

Date: 04 July 2024
Our File No: 9025-01

BY EMAIL

Kiran Sandhu
Sandhill Development Ltd.
228 – 11020 No. 5 Road
Richmond, BC
V7A 4E7

Dear Ms. Sandhu,

Re: 11944 92 Avenue Residential Development Traffic Impact Assessment, Delta, BC.

Creative Transportation Solutions Ltd. (CTS) is pleased to submit this **FINAL** report summarising our work on the above study. CTS was retained by Sandhill Development Ltd. on June 23rd, 2023, to undertake a traffic impact assessment for a proposed residential redevelopment at 11944 92 Avenue in the City of Delta, BC.

The primary objectives of this study were as follows:

1. To conduct a traffic impact assessment for the proposed residential redevelopment located at 11944 92 Avenue in the City of Delta; and,
2. To prepare a report that documents the data, technical analysis, key findings and recommendations (if any) that meets the requirements of the City of Delta.

TABLE OF CONTENTS

1.0	BACKGROUND	5
1.1	The Study Site	5
1.2	Existing Road Network.....	6
1.3	Alternative Modes of Travel	8
1.4	Scope of Work	10
2.0	BASE TRAFFIC VOLUMES	11
3.0	SITE TRAFFIC VOLUMES	18
3.1	Trip Generation	18
3.2	Traffic Assignment.....	18
4.0	BASE + SITE TRAFFIC VOLUMES	20
5.0	TRAFFIC ENGINEERING ANALYSIS	24
5.1	Capacity Analysis.....	24
6.0	OFF-STREET PARKING.....	33
6.1	Off-Street Parking Requirement.....	33
6.2	Off-Street Loading Requirement	34
6.3	Swept Path Analysis	34
7.0	CONCLUSIONS & RECOMMENDATIONS	35
7.1	Conclusions	35
7.2	Recommendations	37

LIST OF FIGURES AND TABLES

FIGURE 1 STUDY AREA & ROAD NETWORK.....	5
FIGURE 2 EXISTING LANE CONFIGURATION.....	7
FIGURE 3 ALTERNATIVE MODES OF TRAVEL.....	9
FIGURE 4 2023 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES	13
FIGURE 5 2023 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES	13
FIGURE 6 WEEKDAY MORNING PEAK HOUR EXISTING SITE TRAFFIC	14
FIGURE 7 WEEKDAY AFTERNOON PEAK HOUR EXISTING SITE TRAFFIC	14
FIGURE 8 2026 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES	15
FIGURE 9 2026 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES	15
FIGURE 10 2031 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES	16
FIGURE 11 2031 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES	16
FIGURE 12 2036 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES	17
FIGURE 13 2036 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES	17
FIGURE 14 SITE GENERATED TRAFFIC VOLUMES – WEEKDAY MORNING PEAK HOUR	19
FIGURE 15 SITE GENERATED TRAFFIC VOLUMES – WEEKDAY AFTERNOON PEAK HOUR	19
FIGURE 16 2026 WEEKDAY MORNING PEAK HOUR BASE + SITE TRAFFIC VOLUMES ..	21
FIGURE 17 2026 WEEKDAY AFTERNOON PEAK HOUR BASE + SITE TRAFFIC VOLUMES	21
FIGURE 18 2031 WEEKDAY MORNING PEAK HOUR BASE + SITE TRAFFIC VOLUMES ..	22
FIGURE 19 2031 WEEKDAY AFTERNOON PEAK HOUR BASE + SITE TRAFFIC VOLUMES	22
FIGURE 20 2036 WEEKDAY MORNING PEAK HOUR BASE + SITE TRAFFIC VOLUMES ..	23

FIGURE 21 2036 WEEKDAY AFTERNOON PEAK HOUR BASE + SITE TRAFFIC VOLUMES	23
TABLE 1 SUMMARY OF NET SITE GENERATED TRAFFIC	18
TABLE 2 LEVEL OF SERVICE DESCRIPTIONS	24
TABLE 3 SITE ACCESS & 92 AVENUE CAPACITY ANALYSIS	26
TABLE 4 116 STREET & 92 AVENUE CAPACITY ANALYSIS	27
TABLE 5 116 STREET & 92 AVENUE CAPACITY ANALYSIS (GEOMETRIC IMPROVEMENTS)	29
TABLE 6 120 STREET & 92 AVENUE CAPACITY ANALYSIS	30
TABLE 7 120 STREET & 92 AVENUE CAPACITY ANALYSIS (GEOMETRIC IMPROVEMENTS)	32
TABLE 8 MINIMUM OFF-STREET VEHICLE PARKING REQUIREMENT	33
TABLE 9 OFF-STREET BICYCLE PARKING REQUIREMENT	34
TABLE 10 OFF-STREET LOADING REQUIREMENT	34

1.0 BACKGROUND

1.1 The Study Site

Sandhill Development Ltd. is proposing to redevelop the lot at 11944 92 Avenue in the City of Delta. This lot currently consists of 34 townhouse units and the proposed redevelopment will include 134 apartment units and 51 townhouse units. The proposed site plan is shown in **APPENDIX A**.

The proposed rezoning for this lot is from the existing Comprehensive Development (CD53) to Apartment Residential (RA200) and Townhouse Residential (RT76), as defined in the *Delta Zoning Bylaw (No. 7600, 2017)*.

The study area and road network are shown in **FIGURE 1**. The following intersections were included in the traffic impact study:

- 120 Street & 92 Avenue (signalized);
- 116 Street & 92 Avenue (signalized); and
- Site Access & 92 Avenue (unsignalized).

FIGURE 1
STUDY AREA & ROAD NETWORK



1.2 Existing Road Network

The following are the key observations from the study area road network:

120 Street/ Scott Road

- Major north-south arterial road
- Median dividing four lane cross section within study area
- Bicycle lanes aren't available in each direction of travel
- Sidewalk, curb and gutter exist on both sides of the road
- Street lighting is present on both sides of the road
- The speed limit within the study area is 60 km/h

92 Avenue

- Major east-west collector road
- Two-lane cross-section within the study area with no median
- Bicycle lanes are provided in each direction of travel
- Sidewalks, curbs, and gutters are present on both sides of the road
- Street lighting is available on the south side of the road
- On-street parking is available on the eastbound road only
- The speed limit is 50 km/h.
- There is a rail crossing on 92 Avenue approximately 30 metres west of 120 Street. This crossing has an active warning system in place with side-mounted flashing lights and bells. Of note, CTS reviewed this crossing as part of a joint rail crossing assessment for the City of Surrey and City of Delta in 2021 and determined that it qualified for a warning system with flashing lights, bell and gates as specified in the Transport Canada *Grade Crossing Standards, 2019*. This rail crossing assessment report is dated June 18th, 2021.

116 Street

- Minor north-south collector road.
- Two-lane cross-section within the study area with no median.
- Bicycle lanes are provided in each direction of travel.
- Sidewalks, curbs, and gutters are present on both sides of the road.
- Street lighting on both sides of the road.
- On-street parking on both sides of the road.
- 50 km/h speed limit.

118 Street

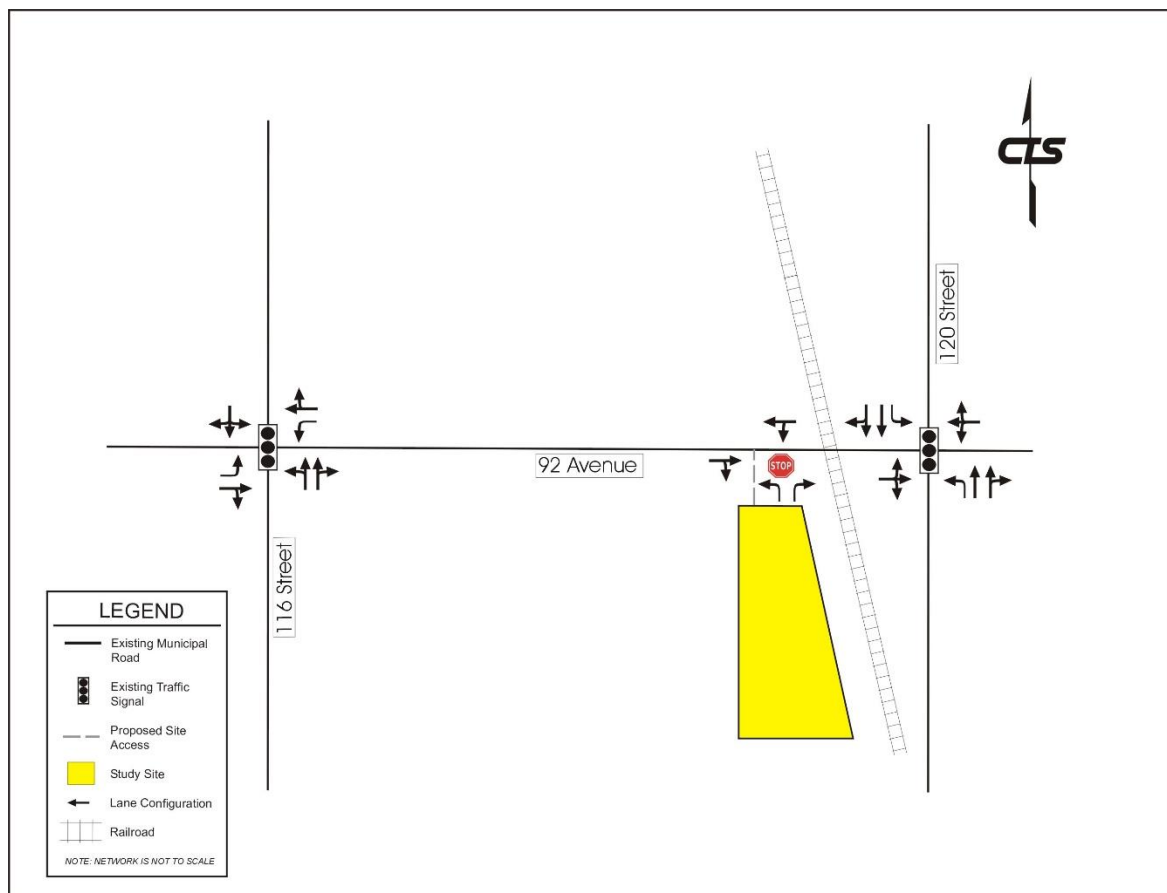
- North-south local road.
- Two-lane cross-section within the study area with no median.
- No bicycle lanes provided in each direction of travel.
- No sidewalks, curbs, and gutters are present on both sides.
- Street lighting on the west side of the road.
- On-street parking on both sides of the road.
- 50 km/h speed limit.

119A Street

- North-south local road.
- Two-lane cross-section within the study area with no median.
- No bicycle lanes provided in each direction of travel.
- Curbs and gutters are present on both sides of the road, and a sidewalk is present on the west side of the road.
- Street lighting on the east side of the road.
- On-street parking on both sides of the road.
- 50 km/h speed limit.

The existing lane configuration for each study intersection is illustrated by **FIGURE 2 – Existing Lane Configuration**.

**FIGURE 2
EXISTING LANE CONFIGURATION**



1.3 Alternative Modes of Travel

Transit Network

The site is serviced by the following bus routes within a 400-meter radius (or 5-minute walking distance), where the bus stops are located on 120 Street and 92 Avenue.

- Route #314 – Surrey Central / Sunbury – This bus route is scheduled approximately every 30 minutes during the peak commuter hours and every hour throughout the rest of the day.
- Route #319 – Scott Road Station / Newton Exchange / Scottsdale – This bus route is scheduled approximately every 5 minutes throughout the day.
- Route #329 – Surrey Central Station / Scottsdale – This bus route is scheduled approximately every hour from 09:00 – 15:00.

The transit network near to the site is illustrated in **FIGURE 3** below.

Bicycle Network

Near to the proposed site there are bicycle routes along 92 Avenue and 116 Street. There are also plans for a future off-street pathway parallel to 119a Street and separated cycle tracks along 120 Street, both of which are easily accessible from this site.

The existing bicycle route network near to the site is illustrated in **FIGURE 3** below.

Pedestrian Network

The proposed development is well connected to the adjacent pedestrian network as there are sidewalks on both sides of all the major roads in the area.

The pedestrian network near to the site is illustrated in **FIGURE 3** below.

FIGURE 3
ALTERNATIVE MODES OF TRAVEL



As illustrated in **FIGURE 3** above, the proposed site is well connected to the existing transit, cycling and pedestrian infrastructure in the area. This will allow future residents to access the surrounding area without dependency on personal vehicles.

1.4 Scope of Work

CTS selected the weekday morning and afternoon peak hours as the analysis design hours for this study as it represents the peak traffic time for the adjacent road network. For the purposes of this study, the year 2026 is considered as the buildout year of the development.

The following scenarios were selected for this study:

- 2023 (existing base traffic conditions);
- 2026 (future base traffic conditions i.e., build-out year);
- 2026 (future base traffic conditions + site generated traffic volume);
- 2031 (future base traffic conditions i.e., 5 years post build-out);
- 2031 (future base traffic conditions + site generated traffic volume);
- 2036 (future base traffic conditions i.e., 10 years post build-out); and
- 2036 (future base traffic conditions + site generated traffic volume).

2.0 BASE TRAFFIC VOLUMES

2023 Base Traffic Volumes

CTS conducted turning movement counts at the study intersections on Tuesday, June 27th, 2023, from 07:00 to 09:00, and from 14:00 to 18:00. The traffic data was tabulated and reviewed to ensure data integrity and validity. The tabulated turning movement count data sheets are included in **APPENDIX B**. **FIGURE 4** and **FIGURE 5** illustrate the weekday morning and afternoon peak hour vehicle volumes, respectively.

The following peak hours were selected, based on the peak hours observed by the study intersections:

- Weekday Morning Peak Hour – 07:30 – 08:30
- Weekday Afternoon Peak Hour – 16:00 – 17:00

The existing site traffic from the 34 townhouse units was captured during the data collection. The existing site traffic was then estimated at the intersections of 116 Street & 92 Avenue and 120 Street & 92 Avenue based on the existing traffic patterns. The weekday morning and afternoon peak hour existing site traffic is shown in **FIGURE 6** and **FIGURE 7**.

2026 Future Base Traffic Volumes

Year 2026 is anticipated to be the year of full buildout for the proposed development. The 2023 base traffic volumes were factored up by a traffic volume growth rate of 2.0% per annum (simple straight line) to represent initial base year 2026 volumes. Of note, the existing site traffic was not factored up as the base scenario assumes that the existing site traffic would not increase over time. **FIGURE 8** and **FIGURE 9** illustrate the weekday morning and afternoon peak hour vehicle volumes with no development traffic, respectively.

2031 Future Base Traffic Volumes

Year 2031 is anticipated to be 5 years post-buildout for the proposed development. The 2023 base traffic volumes were factored up by a traffic volume growth rate of 2.0% per annum (simple straight line) to represent the projected 2031 volumes. Of note, the existing site traffic was not factored up as the base scenario assumes that the existing site traffic would not increase over time. **FIGURE 10** and **FIGURE 11** illustrate the weekday morning and afternoon peak hour vehicle volumes with no development traffic, respectively.

2036 Future Base Traffic Volumes

Year 2036 is anticipated to be 10 years post-buildout for the proposed development. The 2023 base traffic volumes were factored up by a traffic volume growth rate of 2.0% per annum (simple straight line) to represent the projected 2036 volumes. Of note, the existing site traffic was not factored up as the base scenario assumes that the existing site traffic would not increase over time. **FIGURE 12** and **FIGURE 13** illustrate the combined weekday morning and afternoon peak hour base and background vehicle volumes with no development traffic, respectively.

