78.1			37.8			116.4			#241.6	
Internal Link Dist (m)		218.7			350.1			375.4			398.9	
Turn Bay Length (m)												
Base Capacity (vph)		401			437			1261			1213	
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		0.65			0.36			0.60			0.80	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 79.6

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 25.8

Intersection LOS: C

Intersection Capacity Utilization 101.4%

ICU Level of Service G

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: 112 St & 82 Ave



Lanes, Volumes, Timings
4: 112 St & 80 Ave

2023 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	93	81	48	79	75	193	51	215	70	104	192	87
Future Volume (vph)	93	81	48	79	75	193	51	215	70	104	192	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	100.0		80.0	55.0		50.0	90.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.99		0.98		0.96	0.99		0.97	0.99	0.99	
Frt		0.944				0.850			0.850		0.953	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1733	0	1770	1863	1583	1770	1863	1583	1770	1753	0
Flt Permitted	0.701			0.663			0.566			0.427		
Satd. Flow (perm)	1281	1733	0	1215	1863	1518	1041	1863	1530	789	1753	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40				222			132		50	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		311.6			315.3			239.5			399.4	
Travel Time (s)		22.4			22.7			17.2			28.8	
Confl. Peds. (#/hr)	12		11	11		12	10		7	7		10
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	148	0	91	86	222	59	247	80	120	321	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0	6.0	10.0	
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.6	24.6	24.6	12.5	24.6	
Total Split (s)	27.0	27.0		27.0	27.0	27.0	29.0	29.0	29.0	19.0	48.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%	36.0%	38.7%	38.7%	38.7%	25.3%	64.0%	
Maximum Green (s)	21.4	21.4		21.4	21.4	21.4	23.4	23.4	23.4	12.5	42.4	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3	3.3	3.5	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.3	2.3	2.3	3.0	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6	5.6	5.6	5.6	5.6	6.5	5.6	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min	Min	None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0	14.0	12.0	12.0	12.0		12.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	
Act Effct Green (s)	12.7	12.7		12.7	12.7	12.7	18.1	18.1	18.1	24.5	28.2	
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.29	0.41	0.41	0.41	0.55	0.64	
v/c Ratio	0.29	0.28		0.26	0.16	0.37	0.14	0.32	0.11	0.19	0.28	
Control Delay	19.8	14.9		19.5	17.5	5.5	16.1	16.9	1.7	7.0	5.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings
4: 112 St & 80 Ave

2023 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	19.8	14.9		19.5	17.5	5.5	16.1	16.9	1.7	7.0	5.9	
LOS	B	B		B	B	A	B	B	A	A	A	
Approach Delay		16.9			11.3			13.6			6.2	
Approach LOS		B			B			B			A	
Queue Length 50th (m)	7.8	7.7		6.6	6.1	0.0	4.0	18.3	0.0	4.6	10.9	
Queue Length 95th (m)	21.8	22.6		19.2	17.3	13.2	12.6	39.5	3.0	12.2	25.7	
Internal Link Dist (m)		287.6			291.3			215.5			375.4	
Turn Bay Length (m)	55.0			100.0		80.0	55.0		50.0	90.0		
Base Capacity (vph)	697	962		661	1014	928	600	1075	939	762	1553	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.15	0.15		0.14	0.08	0.24	0.10	0.23	0.09	0.16	0.21	

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	44.2
Natural Cycle:	65
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.37
Intersection Signal Delay:	11.4
Intersection LOS:	B
Intersection Capacity Utilization:	62.4%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 4: 112 St & 80 Ave



Lanes, Volumes, Timings
4: 112 St & 80 Ave

2028 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	102	89	53	87	83	212	56	237	77	114	211	96
Future Volume (vph)	102	89	53	87	83	212	56	237	77	114	211	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	100.0		80.0	55.0		50.0	90.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5		7.5			7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.99		0.98		0.96	0.99		0.97	0.99		0.99
Frt	0.944					0.850			0.850		0.953	
Flt Protected	0.950			0.950		0.950			0.950			
Satd. Flow (prot)	1770	1733	0	1770	1863	1583	1770	1863	1583	1770	1753	0
Flt Permitted	0.695			0.654		0.550			0.378			
Satd. Flow (perm)	1270	1733	0	1199	1863	1518	1012	1863	1530	699	1753	0
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)		40				244			132		50	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		311.6			315.3			239.5			399.4	
Travel Time (s)		22.4			22.7			17.2			28.8	
Confl. Peds. (#/hr)	12		11	11		12	10		7	7		10
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	117	163	0	100	95	244	64	272	89	131	353	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0	6.0	10.0	
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.6	24.6	24.6	12.5	24.6	
Total Split (s)	27.0	27.0		27.0	27.0	27.0	29.0	29.0	29.0	19.0	48.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%	36.0%	38.7%	38.7%	38.7%	25.3%	64.0%	
Maximum Green (s)	21.4	21.4		21.4	21.4	21.4	23.4	23.4	23.4	12.5	42.4	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3	3.3	3.5	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.3	2.3	2.3	3.0	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6	5.6	5.6	5.6	5.6	6.5	5.6	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min	Min	None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0	14.0	12.0	12.0	12.0		12.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	
Act Effct Green (s)	11.9	11.9		11.9	11.9	11.9	13.5	13.5	13.5	23.2	24.2	
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.25	0.28	0.28	0.28	0.48	0.51	
v/c Ratio	0.37	0.36		0.34	0.21	0.44	0.23	0.52	0.17	0.26	0.39	
Control Delay	21.9	16.3		21.4	18.4	6.0	17.6	20.2	2.4	7.6	7.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings
4: 112 St & 80 Ave

2028 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	21.9	16.3		21.4	18.4	6.0	17.6	20.2	2.4	7.6	7.1	
LOS	C	B		C	B	A	B	C	A	A	A	
Approach Delay		18.7			12.2			16.0			7.3	
Approach LOS		B			B			B			A	
Queue Length 50th (m)	8.9	9.2		7.6	6.9	0.0	4.4	20.5	0.0	5.1	12.4	
Queue Length 95th (m)	24.4	25.8		21.5	19.3	13.9	13.9	44.6	4.0	13.6	30.0	
Internal Link Dist (m)		287.6			291.3			215.5			375.4	
Turn Bay Length (m)	55.0			100.0		80.0	55.0		50.0	90.0		
Base Capacity (vph)	599	839		565	879	845	522	961	853	649	1520	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.20	0.19		0.18	0.11	0.29	0.12	0.28	0.10	0.20	0.23	

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 47.9

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 12.8

Intersection LOS: B

Intersection Capacity Utilization 64.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: 112 St & 80 Ave



Lanes, Volumes, Timings
4: 112 St & 80 Ave

2028 Base+Site
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	111	89	53	87	83	231	56	258	77	124	230	105
Future Volume (vph)	111	89	53	87	83	231	56	258	77	124	230	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	100.0		80.0	55.0		50.0	90.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.99		0.98		0.96	0.99		0.97	0.99		0.99
Frt	0.944					0.850			0.850		0.953	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1733	0	1770	1863	1583	1770	1863	1583	1770	1753	0
Flt Permitted	0.695			0.654			0.534			0.355		
Satd. Flow (perm)	1270	1733	0	1199	1863	1518	983	1863	1530	657	1753	0
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)		40				266			132		51	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		311.6			315.3			239.5			399.4	
Travel Time (s)		22.4			22.7			17.2			28.8	
Confl. Peds. (#/hr)	12		11	11		12	10		7	7		10
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	163	0	100	95	266	64	297	89	143	385	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0	6.0	10.0	
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.6	24.6	24.6	12.5	24.6	
Total Split (s)	27.0	27.0		27.0	27.0	27.0	29.0	29.0	29.0	19.0	48.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%	36.0%	38.7%	38.7%	38.7%	25.3%	64.0%	
Maximum Green (s)	21.4	21.4		21.4	21.4	21.4	23.4	23.4	23.4	12.5	42.4	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3	3.3	3.5	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.3	2.3	2.3	3.0	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6	5.6	5.6	5.6	5.6	6.5	5.6	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min	Min	None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0	14.0	12.0	12.0	12.0		12.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	
Act Effct Green (s)	12.3	12.3		12.3	12.3	12.3	14.3	14.3	14.3	24.3	25.2	
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.25	0.29	0.29	0.29	0.49	0.51	
v/c Ratio	0.41	0.35		0.34	0.20	0.46	0.23	0.55	0.17	0.29	0.42	
Control Delay	23.1	16.8		22.0	19.0	6.1	17.8	20.9	2.3	8.0	7.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings
4: 112 St & 80 Ave

2028 Base+Site
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	23.1	16.8		22.0	19.0	6.1	17.8	20.9	2.3	8.0	7.6	
LOS	C	B		C	B	A	B	C	A	A	A	
Approach Delay		19.6			12.2			16.8			7.7	
Approach LOS		B			B			B			A	
Queue Length 50th (m)	10.2	9.5		7.8	7.2	0.0	4.5	23.3	0.0	5.7	14.3	
Queue Length 95th (m)	27.5	26.7		22.2	20.0	14.6	14.2	50.2	4.0	15.2	34.6	
Internal Link Dist (m)		287.6			291.3			215.5			375.4	
Turn Bay Length (m)	55.0			100.0		80.0	55.0		50.0	90.0		
Base Capacity (vph)	585	820		552	858	843	495	938	836	636	1482	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.22	0.20		0.18	0.11	0.32	0.13	0.32	0.11	0.22	0.26	

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 49.5

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 13.3

Intersection LOS: B

Intersection Capacity Utilization 65.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 4: 112 St & 80 Ave



Lanes, Volumes, Timings
4: 112 St & 80 Ave

2033 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	112	97	58	95	90	232	61	258	84	125	230	104
Future Volume (vph)	112	97	58	95	90	232	61	258	84	125	230	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	100.0		80.0	55.0		50.0	90.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.99		0.98		0.96	0.99		0.97	0.99		0.99
Frt	0.944					0.850			0.850		0.953	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1732	0	1770	1863	1583	1770	1863	1583	1770	1753	0
Flt Permitted	0.690			0.645			0.534			0.355		
Satd. Flow (perm)	1261	1732	0	1183	1863	1518	983	1863	1530	657	1753	0
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)		41				267			132		50	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		311.6			315.3			239.5			399.4	
Travel Time (s)		22.4			22.7			17.2			28.8	
Confl. Peds. (#/hr)	12		11	11		12	10		7	7		10
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	178	0	109	103	267	70	297	97	144	384	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0	6.0	10.0	
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.6	24.6	24.6	12.5	24.6	
Total Split (s)	27.0	27.0		27.0	27.0	27.0	29.0	29.0	29.0	19.0	48.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%	36.0%	38.7%	38.7%	38.7%	25.3%	64.0%	
Maximum Green (s)	21.4	21.4		21.4	21.4	21.4	23.4	23.4	23.4	12.5	42.4	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3	3.3	3.5	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.3	2.3	2.3	3.0	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6	5.6	5.6	5.6	5.6	6.5	5.6	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min	Min	None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0	14.0	12.0	12.0	12.0		12.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	
Act Effct Green (s)	12.5	12.5		12.5	12.5	12.5	14.4	14.4	14.4	24.4	25.4	
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.25	0.29	0.29	0.29	0.49	0.51	
v/c Ratio	0.41	0.38		0.37	0.22	0.46	0.25	0.55	0.18	0.29	0.42	
Control Delay	23.3	17.3		22.7	19.2	6.1	18.3	21.1	2.9	8.1	7.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings
4: 112 St & 80 Ave

2033 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	23.3	17.3		22.7	19.2	6.1	18.3	21.1	2.9	8.1	7.7	
LOS	C	B		C	B	A	B	C	A	A	A	
Approach Delay		19.8			12.7			16.9			7.8	
Approach LOS		B			B			B			A	
Queue Length 50th (m)	10.3	10.7		8.6	7.9	0.0	5.0	23.4	0.0	5.8	14.5	
Queue Length 95th (m)	28.0	29.3		24.4	21.5	14.6	15.6	51.1	5.1	15.5	35.2	
Internal Link Dist (m)		287.6			291.3			215.5			375.4	
Turn Bay Length (m)	55.0			100.0		80.0	55.0		50.0	90.0		
Base Capacity (vph)	579	817		543	855	841	493	935	833	634	1477	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.22	0.22		0.20	0.12	0.32	0.14	0.32	0.12	0.23	0.26	

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 49.8

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 13.5

Intersection LOS: B

Intersection Capacity Utilization 65.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 4: 112 St & 80 Ave