FIGURE 4
2023 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES

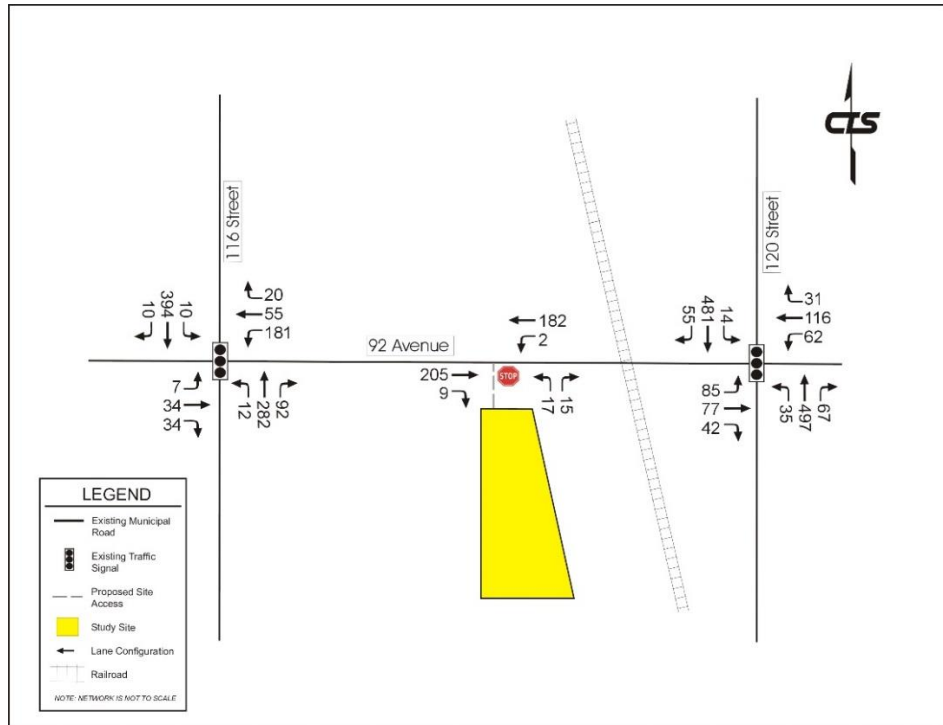


FIGURE 5
2023 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES

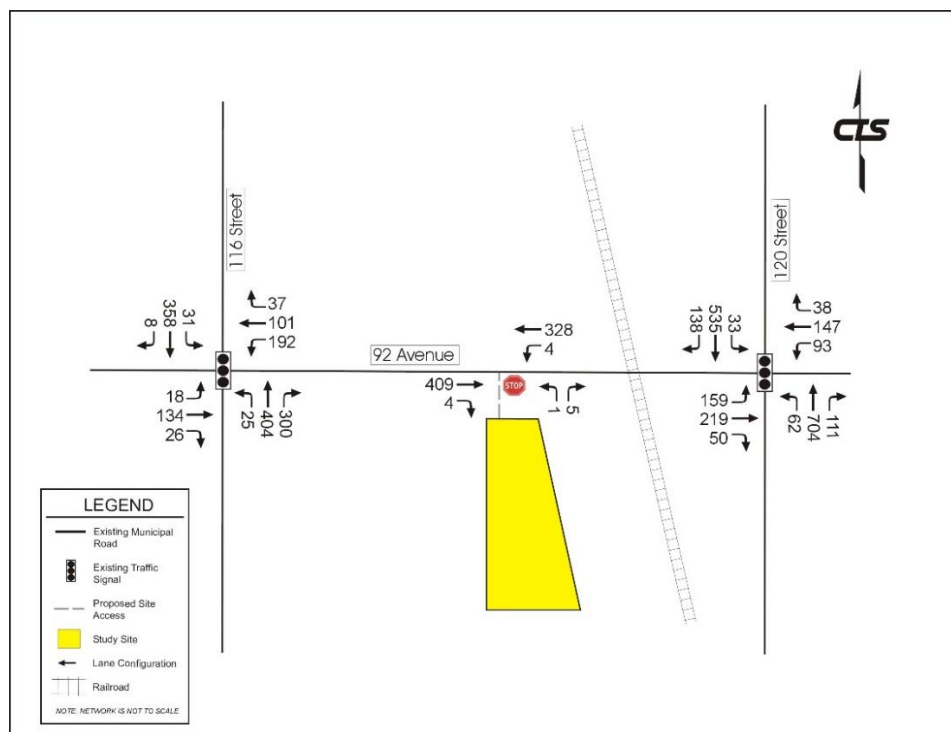


FIGURE 6
WEEKDAY MORNING PEAK HOUR EXISTING SITE TRAFFIC

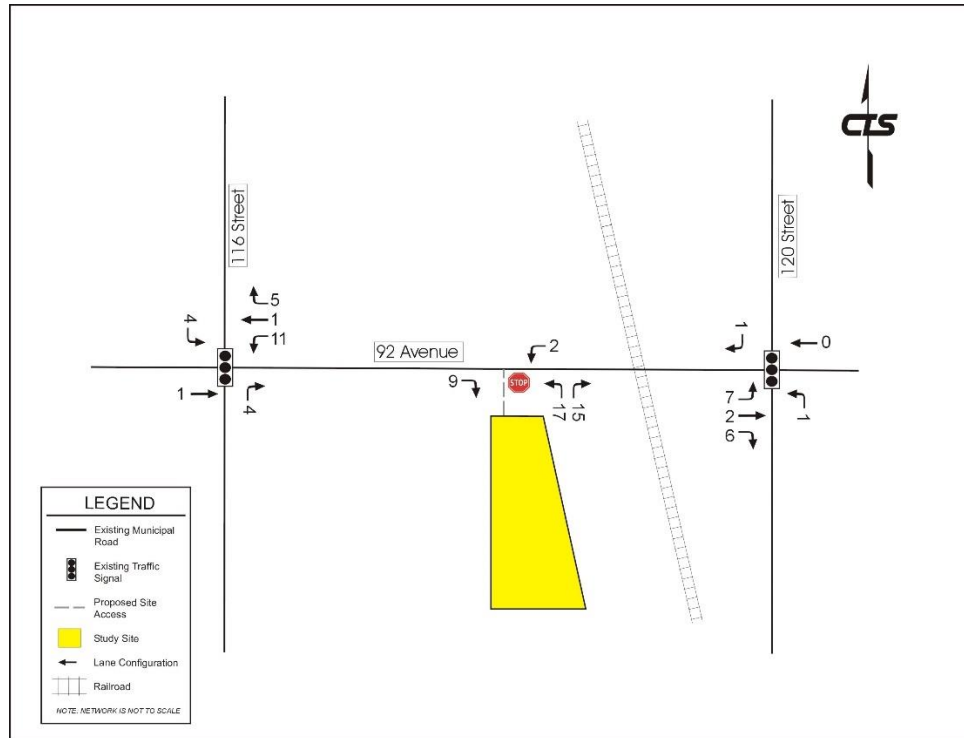


FIGURE 7
WEEKDAY AFTERNOON PEAK HOUR EXISTING SITE TRAFFIC

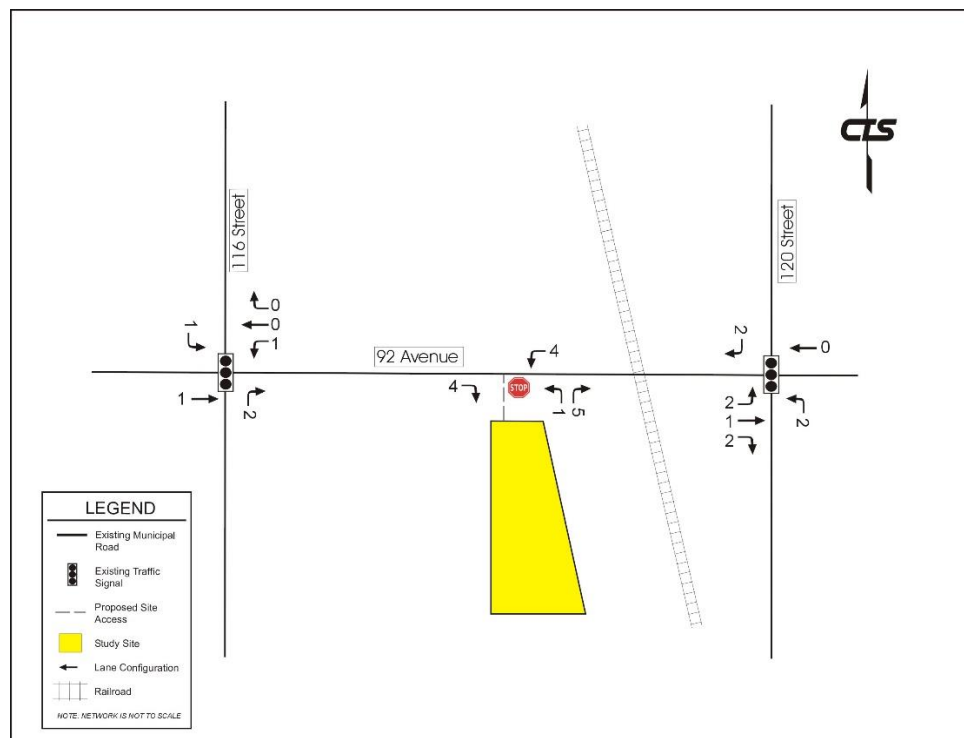


FIGURE 8
2026 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES

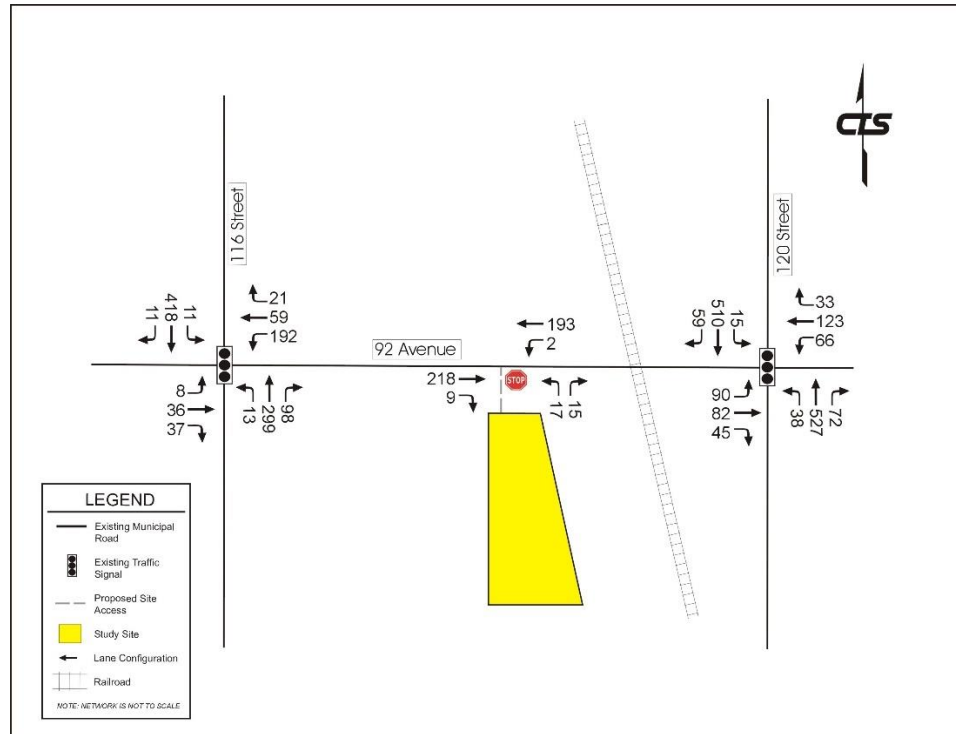


FIGURE 9
2026 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES

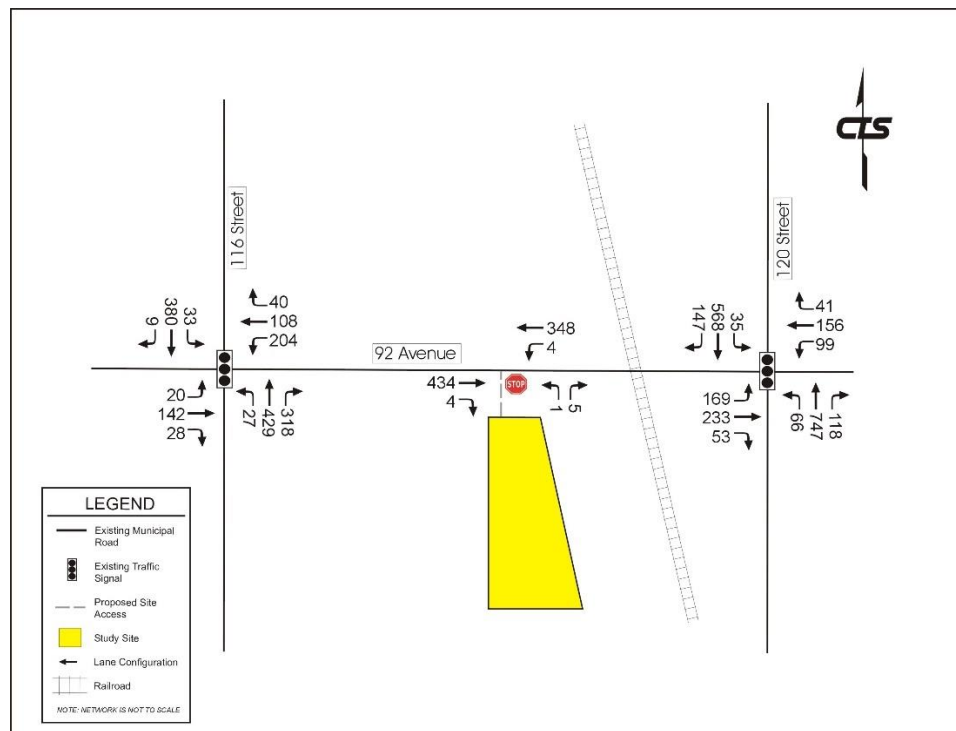


FIGURE 10
2031 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES

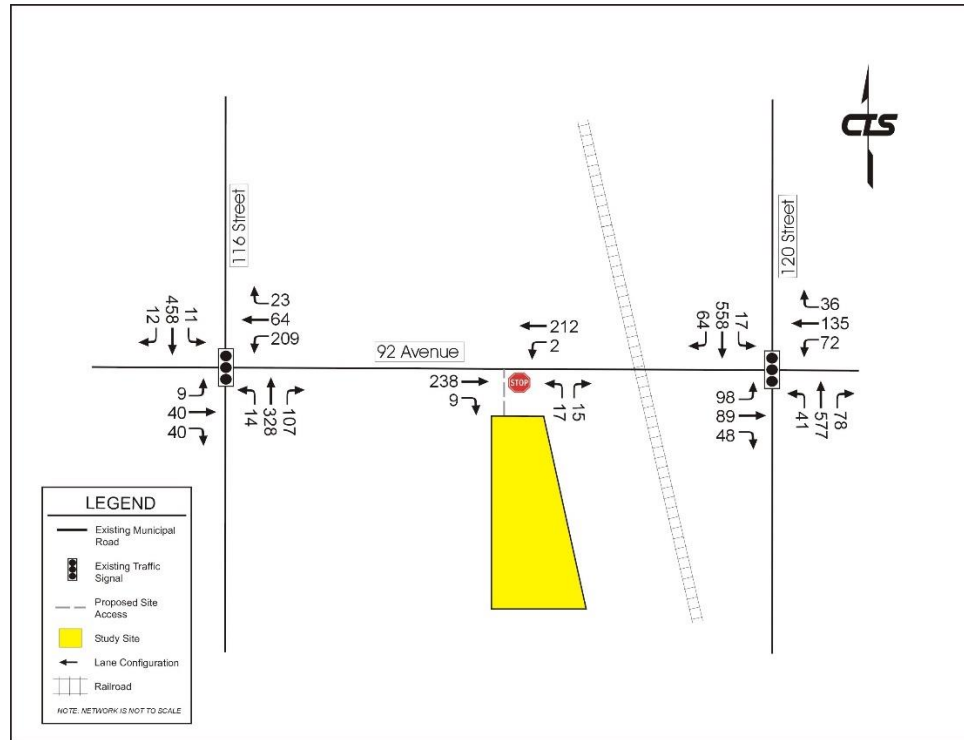


FIGURE 11
2031 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES

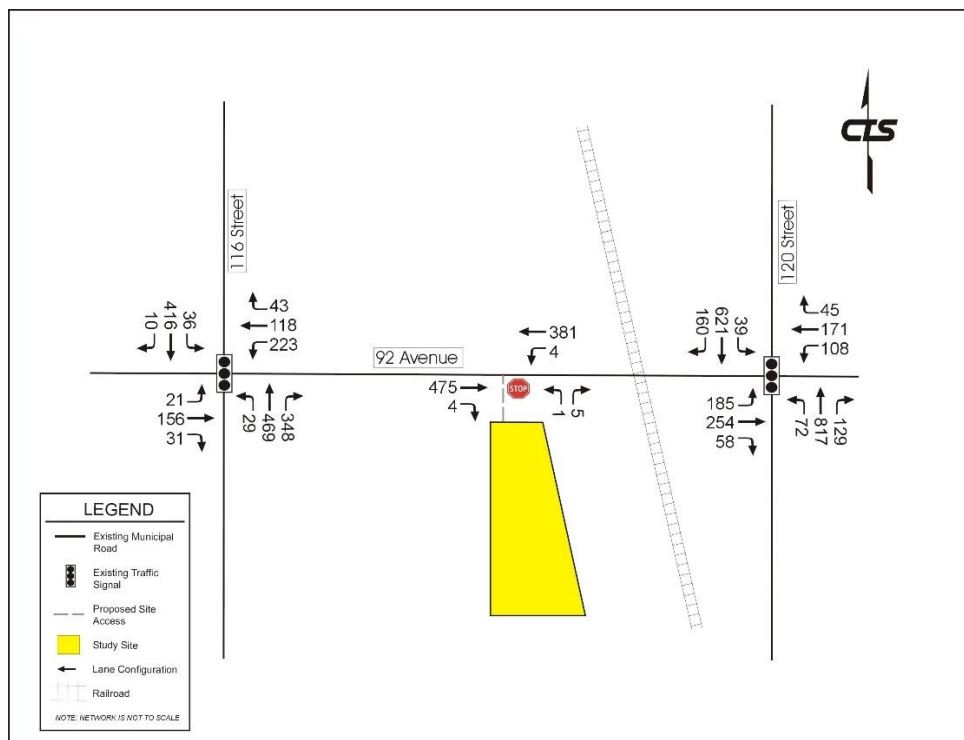


FIGURE 12
2036 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES

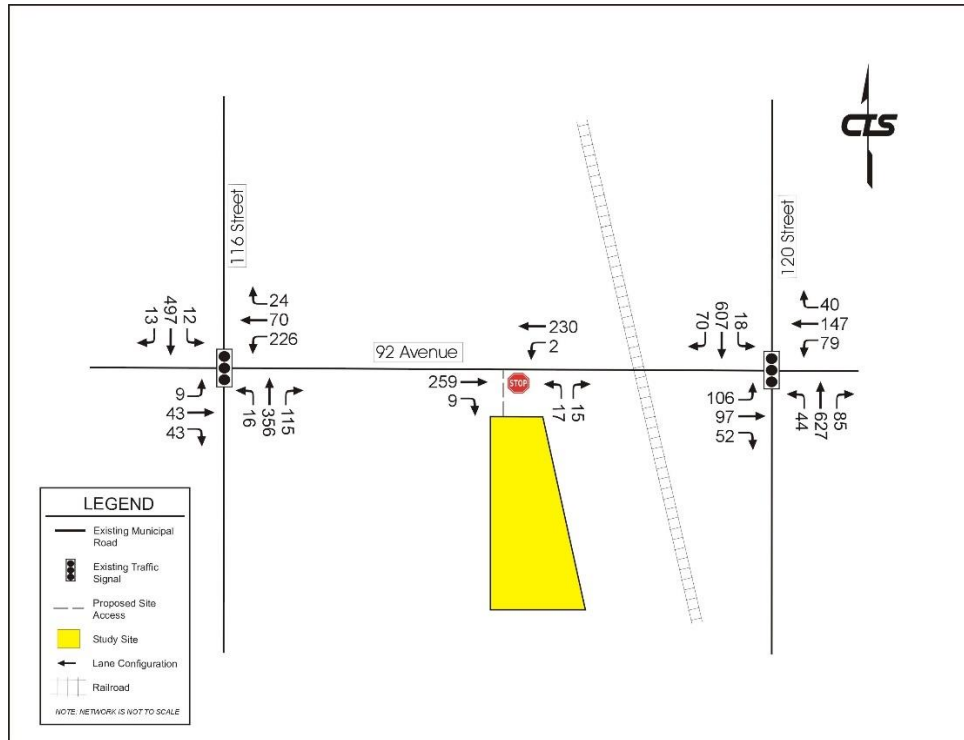
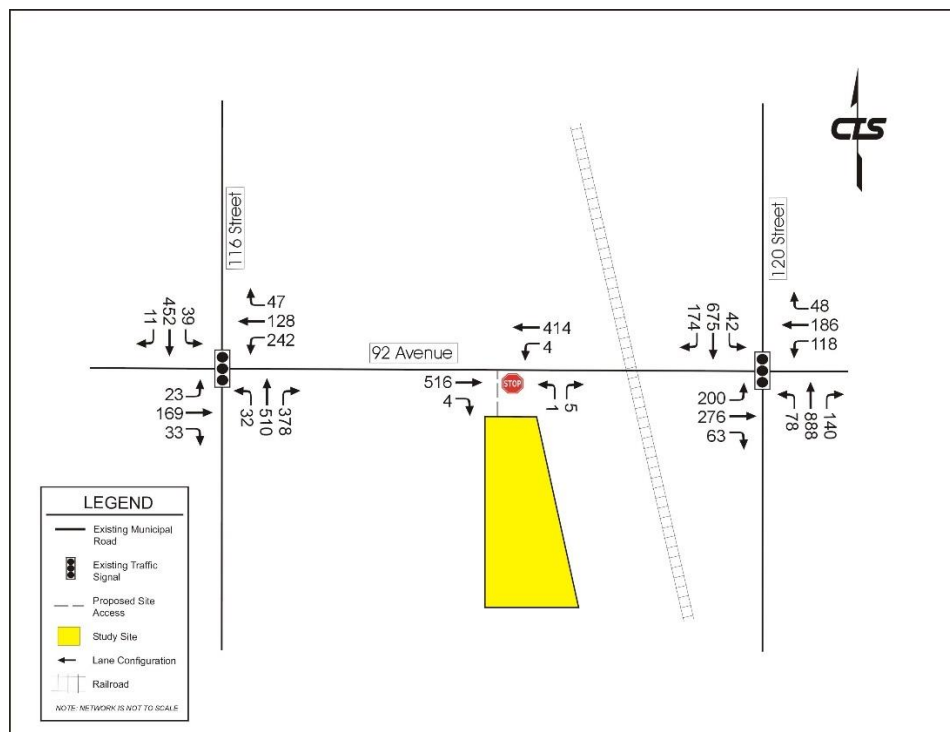


FIGURE 13
2036 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES



3.0 SITE TRAFFIC VOLUMES

3.1 Trip Generation

The published vehicle trip rates from *the Institute of Transportation Engineers (ITE) 11th Edition* (General Urban/Suburban) were used to forecast the site generated traffic volumes. **TABLE 1** summarizes the forecasted site generated traffic for the proposed mixed-use development. Of note, at the time when this analysis was conducted, the development was proposed to be 129 apartment units and 51 townhouse units. Since that time, 5 apartment units have been added to the design. From a traffic engineering perspective, this change does not result in a significant increase in traffic generated by this development (2 added vehicle trips in both the weekday morning and afternoon peak hour). Therefore, it is assumed that the difference in vehicle trip generation by the 5 additional apartment units will not have a significant impact on the results of the traffic analysis and conclusions of this report, and the analysis conducted for the previous design will be sufficient in identifying any traffic related concerns that arise from this development (if any).

TABLE 1
SUMMARY OF NET SITE GENERATED TRAFFIC

Land Use	Trip Generation Variable	Scope of Development	Trip Rate Source	Peak Hour	Vehicle Trip Generation Rate	Directional Split		Peak Hour Volumes (vph)		
						% in	% out	in	out	total
Multifamily Housing (Mid-Rise)	Dwelling Units	129	ITE 11 th Edition - Code 221	Weekday Morning	0.37	23%	77%	11	37	48
				Weekday Afternoon	0.39	61%	39%	31	20	51
Townhouses	Dwelling Units	51	ITE 11 th Edition - Code 215	Weekday Morning	0.48	79%	21%	19	6	25
				Weekday Afternoon	0.57	59%	41%	17	13	30
				Weekday Morning Total				30	43	73
				Weekday Afternoon Total				48	33	81

From **TABLE 1**, the proposed development is forecasted to generate a total of 73 vehicle trips (30 inbound, 43 outbound) during the weekday morning peak hour and 81 vehicle trips (48 inbound, 33 outbound) during the weekend afternoon peak hour.

3.2 Traffic Assignment

The additional vehicle trips generated from the study site were subsequently assigned to the road network using the trip distribution parameters developed from existing traffic patterns entering and exiting the study area. **FIGURE 14** and **FIGURE 15** illustrate the site generated traffic volumes on the road network for the weekday morning and weekday afternoon peak hours beginning in the year 2026, respectively. The site traffic assignment is based on the proposed site access configuration.

FIGURE 14
SITE GENERATED TRAFFIC VOLUMES – WEEKDAY MORNING PEAK HOUR

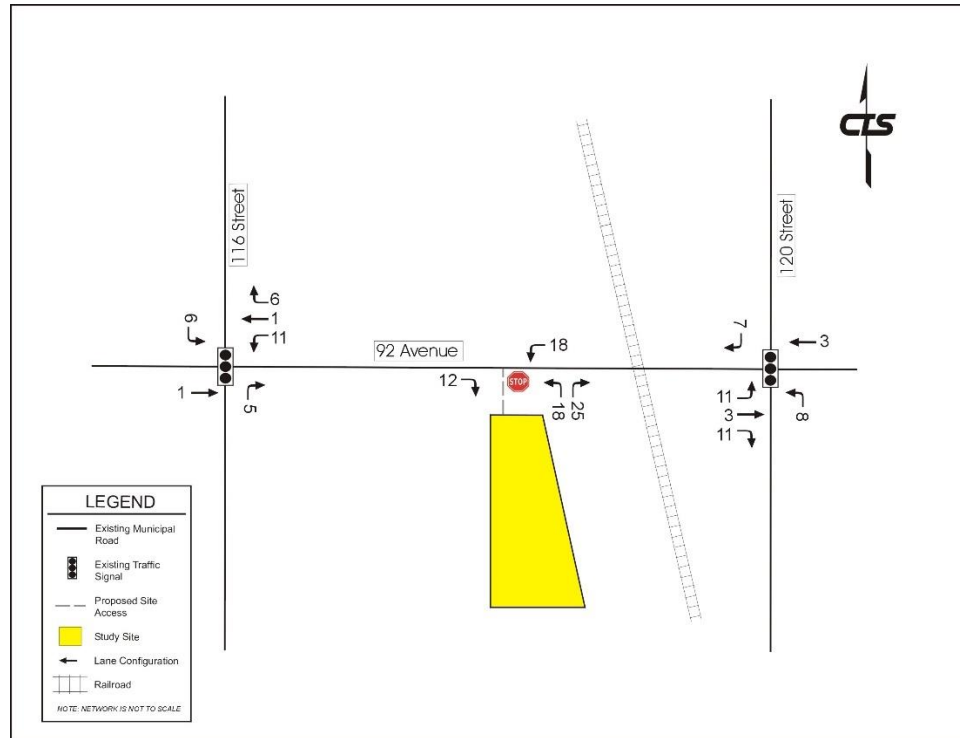
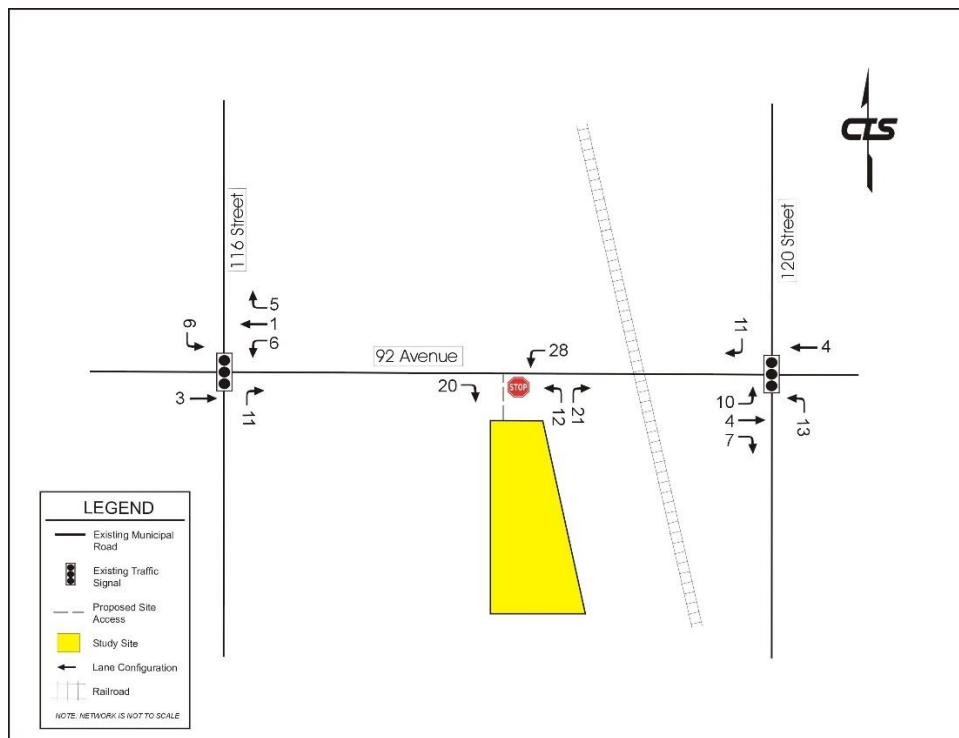


FIGURE 15
SITE GENERATED TRAFFIC VOLUMES – WEEKDAY AFTERNOON PEAK HOUR



4.0 BASE + SITE TRAFFIC VOLUMES

FIGURE 16 illustrates the total projected traffic for the year 2026 weekday morning peak hour consisting of both future base and site traffic resulting from the proposed development. It is the result of superimposing **FIGURE 14** onto **FIGURE 8**. Of note, the existing weekday morning peak hour site traffic shown in **FIGURE 6** was removed from the base traffic as in this scenario the existing site has been replaced by the proposed development.

FIGURE 17 illustrates the total projected traffic for the year 2026 weekday afternoon peak hour consisting of both future base and site traffic resulting from the proposed development. It is the result of superimposing **FIGURE 15** onto **FIGURE 9**. Of note, the existing weekday afternoon peak hour site traffic shown in **FIGURE 7** was removed from the base traffic as in this scenario the existing site has been replaced by the proposed development.

FIGURE 18 illustrates the total projected traffic for the year 2031 weekday morning peak hour consisting of both future base and site traffic resulting from the proposed development. It is the result of superimposing **FIGURE 14** onto **FIGURE 10**. Of note, the existing weekday morning peak hour site traffic shown in **FIGURE 6** was removed from the base traffic as in this scenario the existing site has been replaced by the proposed development.

FIGURE 19 illustrates the total projected traffic for the year 2031 weekday afternoon peak hour consisting of both future base and site traffic resulting from the proposed development. It is the result of superimposing **FIGURE 15** onto **FIGURE 11**. Of note, the existing weekday afternoon peak hour site traffic shown in **FIGURE 7** was removed from the base traffic as in this scenario the existing site has been replaced by the proposed development.

FIGURE 20 illustrates the total projected traffic for the year 2036 weekday morning peak hour consisting of both future base, background and site traffic resulting from the proposed development. It is the result of superimposing **FIGURE 14** onto **FIGURE 12**. Of note, the existing weekday morning peak hour site traffic shown in **FIGURE 6** was removed from the base traffic as in this scenario the existing site has been replaced by the proposed development.

FIGURE 21 illustrates the total projected traffic for the year 2036 weekday afternoon peak hour consisting of both future base, background and site traffic resulting from the proposed development. It is the result of superimposing **FIGURE 15** onto **FIGURE 13**. Of note, the existing weekday afternoon peak hour site traffic shown in **FIGURE 7** was removed from the base traffic as in this scenario the existing site has been replaced by the proposed development.

FIGURE 16
2026 WEEKDAY MORNING PEAK HOUR BASE + SITE TRAFFIC VOLUMES

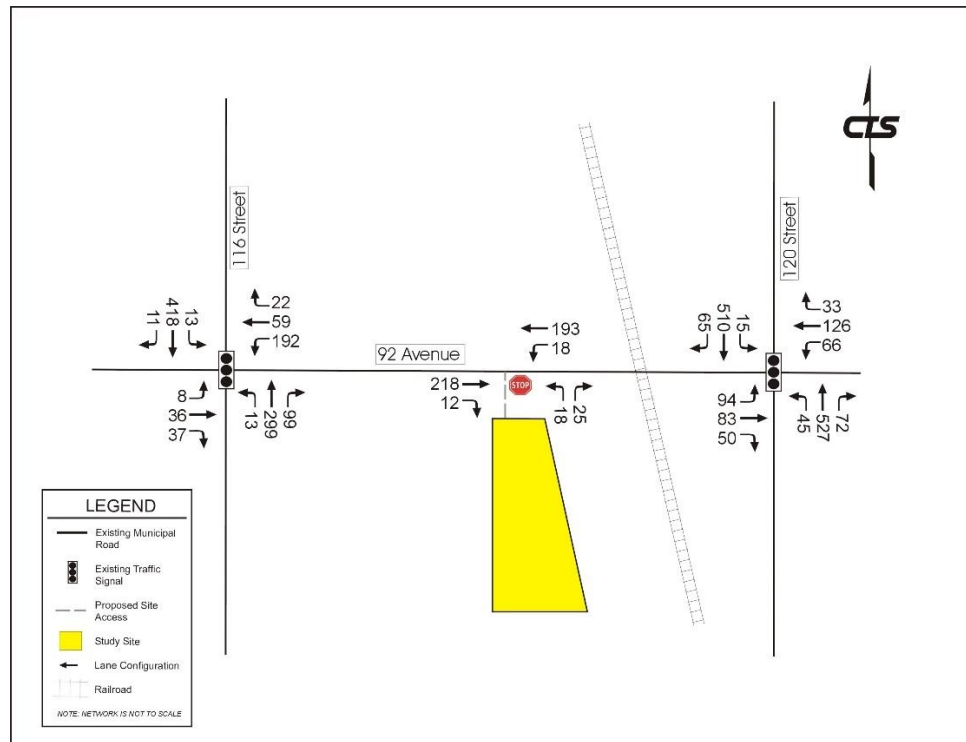


FIGURE 17
2026 WEEKDAY AFTERNOON PEAK HOUR BASE + SITE TRAFFIC VOLUMES

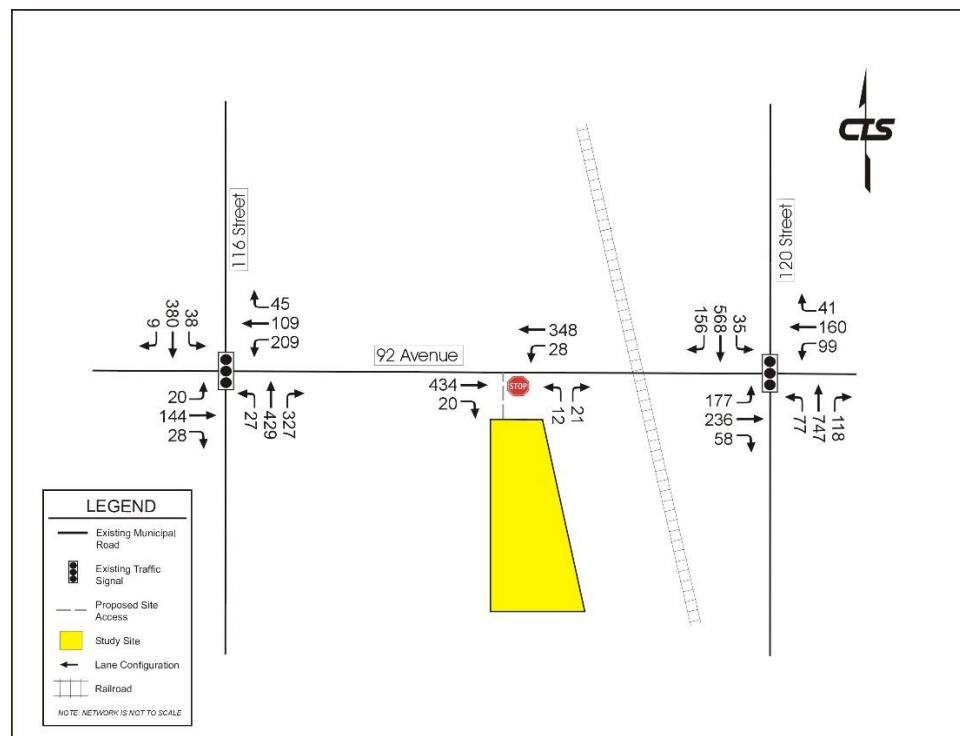


FIGURE 18
2031 WEEKDAY MORNING PEAK HOUR BASE + SITE TRAFFIC VOLUMES

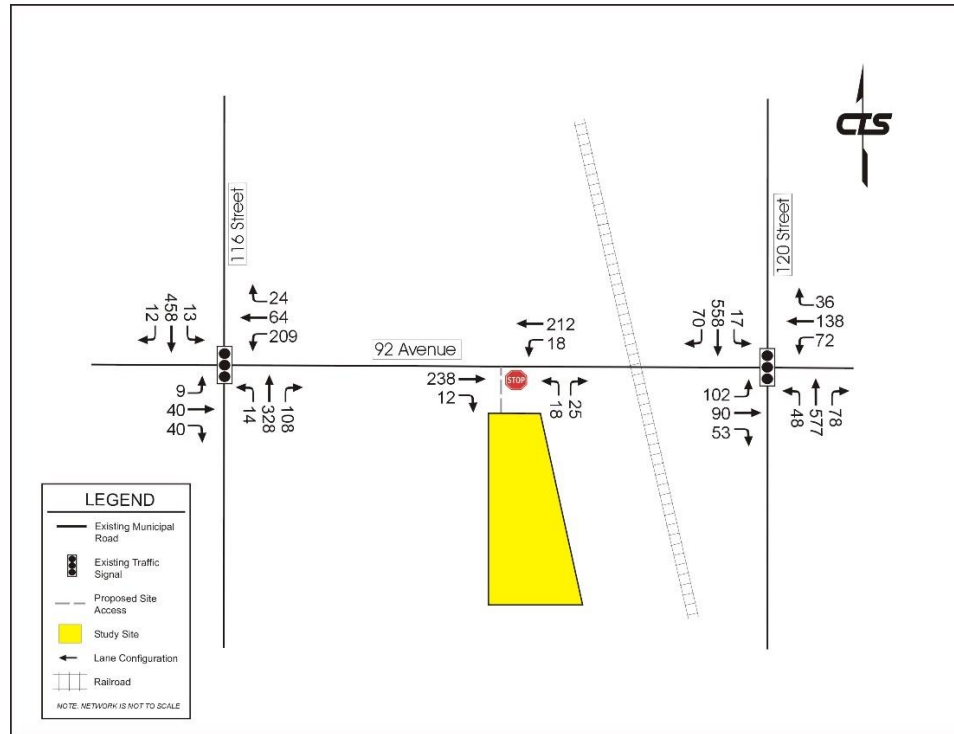


FIGURE 19
2031 WEEKDAY AFTERNOON PEAK HOUR BASE + SITE TRAFFIC VOLUMES

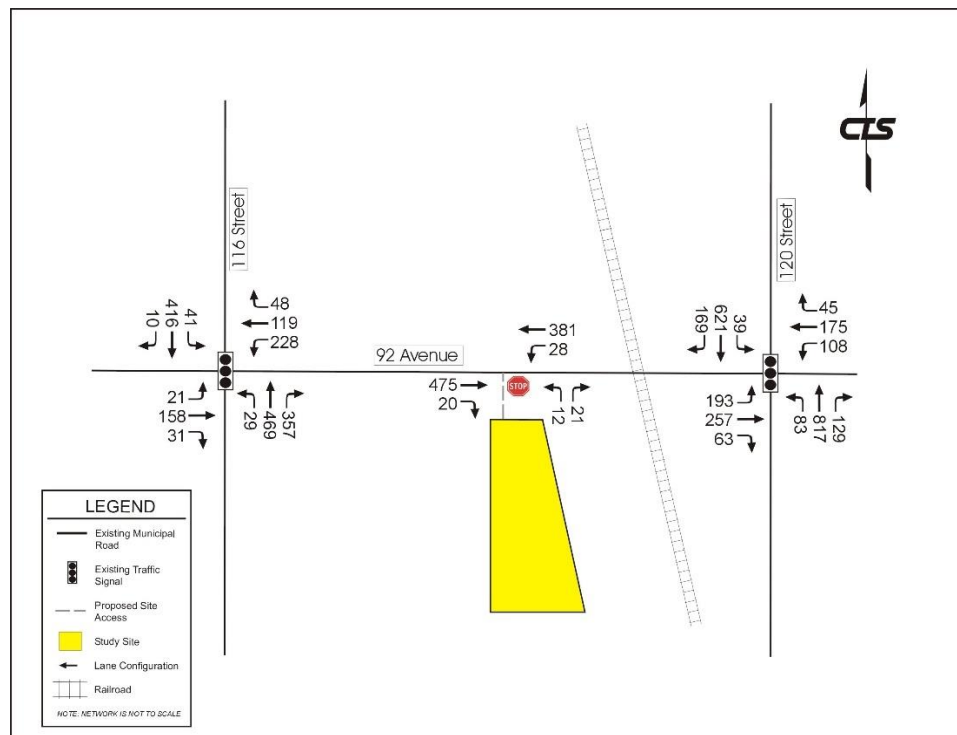


FIGURE 20
2036 WEEKDAY MORNING PEAK HOUR BASE + SITE TRAFFIC VOLUMES

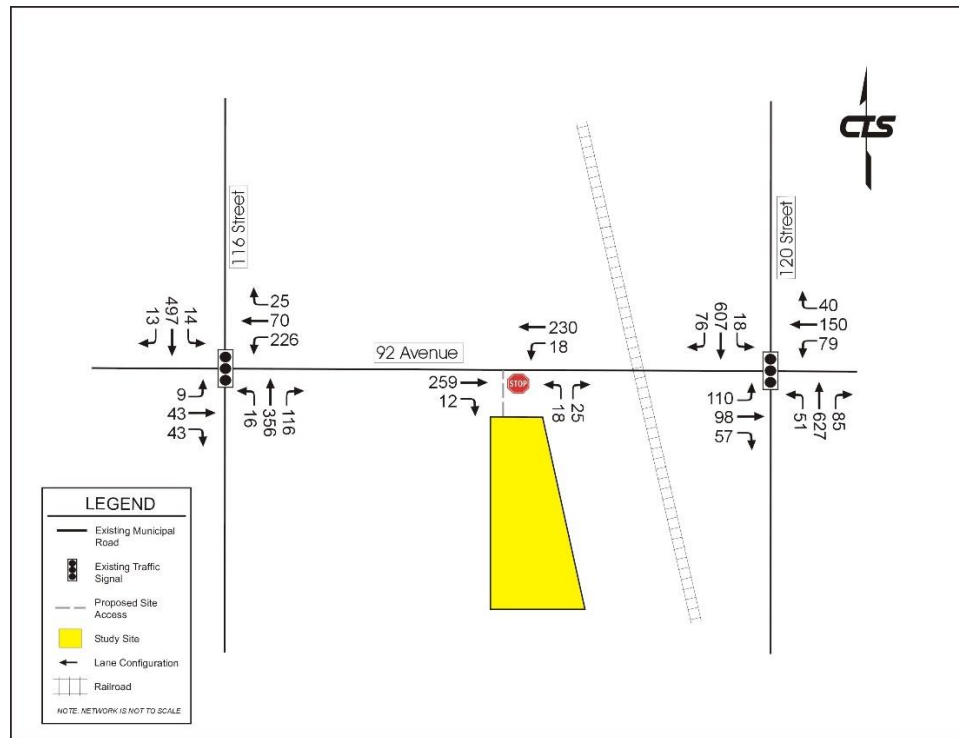
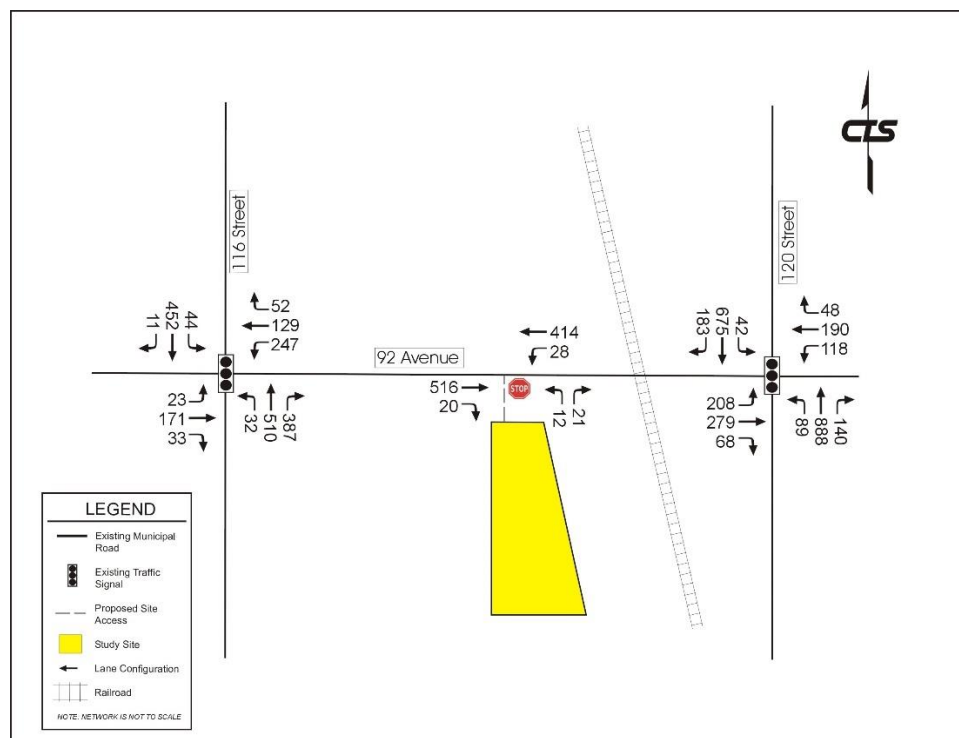


FIGURE 21
2036 WEEKDAY AFTERNOON PEAK HOUR BASE + SITE TRAFFIC VOLUMES



5.0 TRAFFIC ENGINEERING ANALYSIS

5.1 Capacity Analysis

Capacity analysis was performed at each of the locations to determine the intersection levels of service (LOS) that is provided to motorists. The LOS for intersections and movements is defined in terms of delay (seconds per vehicle), which is a measure of driver discomfort and frustration, fuel consumption and lost travel time.

An intersection or movement LOS can range from "A" (Excellent) to "F" (Fail). See **TABLE 2**. A LOS of "F" (Fail) indicates that an intersection or movement is failing because the intersection or movement is over capacity and delays are considered excessive. A LOS of "D" during the critical peak hours is considered acceptable by many public agencies in large urban areas for overall intersection operation and a LOS of "E" or better is considered acceptable for left turn movements as it recognizes that the intersections normally perform much better the remaining 90% of the day.

**TABLE 2
LEVEL OF SERVICE DESCRIPTIONS**

Level of Service	Description
A	Excellent
B	Good
C	Fair
D	Poor
E	Very Poor
F	Fail

Synchro 11 was used to analyze the signalized intersection and Highway Capacity Software (HCS 2023) was used for the analysis of the unsignalized intersections. 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) = 0.96 (weekday morning peak), and 0.92 (weekday afternoon peak) which is the average factor observed from the surveyed intersections.
- Heavy vehicle percentage for roads = 2.0% unless data collection showed the heavy vehicle percentage to be higher for the movement.

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 available at all times 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 3 summarizes and compares the main performance parameters of the intersection capacity analysis for the unsignalized intersection. **TABLE 4** and **TABLE 6** summarizes and compares the main performance parameters of the intersection capacity analysis for the signalized intersections. **TABLE 5** and **TABLE 7** summarizes and compares the main performance parameters of the intersection capacity analysis for the signalized intersections once recommended geometric improvements are implemented.

For signalized intersections, the volume to capacity ratio and 95th percentile queue length for each movement is summarized. For the intersection of 116 Street & 92 Avenue and 120 Street & 92 Avenue, signal timing provided by the City of Delta and City of Surrey were used, respectively. No changes to the provided signal timing were made during the analysis found in this report.

For unsignalized intersections, the delay time in seconds for each lane group is summarized, as well as the 95th percentile queue length expressed in average vehicle lengths. Delay is additional travel time experienced by a driver, passenger, bicyclist, or pedestrian beyond that required to travel at the desired speed. The capacity analysis worksheets with level of services for each individual movement for the signalized and unsignalized intersections are included in **APPENDIX C**.

TABLE 3
SITE ACCESS & 92 AVENUE CAPACITY ANALYSIS

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 (N/S) & 92 Ave (E/W)	Weekday Morning Peak Hour	2023 Base	Volumes		205	9	2	182		17		15				A	Okay.
			Delay		0.0		7.7	0.0			10.5						
			95% Queue (veh)		0.0		0.0	0.0			0.2						
		2026 Base	Volumes		218	9	2	193		17		15				A	Okay.
			Delay		0.0		7.7	0.0			10.7						
			95% Queue (veh)		0.0		0.0	0.0			0.2						
		2026 Base + Site	Volumes		218	12	18	193		18		25				A	Okay.
			Delay		0.0		7.7	0.1			10.7						
			95% Queue (veh)		0.0		0.0	0.0			0.2						
		2031 Base	Volumes		238	9	2	212		17		15				A	Okay.
			Delay		0.0		7.7	0.0			10.9						
			95% Queue (veh)		0.0		0.0	0.0			0.2						
		2031 Base + Site	Volumes		238	12	18	212		18		25				A	Okay.
			Delay		0.0		7.8	0.1			11.0						
			95% Queue (veh)		0.0		0.0	0.0			0.2						
	Weekday Afternoon Peak Hour	2023 Base	Volumes		259	9	2	230		17		15				A	Okay.
			Delay		0.0		7.8	0.0			11.2						
			95% Queue (veh)		0.0		0.0	0.0			0.2						
		2026 Base	Volumes		259	12	18	230		18		25				A	Okay.
			Delay		0.0		7.8	0.1			11.3						
			95% Queue (veh)		0.0		0.0	0.0			0.2						
		2026 Base + Site	Volumes		409	4	4	328		1		5				A	Okay.
			Delay		0.0		8.2	0.0			11.7						
			95% Queue (veh)		0.0		0.0	0.0			0.0						
		2026 Base	Volumes		434	4	4	348		1		5				A	Okay.
			Delay		0.0		8.3	0.0			12.0						
			95% Queue (veh)		0.0		0.0	0.0			0.0						
		2026 Base + Site	Volumes		434	20	28	348		12		21				A	Okay.
			Delay		0.0		8.4	0.3			14.1						
			95% Queue (veh)		0.0		0.1	0.0			0.3						
		2031 Base	Volumes		475	4	4	381		1		5				A	Okay.
			Delay		0.0		8.4	0.0			12.5						
			95% Queue (veh)		0.0		0.0	0.0			0.0						
		2031 Base + Site	Volumes		475	20	28	381		12		21				A	Okay.
			Delay		0.0		8.6	0.3			15.1						
			95% Queue (veh)		0.0		0.1	0.0			0.3						
		2036 Base	Volumes		516	4	4	414		1		5				A	Okay.
			Delay		0.0		8.6	0.0			13.1						
			95% Queue (veh)		0.0		0.0	0.0			0.0						
		2036 Base + Site	Volumes		516	20	28	414		12		21				A	Okay.
			Delay		0.0		8.7	0.3			16.1						
			95% Queue (veh)		0.0		0.1	0.0			0.3						

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)

UN SIGNALIZED QUEUE IS PER VEHICLE

From **TABLE 3**, the following observations can be made:

Site Access (N/S) & 92 Avenue (E/W)

- This intersection overall currently operates at LOS A (Excellent) during the weekday morning and afternoon peak hours.
- This intersection is forecasted to continue operating at LOS A (Excellent) in both the weekday morning and afternoon peak hours for the horizon years analyzed in this study.
- The addition of site traffic in 2026 represents a forecasted 7% (30 vehicles) net increase in the weekday morning peak hour intersection volume and a forecasted 8% (67 vehicles) net increase in the weekday afternoon peak hour intersection volume.
- No operational concerns were noted in the capacity analysis of this intersection.
- By comparing the capacity results between the base and base + site scenarios, the traffic impact by the development generated traffic at the intersection is not considered significant.

TABLE 4
116 STREET & 92 AVENUE CAPACITY ANALYSIS

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 St (N/S) & 92 Ave (E/W)	Weekday Morning Peak Hour	2023 Base	Volumes	7	34	34	181	55	20	12	282	92	10	394	10	B	Okay
			V/C	0.02	0.13	0.47	0.14				0.44			0.45			
			95% Queue (m)	2.5	8.7	27.9	10.6				44.5			49.8			
		2026 Base	Volumes	8	36	37	192	59	21	13	299	98	11	418	11	B	Okay
			V/C	0.02	0.15	0.52	0.16				0.54			0.57			
			95% Queue (m)	2.8	9.7	31.1	11.7				49.2			55.0			
		2026 Base + Site	Volumes	8	36	37	192	59	22	13	299	99	13	418	11	B	Okay
			V/C	0.02	0.15	0.52	0.16				0.54			0.57			
			95% Queue (m)	2.8	9.8	31.3	11.8				49.2			55.5			
		2031 Base	Volumes	9	40	40	209	64	23	14	328	107	11	458	12	B	WB left turn 95% queue is exceeding storage length.
			V/C	0.02	0.16	0.56	0.17				0.59			0.61			
			95% Queue (m)	3.0	10.6	35.3	12.8				58.1			65.1			
		2031 Base + Site	Volumes	9	40	40	209	64	24	14	328	108	13	458	12	B	WB left turn 95% queue is exceeding storage length.
			V/C	0.02	0.16	0.56	0.17				0.59			0.61			
			95% Queue (m)	3.0	10.6	35.3	12.8				58.3			65.6			
		2036 Base	Volumes	9	43	43	226	70	24	16	356	115	12	497	13	B	WB left turn 95% queue is exceeding storage length.
			V/C	0.02	0.16	0.60	0.18				0.62			0.65			
			95% Queue (m)	3.0	11.0	38.2	13.5				68.6			76.3			
		2036 Base + Site	Volumes	9	43	43	226	70	25	16	356	116	14	497	13	B	WB left turn 95% queue is exceeding storage length.
			V/C	0.02	0.16	0.60	0.18				0.62			0.65			
			95% Queue (m)	3.0	11.0	38.2	13.6				68.6			77.0			
	Weekday Afternoon Peak Hour	2023 Base	Volumes	18	134	26	192	101	37	25	404	300	31	358	8	B	NB approach is approaching capacity. WB left turn 95% queue is exceeding storage length.
			V/C	0.06	0.35	0.65	0.30				0.86			0.48			
			95% Queue (m)	5.2	24.7	35.6	20.0				154.6			58.5			
		2026 Base	Volumes	20	142	28	204	108	40	27	429	318	33	380	9	C	NB approach is approaching capacity. WB left turn 95% queue is exceeding storage length.
			V/C	0.06	0.36	0.67	0.31				0.93			0.53			
			95% Queue (m)	5.5	25.8	37.8	21.2				174.0			66.7			
		2026 Base + Site	Volumes	20	144	28	209	109	45	27	429	327	38	380	9	C	NB approach is approaching capacity. WB left turn 95% queue is exceeding storage length.
			V/C	0.06	0.36	0.68	0.32				0.95			0.54			
			95% Queue (m)	5.5	26.1	38.8	21.7				178.1			69.1			
		2031 Base	Volumes	21	156	31	223	118	43	29	469	348	36	416	10	D	NB approach exceeded capacity. WB left turn 95% queue is exceeding storage length.
			V/C	0.06	0.37	0.70	0.32				1.05			0.59			
			95% Queue (m)	5.7	28.3	41.9	23.0				200.2			77.3			
		2031 Base + Site	Volumes	21	158	31	228	119	48	29	469	357	41	416	10	D	NB approach exceeded capacity. WB left turn 95% queue is exceeding storage length.
			V/C	0.06	0.37	0.71	0.33				1.06			0.61			
			95% Queue (m)	5.7	28.5	43.2	23.5				202.9			79.5			
		2036 Base	Volumes	23	169	33	242	128	47	32	510	378	39	452	11	E	NB approach exceeded capacity. WB left turn 95% queue is exceeding storage length.
			V/C	0.07	0.38	0.73	0.33				1.17			0.67			
			95% Queue (m)	6.0	30.6	46.7	25.1				223.3			100.2			
		2036 Base + Site	Volumes	23	171	33	247	129	52	32	510	387	44	452	11	E	NB approach exceeded capacity. WB left turn 95% queue is exceeding storage length.
			V/C	0.07	0.38	0.73	0.34				1.19			0.70			
			95% Queue (m)	6.0	30.9	48.1	25.7				226.0			104.6			

	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 approach demand exceeds capacity (v/c ≥ 1.00)
	95% Queue length exceeds the capacity of existing storage bay.