Lanes, Volumes, Timings
4: 112 St & 80 Ave

2033 Base+Site
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	121	97	58	95	90	251	61	279	84	135	249	113
Future Volume (vph)	121	97	58	95	90	251	61	279	84	135	249	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	100.0		80.0	55.0		50.0	90.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5		7.5			7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.99		0.98		0.96	0.99		0.97	0.99	0.99	
Frt	0.944					0.850			0.850		0.953	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1732	0	1770	1863	1583	1770	1863	1583	1770	1753	0
Flt Permitted	0.690			0.645			0.519			0.333		
Satd. Flow (perm)	1261	1732	0	1183	1863	1518	956	1863	1530	617	1753	0
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)		41				289			132		50	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		311.6			315.3			239.5			399.4	
Travel Time (s)		22.4			22.7			17.2			28.8	
Confl. Peds. (#/hr)	12		11	11		12	10		7	7		10
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	178	0	109	103	289	70	321	97	155	416	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0	6.0	10.0	
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.6	24.6	24.6	12.5	24.6	
Total Split (s)	27.0	27.0		27.0	27.0	27.0	29.0	29.0	29.0	19.0	48.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%	36.0%	38.7%	38.7%	38.7%	25.3%	64.0%	
Maximum Green (s)	21.4	21.4		21.4	21.4	21.4	23.4	23.4	23.4	12.5	42.4	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3	3.3	3.5	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.3	2.3	2.3	3.0	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6	5.6	5.6	5.6	5.6	6.5	5.6	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min	Min	None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0	14.0	12.0	12.0	12.0		12.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	
Act Effct Green (s)	12.9	12.9		12.9	12.9	12.9	15.1	15.1	15.1	25.3	26.3	
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.25	0.29	0.29	0.29	0.49	0.51	
v/c Ratio	0.44	0.38		0.37	0.22	0.48	0.25	0.58	0.18	0.32	0.45	
Control Delay	24.4	17.6		23.2	19.7	6.2	18.6	21.9	2.8	8.5	8.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings
4: 112 St & 80 Ave

2033 Base+Site
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	24.4	17.6		23.2	19.7	6.2	18.6	21.9	2.8	8.5	8.2	
LOS	C	B		C	B	A	B	C	A	A	A	
Approach Delay		20.6			12.6			17.6			8.3	
Approach LOS		C			B			B			A	
Queue Length 50th (m)	11.6	11.1		9.0	8.1	0.0	5.1	26.4	0.0	6.5	16.8	
Queue Length 95th (m)	30.4	30.1		24.9	22.0	15.3	15.8	56.2	5.0	16.9	40.0	
Internal Link Dist (m)		287.6			291.3			215.5			375.4	
Turn Bay Length (m)	55.0			100.0		80.0	55.0		50.0	90.0		
Base Capacity (vph)	566	801		531	837	841	470	915	819	620	1444	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.25	0.22		0.21	0.12	0.34	0.15	0.35	0.12	0.25	0.29	

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	51.2
Natural Cycle:	65
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.58
Intersection Signal Delay:	14.0
Intersection Capacity Utilization	67.3%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 4: 112 St & 80 Ave



Lanes, Volumes, Timings
4: 112 St & 80 Ave

2023 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	68	132	30	142	168	159	62	271	152	266	269	79
Future Volume (vph)	68	132	30	142	168	159	62	271	152	266	269	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	100.0		80.0	55.0		50.0	90.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5		7.5			7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98		0.97	0.98		0.96	0.99	0.99	
Frt		0.972				0.850			0.850		0.966	
Flt Protected	0.950			0.950		0.950			0.950			
Satd. Flow (prot)	1770	1797	0	1770	1863	1583	1770	1863	1583	1770	1778	0
Flt Permitted	0.643			0.647		0.539			0.340			
Satd. Flow (perm)	1188	1797	0	1185	1863	1533	985	1863	1524	628	1778	0
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)		15				171			163		32	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		311.6			315.3			239.5			399.4	
Travel Time (s)		22.4			22.7			17.2			28.8	
Confl. Peds. (#/hr)	6		12	12		6	16		9	9		16
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	73	174	0	153	181	171	67	291	163	286	374	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0	6.0	10.0		
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.6	24.6	24.6	12.5	24.6	
Total Split (s)	27.0	27.0		27.0	27.0	27.0	29.0	29.0	29.0	19.0	48.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%	36.0%	38.7%	38.7%	38.7%	25.3%	64.0%	
Maximum Green (s)	21.4	21.4		21.4	21.4	21.4	23.4	23.4	23.4	12.5	42.4	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3	3.3	3.5	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.3	2.3	2.3	3.0	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6	5.6	5.6	5.6	5.6	6.5	5.6	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min	Min	None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0		7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0	14.0	12.0	12.0	12.0		12.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0		0	
Act Effct Green (s)	13.7	13.7		13.7	13.7	13.7	14.8	14.8	14.8	30.8	31.8	
Actuated g/C Ratio	0.24	0.24		0.24	0.24	0.24	0.26	0.26	0.26	0.54	0.56	
v/c Ratio	0.26	0.39		0.54	0.41	0.34	0.26	0.60	0.32	0.52	0.37	
Control Delay	21.8	20.7		28.3	22.6	6.0	21.1	25.3	5.6	11.3	8.0	

Lanes, Volumes, Timings
4: 112 St & 80 Ave

2023 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.8	20.7		28.3	22.6	6.0	21.1	25.3	5.6	11.3	8.0	
LOS	C	C		C	C	A	C	C	A	B	A	
Approach Delay		21.0			18.7			18.6			9.4	
Approach LOS		C			B			B			A	
Queue Length 50th (m)	6.2	14.0		14.1	16.1	0.0	5.6	26.6	0.0	14.2	16.8	
Queue Length 95th (m)	18.6	34.7		36.1	37.9	13.4	17.1	57.9	12.6	34.8	42.1	
Internal Link Dist (m)		287.6			291.3			215.5			375.4	
Turn Bay Length (m)	55.0			100.0		80.0	55.0		50.0	90.0		
Base Capacity (vph)	461	706		460	723	699	418	791	740	598	1374	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.16	0.25		0.33	0.25	0.24	0.16	0.37	0.22	0.48	0.27	

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 57

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 15.8

Intersection LOS: B

Intersection Capacity Utilization 69.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 4: 112 St & 80 Ave



Lanes, Volumes, Timings
4: 112 St & 80 Ave

2028 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	75	145	33	156	183	175	68	298	167	293	296	87
Future Volume (vph)	75	145	33	156	183	175	68	298	167	293	296	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	100.0		80.0	55.0		50.0	90.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5		7.5			7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98		0.97	0.98		0.96	0.99	0.99	
Frt	0.973					0.850			0.850		0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1799	0	1770	1863	1583	1770	1863	1583	1770	1778	0
Flt Permitted	0.634			0.637			0.521			0.310		
Satd. Flow (perm)	1172	1799	0	1167	1863	1533	953	1863	1524	573	1778	0
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)		15				188			180		33	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		311.6			315.3			239.5			399.4	
Travel Time (s)		22.4			22.7			17.2			28.8	
Confl. Peds. (#/hr)	6		12	12		6	16		9	9		16
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	81	191	0	168	197	188	73	320	180	315	412	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0	6.0	10.0	
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.6	24.6	24.6	12.5	24.6	
Total Split (s)	27.0	27.0		27.0	27.0	27.0	29.0	29.0	29.0	19.0	48.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%	36.0%	38.7%	38.7%	38.7%	25.3%	64.0%	
Maximum Green (s)	21.4	21.4		21.4	21.4	21.4	23.4	23.4	23.4	12.5	42.4	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3	3.3	3.5	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.3	2.3	2.3	3.0	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6	5.6	5.6	5.6	5.6	6.5	5.6	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min	Min	None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0		7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0	14.0	12.0	12.0	12.0		12.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0		0	
Act Effct Green (s)	14.8	14.8		14.8	14.8	14.8	15.9	15.9	15.9	32.4	33.3	
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.25	0.27	0.27	0.27	0.54	0.56	
v/c Ratio	0.28	0.42		0.58	0.43	0.36	0.29	0.65	0.34	0.60	0.41	
Control Delay	22.6	21.6		30.3	23.3	5.9	22.1	27.0	5.5	13.3	8.7	

Lanes, Volumes, Timings
4: 112 St & 80 Ave

2028 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.6	21.6		30.3	23.3	5.9	22.1	27.0	5.5	13.3	8.7	
LOS	C	C		C	C	A	C	C	A	B	A	
Approach Delay		21.9			19.5			19.6			10.7	
Approach LOS		C			B			B			B	
Queue Length 50th (m)	7.5	16.7		16.8	18.9	0.0	6.5	32.0	0.0	17.2	20.7	
Queue Length 95th (m)	20.5	38.1		39.7	41.1	14.0	18.5	64.1	13.2	38.6	47.2	
Internal Link Dist (m)		287.6			291.3			215.5			375.4	
Turn Bay Length (m)	55.0			100.0		80.0	55.0		50.0	90.0		
Base Capacity (vph)	435	677		433	692	687	387	756	725	570	1317	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.19	0.28		0.39	0.28	0.27	0.19	0.42	0.25	0.55	0.31	

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 59.7

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 16.8

Intersection LOS: B

Intersection Capacity Utilization 72.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 4: 112 St & 80 Ave



Lanes, Volumes, Timings
4: 112 St & 80 Ave

2028 Base+Site
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	78	145	33	156	183	181	68	308	167	302	305	90
Future Volume (vph)	78	145	33	156	183	181	68	308	167	302	305	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	100.0		80.0	55.0		50.0	90.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98		0.97	0.98		0.96	0.99	0.99	
Frt	0.973					0.850			0.850		0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1799	0	1770	1863	1583	1770	1863	1583	1770	1778	0
Flt Permitted	0.634			0.637			0.515			0.300		
Satd. Flow (perm)	1172	1799	0	1167	1863	1533	943	1863	1524	555	1778	0
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)		15				195			180		33	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		311.6			315.3			239.5			399.4	
Travel Time (s)		22.4			22.7			17.2			28.8	
Confl. Peds. (#/hr)	6		12	12		6	16		9	9		16
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	191	0	168	197	195	73	331	180	325	425	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0	6.0	10.0	
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.6	24.6	24.6	12.5	24.6	
Total Split (s)	27.0	27.0		27.0	27.0	27.0	29.0	29.0	29.0	19.0	48.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%	36.0%	38.7%	38.7%	38.7%	25.3%	64.0%	
Maximum Green (s)	21.4	21.4		21.4	21.4	21.4	23.4	23.4	23.4	12.5	42.4	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3	3.3	3.5	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.3	2.3	2.3	3.0	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6	5.6	5.6	5.6	5.6	6.5	5.6	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min	Min	None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0		7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0	14.0	12.0	12.0	12.0		12.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0		0	
Act Effct Green (s)	14.8	14.8		14.8	14.8	14.8	16.1	16.1	16.1	32.7	33.7	
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.25	0.27	0.27	0.27	0.54	0.56	
v/c Ratio	0.29	0.42		0.59	0.43	0.37	0.29	0.66	0.33	0.62	0.42	
Control Delay	22.9	21.7		30.5	23.5	5.9	22.1	27.5	5.4	13.9	8.9	

Lanes, Volumes, Timings
4: 112 St & 80 Ave

2028 Base+Site
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.9	21.7		30.5	23.5	5.9	22.1	27.5	5.4	13.9	8.9	
LOS	C	C		C	C	A	C	C	A	B	A	
Approach Delay		22.1			19.5			20.0			11.0	
Approach LOS		C			B			C			B	
Queue Length 50th (m)	7.9	17.0		17.1	19.2	0.0	6.6	33.5	0.0	18.0	21.8	
Queue Length 95th (m)	20.9	38.1		39.7	41.1	14.3	18.5	66.3	13.2	39.9	49.2	
Internal Link Dist (m)		287.6			291.3			215.5			375.4	
Turn Bay Length (m)	55.0			100.0		80.0	55.0		50.0	90.0		
Base Capacity (vph)	431	672		430	686	688	380	751	721	563	1307	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.19	0.28		0.39	0.29	0.28	0.19	0.44	0.25	0.58	0.33	

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 60.1

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 17.0

Intersection LOS: B

Intersection Capacity Utilization 73.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 4: 112 St & 80 Ave



Lanes, Volumes, Timings
4: 112 St & 80 Ave

2033 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	82	158	36	170	199	191	74	325	182	319	323	95
Future Volume (vph)	82	158	36	170	199	191	74	325	182	319	323	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	100.0		80.0	55.0		50.0	90.0		0.0
Storage Lanes	1		0	1		1		1		1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98		0.97	0.98		0.96	0.99	0.99	
Frt	0.972					0.850			0.850		0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1797	0	1770	1863	1583	1770	1863	1583	1770	1778	0
Flt Permitted	0.601			0.610			0.503			0.278		
Satd. Flow (perm)	1111	1797	0	1119	1863	1533	921	1863	1524	514	1778	0
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)		15				205			196		32	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		311.6			315.3			239.5			399.4	
Travel Time (s)		22.4			22.7			17.2			28.8	
Confl. Peds. (#/hr)	6		12	12		6	16		9	9		16
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	209	0	183	214	205	80	349	196	343	449	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0	6.0	10.0	
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.6	24.6	24.6	12.5	24.6	
Total Split (s)	27.0	27.0		27.0	27.0	27.0	29.0	29.0	29.0	19.0	48.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%	36.0%	38.7%	38.7%	38.7%	25.3%	64.0%	
Maximum Green (s)	21.4	21.4		21.4	21.4	21.4	23.4	23.4	23.4	12.5	42.4	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3	3.3	3.5	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.3	2.3	2.3	3.0	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6	5.6	5.6	5.6	5.6	6.5	5.6	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min	Min	None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0		7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0	14.0	12.0	12.0	12.0		12.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0		0	
Act Effct Green (s)	15.8	15.8		15.8	15.8	15.8	16.8	16.8	16.8	33.7	34.7	
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.25	0.27	0.27	0.27	0.54	0.56	
v/c Ratio	0.31	0.45		0.64	0.45	0.38	0.32	0.69	0.35	0.68	0.45	
Control Delay	23.6	22.4		33.5	24.0	5.8	23.4	29.2	5.4	16.4	9.6	