From **TABLE 4**, the following observations can be made:

116 Street (N/S) & 92 Avenue (E/W)

- This intersection currently operates at Level of Service LOS B (Good) during weekday morning and afternoon peak hours.
- This intersection is forecasted to continue operating at LOS B in the weekday morning peak hours for the horizon years analyzed in this study. For the weekday afternoon peak hour, the intersection is forecasted to begin operating at a LOS C (Fair) in the 2026 base scenario, LOS D (Poor) in the 2031 base scenario and LOS E (Very Poor) in the 2036 base scenario.
- For the weekday morning peak hour, the westbound left turn 95% queue storage is forecasted to exceed the storage length beginning in the 2031 base scenario. For weekday morning scenarios, the westbound left turn 95% queue length is shown to be currently exceeding the storage length.
- In the weekday afternoon scenarios, the northbound approach is shown to be currently approaching capacity. It is forecasted that the northbound approach will begin exceeding capacity in the 2031 base scenario.
- The addition of site traffic in 2026 represents a forecasted less than 1% (4 vehicles) net increase in the weekday morning peak hour intersection volume and a forecasted 2% (27 vehicles) net increase in the weekday afternoon peak hour intersection volume.
- By comparing the capacity results between the base and base + site scenarios, it is clear that the Level of Service reduction at this intersection is due to base traffic growth and the traffic impact by the development generated traffic at the intersection is not considered significant.

TABLE 5
116 STREET & 92 AVENUE CAPACITY ANALYSIS (GEOMETRIC IMPROVEMENTS)

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 St (N/S) & 92 Ave (E/W)	Weekday Afternoon Peak Hour	2023 Base	Volumes	18	134	26	192	101	37	25	404	300	31	358	8	B	WB left turn 95% queue is exceeding storage length.
			V/C	0.05	0.30		0.56	0.26		0.63	0.40			0.60			
			95% Queue (m)	5.2	24.7		35.6	20.0		62.9	11.6			57.6			
		2026 Base	Volumes	20	142	28	204	108	40	27	429	318	33	380	9	B	WB left turn 95% queue is exceeding storage length.
			V/C	0.06	0.31		0.58	0.27		0.67	0.42			0.63			
			95% Queue (m)	5.5	25.8		37.8	21.2		71.3	12.5			65.3			
		2026 Base + Site	Volumes	20	144	28	209	109	45	27	429	327	38	380	9	B	WB left turn 95% queue is exceeding storage length.
			V/C	0.06	0.31		0.59	0.28		0.67	0.43			0.65			
			95% Queue (m)	5.5	26.1		38.8	21.7		72.5	12.8			67.9			
		2031 Base	Volumes	21	156	31	223	118	43	29	469	348	36	416	10	B	WB left turn 95% queue is exceeding storage length.
			V/C	0.06	0.34		0.64	0.29		0.69	0.43			0.66			
			95% Queue (m)	5.7	28.3		41.9	23.0		83.1	13.2			75.9			
		2031 Base + Site	Volumes	21	158	31	228	119	48	29	469	357	41	416	10	B	WB left turn 95% queue is exceeding storage length.
			V/C	0.06	0.35		0.67	0.31		0.67	0.43			0.65			
			95% Queue (m)	5.7	28.5		43.2	23.5		83.1	35.5			77.6			
		2036 Base	Volumes	23	169	33	242	128	47	32	510	378	39	452	11	B	WB left turn 95% queue is exceeding storage length.
			V/C	0.07	0.38		0.73	0.33		0.68	0.44			0.64			
			95% Queue (m)	6.0	30.6		46.7	25.1		107.2	16.3			85.4			
		2036 Base + Site	Volumes	23	171	33	247	129	52	32	510	387	44	452	11	B	WB left turn 95% queue is exceeding storage length.
			V/C	0.07	0.38		0.73	0.34		0.68	0.45			0.68			
			95% Queue (m)	6.0	30.9		48.1	25.7		107.2	16.6			101.7			

	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 approach demand exceeds capacity (v/c ≥ 1.00)
	95% Queue length exceeds the capacity of existing storage bay.

From **TABLE 5**, the following observations can be made:

116 Street (N/S) & 92 Avenue (E/W) (Geometric Improvements)

- The addition of a northbound right turn lane is shown to significantly improve the forecasted performance of this intersection when compared to the results shown in the weekday afternoon peak hour in **TABLE 4**. No changes to the existing signal timing were made in this analysis.
- The northbound right turn lane used in the analysis has a storage length of 40 metres. This can be accomplished by restricting parking along the east side of 116 Street south of 92 Avenue during the peak traffic periods.
- This improvement was tested because the collected traffic data at this intersection showed that a significant proportion of the vehicles at the south approach are turning right on to 92 Avenue. Providing a turning lane for these vehicles to better allow northbound left and through vehicles to access the intersection is shown to significantly decrease the 95% queue length, v/c ratio and overall level of service of the intersection.
- CTS recommends that the City of Delta consider this low-cost change to the geometry of the south approach of this intersection.

TABLE 6
120 STREET & 92 AVENUE CAPACITY ANALYSIS

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				
120 St (N/S) & 92 Ave (E/W)	Weekday Morning Peak Hour	2023 Base	Volumes	85	77	42	62	116	31	35	497	67	14	481	55	B	Okay		
			V/C	0.46			0.45			0.08		0.44		0.06				0.50	
			95% Queue (m)	42.3			43.4			6.8		37.7		5.6				48.6	
		2026 Base	Volumes	90	82	45	66	123	33	38	527	72	15	510	59	B	Okay		
			V/C	0.50			0.48			0.10		0.44		0.06				0.53	
			95% Queue (m)	47.1			47.8			7.6		43.0		6.1				54.6	
		2026 Base + Site	Volumes	94	83	50	66	126	33	45	527	72	15	510	65	B	Okay		
			V/C	0.51			0.47			0.11		0.44		0.06				0.54	
			95% Queue (m)	49.3			48.6			9.0		44.7		6.2				56.9	
		2031 Base	Volumes	98	89	48	72	135	36	41	577	78	17	558	64	B	Okay		
			V/C	0.53			0.50			0.11		0.47		0.07				0.57	
			95% Queue (m)	53.3			54.6			8.9		52.8		7.2				65.2	
		2031 Base + Site	Volumes	102	90	53	72	138	36	48	577	78	17	558	70	B	Okay		
			V/C	0.54			0.50			0.13		0.48		0.07				0.57	
			95% Queue (m)	56.8			56.0			10.5		55.3		7.3				68.2	
		2036 Base	Volumes	106	97	52	79	147	40	44	627	85	18	607	70	B	Okay		
			V/C	0.56			0.53			0.13		0.51		0.08				0.60	
			95% Queue (m)	61.3			62.9			10.5		65.7		8.0				78.4	
		2036 Base + Site	Volumes	110	98	57	79	150	40	51	627	85	18	607	76	B	Okay		
			V/C	0.57			0.52			0.15		0.51		0.08				0.61	
			95% Queue (m)	64.7			63.7			11.8		66.4		7.9				79.8	
	Weekday Afternoon Peak Hour	2023 Base	Volumes	159	219	50	93	147	38	62	704	111	33	535	138	C	Okay		
			V/C	0.77			0.53			0.25		0.64		0.23				0.73	
			95% Queue (m)	145.1			75.7			14.0		81.7		13.3				81.0	
		2026 Base	Volumes	169	233	53	99	156	41	66	747	118	35	568	147	C	Okay		
			V/C	0.85			0.59			0.27		0.66		0.25				0.73	
			95% Queue (m)	167.8			87.7			14.8		87.9		14.0				86.8	
		2026 Base + Site	Volumes	177	236	58	99	160	41	77	747	118	35	568	156	C	EB approach is approaching capacity.		
			V/C	0.89			0.61			0.32		0.65		0.25				0.73	
			95% Queue (m)	178.2			90.3			16.7		87.9		14.0				87.9	
		2031 Base	Volumes	185	254	58	108	171	45	72	817	129	39	621	160	C	EB approach is approaching capacity.		
			V/C	0.98			0.69			0.31		0.69		0.30				0.75	
			95% Queue (m)	204.6			116.6			15.5		98.4		15.9				96.5	
		2031 Base + Site	Volumes	193	257	63	108	175	45	83	817	129	39	621	169	D	EB approach exceeded capacity.		
			V/C	1.03			0.71			0.35		0.68		0.30				0.75	
			95% Queue (m)	215.8			119.9			17.4		98.4		15.8				97.9	
		2036 Base	Volumes	200	276	63	118	186	48	78	888	140	42	675	174	D	EB approach exceeded capacity.		
			V/C	1.13			0.80			0.35		0.72		0.37				0.76	
			95% Queue (m)	241.1			142.1			16.6		110.2		18.0				107.2	
		2036 Base + Site	Volumes	208	279	68	118	190	48	89	888	140	42	675	183	D	EB approach exceeded capacity.		
			V/C	1.19			0.81			0.39		0.71		0.36				0.77	
			95% Queue (m)	256.1			147.5			18.4		109.8		17.7				108.6	

	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 approach demand exceeds capacity (v/c ≥ 1.00)
	95% Queue length exceeds the capacity of existing storage bay.

From **TABLE 6**, the following observations can be made:

120 Street (N/S) & 92 Avenue (E/W)

- This intersection currently operates at Level of Service (LOS) B (Good) during weekday morning peak hour and a LOS C (Fair) during the weekday afternoon peak hour.
- This intersection is forecasted to remain at LOS B during the weekday morning peak hour for the horizon years analyzed in this study. For the weekday afternoon peak hour, this intersection is forecasted to begin operating at a LOS D (Poor) beginning in the 2031 base + site scenario.
- In the weekday afternoon scenarios, the eastbound approach is forecasted to begin approaching capacity in the 2026 base + site scenario. It is forecasted that the eastbound approach will begin exceeding capacity in the 2031 base + site scenario.
- The addition of site traffic in 2026 represents a forecasted 2% (26 vehicles) net increase in the weekday morning peak hour intersection volume and a forecasted 2% (40 vehicles) net increase in the weekday afternoon peak hour intersection volume.
- Of note, the eastbound 95% queue lengths in the 2023 weekday afternoon base scenario are shown to extend past the site access (approximately 90 metres west of the stop bar on the eastbound approach). When queues of this length occur, it can result in onsite queueing. CTS recommends that the City of Delta considers adding a crosshatch on 92 Avenue outside the site access to allow for left-in and left-out movements to continue during the periods of peak queueing. This is the only legal frontage for this development and the site access is located at the furthest point away from 120 Street.
- By comparing the capacity results between the base and base + site scenarios, we found that the traffic impact by the development generated traffic at the intersection is not significant. While it appears that the eastbound approach capacity and overall intersection level of service was impacted by the addition of site traffic in the 2026 base + site and 2031 base + site scenarios, further inspection of the changes in the v/c ratio and 95% queue length shows that the actual impact is not as significant as it may first appear.

TABLE 7
120 STREET & 92 AVENUE CAPACITY ANALYSIS (GEOMETRIC IMPROVEMENTS)

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		
120 St (N/S) & 92 Ave (E/W)	Weekday Afternoon Peak Hour	2023 Base	Volumes	159	219	50	93	147	38	62	704	111	33	535	138	C	EB & WB left turn 95% queue is exceeding storage length.
			V/C	0.37	0.43	0.48	0.57	0.21	0.59	0.19	0.67		0.19	0.67			
			95% Queue (m)	37.1	63.8	33.2	55.0	13.2	76.8	12.4	77.3		12.4	77.3			
		2026 Base	Volumes	169	233	53	99	156	41	66	747	118	35	568	147	C	EB & WB left turn 95% queue is exceeding storage length.
			V/C	0.42	0.46	0.51	0.60	0.23	0.61	0.21	0.68		0.21	0.68			
			95% Queue (m)	41.0	71.4	36.4	60.6	14.4	85.6	13.5	85.2		13.5	85.2			
		2026 Base + Site	Volumes	177	236	58	99	160	41	77	747	118	35	568	156	C	EB & WB left turn 95% queue is exceeding storage length.
			V/C	0.44	0.48	0.51	0.61	0.27	0.61	0.20	0.69		0.20	0.69			
			95% Queue (m)	43.0	74.1	36.8	62.2	16.5	86.4	13.4	86.8		13.4	86.8			
		2031 Base	Volumes	185	254	58	108	171	45	72	817	129	39	621	160	C	EB & WB left turn 95% queue is exceeding storage length.
			V/C	0.49	0.51	0.56	0.65	0.27	0.65	0.26	0.71		0.26	0.71			
			95% Queue (m)	47.6	83.8	41.3	69.5	15.5	98.4	15.4	96.5		15.4	96.5			
		2031 Base + Site	Volumes	193	257	63	108	175	45	83	817	129	39	621	169	C	EB & WB left turn 95% queue is exceeding storage length.
			V/C	0.51	0.52	0.55	0.65	0.31	0.65	0.26	0.71		0.26	0.71			
			95% Queue (m)	50.2	86.5	41.7	71.2	17.4	98.4	15.4	97.9		15.4	97.9			
		2036 Base	Volumes	200	276	63	118	186	48	78	888	140	42	675	174	C	EB & WB left turn 95% queue is exceeding storage length.
			V/C	0.57	0.56	0.62	0.69	0.31	0.68	0.32	0.73		0.32	0.73			
			95% Queue (m)	54.4	96.9	47.3	79.0	16.6	110.2	17.3	107.2		17.3	107.2			
		2036 Base + Site	Volumes	208	279	68	118	190	48	89	888	140	42	675	183	C	EB & WB left turn 95% queue is exceeding storage length.
			V/C	0.59	0.57	0.62	0.70	0.35	0.68	0.32	0.73		0.32	0.73			
			95% Queue (m)	57.8	101.7	48.1	81.6	18.4	109.8	17.1	108.6		17.1	108.6			

	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 approach demand exceeds capacity (v/c ≥ 1.00)
	95% Queue length exceeds the capacity of existing storage bay.

From **TABLE 7**, the following observations can be made:

120 Street (N/S) & 92 Avenue (E/W) (Geometric Improvements)

- The addition of opposing eastbound and westbound left turn lanes is shown to significantly improve the forecasted performance of this intersection when compared to the results shown in the weekday afternoon peak hour in **TABLE 6**. No changes to the existing signal timing were made in this analysis.
- The eastbound and westbound left turn lanes used in the analysis have a storage length of 25 metres. This is because there appears to be more than 25 metres from the crosswalk to the rail crossing on the west approach of this intersection and from the crosswalk to the laneway on the east approach of this intersection.
- This improvement was tested because the collected traffic data at this intersection showed that a significant proportion of the vehicles for both the west and east approaches are turning left onto 120 Street. Providing a short turning lane for these vehicles to better allow eastbound and westbound right and through vehicles to access the intersection is shown to significantly decrease the 95% queue length, v/c ratio and overall level of service of the intersection.
- CTS recommends that the City of Delta consider these low-cost changes to the geometry of the west and east approaches to this intersection.

6.0 OFF-STREET PARKING

6.1 Off-Street Parking Requirement

The site is located within 125 meters of Scott Road. For all multi-unit residential buildings or mixed-use buildings with three or more dwelling units, and all commercial buildings, the required minimum number of parking spaces are reduced by 20% if the building is constructed on a lot within 125 meters of Scott Road, in accordance with the specifications outlined in Part 8, Off-Street Parking 8.4.4 (Proximity to Frequent Transit Network) of the City of Delta Zoning Bylaw No. 7600, 2017. The applicant proposes to provide 277 vehicle spaces (including 16 visitor parking spaces and 15 accessible parking spaces), 147 bicycle parking spaces, and 2 loading spaces.

The minimum vehicle off-street parking requirements for the site are detailed in **TABLE 8**. The bylaw stipulation for each land use was calculated individually and is summarized below.

TABLE 8
MINIMUM OFF-STREET VEHICLE PARKING REQUIREMENT

Land Use Bylaw Classification	Minimum Bylaw Parking Rate	Parking Bylaw Section	Scope of Development	Parking Stalls Required (including 20% reduction)	Provided
Apartment building (2 or More Bedrooms)	1.5 spaces per dwelling unit with 2 or more bedrooms	Part 8, OFF-STREET PARKING 8.4.2	91	109	159
Apartment building (Studio or 1-Bedroom Dwelling unit)	1.3 spaces per studio or 1-bedroom dwelling unit	Part 8, OFF-STREET PARKING 8.4.2	43	45	
Accessible Parking Spaces	1 accessible space per 2 adaptable dwelling units	Part 8, OFF-STREET PARKING 8.5.5	27	14	14
Apartment building (Visitor Parking)	0.1 parking space per dwelling unit for visitors	Part 8, OFF-STREET PARKING 8.4.2	134	11	12
Visitor Accessible Parking Spaces	1 visitor accessible space per 11-25 visitor spaces required	Part 8, OFF-STREET PARKING 8.5.5	11	1	1
Townhouse	2 parking space per dwelling units	Part 8, OFF-STREET PARKING 8.4.2	51	102 (20% reduction does not apply)	102
Townhouse (Visitor Parking)	0.2 parking space per dwelling unit for visitors	Part 8, OFF-STREET PARKING 8.4.2	51	10 (20% reduction does not apply)	4
TOTAL PARKING FOR RESIDENTS				256	261
TOTAL PARKING FOR VISITORS				21	16
TOTAL PARKING				277	277

The minimum bylaw off-street bicycle parking requirements for the site is found in **TABLE 9**. This requirement was found by referring to the bicycle parking requirements found in Part 8, Off-Street Parking 8.6.1 of the City of Delta Zoning Bylaw No. 7600, 2017. The applicant is proposing to provide 147 bicycle spaces on this lot.

**TABLE 9
OFF-STREET BICYCLE PARKING REQUIREMENT**

Land Use Bylaw Classification	Required Bicycle Parking Rate	Parking Bylaw Section	Units	Bicycle Parking Required	Bicycle Parking Provided
Apartment building	1 space per dwelling unit for residents, PLUS 5 spaces per apartment building for visitors	Part 8, OFF-STREET PARKING 8.6.1	134	139 (134 for residents, 5 for visitors)	147 (142 for residents, 5 for visitors)

6.2 Off-Street Loading Requirement

The minimum bylaw requirements for off-street loading spaces are found in **TABLE 10**. This requirement was found by referring to the minimum vehicle parking requirements found in Part 9, Off-Street Loading 9.2.1 of the City of Delta Zoning Bylaw No. 7600, 2017. The applicant is proposing to provide 1 loading space and 1 temporary loading space for passenger vehicles.

**TABLE 10
OFF-STREET LOADING REQUIREMENT**

Land Use Bylaw Classification	Required Loading Rate	Parking Bylaw Section	Scope	Loading Required	Loading Provided
Residential	1 space per building with more than 80 dwelling units	Part 9, OFF-STREET LOADING 9.2.1	1	1	1 (an additional temporary loading space for passenger vehicle loading is provided)

6.3 Swept Path Analysis

CTS conducted swept path analysis to confirm the parkade circulation, garbage circulation and access, emergency vehicle circulation and loading access. The design vehicles used were a PCAR for a passenger vehicle, a Ford F-550 truck for the jitney truck, an HSU for the garbage truck, a ladder fire truck for the emergency vehicle and an MSU for the loading space. All movements analyzed were acceptable. The swept path analysis is found in **APPENDIX D**.

7.0 CONCLUSIONS & RECOMMENDATIONS

7.1 Conclusions

- 1) Sandhill Development Ltd. is proposing to build a residential development at 11944 92 Avenue in the City of Delta. This lot currently consists of 34 townhouse units and the proposed redevelopment will include 134 apartment units and 51 townhouse units.
- 2) For the purposes of this study, it was assumed that development would be fully completed and occupied by the year 2026.
- 3) CTS conducted turning movement counts at the study intersections on Tuesday, June 27th, 2023, from 07:00 to 09:00, and from 14:00 to 18:00. to document the typical weekday morning and afternoon peak hour traffic volumes.
- 4) The following peak hours were selected, based on the peak hours observed by the study intersections:
 - Weekday Morning Peak Hour – 7:30 – 08:30
 - Weekday Afternoon Peak Hour – 16:00 – 17:00
- 5) The 2023 base traffic volumes were factored up by a traffic volume growth rate of 2.0% per annum (simple straight line) to represent base year 2026 volumes. This growth rate was also used to factor up traffic volume growth for 2031 and 2036 (i.e. 5 and 10 years post-buildout).
- 6) The proposed development is forecasted to generate a total of 73 vehicle trips (30 inbound, 43 outbound) during the weekday morning peak hour and 81 vehicle trips (48 inbound, 33 outbound) during the weekend afternoon peak hour. The weekday morning peak hour volume is equivalent to an average of 1.2 vehicle trips per minute while the weekday afternoon peak hour volume is equivalent to an average of 1.4 vehicle trips per minute.
- 7) For the intersection of the Site Access & 92 Avenue, the addition of site traffic volume in 2026 (build-out) represents a forecasted 7% (30 vehicles) net increase in the weekday morning peak hour intersection volume and a forecasted 8% (67 vehicles) net increase in the weekday afternoon peak hour intersection volume. From a traffic engineering perspective, the forecasted traffic impact due to the increase in traffic volume is not considered to be significant. No operational concerns were noted in the capacity analysis of this intersection.