Lanes, Volumes, Timings
4: 112 St & 80 Ave

2033 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.6	22.4		33.5	24.0	5.8	23.4	29.2	5.4	16.4	9.6	
LOS	C	C		C	C	A	C	C	A	B	A	
Approach Delay		22.8			20.7			21.0			12.5	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	8.7	19.8		19.9	22.0	0.0	7.8	38.2	0.0	20.8	25.7	
Queue Length 95th (m)	22.1	41.7		44.0	44.5	14.5	20.2	70.5	13.7	#43.6	52.8	
Internal Link Dist (m)		287.6			291.3			215.5			375.4	
Turn Bay Length (m)	55.0			100.0		80.0	55.0		50.0	90.0		
Base Capacity (vph)	396	651		399	665	679	359	727	714	541	1267	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.22	0.32		0.46	0.32	0.30	0.22	0.48	0.27	0.63	0.35	

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 62.1

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 18.2

Intersection LOS: B

Intersection Capacity Utilization 76.6%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 4: 112 St & 80 Ave



Lanes, Volumes, Timings
4: 112 St & 80 Ave

2033 Base+Site
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	85	158	36	170	199	197	74	335	182	326	332	98
Future Volume (vph)	85	158	36	170	199	197	74	335	182	326	332	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	100.0		80.0	55.0		50.0	90.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98		0.97	0.98		0.96	0.99	0.99	
Frt		0.972				0.850			0.850		0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1797	0	1770	1863	1583	1770	1863	1583	1770	1778	0
Flt Permitted	0.599			0.608			0.497			0.268		
Satd. Flow (perm)	1107	1797	0	1115	1863	1533	910	1863	1524	496	1778	0
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)		15				212			196		32	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		311.6			315.3			239.5			399.4	
Travel Time (s)		22.4			22.7			17.2			28.8	
Confl. Peds. (#/hr)	6		12	12		6	16		9	9		16
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	209	0	183	214	212	80	360	196	351	462	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0	6.0	10.0	
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.6	24.6	24.6	12.5	24.6	
Total Split (s)	27.0	27.0		27.0	27.0	27.0	29.0	29.0	29.0	19.0	48.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%	36.0%	38.7%	38.7%	38.7%	25.3%	64.0%	
Maximum Green (s)	21.4	21.4		21.4	21.4	21.4	23.4	23.4	23.4	12.5	42.4	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3	3.3	3.5	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.3	2.3	2.3	3.0	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6	5.6	5.6	5.6	5.6	6.5	5.6	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min	Min	None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0		7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0	14.0	12.0	12.0	12.0		12.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0		0	
Act Effct Green (s)	15.9	15.9		15.9	15.9	15.9	17.1	17.1	17.1	34.2	35.1	
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.25	0.27	0.27	0.27	0.55	0.56	
v/c Ratio	0.32	0.45		0.65	0.45	0.39	0.32	0.71	0.35	0.70	0.46	
Control Delay	24.0	22.6		34.0	24.2	5.8	23.4	29.8	5.3	17.6	9.7	

Lanes, Volumes, Timings
4: 112 St & 80 Ave

2033 Base+Site
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	22.6		34.0	24.2	5.8	23.4	29.8	5.3	17.6	9.7	
LOS	C	C		C	C	A	C	C	A	B	A	
Approach Delay		23.0			20.7			21.5			13.1	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	9.2	20.1		20.2	22.3	0.0	7.8	39.9	0.0	21.5	26.8	
Queue Length 95th (m)	22.8	41.7		44.1	44.5	14.8	20.3	72.7	13.7	#52.1	55.0	
Internal Link Dist (m)		287.6			291.3			215.5			375.4	
Turn Bay Length (m)	55.0			100.0		80.0	55.0		50.0	90.0		
Base Capacity (vph)	391	645		394	659	679	351	721	710	534	1256	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.23	0.32		0.46	0.32	0.31	0.23	0.50	0.28	0.66	0.37	

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 62.6

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 18.6

Intersection LOS: B

Intersection Capacity Utilization 77.5%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 4: 112 St & 80 Ave



Lanes, Volumes, Timings
5: 116 St & 84 Ave

2023 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	61	146	37	22	185	64	58	356	19	44	283	60
Future Volume (vph)	61	146	37	22	185	64	58	356	19	44	283	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	50.0		0.0	45.0		0.0	35.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.96	0.99		0.97	0.98			1.00		0.99		
Frt		0.969			0.961			0.992			0.974	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1784	0	1770	1754	0	1770	1844	0	1770	1814	0
Flt Permitted	0.514			0.626			0.503			0.470		
Satd. Flow (perm)	921	1784	0	1133	1754	0	937	1844	0	865	1814	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			33			6			23	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		783.6			425.0			263.7			250.8	
Travel Time (s)		56.4			30.6			19.0			18.1	
Confl. Peds. (#/hr)	34		24	24		34			15	15		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	211	0	25	287	0	67	431	0	51	394	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Detector Phase	6	6		2	2		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	24.6	24.6		22.6	22.6		22.4	22.4		22.4	22.4	
Total Split (s)	28.0	28.0		28.0	28.0		32.0	32.0		32.0	32.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	22.4	22.4		22.4	22.4		26.6	26.6		26.6	26.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.4	5.4		5.4	5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	13.0	13.0		13.0	13.0		26.7	26.7		26.7	26.7	
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.53	0.53		0.53	0.53	
v/c Ratio	0.30	0.44		0.09	0.61		0.14	0.44		0.11	0.41	
Control Delay	18.3	16.7		14.3	20.2		8.4	10.1		8.2	9.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lanes, Volumes, Timings
5: 116 St & 84 Ave

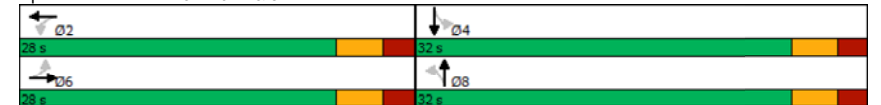
2023 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	18.3	16.7		14.3	20.2		8.4	10.1		8.2	9.3	
LOS	B	B		B	C		A	B		A	A	
Approach Delay		17.1			19.8			9.8			9.2	
Approach LOS		B			B			A			A	
Queue Length 50th (m)	5.3	14.6		1.8	20.9		2.9	22.0		2.2	18.6	
Queue Length 95th (m)	13.3	28.0		6.0	38.0		9.6	48.4		7.9	42.0	
Internal Link Dist (m)		759.6			401.0			239.7			226.8	
Turn Bay Length (m)	55.0			50.0			45.0			35.0		
Base Capacity (vph)	408	805		502	796		493	973		455	965	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.17	0.26		0.05	0.36		0.14	0.44		0.11	0.41	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	50.8
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.61
Intersection Signal Delay:	13.0
Intersection LOS:	B
Intersection Capacity Utilization:	64.4%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 5: 116 St & 84 Ave



Lanes, Volumes, Timings
5: 116 St & 84 Ave

2028 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	161	41	24	204	70	64	392	21	48	311	66
Future Volume (vph)	67	161	41	24	204	70	64	392	21	48	311	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	50.0		0.0	45.0		0.0	35.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.96	0.99		0.97	0.98			1.00		0.99		
Frt		0.970			0.962			0.992			0.974	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1786	0	1770	1756	0	1770	1844	0	1770	1814	0
Flt Permitted	0.472			0.614			0.463			0.427		
Satd. Flow (perm)	847	1786	0	1112	1756	0	862	1844	0	787	1814	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			33			6			23	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		783.6			425.0			263.7			250.8	
Travel Time (s)		56.4			30.6			19.0			18.1	
Confl. Peds. (#/hr)	34		24	24		34			15	15		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	232	0	28	314	0	74	475	0	55	433	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Detector Phase	6	6		2	2		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	24.6	24.6		22.6	22.6		22.4	22.4		22.4	22.4	
Total Split (s)	28.0	28.0		28.0	28.0		32.0	32.0		32.0	32.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	22.4	22.4		22.4	22.4		26.6	26.6		26.6	26.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.4	5.4		5.4	5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	13.9	13.9		13.9	13.9		26.8	26.8		26.8	26.8	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.52	0.52		0.52	0.52	
v/c Ratio	0.34	0.47		0.09	0.63		0.17	0.50		0.14	0.46	
Control Delay	19.1	17.0		14.1	20.8		9.3	11.3		9.1	10.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lanes, Volumes, Timings
5: 116 St & 84 Ave

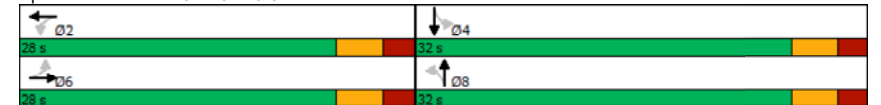
2028 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	19.1	17.0		14.1	20.8		9.3	11.3		9.1	10.4	
LOS	B	B		B	C		A	B		A	B	
Approach Delay		17.5			20.2			11.0			10.2	
Approach LOS		B			C			B			B	
Queue Length 50th (m)	6.0	16.5		2.0	23.5		3.4	26.3		2.5	22.2	
Queue Length 95th (m)	14.5	30.5		6.4	41.7		11.2	57.4		8.9	49.7	
Internal Link Dist (m)		759.6			401.0			239.7			226.8	
Turn Bay Length (m)	55.0			50.0			45.0			35.0		
Base Capacity (vph)	369	791		484	783		446	957		407	949	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.21	0.29		0.06	0.40		0.17	0.50		0.14	0.46	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	51.7
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.63
Intersection Signal Delay:	13.9
Intersection Capacity Utilization	67.7%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 5: 116 St & 84 Ave



Lanes, Volumes, Timings
5: 116 St & 84 Ave

2028 Base+Site
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	76	181	46	24	222	70	70	392	21	48	311	72
Future Volume (vph)	76	181	46	24	222	70	70	392	21	48	311	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	50.0		0.0	45.0		0.0	35.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97	0.99		0.97	0.98			1.00		0.99		
Frt		0.970			0.964			0.992			0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1786	0	1770	1762	0	1770	1844	0	1770	1811	0
Flt Permitted	0.444			0.565			0.452			0.421		
Satd. Flow (perm)	799	1786	0	1025	1762	0	842	1844	0	776	1811	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			30			6			25	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		783.6			425.0			263.7			250.8	
Travel Time (s)		56.4			30.6			19.0			18.1	
Confl. Peds. (#/hr)	34		24	24		34			15	15		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	261	0	28	335	0	80	475	0	55	440	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Detector Phase	6	6		2	2		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	24.6	24.6		22.6	22.6		22.4	22.4		22.4	22.4	
Total Split (s)	28.0	28.0		28.0	28.0		32.0	32.0		32.0	32.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	22.4	22.4		22.4	22.4		26.6	26.6		26.6	26.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.4	5.4		5.4	5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	14.8	14.8		14.8	14.8		26.8	26.8		26.8	26.8	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.51	0.51		0.51	0.51	
v/c Ratio	0.39	0.50		0.10	0.65		0.19	0.50		0.14	0.47	
Control Delay	20.2	17.5		13.9	21.2		10.1	12.0		9.7	11.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lanes, Volumes, Timings
5: 116 St & 84 Ave

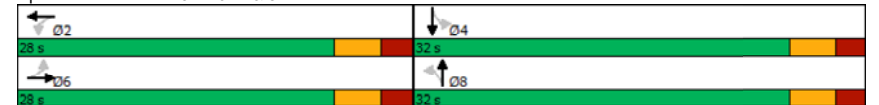
2028 Base+Site
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	20.2	17.5		13.9	21.2		10.1	12.0		9.7	11.1	
LOS	C	B		B	C		B	B		A	B	
Approach Delay		18.2			20.6			11.7			10.9	
Approach LOS		B			C			B			B	
Queue Length 50th (m)	6.9	19.2		2.0	26.0		3.8	27.3		2.6	23.4	
Queue Length 95th (m)	16.2	34.4		6.4	44.8		12.9	61.2		9.5	53.8	
Internal Link Dist (m)		759.6			401.0			239.7			226.8	
Turn Bay Length (m)	55.0			50.0			45.0			35.0		
Base Capacity (vph)	342	779		439	772		428	941		395	933	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.25	0.34		0.06	0.43		0.19	0.50		0.14	0.47	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	52.6
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	14.6
Intersection LOS:	B
Intersection Capacity Utilization:	68.6%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 5: 116 St & 84 Ave