- 8) For the intersection of 116 Street & 92 Avenue, the addition of site traffic volume in 2026 (build-out) represents a represents a forecasted less than 1% (4 vehicles) net increase in the weekday morning peak hour intersection volume and a forecasted 2% (27 vehicles) net increase in the weekday afternoon peak hour intersection volume. From a traffic engineering perspective, the forecasted traffic impact due to the increase in traffic volume is not considered to be significant.
- 9) CTS recommends that the City of Delta consider the addition of a short northbound right turn lane at the intersection of 116 Street & 92 Avenue to improve the forecasted 95% queue length, v/c ratio and overall level of service at this intersection.
- 10) For the intersection of 120 Street & 92 Avenue, the addition of site traffic volume in 2026 (build-out) represents a represents a forecasted 2% (26 vehicles) net increase in the weekday morning peak hour intersection volume and a forecasted 2% (40 vehicles) net increase in the weekday afternoon peak hour intersection volume. From a traffic engineering perspective, the forecasted traffic impact due to the increase in traffic volume is not considered to be significant. It is noted that the eastbound 95% queue lengths in the 2023 weekday afternoon base scenario are shown to extend past the site access (approximately 90 metres west of the stop bar on the eastbound approach). When queues of this length occur, it can result in onsite queueing. CTS recommends that the City of Delta considers adding a crosshatch on 92 Avenue outside the site access to allow for left-in and left-out movements to continue during the periods of peak queueing. This is the only legal frontage for this development and the site access is located at the furthest point away from 120 Street.
- 11) CTS recommends that the City of Delta consider the addition of eastbound and westbound left turn lanes at the intersection of 120 Street & 92 Avenue to improve the forecasted 95% queue length, v/c ratio and overall level of service at this intersection.
- 12) The off-street vehicle parking requirement for this development is 277 vehicle spaces including 21 visitor parking spaces and 15 accessible parking spaces. The applicant is proposing to provide 277 vehicle spaces including 16 visitor parking spaces and 15 accessible parking spaces.
- 13) The off-street bicycle parking requirement for this development is 139 bicycle spaces. The applicant is proposing to provide 147 bicycle spaces.
- 14) The off-street loading requirement for this development is 1 loading space. The applicant is proposing to provide 1 loading space and 1 temporary loading space for passenger vehicles.

- 15) CTS conducted swept path analysis to confirm the parkade circulation, garbage circulation and access, emergency vehicle circulation and loading access. The design vehicles used were a PCAR for a passenger vehicle, a Ford F-550 truck for the jitney truck, an HSU for the garbage truck, a ladder fire truck for the emergency vehicle and an MSU for the loading space. All movements analyzed were acceptable.

7.2 Recommendations

Based on the analyses above the following is recommended:

1. The City of Delta consider the addition of a northbound right turn lane at the intersection of 116 Street & 92 Avenue to improve the forecasted 95% queue length, v/c ratio and overall level of service at this intersection. This northbound lane can be implemented by restricting parking along the east side of 116 Street south of 92 Avenue during the peak traffic periods.
2. The City of Delta consider the addition of eastbound and westbound left turn lanes at the intersection of 120 Street & 92 Avenue to improve the forecasted 95% queue length, v/c ratio and overall level of service at this intersection.
3. The City of Delta considers adding a crosshatch on 92 Avenue outside the site access to allow for left-in and left-out movements to continue during the periods of peak queueing.
4. The City of Delta accepts the findings of this traffic impact assessment.

We would like to take this opportunity to thank you for this unique project and we look forward to working with you again in the future. Please call the undersigned should you have any questions and/or comments concerning this report or its contents.

Yours truly,
CREATIVE TRANSPORTATION SOLUTIONS LTD.
 CTS Permit to Practice: 1000697



Reviewed by:

2024-07-04

Gary Vlieg, M.Sc., P.Eng.
 Vice President



Prepared by:

Jakob Jungwirth, E.I.T
 Jr. Traffic Engineer

Appendix A

Architectural Site Plan



SITE PLAN - OVERALL
1:250

ISSUED FOR SD
90%

NO.	ISSUE/REVISION	DATE
-	-	-
1	ISSUED FOR SD 60%	24-01-11
2	ISSUED FOR SD 90%	24-02-01

SANDHILL MULTI
FAMILY DEV.

11944 92ND AVENUE, DELTA BC

PROJECT # 22149.1
CITY FILE #



OVERALL SITE PLAN

SCALE 1:250

SD2.00

Appendix B

Turning Movement Count Data



11944 92 Ave Driveway & 92 Ave

Tuesday, June 27, 2023

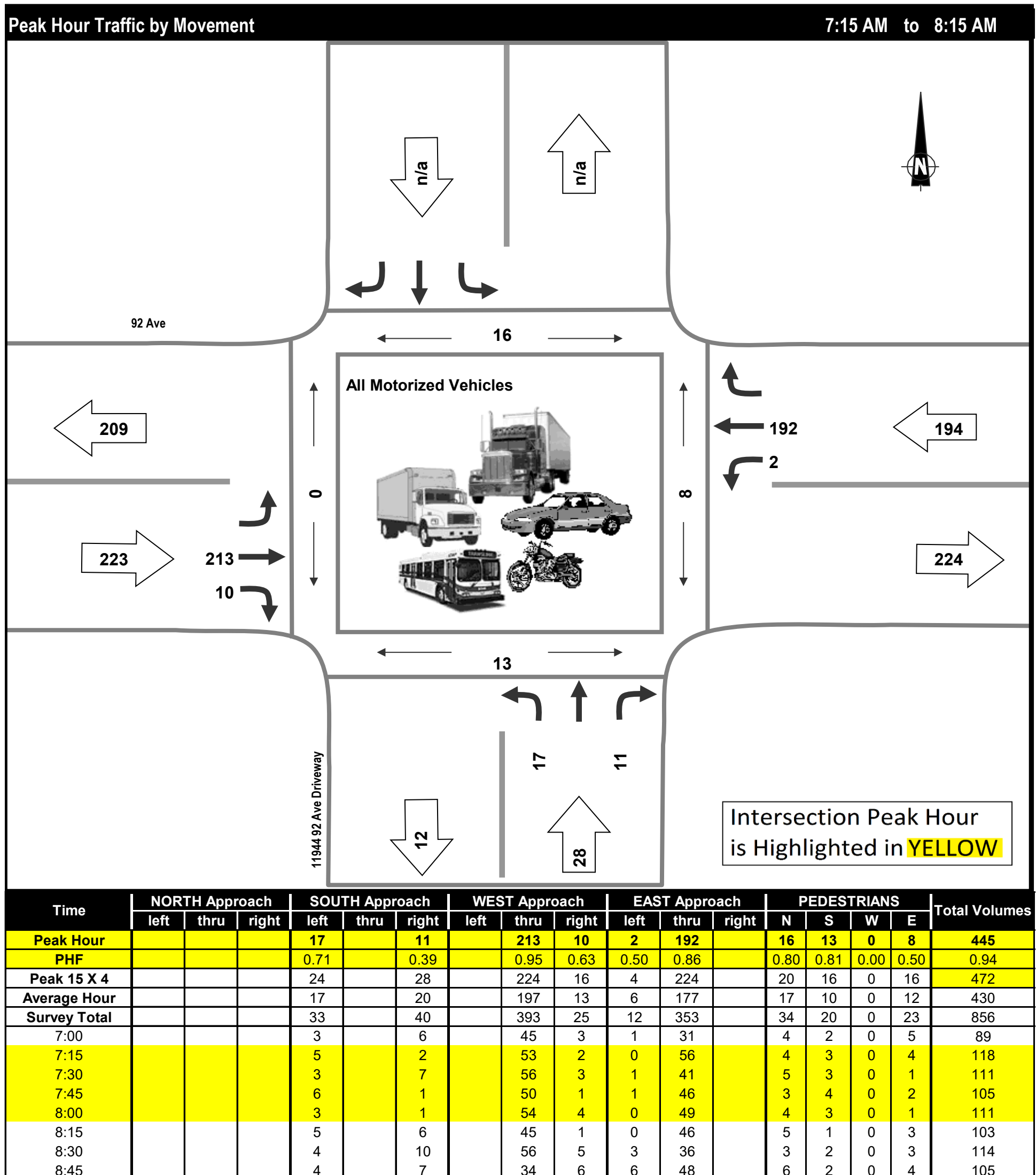
Vehicle Classification Summary

Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Sunny

Time Period	Entering Intersection	Vehicle Classification					Total
		Passenger Cars	Heavy Vehicles (3 or more axles)				
Morning (07:00 - 09:00)	Volume	855	1				856
	%	99.9%	0.1%				100.0%
	Volume						
	%						
Afternoon (14:00 - 18:00)	Volume	2,540	3				2,543
	%	99.9%	0.1%				100.0%
Total (6 Hours)	Volume	3,395	4				3,399
	%	99.9%	0.1%				100.0%

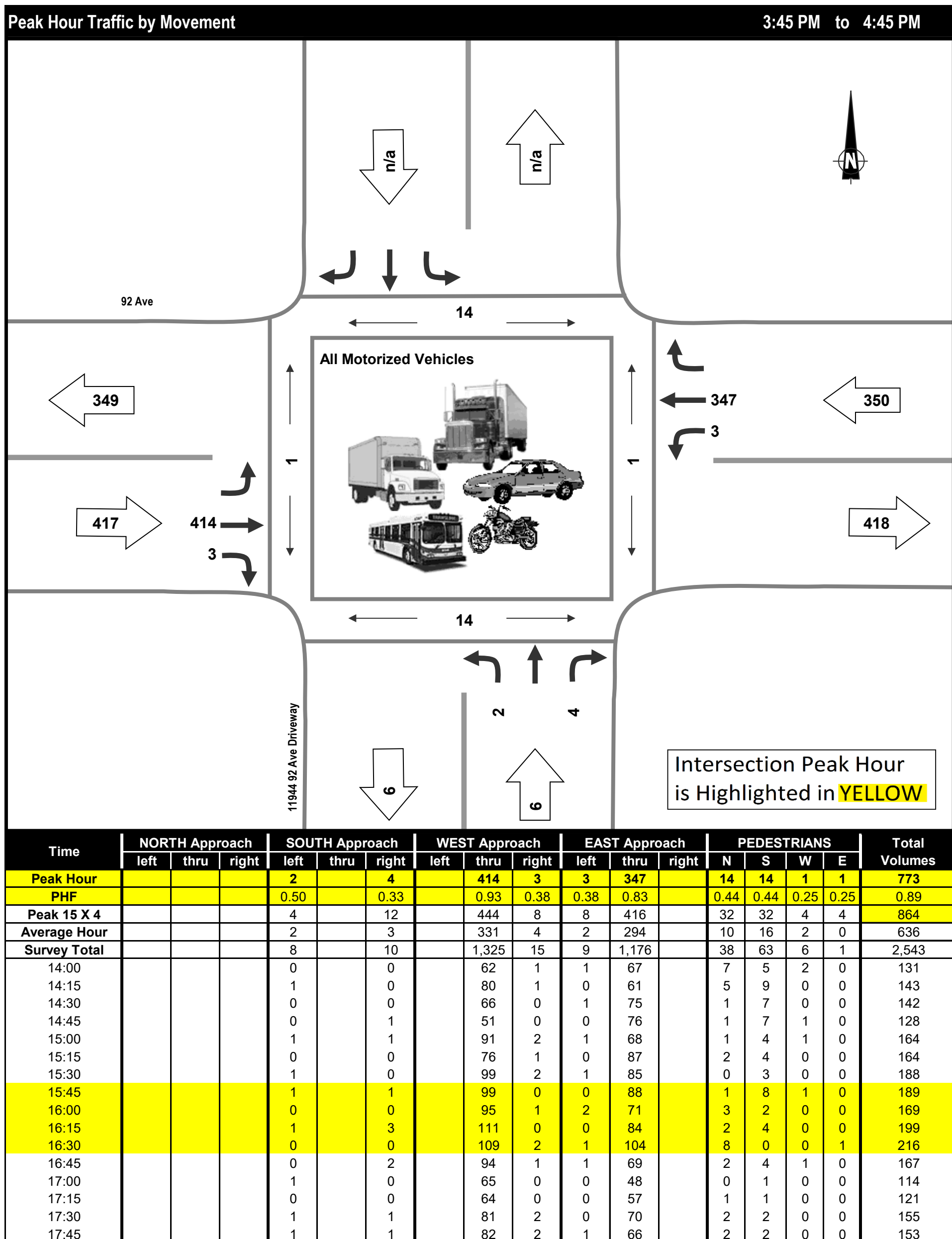
Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Sunny
Vehicle Class: All Motorized Vehicles

Morning Peak Period



Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Sunny
Vehicle Class: All Motorized Vehicles

Afternoon Peak Period





11944 92 Ave Driveway & 92 Ave

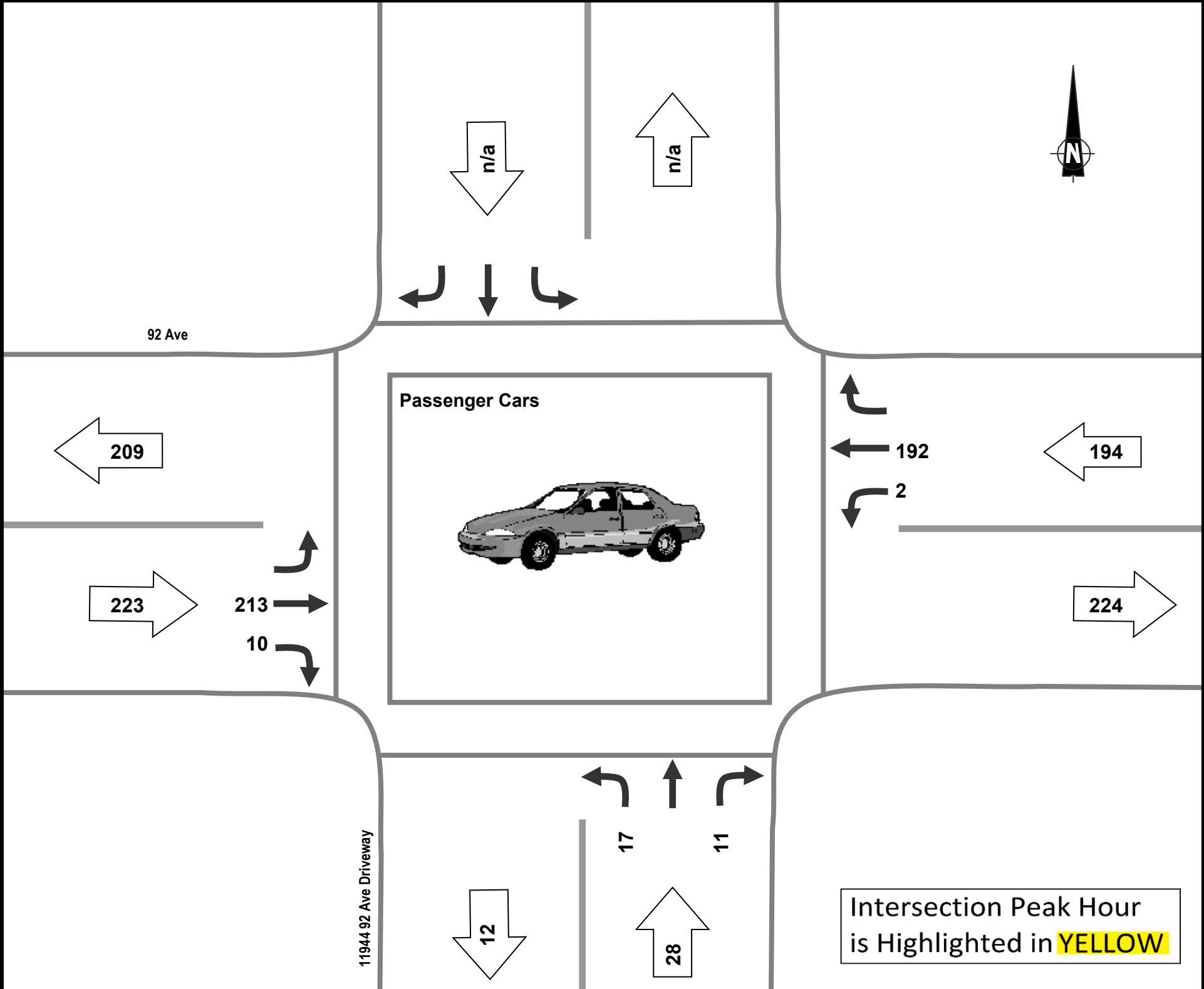
Tuesday, June 27, 2023

Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Sunny
Vehicle Class: Passenger Cars

Morning Peak Period

Peak Hour Traffic by Movement

7:15 AM to 8:15 AM



Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			PEDESTRIANS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour				17		11		213	10	2	192						445
PHF				0.71		0.39		0.95	0.63	0.50	0.86						0.94
Peak 15 X 4				24		28		224	16	4	224						472
Average Hour				17		20		197	13	6	176						429
Survey Total				33		40		393	25	12	352						855
7:00				3		6		45	3	1	31						89
7:15				5		2		53	2	0	56						118
7:30				3		7		56	3	1	41						111
7:45				6		1		50	1	1	46						105
8:00				3		1		54	4	0	49						111
8:15				5		6		45	1	0	46						103
8:30				4		10		56	5	3	35						113
8:45				4		7		34	6	6	48						105

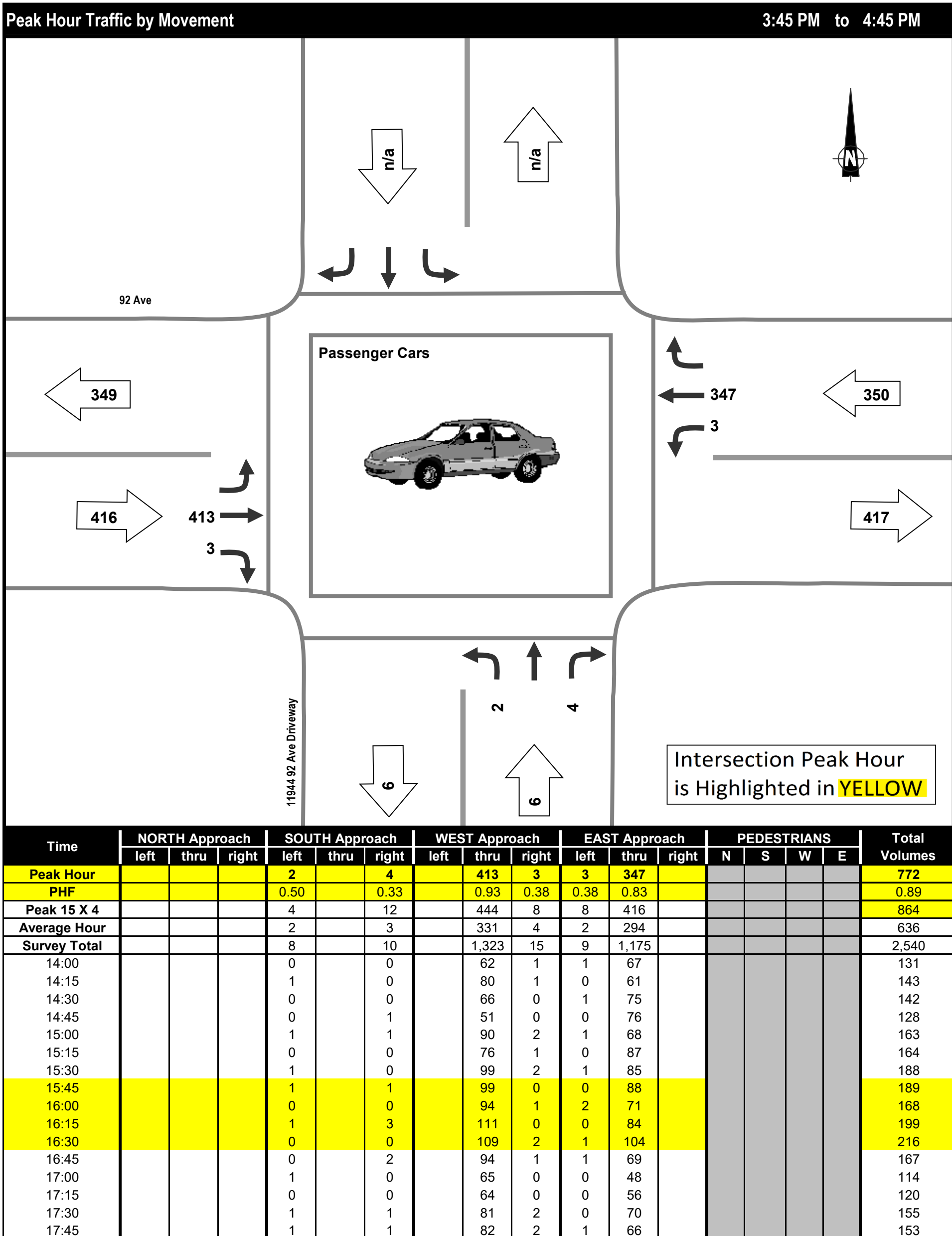


11944 92 Ave Driveway & 92 Ave

Tuesday, June 27, 2023

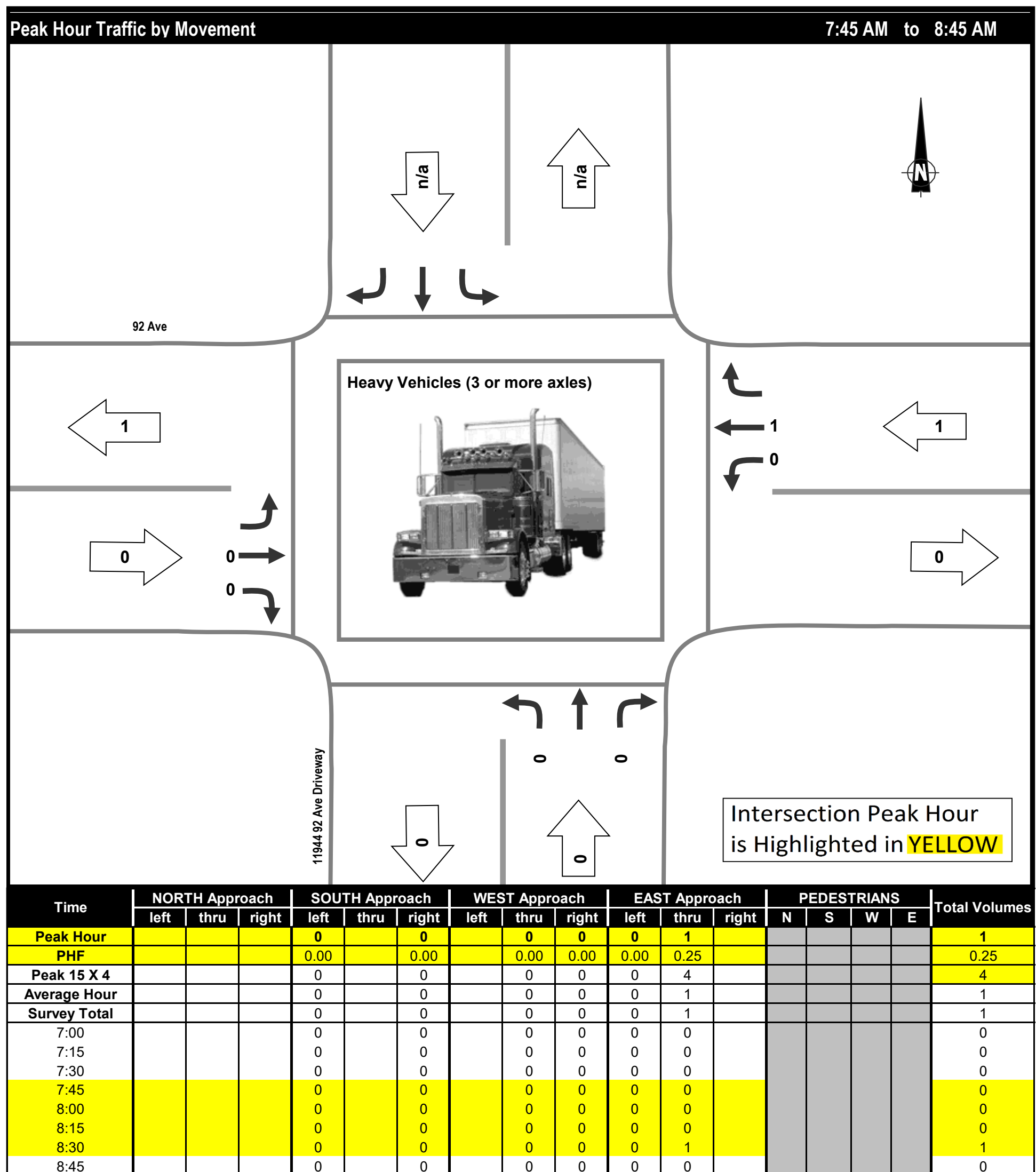
Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Sunny
Vehicle Class: Passenger Cars