Lanes, Volumes, Timings
5: 116 St & 84 Ave

2033 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	73	175	44	26	222	77	70	427	23	53	340	72
Future Volume (vph)	73	175	44	26	222	77	70	427	23	53	340	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	50.0		0.0	45.0		0.0	35.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97	0.99		0.97	0.98			1.00		0.99		
Frt		0.970			0.961			0.992			0.974	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1786	0	1770	1754	0	1770	1844	0	1770	1814	0
Flt Permitted	0.430			0.581			0.421			0.384		
Satd. Flow (perm)	774	1786	0	1054	1754	0	784	1844	0	708	1814	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			33			6			23	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		783.6			425.0			263.7			250.8	
Travel Time (s)		56.4			30.6			19.0			18.1	
Confl. Peds. (#/hr)	34		24	24		34			15	15		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	252	0	30	344	0	80	517	0	61	474	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Detector Phase	6	6		2	2		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	24.6	24.6		22.6	22.6		22.4	22.4		22.4	22.4	
Total Split (s)	28.0	28.0		28.0	28.0		32.0	32.0		32.0	32.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	22.4	22.4		22.4	22.4		26.6	26.6		26.6	26.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.4	5.4		5.4	5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	14.9	14.9		14.9	14.9		26.8	26.8		26.8	26.8	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.51	0.51		0.51	0.51	
v/c Ratio	0.39	0.48		0.10	0.66		0.20	0.55		0.17	0.51	
Control Delay	20.2	17.0		13.9	21.4		10.5	12.8		10.3	11.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lanes, Volumes, Timings
5: 116 St & 84 Ave

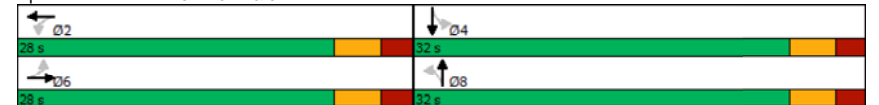
2033 Base
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	20.2	17.0		13.9	21.4		10.5	12.8		10.3	11.8	
LOS	C	B		B	C		B	B		B	B	
Approach Delay		17.8			20.8			12.5			11.6	
Approach LOS		B			C			B			B	
Queue Length 50th (m)	6.6	18.4		2.2	26.7		3.9	31.2		3.0	26.4	
Queue Length 95th (m)	15.9	33.1		6.7	46.0		13.1	68.3		10.6	59.6	
Internal Link Dist (m)		759.6			401.0			239.7			226.8	
Turn Bay Length (m)	55.0			50.0			45.0			35.0		
Base Capacity (vph)	330	776		450	768		397	938		359	931	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.25	0.32		0.07	0.45		0.20	0.55		0.17	0.51	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	52.8
Natural Cycle:	55
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.66
Intersection Signal Delay:	14.9
Intersection LOS:	B
Intersection Capacity Utilization	71.1%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 5: 116 St & 84 Ave



Lanes, Volumes, Timings
5: 116 St & 84 Ave

2033 Base+Site
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	82	195	49	26	240	77	76	427	23	53	340	78
Future Volume (vph)	82	195	49	26	240	77	76	427	23	53	340	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	50.0		0.0	45.0		0.0	35.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97	0.99		0.98	0.98			1.00		0.99		
Frt		0.970			0.963			0.992			0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1786	0	1770	1759	0	1770	1844	0	1770	1811	0
Flt Permitted	0.403			0.536			0.411			0.380		
Satd. Flow (perm)	727	1786	0	974	1759	0	766	1844	0	701	1811	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			31			6			25	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		783.6			425.0			263.7			250.8	
Travel Time (s)		56.4			30.6			19.0			18.1	
Confl. Peds. (#/hr)	34		24	24		34			15	15		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	280	0	30	365	0	87	517	0	61	481	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Detector Phase	6	6		2	2		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	24.6	24.6		22.6	22.6		22.4	22.4		22.4	22.4	
Total Split (s)	28.0	28.0		28.0	28.0		32.0	32.0		32.0	32.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	22.4	22.4		22.4	22.4		26.6	26.6		26.6	26.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.4	5.4		5.4	5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	15.5	15.5		15.5	15.5		26.8	26.8		26.8	26.8	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.50	0.50		0.50	0.50	
v/c Ratio	0.45	0.52		0.11	0.68		0.23	0.56		0.17	0.52	
Control Delay	22.2	17.8		13.9	22.1		11.1	13.2		10.6	12.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lanes, Volumes, Timings
5: 116 St & 84 Ave

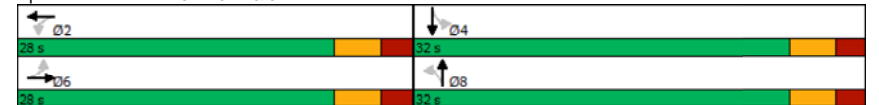
2033 Base+Site
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	22.2	17.8		13.9	22.1		11.1	13.2		10.6	12.2	
LOS	C	B		B	C		B	B		B	B	
Approach Delay		18.9			21.5			12.9			12.0	
Approach LOS		B			C			B			B	
Queue Length 50th (m)	7.6	21.0		2.2	29.1		4.5	32.5		3.1	28.0	
Queue Length 95th (m)	18.1	37.0		6.7	49.4		14.2	68.3		10.7	60.5	
Internal Link Dist (m)		759.6			401.0			239.7			226.8	
Turn Bay Length (m)	55.0			50.0			45.0			35.0		
Base Capacity (vph)	307	768		411	760		384	927		351	920	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.31	0.36		0.07	0.48		0.23	0.56		0.17	0.52	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	53.4
Natural Cycle:	55
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.68
Intersection Signal Delay:	15.6
Intersection LOS:	B
Intersection Capacity Utilization:	72.0%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 5: 116 St & 84 Ave



Lanes, Volumes, Timings
5: 116 St & 84 Ave

2023 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	68	334	79	38	182	80	64	420	36	81	515	51
Future Volume (vph)	68	334	79	38	182	80	64	420	36	81	515	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	50.0		0.0	45.0		0.0	35.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.99		0.99	0.98		0.99	1.00		0.99	1.00	
Frt		0.971			0.954			0.988			0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1795	0	1770	1747	0	1770	1833	0	1770	1828	0
Flt Permitted	0.540			0.313			0.283			0.387		
Satd. Flow (perm)	982	1795	0	578	1747	0	522	1833	0	713	1828	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			42			9			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		783.6			425.0			263.7			250.8	
Travel Time (s)		56.4			30.6			19.0			18.1	
Confl. Peds. (#/hr)	21		13	13		21	18		16	16		18
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	73	444	0	41	282	0	69	491	0	87	609	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Detector Phase	6	6		2	2		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	24.6	24.6		22.6	22.6		22.4	22.4		22.4	22.4	
Total Split (s)	28.0	28.0		28.0	28.0		32.0	32.0		32.0	32.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	22.4	22.4		22.4	22.4		26.6	26.6		26.6	26.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.4	5.4		5.4	5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	17.8	17.8		17.8	17.8		26.8	26.8		26.8	26.8	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.48	0.48		0.48	0.48	
v/c Ratio	0.23	0.75		0.22	0.48		0.27	0.55		0.25	0.69	
Control Delay	15.4	24.8		16.7	15.4		14.0	14.0		12.6	17.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lanes, Volumes, Timings
5: 116 St & 84 Ave

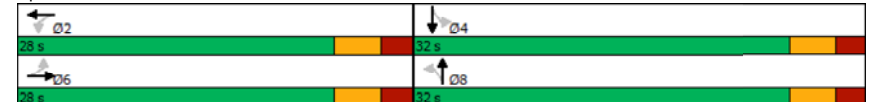
2023 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	15.4	24.8		16.7	15.4		14.0	14.0		12.6	17.5	
LOS	B	C		B	B		B	B		B	B	
Approach Delay		23.5			15.6			14.0			16.9	
Approach LOS		C			B			B			B	
Queue Length 50th (m)	5.5	39.0		3.1	19.6		4.1	34.1		5.2	46.4	
Queue Length 95th (m)	13.8	67.1		9.7	37.4		13.8	67.3		15.3	#95.0	
Internal Link Dist (m)		759.6			401.0			239.7			226.8	
Turn Bay Length (m)	55.0			50.0			45.0			35.0		
Base Capacity (vph)	397	741		234	733		251	887		343	885	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.18	0.60		0.18	0.38		0.27	0.55		0.25	0.69	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	55.6
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.75
Intersection Signal Delay:	17.5
Intersection LOS:	B
Intersection Capacity Utilization:	83.0%
ICU Level of Service:	E
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 5: 116 St & 84 Ave



Lanes, Volumes, Timings
5: 116 St & 84 Ave

2028 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	75	367	87	42	200	88	70	462	40	89	567	56
Future Volume (vph)	75	367	87	42	200	88	70	462	40	89	567	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	50.0		0.0	45.0		0.0	35.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.99		0.99	0.98		0.99	1.00		0.99	1.00	
Frt		0.971			0.954			0.988			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1795	0	1770	1746	0	1770	1833	0	1770	1830	0
Flt Permitted	0.504			0.267			0.222			0.335		
Satd. Flow (perm)	918	1795	0	493	1746	0	410	1833	0	618	1830	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			42			9			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		783.6			425.0			263.7			250.8	
Travel Time (s)		56.4			30.6			19.0			18.1	
Confl. Peds. (#/hr)	21		13	13		21	18		16	16		18
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	81	489	0	45	310	0	75	540	0	96	670	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Detector Phase	6	6		2	2		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	24.6	24.6		22.6	22.6		22.4	22.4		22.4	22.4	
Total Split (s)	28.0	28.0		28.0	28.0		32.0	32.0		32.0	32.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	22.4	22.4		22.4	22.4		26.6	26.6		26.6	26.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.4	5.4		5.4	5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	18.8	18.8		18.8	18.8		26.7	26.7		26.7	26.7	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.47	0.47		0.47	0.47	
v/c Ratio	0.27	0.80		0.27	0.51		0.39	0.62		0.33	0.77	
Control Delay	16.0	27.3		18.5	16.0		18.7	15.8		14.7	21.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lanes, Volumes, Timings
5: 116 St & 84 Ave

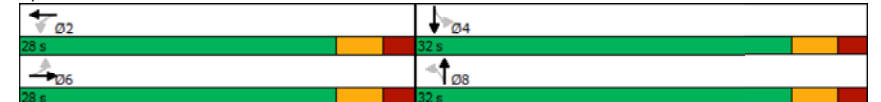
2028 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	16.0	27.3		18.5	16.0		18.7	15.8		14.7	21.4	
LOS	B	C		B	B		B	B		B	C	
Approach Delay		25.7			16.3			16.1			20.6	
Approach LOS		C			B			B			C	
Queue Length 50th (m)	6.2	44.7		3.5	22.3		5.2	42.5		6.4	58.7	
Queue Length 95th (m)	15.3	#78.5		10.8	41.8		17.2	76.6		17.9	#122.3	
Internal Link Dist (m)		759.6			401.0			239.7			226.8	
Turn Bay Length (m)	55.0			50.0			45.0			35.0		
Base Capacity (vph)	364	727		196	719		193	870		291	869	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.22	0.67		0.23	0.43		0.39	0.62		0.33	0.77	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	56.6
Natural Cycle:	55
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	20.0
Intersection LOS:	C
Intersection Capacity Utilization:	88.3%
ICU Level of Service:	E
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 5: 116 St & 84 Ave



Lanes, Volumes, Timings
5: 116 St & 84 Ave

2028 Base+Site
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	78	382	91	42	207	88	73	462	40	89	567	58
Future Volume (vph)	78	382	91	42	207	88	73	462	40	89	567	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	50.0		0.0	45.0		0.0	35.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.99		0.99	0.98		0.99	1.00		0.99	1.00	
Frt		0.971			0.955			0.988			0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1795	0	1770	1749	0	1770	1833	0	1770	1828	0
Flt Permitted	0.495			0.250			0.214			0.330		
Satd. Flow (perm)	902	1795	0	462	1749	0	396	1833	0	609	1828	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			41			9			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		783.6			425.0			263.7			250.8	
Travel Time (s)		56.4			30.6			19.0			18.1	
Confl. Peds. (#/hr)	21		13	13		21	18		16	16		18
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	509	0	45	318	0	78	540	0	96	672	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Detector Phase	6	6		2	2		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	24.6	24.6		22.6	22.6		22.4	22.4		22.4	22.4	
Total Split (s)	28.0	28.0		28.0	28.0		32.0	32.0		32.0	32.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	22.4	22.4		22.4	22.4		26.6	26.6		26.6	26.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.4	5.4		5.4	5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	19.5	19.5		19.5	19.5		26.7	26.7		26.7	26.7	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.47	0.47		0.47	0.47	
v/c Ratio	0.27	0.81		0.29	0.51		0.42	0.63		0.34	0.78	
Control Delay	16.1	28.3		19.0	16.0		20.5	16.2		15.2	22.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lanes, Volumes, Timings
5: 116 St & 84 Ave

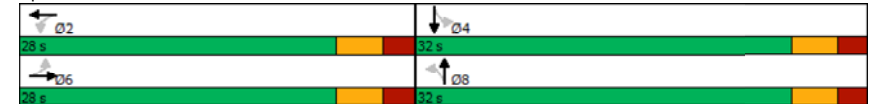
2028 Base+Site
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	16.1	28.3		19.0	16.0		20.5	16.2		15.2	22.4	
LOS	B	C		B	B		C	B		B	C	
Approach Delay		26.5			16.4			16.8			21.5	
Approach LOS		C			B			B			C	
Queue Length 50th (m)	6.5	47.4		3.5	23.1		5.9	45.7		7.0	63.5	
Queue Length 95th (m)	15.9	#91.5		11.0	43.2		18.6	76.6		18.0	#122.9	
Internal Link Dist (m)		759.6			401.0			239.7			226.8	
Turn Bay Length (m)	55.0			50.0			45.0			35.0		
Base Capacity (vph)	354	718		181	711		184	859		283	857	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.24	0.71		0.25	0.45		0.42	0.63		0.34	0.78	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	57.3
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.81
Intersection Signal Delay:	20.7
Intersection LOS:	C
Intersection Capacity Utilization:	89.4%
ICU Level of Service:	E
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 5: 116 St & 84 Ave



Lanes, Volumes, Timings
5: 116 St & 84 Ave

2033 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	82	401	95	46	218	96	77	504	43	97	618	61
Future Volume (vph)	82	401	95	46	218	96	77	504	43	97	618	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	50.0		0.0	45.0		0.0	35.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.99		0.99	0.98			1.00		0.99	1.00	
Frt		0.971			0.954			0.988			0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1795	0	1770	1746	0	1770	1834	0	1770	1828	0
Flt Permitted	0.472			0.227			0.158			0.283		
Satd. Flow (perm)	861	1795	0	420	1746	0	294	1834	0	523	1828	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			42			9			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		783.6			425.0			263.7			250.8	
Travel Time (s)		56.4			30.6			19.0			18.1	
Confl. Peds. (#/hr)	21		13	13		21	18		16	16		18
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	533	0	49	337	0	83	588	0	104	731	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Detector Phase	6	6		2	2		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	24.6	24.6		22.6	22.6		22.4	22.4		22.4	22.4	
Total Split (s)	28.0	28.0		28.0	28.0		32.0	32.0		32.0	32.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	22.4	22.4		22.4	22.4		26.6	26.6		26.6	26.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.4	5.4		5.4	5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	20.0	20.0		20.0	20.0		26.7	26.7		26.7	26.7	
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.46	0.46		0.46	0.46	
v/c Ratio	0.30	0.84		0.34	0.53		0.61	0.69		0.43	0.86	
Control Delay	16.6	30.3		21.2	16.4		38.3	18.1		18.6	27.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lanes, Volumes, Timings
5: 116 St & 84 Ave

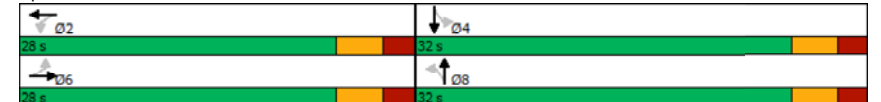
2033 Base
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	16.6	30.3		21.2	16.4		38.3	18.1		18.6	27.9	
LOS	B	C		C	B		D	B		B	C	
Approach Delay		28.4			17.1			20.6			26.7	
Approach LOS		C			B			C			C	
Queue Length 50th (m)	6.9	50.5		3.9	25.0		7.1	51.8		7.9	73.0	
Queue Length 95th (m)	16.8	#98.7		12.4	46.2		#28.4	86.6		21.6	#140.0	
Internal Link Dist (m)		759.6			401.0			239.7			226.8	
Turn Bay Length (m)	55.0			50.0			45.0			35.0		
Base Capacity (vph)	335	712		163	705		135	853		241	851	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.26	0.75		0.30	0.48		0.61	0.69		0.43	0.86	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	57.7
Natural Cycle:	65
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.86
Intersection Signal Delay:	24.0
Intersection Capacity Utilization	93.5%
ICU Level of Service	F
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 5: 116 St & 84 Ave



Lanes, Volumes, Timings
5: 116 St & 84 Ave

2033 Base+Site
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	85	416	99	46	225	96	80	504	43	97	618	63
Future Volume (vph)	85	416	99	46	225	96	80	504	43	97	618	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	50.0		0.0	45.0		0.0	35.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.99		0.99	0.98			1.00		0.99	1.00	
Frt		0.971			0.955			0.988			0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1795	0	1770	1749	0	1770	1834	0	1770	1828	0
Flt Permitted	0.463			0.208			0.153			0.280		
Satd. Flow (perm)	845	1795	0	385	1749	0	285	1834	0	517	1828	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			41			9			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		783.6			425.0			263.7			250.8	
Travel Time (s)		56.4			30.6			19.0			18.1	
Confl. Peds. (#/hr)	21		13	13		21	18		16	16		18
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	553	0	49	345	0	86	588	0	104	733	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Detector Phase	6	6		2	2		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	24.6	24.6		22.6	22.6		22.4	22.4		22.4	22.4	
Total Split (s)	28.0	28.0		28.0	28.0		32.0	32.0		32.0	32.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	22.4	22.4		22.4	22.4		26.6	26.6		26.6	26.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.4	5.4		5.4	5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	20.4	20.4		20.4	20.4		26.7	26.7		26.7	26.7	
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.46	0.46		0.46	0.46	
v/c Ratio	0.31	0.86		0.37	0.54		0.66	0.69		0.44	0.87	
Control Delay	16.8	32.3		22.9	16.6		43.5	18.3		19.0	28.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lanes, Volumes, Timings
5: 116 St & 84 Ave

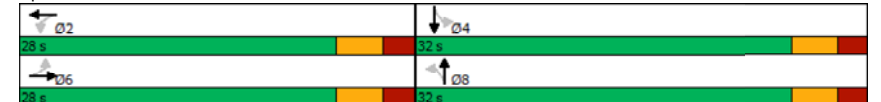
2033 Base+Site
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	16.8	32.3		22.9	16.6		43.5	18.3		19.0	28.7	
LOS	B	C		C	B		D	B		B	C	
Approach Delay		30.1			17.4			21.6			27.5	
Approach LOS		C			B			C			C	
Queue Length 50th (m)	7.2	53.5		3.9	25.9		7.5	51.8		7.9	73.2	
Queue Length 95th (m)	17.5	#104.9		12.9	47.8		#30.1	86.6		21.7	#140.5	
Internal Link Dist (m)		759.6			401.0			239.7			226.8	
Turn Bay Length (m)	55.0			50.0			45.0			35.0		
Base Capacity (vph)	326	708		148	701		131	847		237	845	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.28	0.78		0.33	0.49		0.66	0.69		0.44	0.87	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	58.1
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.87
Intersection Signal Delay:	25.0
Intersection LOS:	C
Intersection Capacity Utilization:	94.7%
ICU Level of Service:	F
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 5: 116 St & 84 Ave



Lanes, Volumes, Timings
5: 116 St & 84 Ave

2033 Base+Site (Optimized)
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	85	416	99	46	225	96	80	504	43	97	618	63
Future Volume (vph)	85	416	99	46	225	96	80	504	43	97	618	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	50.0		0.0	45.0		0.0	35.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97	0.99		0.99	0.98			1.00		0.99	0.99	
Frt		0.971			0.955			0.988			0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1792	0	1770	1743	0	1770	1832	0	1770	1826	0
Flt Permitted	0.439			0.196			0.167			0.284		
Satd. Flow (perm)	797	1792	0	362	1743	0	311	1832	0	524	1826	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			33			7			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		783.6			425.0			263.7			250.8	
Travel Time (s)		56.4			30.6			19.0			18.1	
Confl. Peds. (#/hr)	21		13	13		21	18		16	16		18
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	553	0	49	345	0	86	588	0	104	733	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Detector Phase	6	6		2	2		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	24.6	24.6		22.6	22.6		22.4	22.4		22.4	22.4	
Total Split (s)	39.0	39.0		39.0	39.0		41.0	41.0		41.0	41.0	
Total Split (%)	48.8%	48.8%		48.8%	48.8%		51.3%	51.3%		51.3%	51.3%	
Maximum Green (s)	33.4	33.4		33.4	33.4		35.6	35.6		35.6	35.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.4	5.4		5.4	5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	26.6	26.6		26.6	26.6		35.9	35.9		35.9	35.9	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.49	0.49		0.49	0.49	
v/c Ratio	0.32	0.84		0.37	0.53		0.57	0.66		0.41	0.82	
Control Delay	19.6	32.9		26.0	19.4		35.5	19.9		20.6	27.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lanes, Volumes, Timings
5: 116 St & 84 Ave

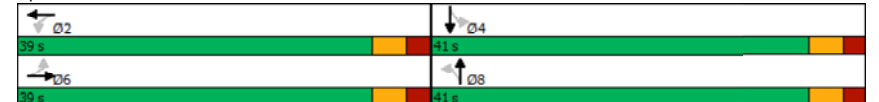
2033 Base+Site (Optimized)
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	19.6	32.9		26.0	19.4		35.5	19.9		20.6	27.4	
LOS	B	C		C	B		D	B		C	C	
Approach Delay		31.0			20.2			21.9			26.6	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	9.3	69.6		5.1	34.5		8.8	63.1		9.6	89.3	
Queue Length 95th (m)	20.4	108.4		14.8	57.7		#33.8	112.2		26.5	#176.1	
Internal Link Dist (m)		759.6			401.0			239.7			226.8	
Turn Bay Length (m)	55.0			50.0			45.0			35.0		
Base Capacity (vph)	364	829		165	815		151	896		255	894	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.25	0.67		0.30	0.42		0.57	0.66		0.41	0.82	

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	73.6
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.84
Intersection Signal Delay:	25.5
Intersection Capacity Utilization	94.7%
ICU Level of Service	F
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 5: 116 St & 84 Ave



Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2023 Base

Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	4	272	5	45	479	6	104	2	115	8	4	17
Future Volume (vph)	4	272	5	45	479	6	104	2	115	8	4	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	60.0		75.0	30.0		25.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.94	0.98	1.00		0.97		0.95	0.96		0.95
Frt			0.850		0.998				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1858	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.319			0.457			0.323			0.757		
Satd. Flow (perm)	594	1863	1483	833	1858	0	585	1863	1497	1360	1863	1509
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)			162		1				162			162
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.7			209.2			237.0			127.5	
Travel Time (s)		15.3			15.1			17.1			9.2	
Confl. Peds. (#/hr)	2		17	17		2	11		13	13		11
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	313	6	52	558	0	120	2	132	9	5	20
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6			8		8	4		4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0		6.0	7.0	7.0	6.0	7.0	7.0
Minimum Split (s)	13.2	29.5	29.5	13.6	30.5		13.7	28.5	28.5	13.2	30.5	30.5
Total Split (s)	21.2	38.5	38.5	21.6	38.9		21.7	39.0	39.0	21.2	38.5	38.5
Total Split (%)	17.6%	32.0%	32.0%	18.0%	32.3%		18.0%	32.4%	32.4%	17.6%	32.0%	32.0%
Maximum Green (s)	14.0	32.0	32.0	14.0	32.4		14.0	32.5	32.5	14.0	32.0	32.0
Yellow Time (s)	3.0	3.3	3.3	3.0	3.3		3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.2	3.2	3.2	4.6	3.2		4.7	3.2	3.2	4.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	6.5	6.5	7.6	6.5		7.7	6.5	6.5	7.2	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	Min		None	Min	Min	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		16.0	16.0		17.0			15.0	15.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	29.2	26.5	26.5	32.9	32.9		13.4	12.6	12.6	8.4	7.3	7.3
Actuated g/C Ratio	0.46	0.42	0.42	0.52	0.52		0.21	0.20	0.20	0.13	0.12	0.12
v/c Ratio	0.01	0.40	0.01	0.10	0.58		0.40	0.01	0.31	0.04	0.02	0.06
Control Delay	10.2	19.4	0.0	9.8	17.2		24.5	25.0	5.5	20.4	32.8	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2023 Base

Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	10.2	19.4	0.0	9.8	17.2		24.5	25.0	5.5	20.4	32.8	0.4
LOS	B	B	A	A	B		C	C	A	C	C	A
Approach Delay		18.9			16.6			14.6			10.4	
Approach LOS		B			B			B			B	
Queue Length 50th (m)	0.3	25.5	0.0	2.1	29.5		10.2	0.2	0.0	0.8	0.4	0.0
Queue Length 95th (m)	2.0	63.8	0.0	9.5	#123.0		27.8	2.3	9.1	4.4	4.1	0.0
Internal Link Dist (m)		188.7			185.2			213.0			103.5	
Turn Bay Length (m)	55.0			40.0			60.0		75.0	30.0		25.0
Base Capacity (vph)	590	992	865	662	1008		443	1004	882	454	989	877
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.32	0.01	0.08	0.55		0.27	0.00	0.15	0.02	0.01	0.02