Afternoon Peak Period



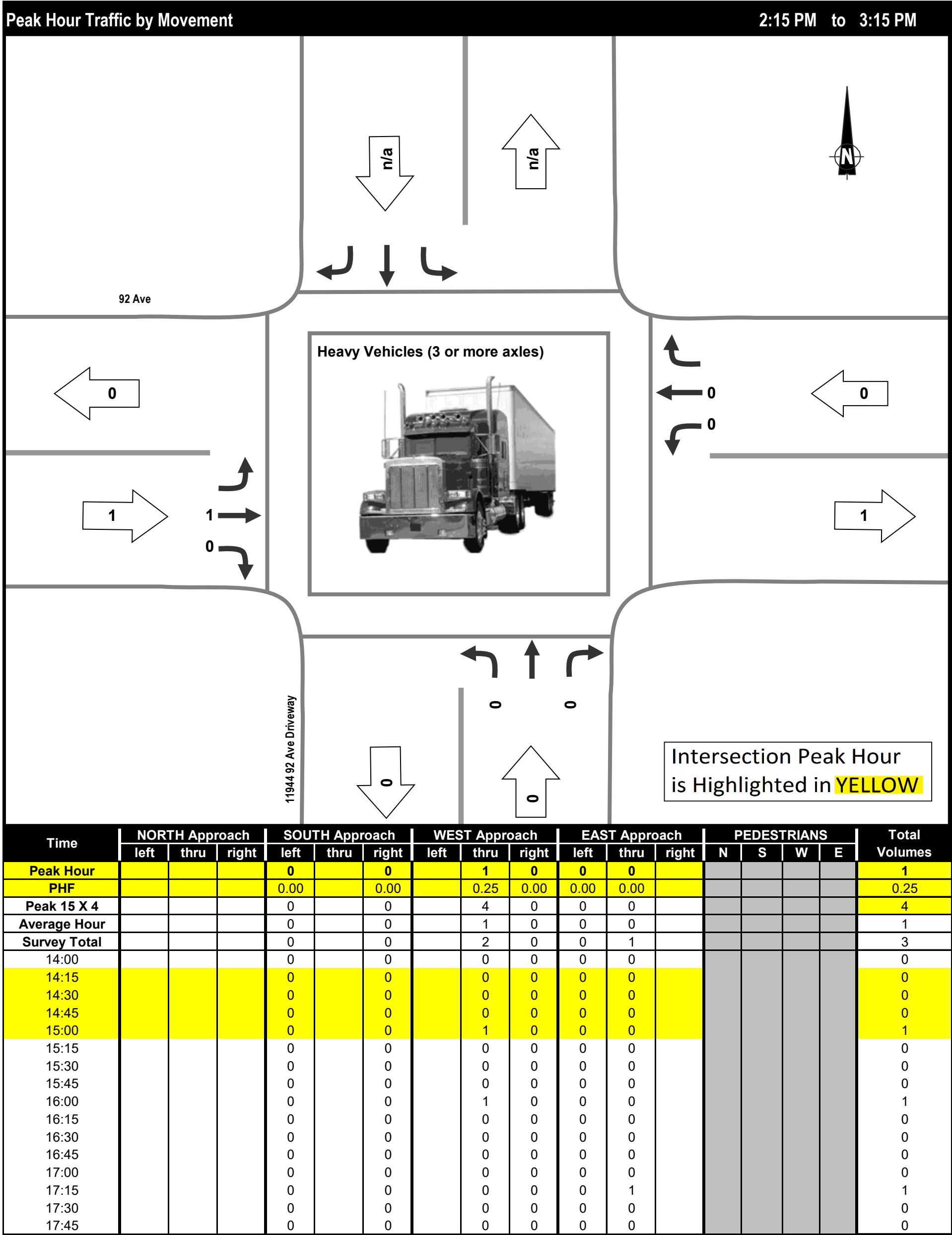
Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Sunny
Vehicle Class: Heavy Vehicles (3 or more axles)

Morning Peak Period



Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
 Municipality: Delta
 Weather: Sunny
 Vehicle Class: Heavy Vehicles (3 or more axles)

Afternoon Peak Period





11944 92 Ave Driveway & 92 Ave

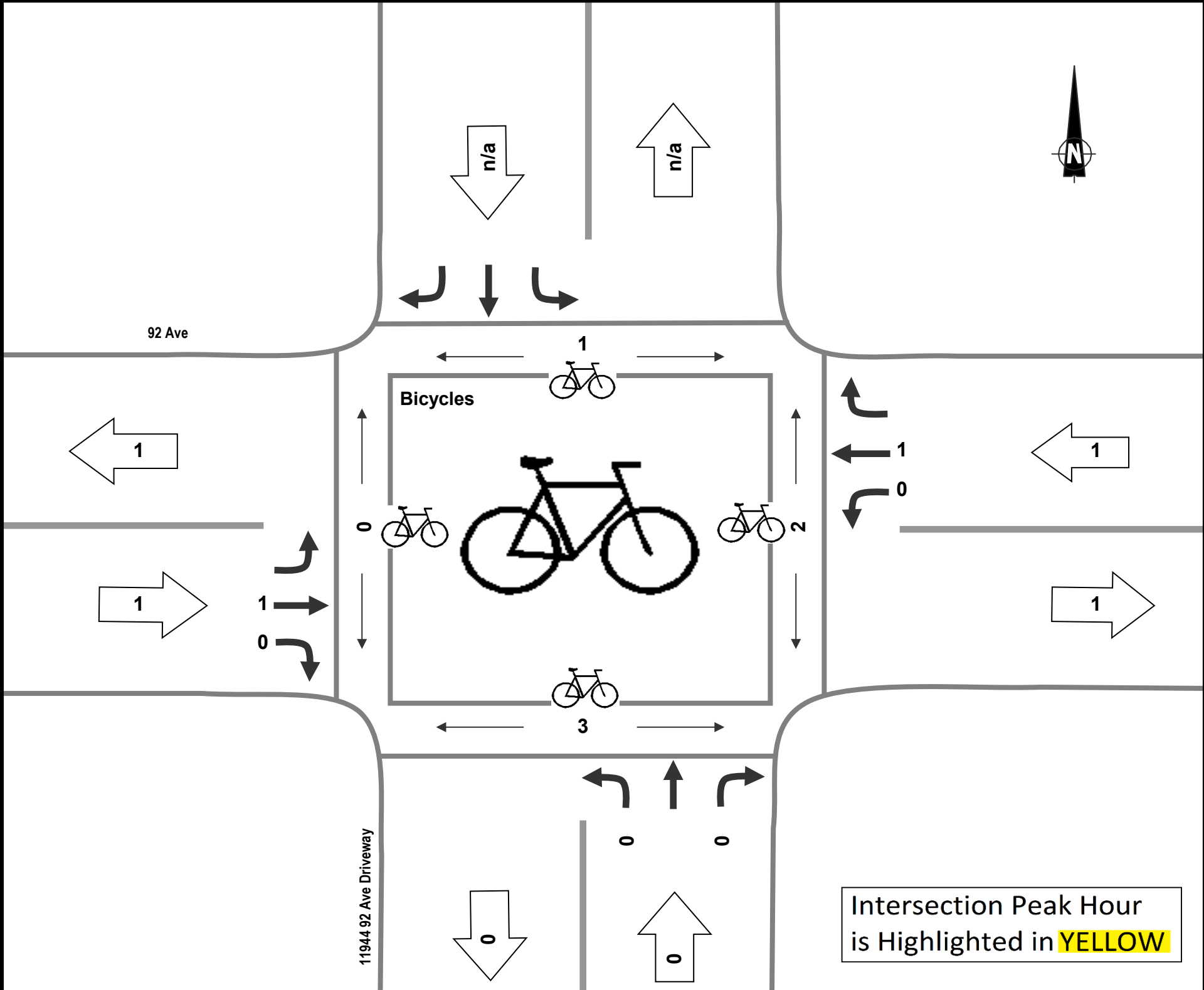
Tuesday, June 27, 2023

Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Sunny
Vehicle Class: Bicycles

Morning Peak Period

Peak Hour Traffic by Movement

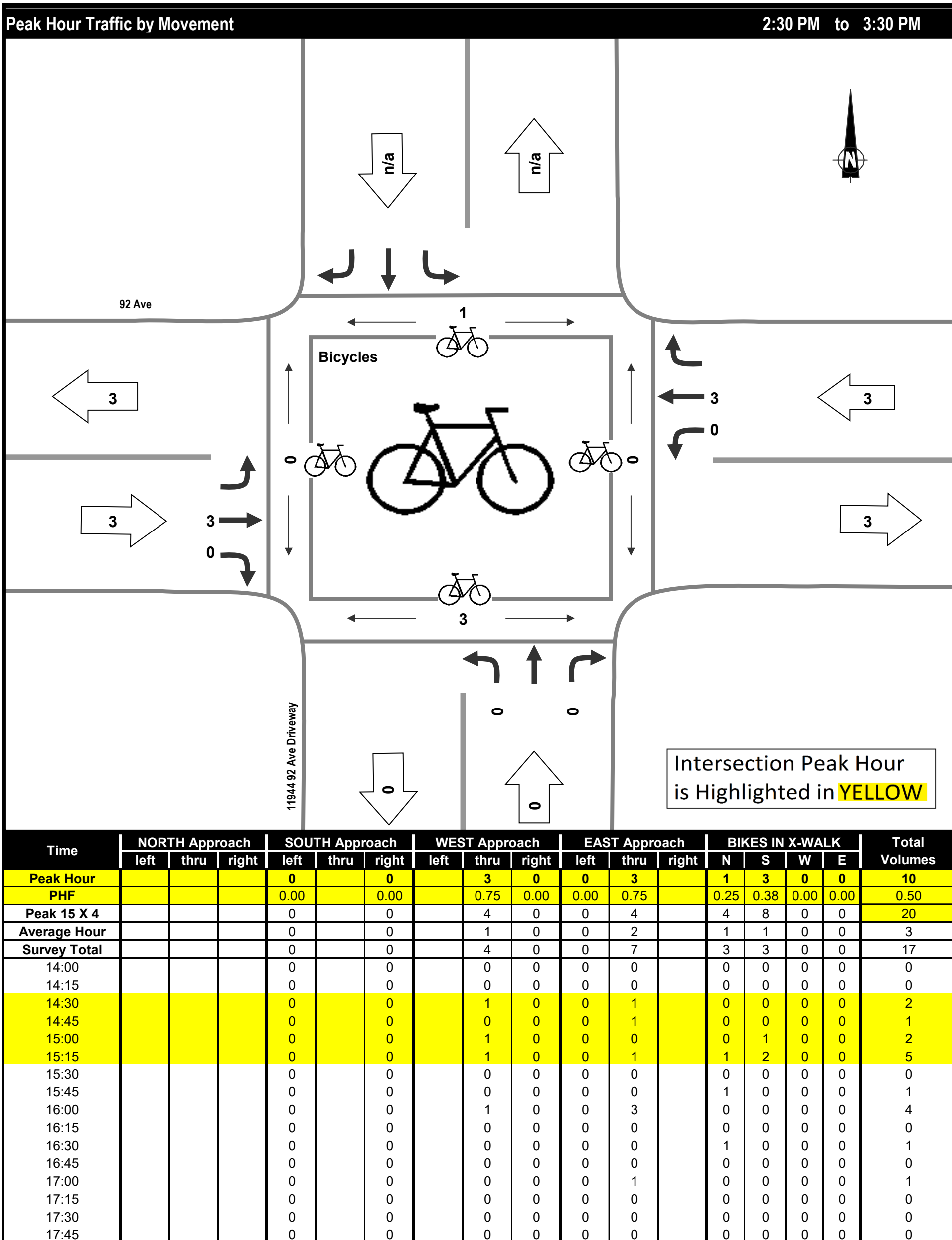
7:45 AM to 8:45 AM



Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			BIKES IN X-WALK				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour				0		0		1	0	0	1		1	3	0	2	8
PHF				0.00		0.00		0.25	0.00	0.00	0.25		0.25	0.25	0.00	0.50	0.40
Peak 15 X 4				0		0		4	0	0	4		4	12	0	4	20
Average Hour				0		0		1	0	0	1		1	2	0	2	2
Survey Total				0		0		1	0	0	1		1	3	0	3	9
7:00				0		0		0	0	0	0		0	0	0	1	1
7:15				0		0		0	0	0	0		0	0	0	0	0
7:30				0		0		0	0	0	0		0	0	0	0	0
7:45				0		0		0	0	0	1		0	0	0	0	1
8:00				0		0		0	0	0	0		1	0	0	1	2
8:15				0		0		0	0	0	0		0	0	0	0	0
8:30				0		0		1	0	0	0		0	3	0	1	5
8:45				0		0		0	0	0	0		0	0	0	0	0

Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Sunny
Vehicle Class: Bicycles

Afternoon Peak Period



**116 St & 92 Ave**

Tuesday, June 27, 2023

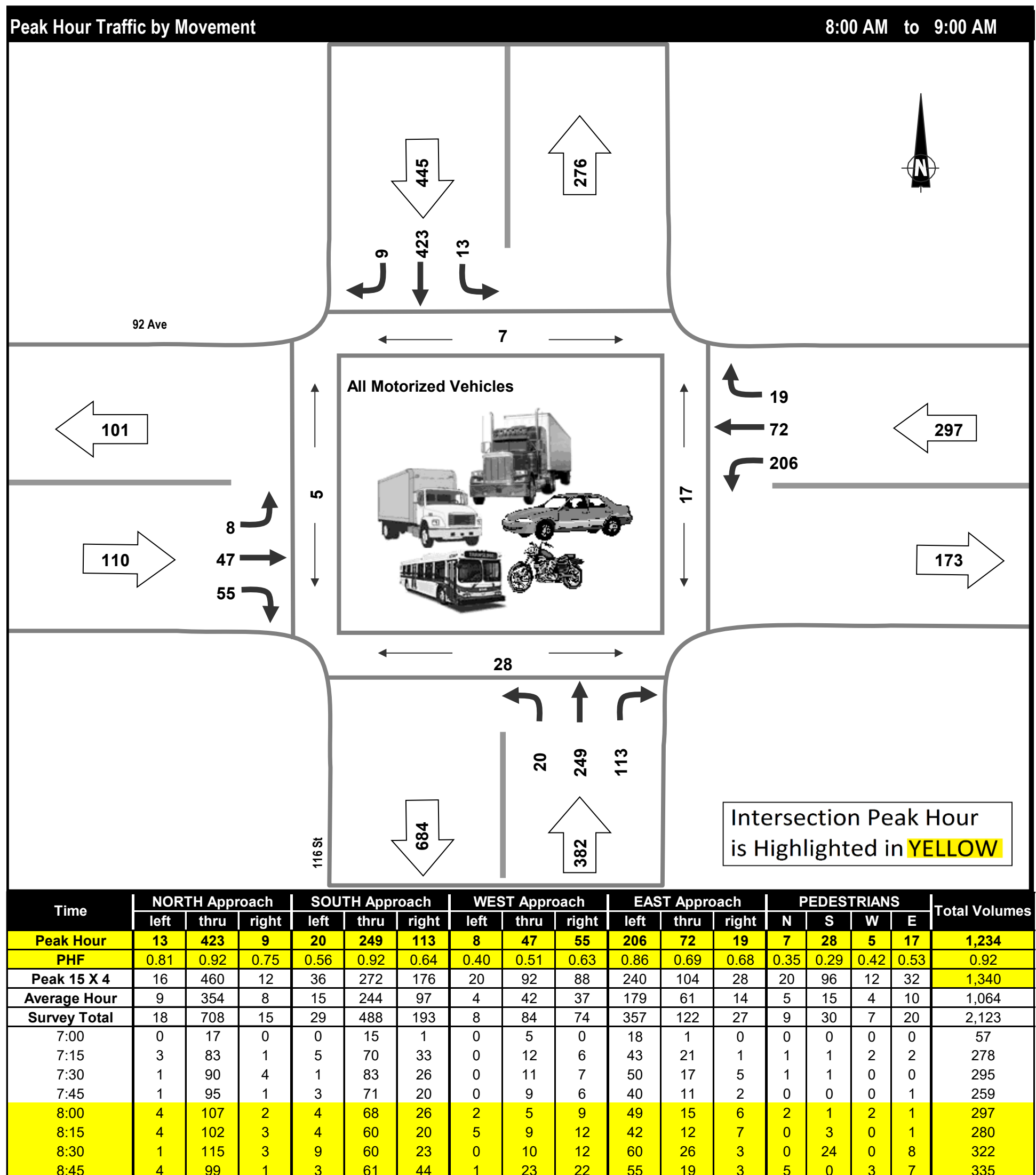
Vehicle Classification Summary

Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Sunny

Time Period	Entering Intersection	Vehicle Classification					Total
		Passenger Cars	Heavy Vehicles (3 or more axles)				
Morning (07:00 - 09:00)	Volume	2,118	5				2,123
	%	99.8%	0.2%				100.0%
	Volume						
	%						
Afternoon (14:00 - 18:00)	Volume	6,048	13				6,061
	%	99.8%	0.2%				100.0%
Total (6 Hours)	Volume	8,166	18				8,184
	%	99.8%	0.2%				100.0%

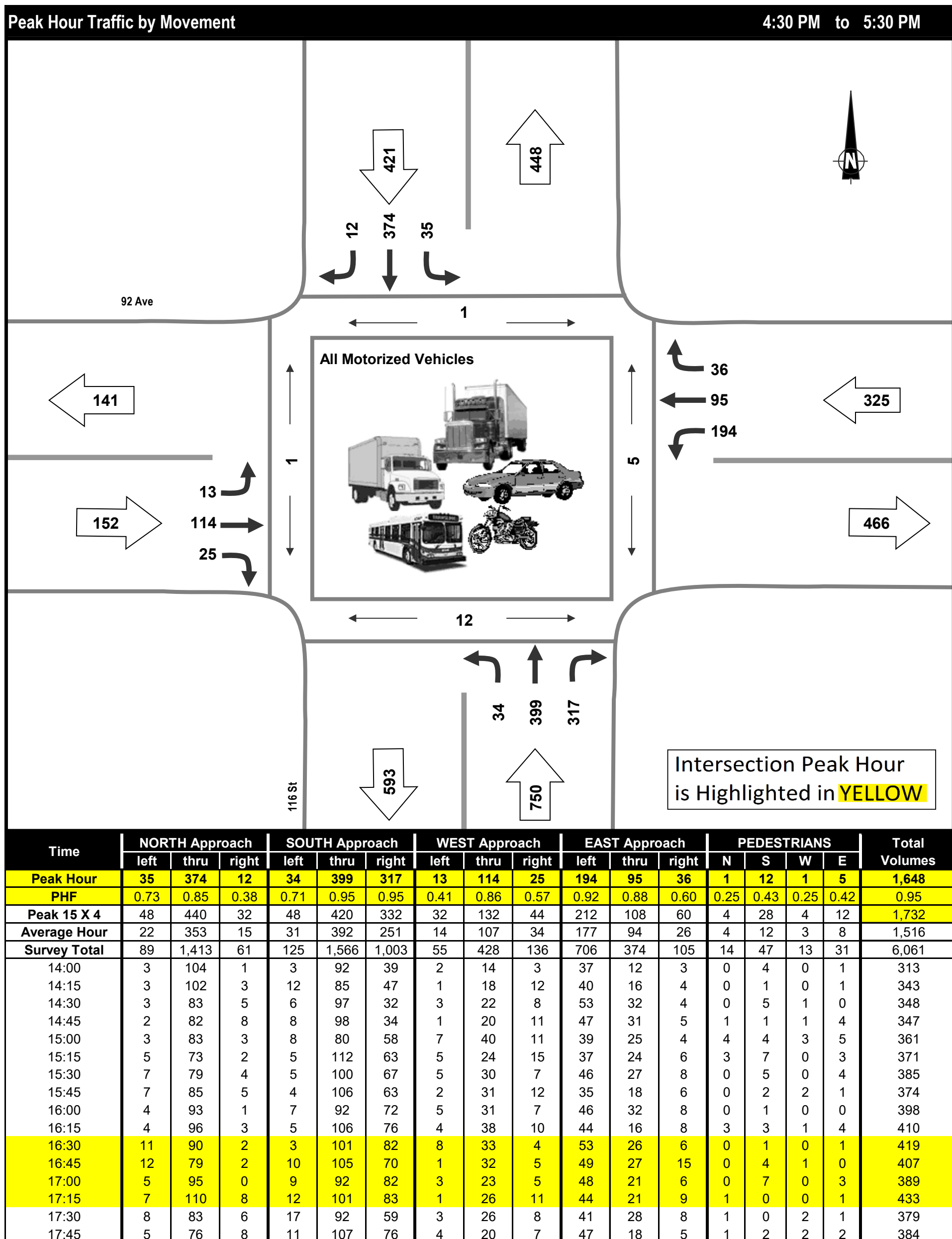
Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Sunny
Vehicle Class: All Motorized Vehicles

Morning Peak Period



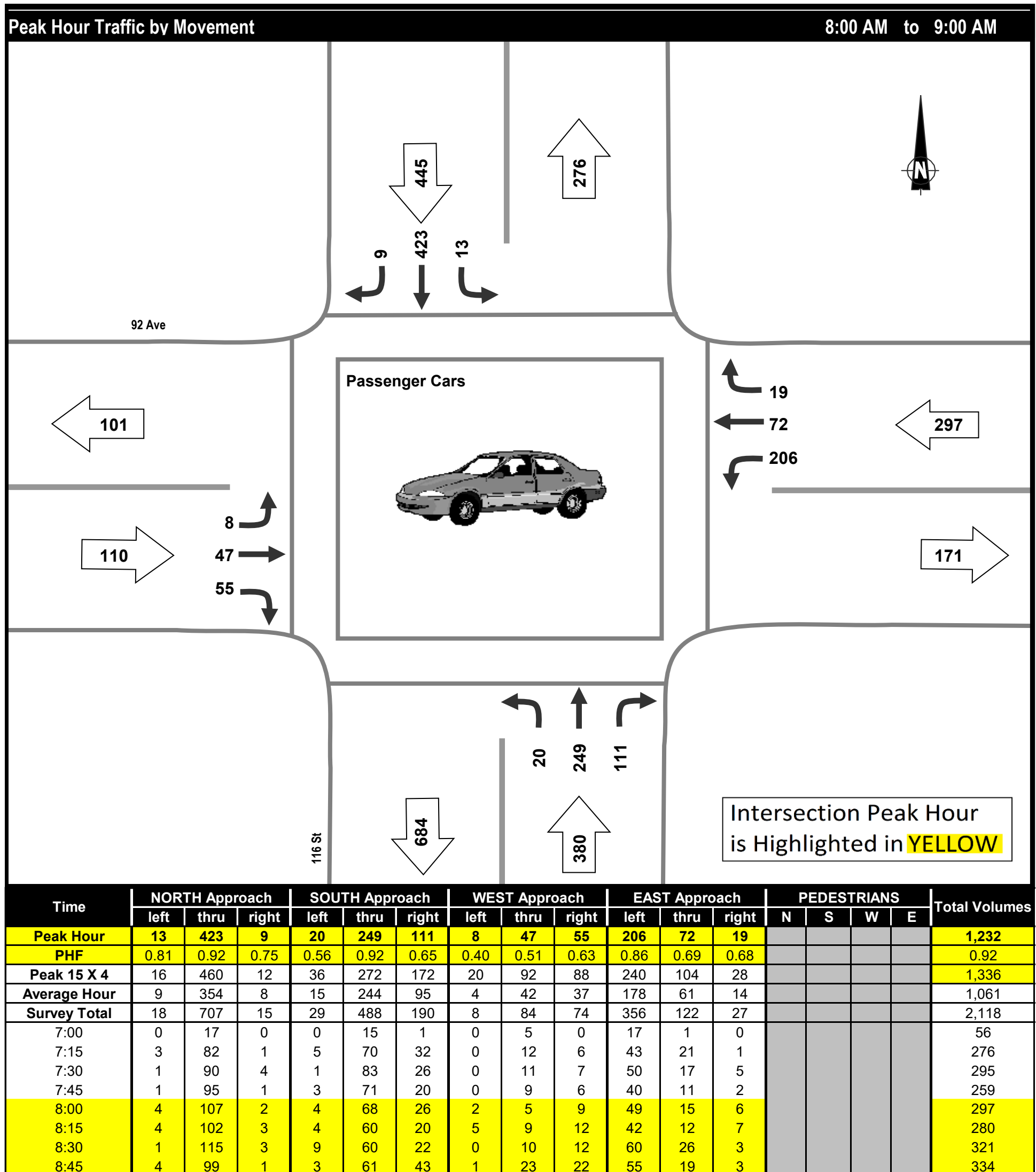
Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Sunny
Vehicle Class: All Motorized Vehicles