Intersection Summary

Area Type: Other

Cycle Length: 120.3

Actuated Cycle Length: 63

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 16.6

Intersection LOS: B

Intersection Capacity Utilization 61.9%

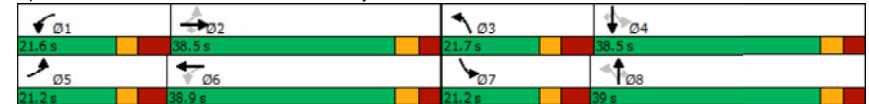
ICU Level of Service B

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Delsom Cres/Driveway & 84 Ave



Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2028 Base

Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	4	299	6	50	527	7	114	2	127	9	4	19
Future Volume (vph)	4	299	6	50	527	7	114	2	127	9	4	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	60.0		75.0	30.0		25.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.94	0.98	1.00		0.97		0.95	0.96		0.95
Frnt			0.850		0.998				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1858	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.266			0.428			0.322			0.757		
Satd. Flow (perm)	495	1863	1483	782	1858	0	584	1863	1497	1360	1863	1509
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			162		1				162			162
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.7			209.2			237.0			127.5	
Travel Time (s)		15.3			15.1			17.1			9.2	
Confl. Peds. (#/hr)	2		17	17		2	11		13	13		11
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	344	7	57	614	0	131	2	146	10	5	22
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6			8		8	4		4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0		6.0	7.0	7.0	6.0	7.0	7.0
Minimum Split (s)	13.2	29.5	29.5	13.6	30.5		13.7	28.5	28.5	13.2	30.5	30.5
Total Split (s)	21.2	38.5	38.5	21.6	38.9		21.7	39.0	39.0	21.2	38.5	38.5
Total Split (%)	17.6%	32.0%	32.0%	18.0%	32.3%		18.0%	32.4%	32.4%	17.6%	32.0%	32.0%
Maximum Green (s)	14.0	32.0	32.0	14.0	32.4		14.0	32.5	32.5	14.0	32.0	32.0
Yellow Time (s)	3.0	3.3	3.3	3.0	3.3		3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.2	3.2	3.2	4.6	3.2		4.7	3.2	3.2	4.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	6.5	6.5	7.6	6.5		7.7	6.5	6.5	7.2	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	Min		None	Min	Min	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		16.0	16.0		17.0			15.0	15.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	30.7	28.1	28.1	34.4	34.3		13.9	12.9	12.9	8.5	7.3	7.3
Actuated g/C Ratio	0.47	0.43	0.43	0.53	0.53		0.21	0.20	0.20	0.13	0.11	0.11
v/c Ratio	0.01	0.43	0.01	0.11	0.62		0.44	0.01	0.34	0.05	0.02	0.07
Control Delay	10.2	19.7	0.0	9.9	18.6		25.8	25.0	6.7	21.1	33.2	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2028 Base

Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	10.2	19.7	0.0	9.9	18.6		25.8	25.0	6.7	21.1	33.2	0.4
LOS	B	B	A	A	B		C	C	A	C	C	A
Approach Delay		19.2			17.9			15.8			10.4	
Approach LOS		B			B			B			B	
Queue Length 50th (m)	0.3	29.4	0.0	2.4	35.5		12.8	0.2	0.0	1.0	0.5	0.0
Queue Length 95th (m)	2.0	71.4	0.0	10.3	153.6		29.9	2.3	11.8	4.6	4.2	0.0
Internal Link Dist (m)		188.7			185.2			213.0			103.5	
Turn Bay Length (m)	55.0			40.0			60.0		75.0	30.0		25.0
Base Capacity (vph)	554	961	844	646	984		430	971	858	440	956	853
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.36	0.01	0.09	0.62		0.30	0.00	0.17	0.02	0.01	0.03

Intersection Summary

Area Type: Other

Cycle Length: 120.3

Actuated Cycle Length: 64.8

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 17.6

Intersection LOS: B

Intersection Capacity Utilization 64.9%

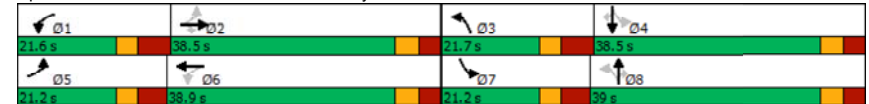
ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Delsom Cres/Driveway & 84 Ave



Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2028 Base+Site

Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	4	329	6	55	577	7	114	2	139	9	4	19
Future Volume (vph)	4	329	6	55	577	7	114	2	139	9	4	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	60.0		75.0	30.0		25.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.94	0.98	1.00		0.97		0.95	0.96		0.95
Frnt			0.850		0.998				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1858	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.214			0.394			0.316			0.757		
Satd. Flow (perm)	399	1863	1483	722	1858	0	573	1863	1497	1360	1863	1509
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			162						162			162
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.7			209.2			237.0			127.5	
Travel Time (s)		15.3			15.1			17.1			9.2	
Confl. Peds. (#/hr)	2		17	17		2	11		13	13		11
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	378	7	63	671	0	131	2	160	10	5	22
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6			8		8	4		4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0		6.0	7.0	7.0	6.0	7.0	7.0
Minimum Split (s)	13.2	29.5	29.5	13.6	30.5		13.7	28.5	28.5	13.2	30.5	30.5
Total Split (s)	21.2	38.5	38.5	21.6	38.9		21.7	39.0	39.0	21.2	38.5	38.5
Total Split (%)	17.6%	32.0%	32.0%	18.0%	32.3%		18.0%	32.4%	32.4%	17.6%	32.0%	32.0%
Maximum Green (s)	14.0	32.0	32.0	14.0	32.4		14.0	32.5	32.5	14.0	32.0	32.0
Yellow Time (s)	3.0	3.3	3.3	3.0	3.3		3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.2	3.2	3.2	4.6	3.2		4.7	3.2	3.2	4.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	6.5	6.5	7.6	6.5		7.7	6.5	6.5	7.2	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	Min		None	Min	Min	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		16.0	16.0		17.0			15.0	15.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	31.2	28.6	28.6	35.0	34.8		14.0	12.9	12.9	8.5	7.3	7.3
Actuated g/C Ratio	0.48	0.44	0.44	0.54	0.53		0.21	0.20	0.20	0.13	0.11	0.11
v/c Ratio	0.02	0.46	0.01	0.13	0.68		0.44	0.01	0.38	0.05	0.02	0.07
Control Delay	10.2	20.3	0.0	9.9	20.1		26.2	25.5	7.9	21.4	33.8	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2028 Base+Site

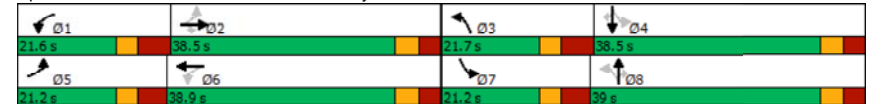
Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	10.2	20.3	0.0	9.9	20.1		26.2	25.5	7.9	21.4	33.8	0.4
LOS	B	C	A	A	C		C	C	A	C	C	A
Approach Delay		19.8			19.2			16.2			10.6	
Approach LOS		B			B			B			B	
Queue Length 50th (m)	0.3	33.2	0.0	2.7	40.6		12.8	0.2	0.0	1.0	0.5	0.0
Queue Length 95th (m)	2.0	79.6	0.0	11.1	#175.0		29.9	2.3	14.8	4.6	4.2	0.0
Internal Link Dist (m)		188.7			185.2			213.0			103.5	
Turn Bay Length (m)	55.0			40.0			60.0		75.0	30.0		25.0
Base Capacity (vph)	523	955	839	627	989		427	965	853	437	950	849
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.40	0.01	0.10	0.68		0.31	0.00	0.19	0.02	0.01	0.03

Intersection Summary

Area Type:	Other
Cycle Length:	120.3
Actuated Cycle Length:	65.4
Natural Cycle:	100
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.68
Intersection Signal Delay:	18.5
Intersection Capacity Utilization:	67.5%
ICU Level of Service:	C
Analysis Period (min):	15
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.

Splits and Phases: 6: Delsom Cres/Driveway & 84 Ave



Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2033 Base

Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	5	326	6	54	575	7	125	2	138	10	5	20
Future Volume (vph)	5	326	6	54	575	7	125	2	138	10	5	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	60.0		75.0	30.0		25.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.94	0.98	1.00		0.97		0.95	0.96		0.95
Frnt			0.850		0.998				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1858	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.212			0.396			0.342					
Satd. Flow (perm)	395	1863	1483	725	1858	0	620	1863	1497	1797	1863	1509
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			162						162			162
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.7			209.2			237.0			127.5	
Travel Time (s)		15.3			15.1			17.1			9.2	
Confl. Peds. (#/hr)	2		17	17		2	11		13	13		11
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	375	7	62	669	0	144	2	159	11	6	23
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6			8		8	4		4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0		6.0	7.0	7.0	6.0	7.0	7.0
Minimum Split (s)	13.2	29.5	29.5	13.6	30.5		13.7	28.5	28.5	13.2	30.5	30.5
Total Split (s)	21.2	38.5	38.5	21.6	38.9		21.7	39.0	39.0	21.2	38.5	38.5
Total Split (%)	17.6%	32.0%	32.0%	18.0%	32.3%		18.0%	32.4%	32.4%	17.6%	32.0%	32.0%
Maximum Green (s)	14.0	32.0	32.0	14.0	32.4		14.0	32.5	32.5	14.0	32.0	32.0
Yellow Time (s)	3.0	3.3	3.3	3.0	3.3		3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.2	3.2	3.2	4.6	3.2		4.7	3.2	3.2	4.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	6.5	6.5	7.6	6.5		7.7	6.5	6.5	7.2	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	Min		None	Min	Min	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		16.0	16.0		17.0			15.0	15.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	31.5	28.9	28.9	35.4	35.2		14.5	13.6	13.6	8.4	7.3	7.3
Actuated g/C Ratio	0.47	0.43	0.43	0.53	0.53		0.22	0.20	0.20	0.13	0.11	0.11
v/c Ratio	0.02	0.46	0.01	0.12	0.68		0.46	0.01	0.37	0.05	0.03	0.07
Control Delay	10.4	20.4	0.0	10.0	20.4		26.9	25.5	7.7	21.7	34.2	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2033 Base

Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	10.4	20.4	0.0	10.0	20.4		26.9	25.5	7.7	21.7	34.2	0.5
LOS	B	C	A	B	C		C	C	A	C	C	A
Approach Delay		19.9			19.5			16.9			11.4	
Approach LOS		B			B			B			B	
Queue Length 50th (m)	0.3	34.0	0.0	2.7	42.0		14.9	0.2	0.0	1.2	0.6	0.0
Queue Length 95th (m)	2.3	79.6	0.0	11.1	#176.4		32.7	2.3	14.5	4.9	4.7	0.0
Internal Link Dist (m)		188.7			185.2			213.0			103.5	
Turn Bay Length (m)	55.0			40.0			60.0		75.0	30.0		25.0
Base Capacity (vph)	514	937	826	622	984		423	946	840	442	932	835
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.40	0.01	0.10	0.68		0.34	0.00	0.19	0.02	0.01	0.03

Intersection Summary

Area Type: Other

Cycle Length: 120.3

Actuated Cycle Length: 66.5

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 18.8

Intersection LOS: B

Intersection Capacity Utilization 67.8%

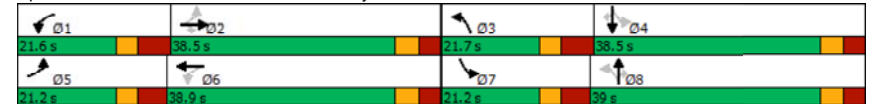
ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Delsom Cres/Driveway & 84 Ave



Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2033 Base+Site

Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	5	356	6	59	625	7	125	2	150	10	5	20
Future Volume (vph)	5	356	6	59	625	7	125	2	150	10	5	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	60.0		75.0	30.0		25.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.94	0.99	1.00		0.97		0.95	0.96		0.95
Frt			0.850		0.998				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1859	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.176			0.340			0.342					
Satd. Flow (perm)	328	1863	1483	624	1859	0	620	1863	1497	1797	1863	1509
Right Turn on Red			Yes		Yes			Yes		Yes		Yes
Satd. Flow (RTOR)			162					172				162
Link Speed (k/h)		50			50			50				50
Link Distance (m)		212.7			209.2			237.0				127.5
Travel Time (s)		15.3			15.1			17.1				9.2
Confl. Peds. (#/hr)	2		17	17		2	11		13	13		11
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	409	7	68	726	0	144	2	172	11	6	23
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6			8		8	4		4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0		6.0	7.0	7.0	6.0	7.0	7.0
Minimum Split (s)	13.2	29.5	29.5	13.6	30.5		13.7	28.5	28.5	13.2	30.5	30.5
Total Split (s)	21.2	38.5	38.5	21.6	38.9		21.7	39.0	39.0	21.2	38.5	38.5
Total Split (%)	17.6%	32.0%	32.0%	18.0%	32.3%		18.0%	32.4%	32.4%	17.6%	32.0%	32.0%
Maximum Green (s)	14.0	32.0	32.0	14.0	32.4		14.0	32.5	32.5	14.0	32.0	32.0
Yellow Time (s)	3.0	3.3	3.3	3.0	3.3		3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.2	3.2	3.2	4.6	3.2		4.7	3.2	3.2	4.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	6.5	6.5	7.6	6.5		7.7	6.5	6.5	7.2	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	Min		None	Min	Min	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		16.0	16.0		17.0			15.0	15.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	31.2	27.2	27.2	37.0	36.8		14.5	13.7	13.7	8.4	7.3	7.3
Actuated g/C Ratio	0.46	0.40	0.40	0.54	0.54		0.21	0.20	0.20	0.12	0.11	0.11
v/c Ratio	0.02	0.55	0.01	0.15	0.72		0.47	0.01	0.39	0.05	0.03	0.08
Control Delay	10.2	22.8	0.0	9.9	21.3		28.2	26.5	8.2	22.9	35.6	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2033 Base+Site

Timing Plan: Wkdy AM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	10.2	22.8	0.0	9.9	21.3		28.2	26.5	8.2	22.9	35.6	0.5
LOS	B	C	A	A	C		C	C	A	C	D	A
Approach Delay		22.3			20.4			17.4			11.9	
Approach LOS		C			C			B			B	
Queue Length 50th (m)	0.3	38.2	0.0	3.1	48.3		15.8	0.2	0.0	1.2	0.7	0.0
Queue Length 95th (m)	2.3	87.7	0.0	11.9	#196.4		33.7	2.3	15.9	5.1	4.9	0.0
Internal Link Dist (m)		188.7			185.2			213.0			103.5	
Turn Bay Length (m)	55.0			40.0			60.0		75.0	30.0		25.0
Base Capacity (vph)	488	914	810	590	1004		414	926	830	432	912	821
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.45	0.01	0.12	0.72		0.35	0.00	0.21	0.03	0.01	0.03

Intersection Summary

Area Type: Other

Cycle Length: 120.3

Actuated Cycle Length: 68.2

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 20.1

Intersection LOS: C

Intersection Capacity Utilization 70.4%

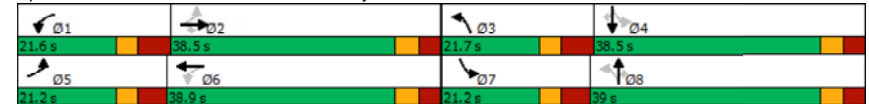
ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Delsom Cres/Driveway & 84 Ave



Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2023 Base

Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↩	↩	↩	↩	↩	↩	↩	↩	↩	↩	↩	↩
Traffic Volume (vph)	20	687	29	81	278	9	43	4	79	9	3	13
Future Volume (vph)	20	687	29	81	278	9	43	4	79	9	3	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	60.0		75.0	30.0		25.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.92		1.00		0.96		0.92	0.94		0.94
Frt			0.850		0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1851	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.572			0.175			0.483			0.755		
Satd. Flow (perm)	1057	1863	1463	326	1851	0	868	1863	1464	1327	1863	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			160		2				160			160
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.7			209.2			237.0			127.5	
Travel Time (s)		15.3			15.1			17.1			9.2	
Confl. Peds. (#/hr)	6		21	21		6	14		20	20		14
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	739	31	87	309	0	46	4	85	10	3	14
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6			8		8	4		4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0		6.0	7.0	7.0	6.0	7.0	7.0
Minimum Split (s)	13.2	29.5	29.5	13.6	30.5		13.7	28.5	28.5	13.2	30.5	30.5
Total Split (s)	21.0	52.0	52.0	21.0	52.0		22.0	31.0	31.0	21.0	30.0	30.0
Total Split (%)	16.8%	41.6%	41.6%	16.8%	41.6%		17.6%	24.8%	24.8%	16.8%	24.0%	24.0%
Maximum Green (s)	13.8	45.5	45.5	13.4	45.5		14.3	24.5	24.5	13.8	23.5	23.5
Yellow Time (s)	3.0	3.3	3.3	3.0	3.3		3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.2	3.2	3.2	4.6	3.2		4.7	3.2	3.2	4.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	6.5	6.5	7.6	6.5		7.7	6.5	6.5	7.2	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	Min		None	Min	Min	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		16.0	16.0		17.0			15.0	15.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	50.6	46.6	46.6	55.2	53.4		11.5	10.8	10.8	8.7	7.2	7.2
Actuated g/C Ratio	0.60	0.55	0.55	0.65	0.63		0.14	0.13	0.13	0.10	0.09	0.09
v/c Ratio	0.03	0.72	0.04	0.26	0.26		0.23	0.02	0.26	0.06	0.02	0.05
Control Delay	7.0	23.1	0.1	8.3	10.9		34.5	36.0	1.9	31.3	42.3	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2023 Base

Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	7.0	23.1	0.1	8.3	10.9		34.5	36.0	1.9	31.3	42.3	0.4
LOS	A	C	A	A	B		C	D	A	C	D	A
Approach Delay		21.7			10.3			14.0			16.5	
Approach LOS		C			B			B			B	
Queue Length 50th (m)	0.8	81.2	0.0	3.4	12.8		7.1	0.6	0.0	1.6	0.5	0.0
Queue Length 95th (m)	4.5	#205.1	0.0	12.8	57.0		17.0	4.1	0.0	5.9	3.5	0.0
Internal Link Dist (m)		188.7			185.2			213.0			103.5	
Turn Bay Length (m)	55.0			40.0			60.0		75.0	30.0		25.0
Base Capacity (vph)	824	1025	877	453	1168		335	552	546	329	529	539
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.72	0.04	0.19	0.26		0.14	0.01	0.16	0.03	0.01	0.03

Intersection Summary

Area Type: Other

Cycle Length: 125

Actuated Cycle Length: 84.6

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 17.5

Intersection LOS: B

Intersection Capacity Utilization 71.9%

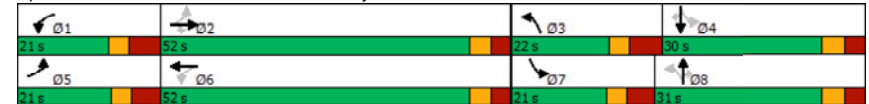
ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Delsom Cres/Driveway & 84 Ave



Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2028 Base

Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↰	↰	↰	↱	↱	↰	↱	↱
Traffic Volume (vph)	22	756	32	89	306	10	47	4	87	10	3	14
Future Volume (vph)	22	756	32	89	306	10	47	4	87	10	3	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	60.0		75.0	30.0		25.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.92		1.00		0.96		0.92	0.94		0.94
Frt			0.850		0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1851	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.556			0.122			0.474			0.755		
Satd. Flow (perm)	1028	1863	1463	227	1851	0	852	1863	1464	1327	1863	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			160		2				160			160
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.7			209.2			237.0			127.5	
Travel Time (s)		15.3			15.1			17.1			9.2	
Confl. Peds. (#/hr)	6		21	21		6	14		20	20		14
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	813	34	96	340	0	51	4	94	11	3	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6			8		8	4		4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0		6.0	7.0	7.0	6.0	7.0	7.0
Minimum Split (s)	13.2	29.5	29.5	13.6	30.5		13.7	28.5	28.5	13.2	30.5	30.5
Total Split (s)	21.0	52.0	52.0	21.0	52.0		22.0	31.0	31.0	21.0	30.0	30.0
Total Split (%)	16.8%	41.6%	41.6%	16.8%	41.6%		17.6%	24.8%	24.8%	16.8%	24.0%	24.0%
Maximum Green (s)	13.8	45.5	45.5	13.4	45.5		14.3	24.5	24.5	13.8	23.5	23.5
Yellow Time (s)	3.0	3.3	3.3	3.0	3.3		3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.2	3.2	3.2	4.6	3.2		4.7	3.2	3.2	4.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	6.5	6.5	7.6	6.5		7.7	6.5	6.5	7.2	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	Min		None	Min	Min	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		16.0	16.0		17.0			15.0	15.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	50.7	46.6	46.6	55.6	53.6		11.7	11.0	11.0	8.7	7.2	7.2
Actuated g/C Ratio	0.60	0.55	0.55	0.65	0.63		0.14	0.13	0.13	0.10	0.08	0.08
v/c Ratio	0.04	0.80	0.04	0.34	0.29		0.25	0.02	0.29	0.07	0.02	0.06
Control Delay	7.0	26.9	0.1	9.8	11.2		35.1	36.2	2.9	31.7	42.7	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2028 Base

Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	7.0	26.9	0.1	9.8	11.2		35.1	36.2	2.9	31.7	42.7	0.4
LOS	A	C	A	A	B		D	D	A	C	D	A
Approach Delay		25.3			10.9			14.8			16.6	
Approach LOS		C			B			B			B	
Queue Length 50th (m)	0.9	96.9	0.0	3.8	14.5		7.9	0.6	0.0	1.7	0.5	0.0
Queue Length 95th (m)	4.9	#242.6	0.0	14.1	63.7		18.4	4.2	1.9	6.4	3.6	0.0
Internal Link Dist (m)		188.7			185.2			213.0			103.5	
Turn Bay Length (m)	55.0			40.0		60.0		75.0	30.0		25.0	
Base Capacity (vph)	806	1021	874	401	1167		334	549	545	327	527	538
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.80	0.04	0.24	0.29		0.15	0.01	0.17	0.03	0.01	0.03

Intersection Summary

Area Type: Other

Cycle Length: 125

Actuated Cycle Length: 85

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 19.8

Intersection LOS: B

Intersection Capacity Utilization 75.6%

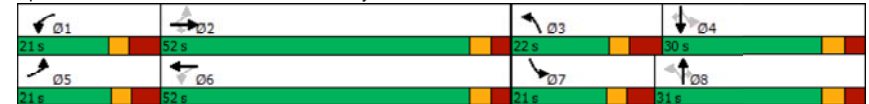
ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Delsom Cres/Driveway & 84 Ave



Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2028 Base+Site

Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	22	785	32	93	319	10	47	4	91	10	3	14
Future Volume (vph)	22	785	32	93	319	10	47	4	91	10	3	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	60.0		75.0	30.0		25.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.92		1.00		0.96		0.92	0.94		0.94
Frt			0.850		0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1851	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.549			0.101			0.474			0.755		
Satd. Flow (perm)	1016	1863	1463	188	1851	0	852	1863	1464	1327	1863	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			160		1				160			160
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.7			209.2			237.0			127.5	
Travel Time (s)		15.3			15.1			17.1			9.2	
Confl. Peds. (#/hr)	6		21	21		6	14		20	20		14
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	844	34	100	354	0	51	4	98	11	3	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6			8		8	4		4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0		6.0	7.0	7.0	6.0	7.0	7.0
Minimum Split (s)	13.2	29.5	29.5	13.6	30.5		13.7	28.5	28.5	13.2	30.5	30.5
Total Split (s)	21.0	52.0	52.0	21.0	52.0		22.0	31.0	31.0	21.0	30.0	30.0
Total Split (%)	16.8%	41.6%	41.6%	16.8%	41.6%		17.6%	24.8%	24.8%	16.8%	24.0%	24.0%
Maximum Green (s)	13.8	45.5	45.5	13.4	45.5		14.3	24.5	24.5	13.8	23.5	23.5
Yellow Time (s)	3.0	3.3	3.3	3.0	3.3		3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.2	3.2	3.2	4.6	3.2		4.7	3.2	3.2	4.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	6.5	6.5	7.6	6.5		7.7	6.5	6.5	7.2	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	Min		None	Min	Min	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		16.0	16.0		17.0			15.0	15.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	50.7	46.6	46.6	55.7	53.7		11.7	11.0	11.0	8.7	7.2	7.2
Actuated g/C Ratio	0.60	0.55	0.55	0.65	0.63		0.14	0.13	0.13	0.10	0.08	0.08
v/c Ratio	0.04	0.83	0.04	0.38	0.30		0.25	0.02	0.30	0.07	0.02	0.06
Control Delay	7.0	28.8	0.1	11.2	11.4		35.1	36.2	3.5	31.8	42.7	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2028 Base+Site

Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	7.0	28.8	0.1	11.2	11.4		35.1	36.2	3.5	31.8	42.7	0.4
LOS	A	C	A	B	B		D	D	A	C	D	A
Approach Delay		27.1			11.3			14.9			16.7	
Approach LOS		C			B			B			B	
Queue Length 50th (m)	0.9	103.6	0.0	4.0	15.4		7.9	0.6	0.0	1.7	0.5	0.0
Queue Length 95th (m)	4.9	#257.7	0.0	14.9	66.9		18.4	4.2	3.0	6.5	3.6	0.0
Internal Link Dist (m)		188.7			185.2			213.0			103.5	
Turn Bay Length (m)	55.0			40.0			60.0		75.0	30.0		25.0
Base Capacity (vph)	799	1020	873	381	1167		333	549	544	327	527	537
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.83	0.04	0.26	0.30		0.15	0.01	0.18	0.03	0.01	0.03