Afternoon Peak Period



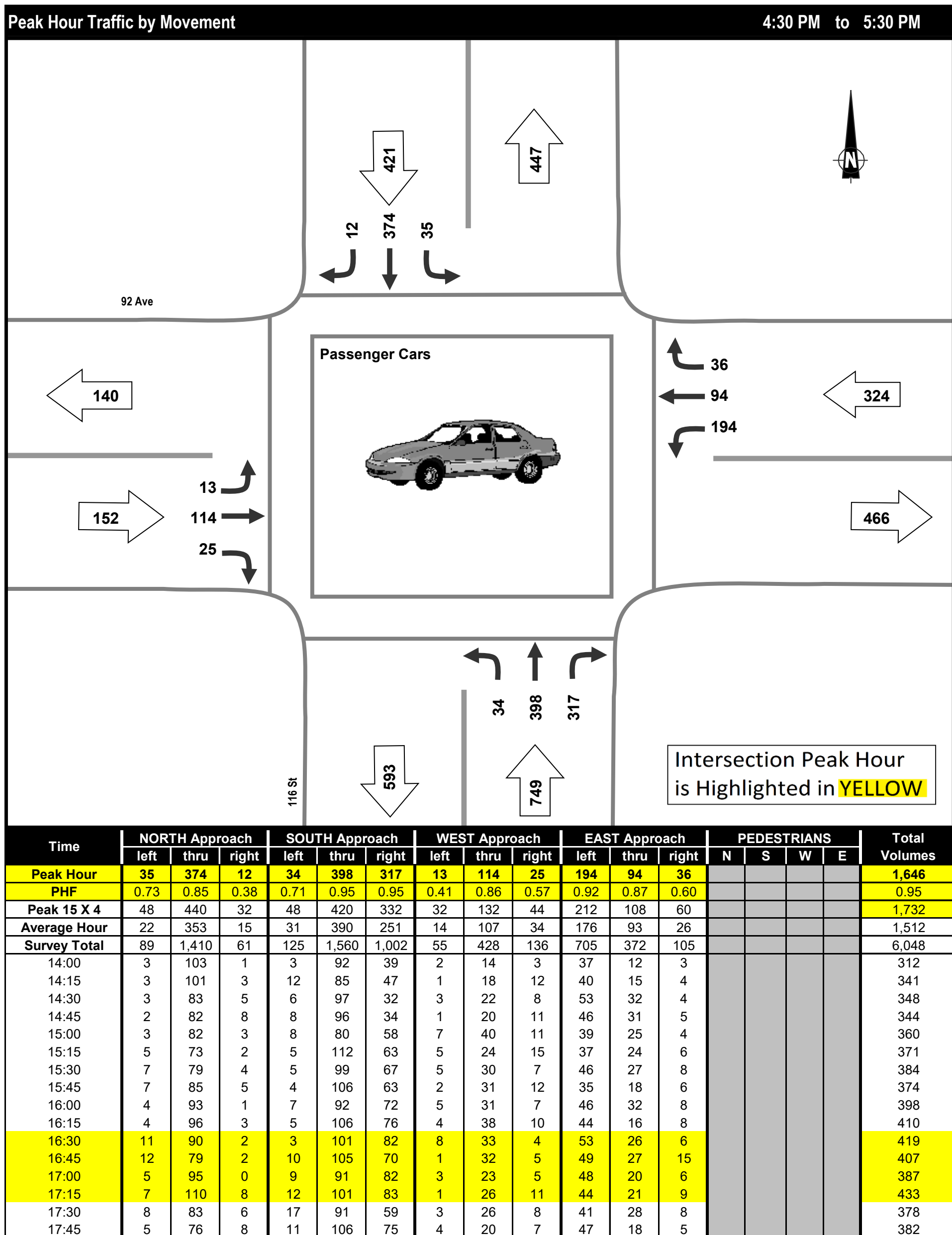
Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Sunny
Vehicle Class: Passenger Cars

Morning Peak Period



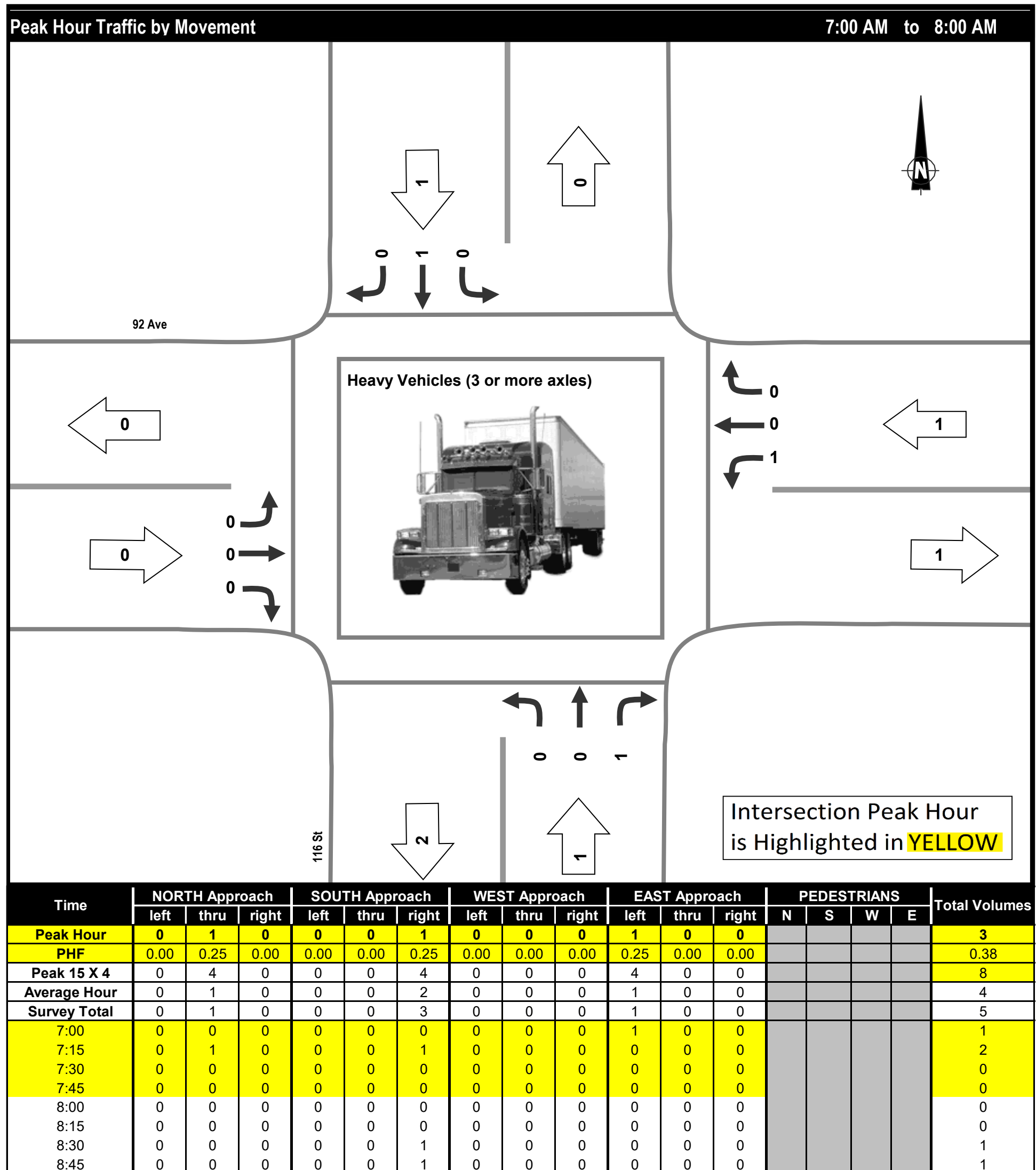
Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Sunny
Vehicle Class: Passenger Cars

Afternoon Peak Period



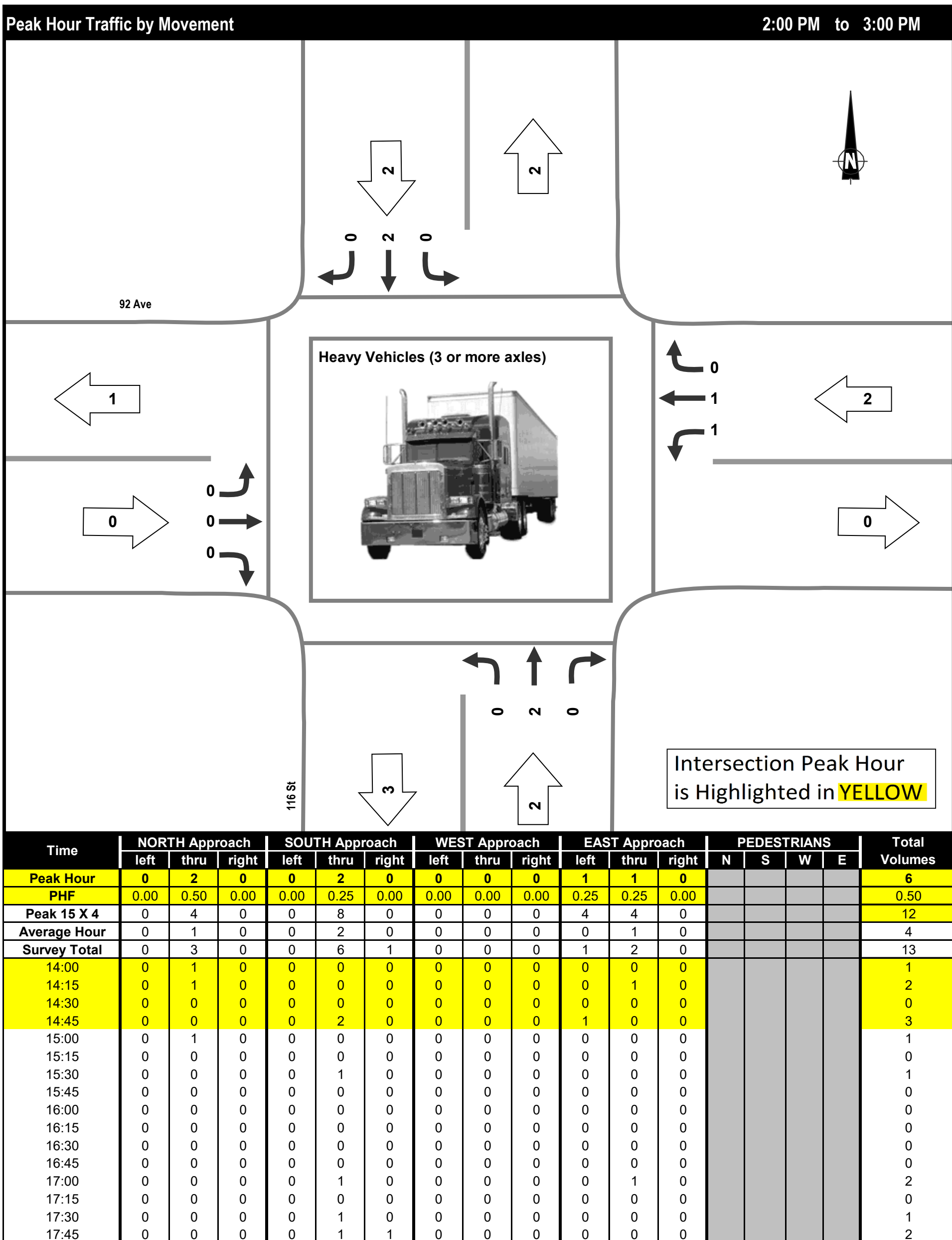
Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Sunny
Vehicle Class: Heavy Vehicles (3 or more axles)

Morning Peak Period



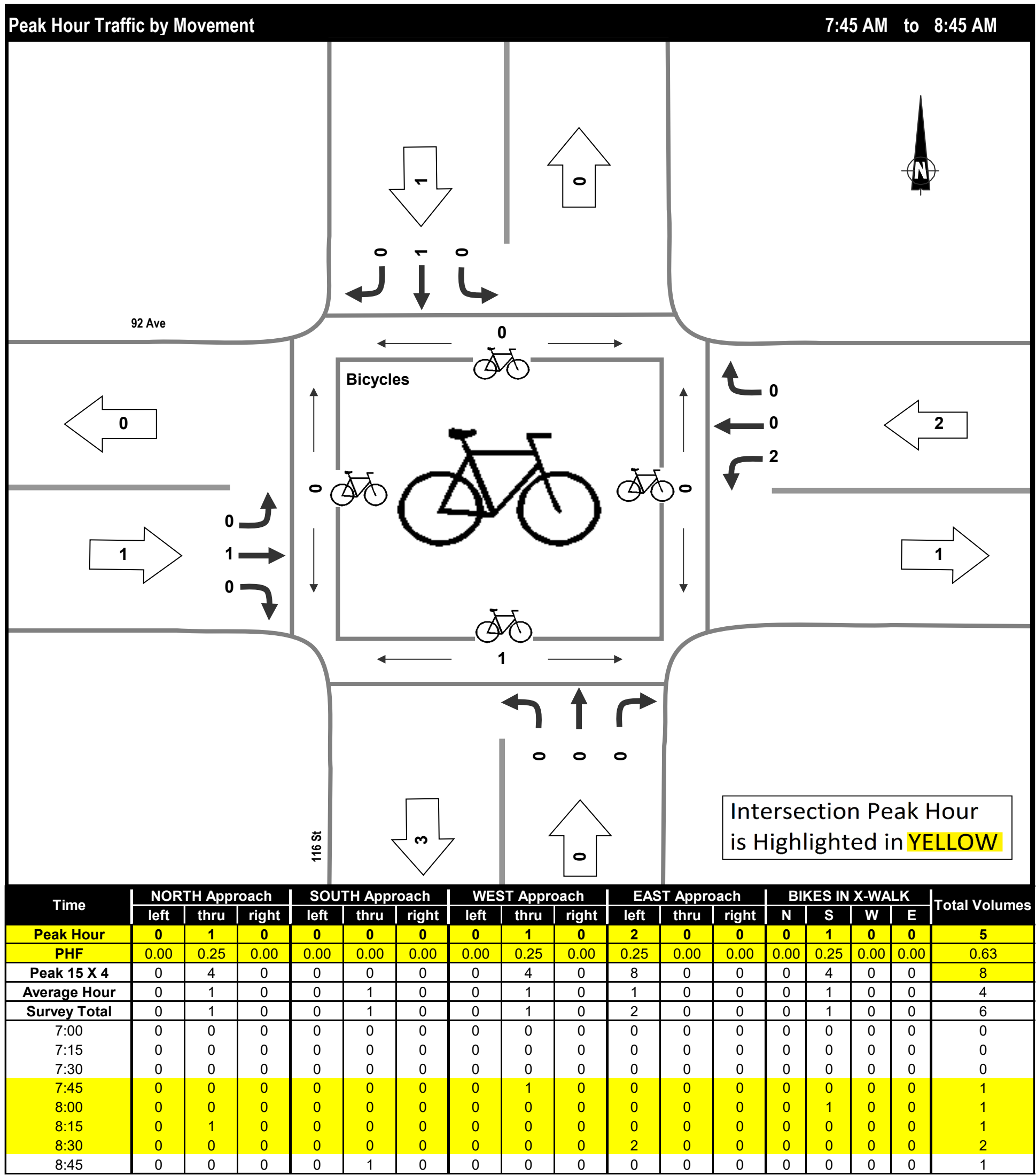
Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Sunny
Vehicle Class: Heavy Vehicles (3 or more axles)

Afternoon Peak Period



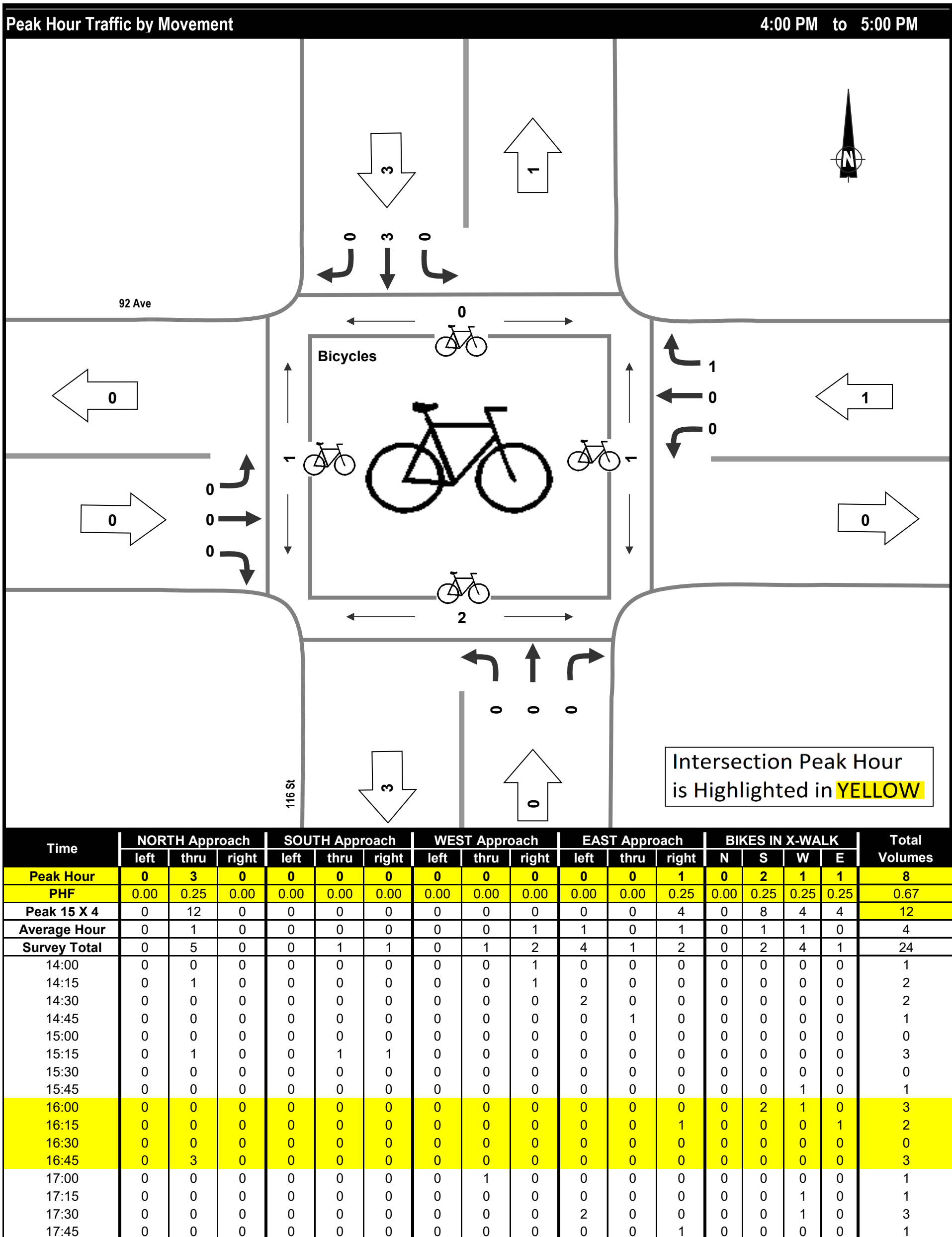
Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Sunny
Vehicle Class: Bicycles

Morning Peak Period



Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Sunny
Vehicle Class: Bicycles

Afternoon Peak Period



**120 St & 92 Ave**

Tuesday, June 27, 2023

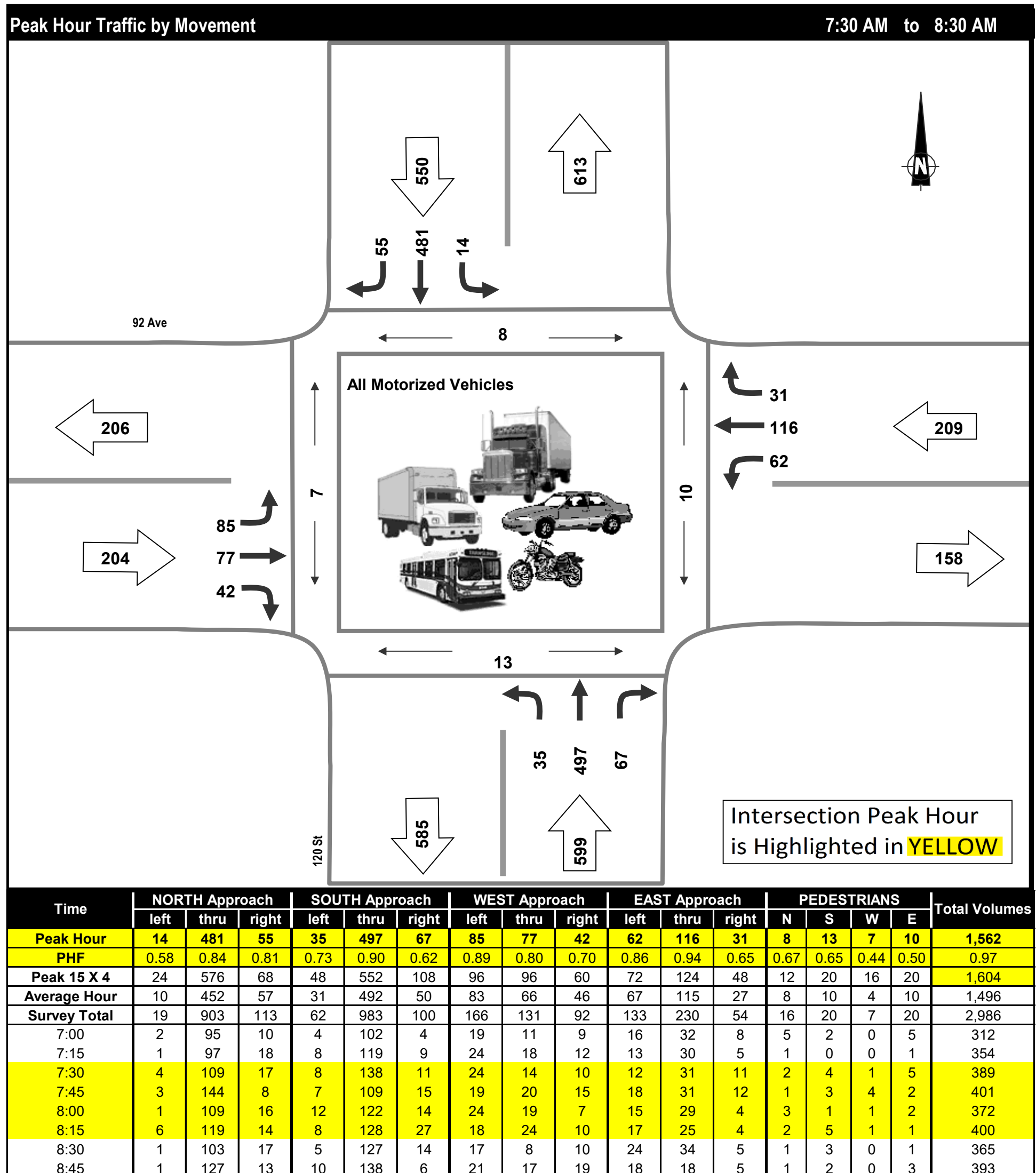
Vehicle Classification Summary

Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
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	2,861	125				2,986
	%	95.8%	4.2%				100.0%
	Volume						
	%						
Afternoon (14:00 - 18:00)	Volume	8,286	126				8,412
	%	98.5%	1.5%				100.0%
Total (6 Hours)	Volume	11,147	251				11,398
	%	97.8%	2.2%				100.0%