Intersection Summary

Area Type: Other

Cycle Length: 125

Actuated Cycle Length: 85.1

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 21.0

Intersection LOS: C

Intersection Capacity Utilization 77.3%

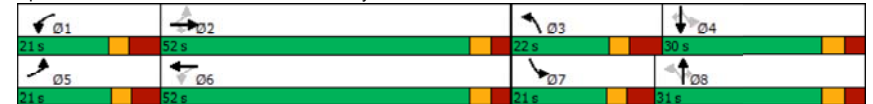
ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Delsom Cres/Driveway & 84 Ave



Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2033 Base

Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↰	↰	↰	↱	↱	↰	↱	↱
Traffic Volume (vph)	24	824	35	97	334	11	52	5	95	11	4	16
Future Volume (vph)	24	824	35	97	334	11	52	5	95	11	4	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	60.0		75.0	30.0		25.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.92		1.00		0.96		0.92	0.94		0.94
Frt			0.850		0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1851	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.541			0.071			0.364			0.754		
Satd. Flow (perm)	1001	1863	1463	132	1851	0	654	1863	1464	1325	1863	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			160		2				160			160
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.7			209.2			237.0			127.5	
Travel Time (s)		15.3			15.1			17.1			9.2	
Confl. Peds. (#/hr)	6		21	21		6	14		20	20		14
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	886	38	104	371	0	56	5	102	12	4	17
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6			8		8	4		4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0		6.0	7.0	7.0	6.0	7.0	7.0
Minimum Split (s)	13.2	29.5	29.5	13.6	30.5		13.7	28.5	28.5	13.2	30.5	30.5
Total Split (s)	21.0	52.0	52.0	21.0	52.0		22.0	31.0	31.0	21.0	30.0	30.0
Total Split (%)	16.8%	41.6%	41.6%	16.8%	41.6%		17.6%	24.8%	24.8%	16.8%	24.0%	24.0%
Maximum Green (s)	13.8	45.5	45.5	13.4	45.5		14.3	24.5	24.5	13.8	23.5	23.5
Yellow Time (s)	3.0	3.3	3.3	3.0	3.3		3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.2	3.2	3.2	4.6	3.2		4.7	3.2	3.2	4.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	6.5	6.5	7.6	6.5		7.7	6.5	6.5	7.2	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	Min		None	Min	Min	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		16.0	16.0		17.0			15.0	15.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	51.6	46.0	46.0	58.7	56.4		12.1	11.4	11.4	8.6	7.1	7.1
Actuated g/C Ratio	0.58	0.52	0.52	0.66	0.64		0.14	0.13	0.13	0.10	0.08	0.08
v/c Ratio	0.04	0.91	0.05	0.46	0.31		0.29	0.02	0.31	0.07	0.03	0.06
Control Delay	7.2	37.3	0.1	18.8	11.5		36.2	36.2	4.0	32.0	43.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2033 Base

Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	7.2	37.3	0.1	18.8	11.5		36.2	36.2	4.0	32.0	43.0	0.4
LOS	A	D	A	B	B		D	D	A	C	D	A
Approach Delay		35.0			13.1			16.1			17.1	
Approach LOS		C			B			B			B	
Queue Length 50th (m)	1.0	114.9	0.0	4.2	16.5		8.8	0.8	0.0	1.9	0.6	0.0
Queue Length 95th (m)	5.2	#279.5	0.0	23.1	70.8		19.8	4.6	4.0	6.7	4.4	0.0
Internal Link Dist (m)		188.7			185.2			213.0			103.5	
Turn Bay Length (m)	55.0			40.0			60.0		75.0	30.0		25.0
Base Capacity (vph)	792	970	838	340	1182		312	522	525	312	501	519
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.91	0.05	0.31	0.31		0.18	0.01	0.19	0.04	0.01	0.03

Intersection Summary

Area Type: Other

Cycle Length: 125

Actuated Cycle Length: 88.4

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 26.3

Intersection LOS: C

Intersection Capacity Utilization 79.7%

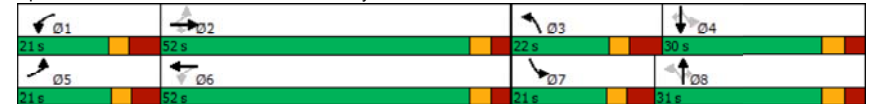
ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Delsom Cres/Driveway & 84 Ave



Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2033 Base+Site

Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↰	↰	↰	↱	↱	↰	↱	↱
Traffic Volume (vph)	24	853	35	101	347	11	52	5	99	11	4	16
Future Volume (vph)	24	853	35	101	347	11	52	5	99	11	4	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	60.0		75.0	30.0		25.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.92		1.00		0.96		0.92	0.94		0.94
Frt			0.850		0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1851	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.534			0.071			0.364			0.754		
Satd. Flow (perm)	988	1863	1463	132	1851	0	654	1863	1464	1325	1863	1495
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)			160		1				160			160
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.7			209.2			237.0			127.5	
Travel Time (s)		15.3			15.1			17.1			9.2	
Confl. Peds. (#/hr)	6		21	21		6	14		20	20		14
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	917	38	109	385	0	56	5	106	12	4	17
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6			8		8	4		4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0		6.0	7.0	7.0	6.0	7.0	7.0
Minimum Split (s)	13.2	29.5	29.5	13.6	30.5		13.7	28.5	28.5	13.2	30.5	30.5
Total Split (s)	21.0	52.0	52.0	21.0	52.0		22.0	31.0	31.0	21.0	30.0	30.0
Total Split (%)	16.8%	41.6%	41.6%	16.8%	41.6%		17.6%	24.8%	24.8%	16.8%	24.0%	24.0%
Maximum Green (s)	13.8	45.5	45.5	13.4	45.5		14.3	24.5	24.5	13.8	23.5	23.5
Yellow Time (s)	3.0	3.3	3.3	3.0	3.3		3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.2	3.2	3.2	4.6	3.2		4.7	3.2	3.2	4.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	6.5	6.5	7.6	6.5		7.7	6.5	6.5	7.2	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	Min		None	Min	Min	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		16.0	16.0		17.0			15.0	15.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	51.6	46.0	46.0	58.9	56.5		12.1	11.4	11.4	8.6	7.1	7.1
Actuated g/C Ratio	0.58	0.52	0.52	0.67	0.64		0.14	0.13	0.13	0.10	0.08	0.08
v/c Ratio	0.04	0.95	0.05	0.47	0.33		0.29	0.02	0.32	0.07	0.03	0.06
Control Delay	7.2	42.2	0.1	19.6	11.6		36.3	36.4	4.5	32.2	43.2	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lanes, Volumes, Timings

6: Delsom Cres/Driveway & 84 Ave

2033 Base+Site

Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	7.2	42.2	0.1	19.6	11.6		36.3	36.4	4.5	32.2	43.2	0.4
LOS	A	D	A	B	B		D	D	A	C	D	A
Approach Delay		39.7			13.4			16.1			17.2	
Approach LOS		D			B			B			B	
Queue Length 50th (m)	1.0	123.4	0.0	4.4	17.4		8.8	0.8	0.0	1.9	0.6	0.0
Queue Length 95th (m)	5.2	#295.8	0.0	24.3	74.1		19.9	4.6	5.0	6.7	4.4	0.0
Internal Link Dist (m)		188.7			185.2			213.0			103.5	
Turn Bay Length (m)	55.0			40.0			60.0		75.0	30.0		25.0
Base Capacity (vph)	784	969	837	340	1183		312	521	525	312	500	518
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.95	0.05	0.32	0.33		0.18	0.01	0.20	0.04	0.01	0.03

Intersection Summary

Area Type: Other

Cycle Length: 125

Actuated Cycle Length: 88.5

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 29.1

Intersection LOS: C

Intersection Capacity Utilization 81.5%

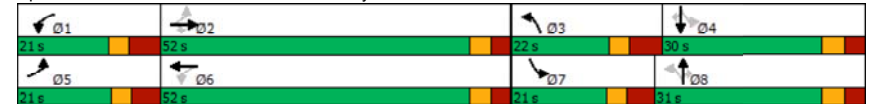
ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Delsom Cres/Driveway & 84 Ave



Lanes, Volumes, Timings
6: Delsom Cres/Driveway & 84 Ave

2033 Base+Site (Optimized)
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	24	853	35	101	347	11	52	5	99	11	4	16
Future Volume (vph)	24	853	35	101	347	11	52	5	99	11	4	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	60.0		75.0	30.0		25.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.93		1.00		0.97		0.93	0.95		0.95
Frt			0.850		0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1851	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.531			0.104			0.428			0.754		
Satd. Flow (perm)	982	1863	1467	194	1851	0	770	1863	1467	1328	1863	1497
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			163		2				163			163
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.7			209.2			237.0			127.5	
Travel Time (s)		15.3			15.1			17.1			9.2	
Confl. Peds. (#/hr)	6		21	21		6	14		20	20		14
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	917	38	109	385	0	56	5	106	12	4	17
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6			8		8	4		4
Detector Phase	5	2	2	1	6		3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0		6.0	7.0	7.0	6.0	7.0	7.0
Minimum Split (s)	13.2	29.5	29.5	13.6	30.5		13.7	28.5	28.5	13.2	30.5	30.5
Total Split (s)	13.2	62.2	62.2	13.6	62.6		13.7	31.0	31.0	13.2	30.5	30.5
Total Split (%)	11.0%	51.8%	51.8%	11.3%	52.2%		11.4%	25.8%	25.8%	11.0%	25.4%	25.4%
Maximum Green (s)	6.0	55.7	55.7	6.0	56.1		6.0	24.5	24.5	6.0	24.0	24.0
Yellow Time (s)	3.0	3.3	3.3	3.0	3.3		3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.2	3.2	3.2	4.6	3.2		4.7	3.2	3.2	4.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	6.5	6.5	7.6	6.5		7.7	6.5	6.5	7.2	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	Min		None	Min	Min	None	None	None
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		16.0	16.0		17.0			15.0	15.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	61.3	56.0	56.0	65.9	64.8		9.7	9.7	9.7	8.4	7.0	7.0
Actuated g/C Ratio	0.65	0.59	0.59	0.69	0.68		0.10	0.10	0.10	0.09	0.07	0.07
v/c Ratio	0.04	0.83	0.04	0.47	0.30		0.39	0.03	0.36	0.08	0.03	0.07
Control Delay	5.5	25.8	0.1	13.7	9.4		45.3	40.6	5.2	36.3	44.8	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lanes, Volumes, Timings
6: Delsom Cres/Driveway & 84 Ave

2033 Base+Site (Optimized)
Timing Plan: Wkdy PM Peak Hr

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	5.5	25.8	0.1	13.7	9.4		45.3	40.6	5.2	36.3	44.8	0.5
LOS	A	C	A	B	A		D	D	A	D	D	A
Approach Delay		24.3			10.3			19.7			18.9	
Approach LOS		C			B			B			B	
Queue Length 50th (m)	0.9	111.8	0.0	3.9	15.3		10.0	0.9	0.0	2.1	0.7	0.0
Queue Length 95th (m)	4.5	#258.1	0.0	16.0	65.1		21.4	4.8	4.5	7.2	4.3	0.0
Internal Link Dist (m)		188.7			185.2			213.0			103.5	
Turn Bay Length (m)	55.0			40.0			60.0		75.0	30.0		25.0
Base Capacity (vph)	684	1099	932	234	1264		142	483	501	145	473	501
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.83	0.04	0.47	0.30		0.39	0.01	0.21	0.08	0.01	0.03

Intersection Summary

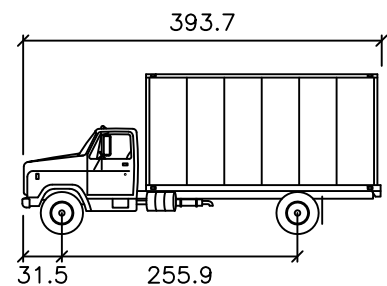
Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	94.9
Natural Cycle:	120
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.83
Intersection Signal Delay:	19.6
Intersection LOS:	B
Intersection Capacity Utilization:	81.5%
ICU Level of Service:	D
Analysis Period (min):	15
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.

Splits and Phases: 6: Delsom Cres/Driveway & 84 Ave



APPENDIX E

Swept Path Analysis



MSU

Width : 102.4
Track : 102.4
Lock to Lock Time : 6.0
Steering Angle : 40.2

C ADDRESS:
84TH AVENUE,
, B.C. V4C 2K4

L ADDRESS:

FOR SWEEP PATH
ASPECTS ONLY

LEGEND

Front Tires
Rear Tires
Vehicle Body
0.5m Body Clearance
Conflict



REVISIONS	DESCRIPTION	DATE	BY

CTS Traffic
Engineering
Specialists
101A - 1952 Kingsway Avenue
Port Coquitlam, BC, Canada V3C 6C2
Tel: 604-936-6190
Fax: 604-936-6175

MSU TRUCK SWEEP PATH
LOADING AREA- INBOUND

11199 84TH AVENUE
TRAFFIC IMPACT STUDY

Stamp:

Scale: NTS

Designed: R.C.

Drawn: R.C.

Reviewed: B.D.

CTS Permit to Practice:

CTS Project Number: 9120

Date: 16 JUNE 2024

Drawing No.:

1A

Revision No.: 0