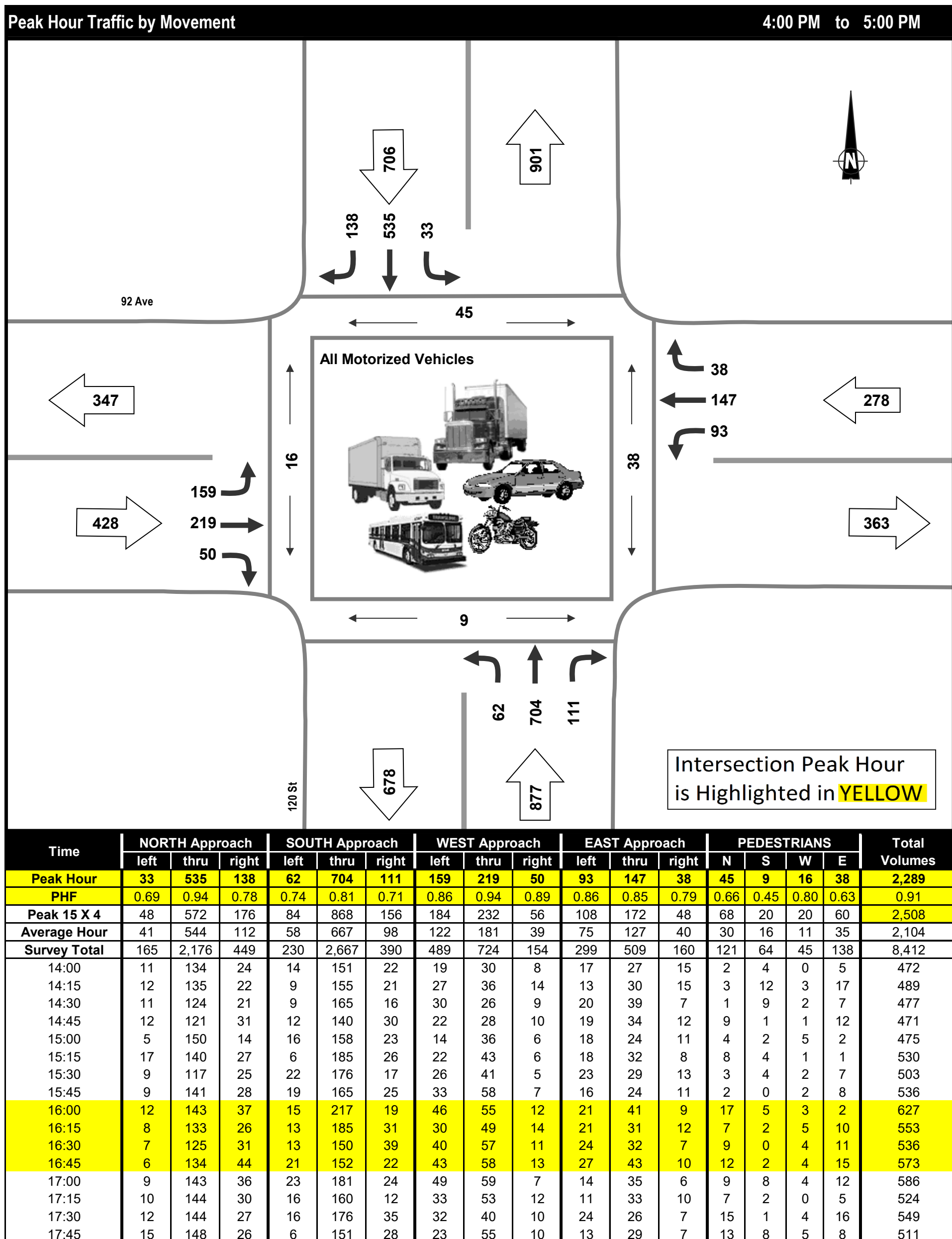
Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Clear
Vehicle Class: All Motorized Vehicles

Morning Peak Period



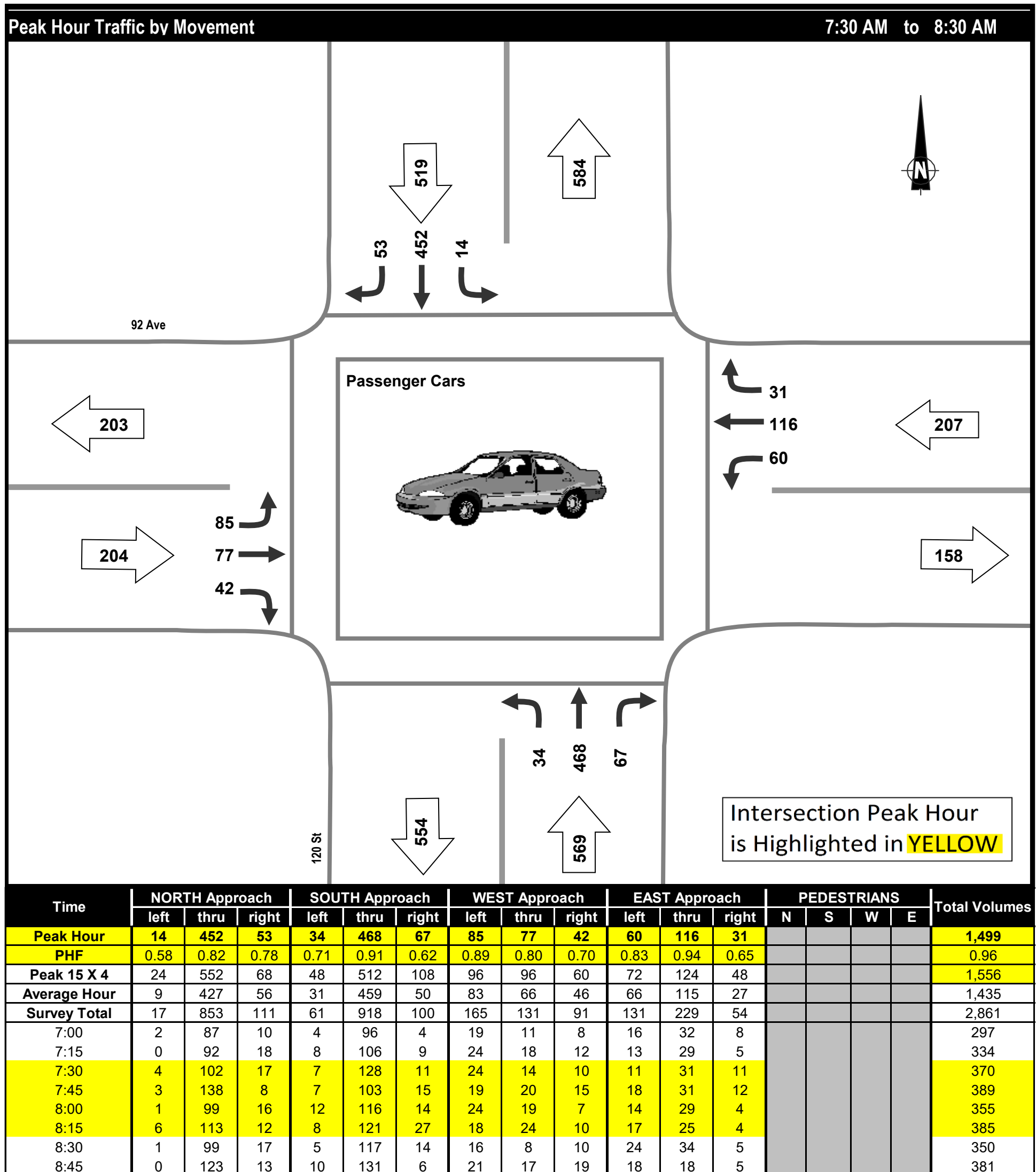
Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Clear
Vehicle Class: All Motorized Vehicles

Afternoon Peak Period



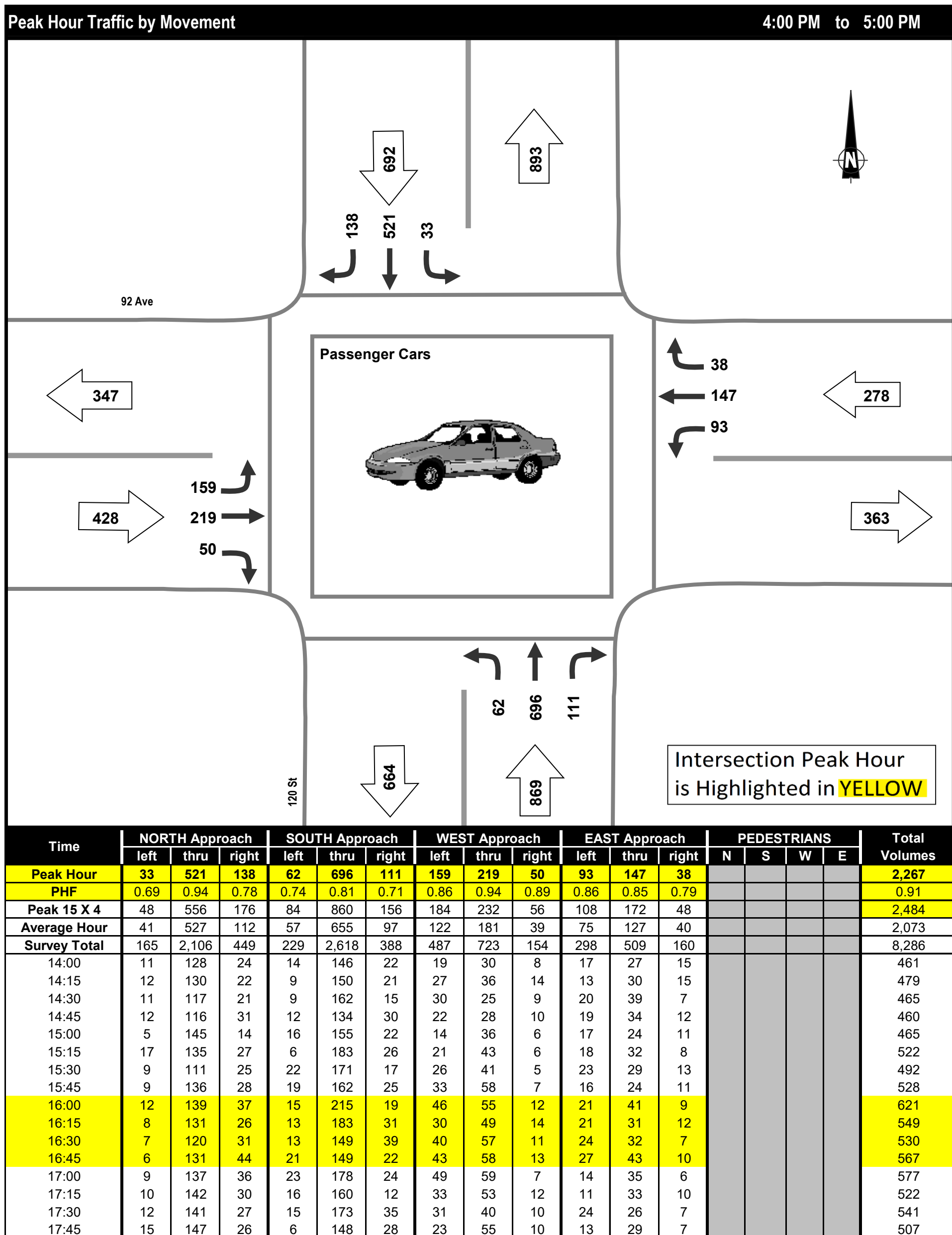
Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Clear
Vehicle Class: Passenger Cars

Morning Peak Period



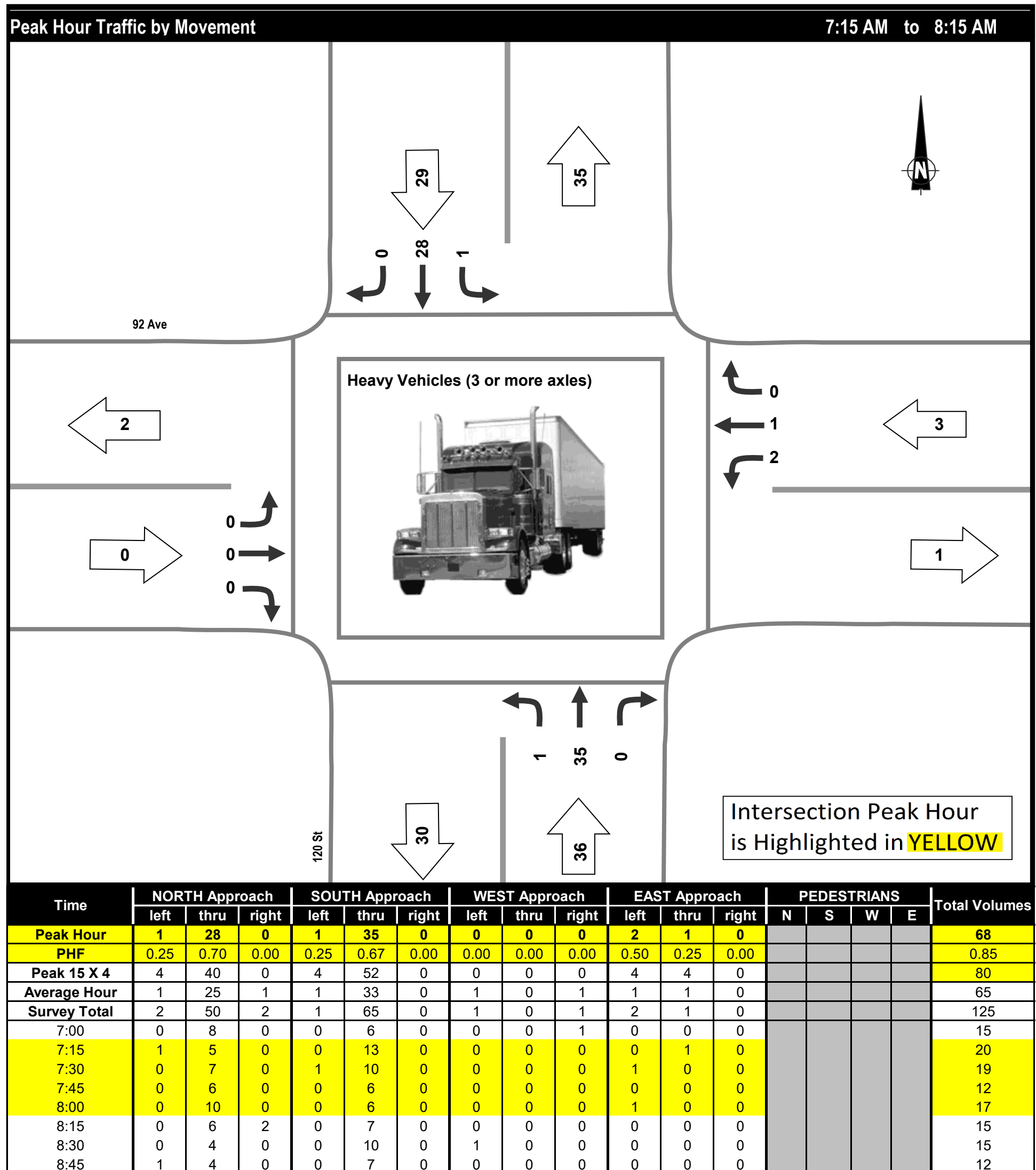
Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Clear
Vehicle Class: Passenger Cars

Afternoon Peak Period



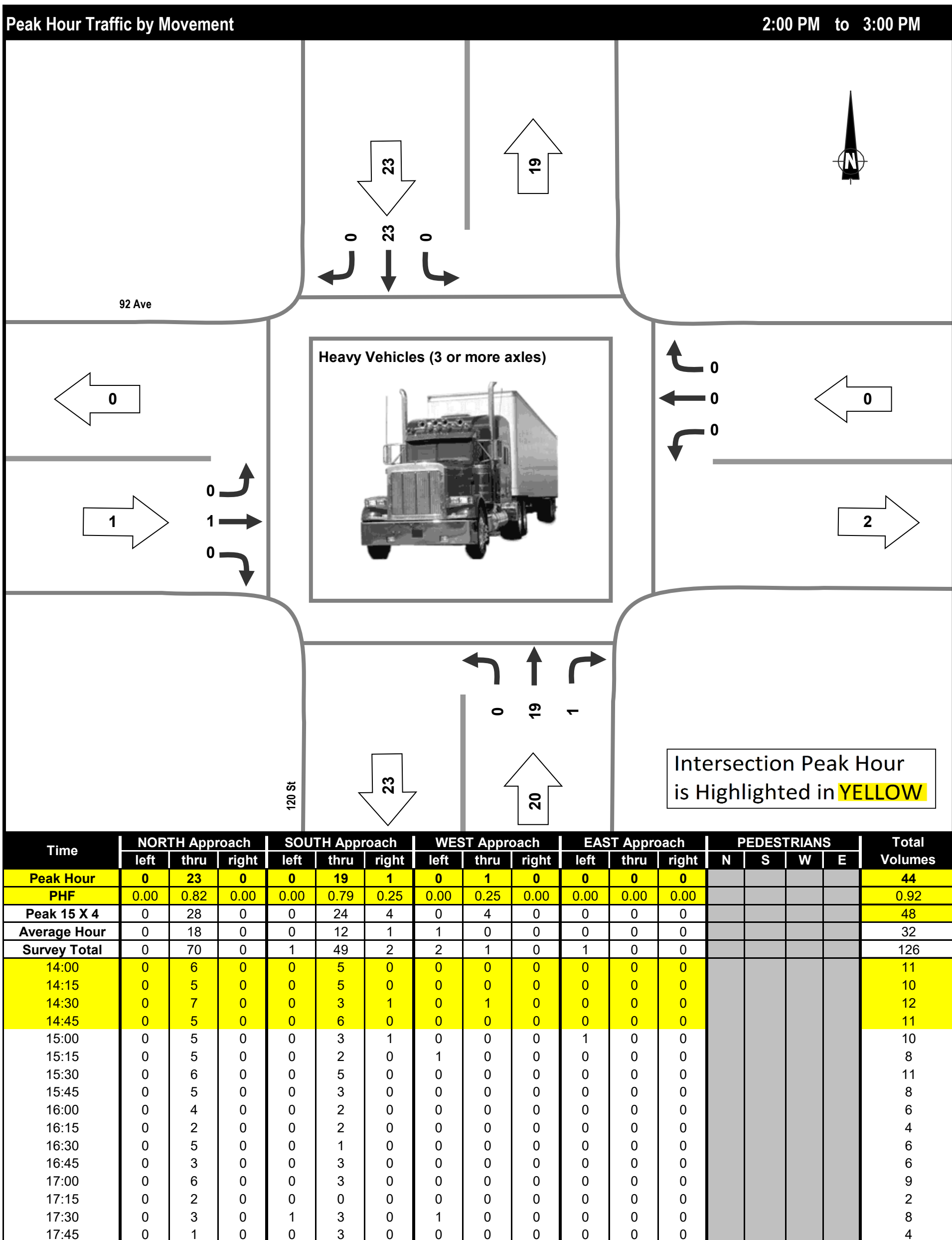
Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Clear
Vehicle Class: Heavy Vehicles (3 or more axles)

Morning Peak Period



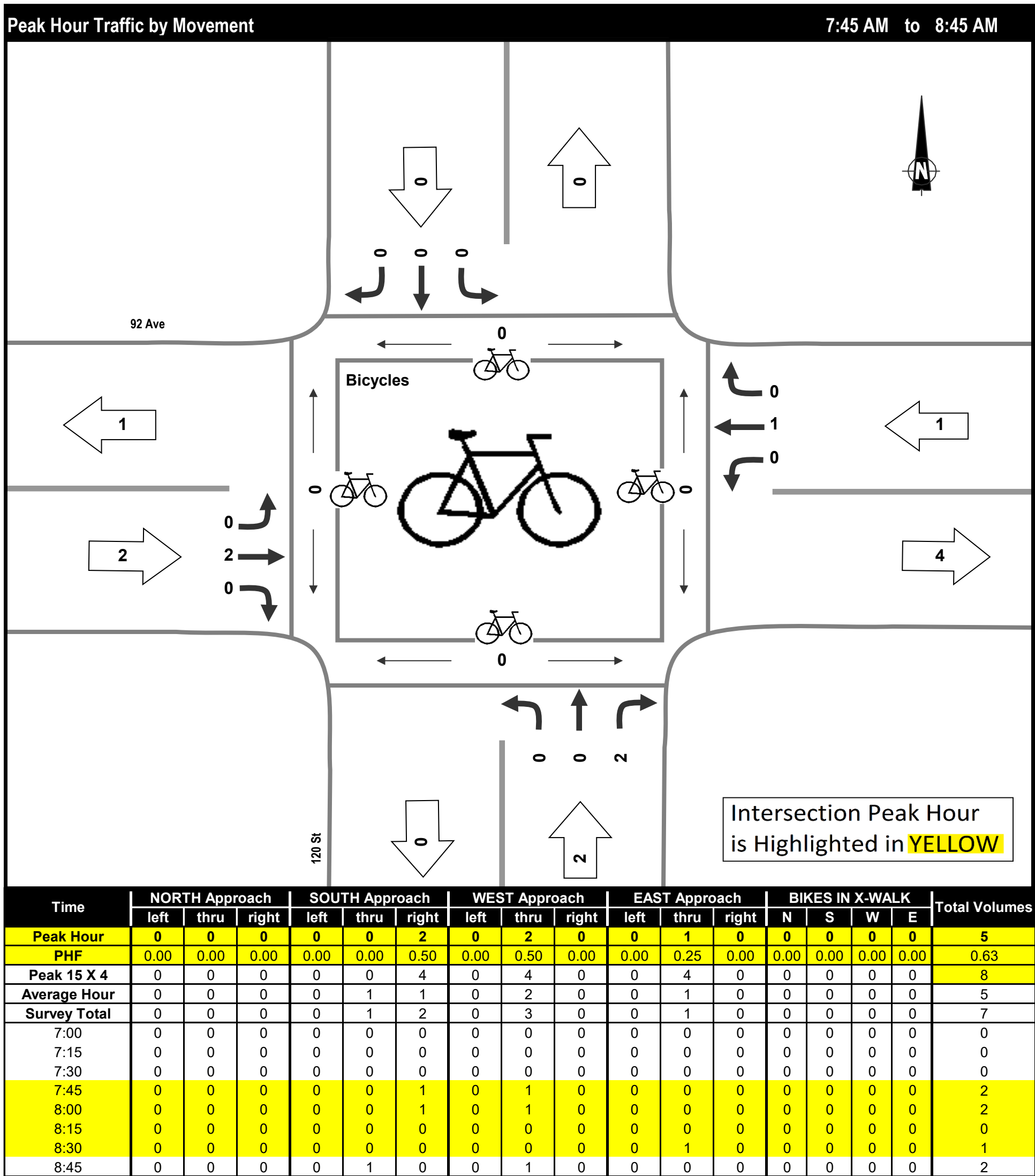
Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Clear
Vehicle Class: Heavy Vehicles (3 or more axles)

Afternoon Peak Period

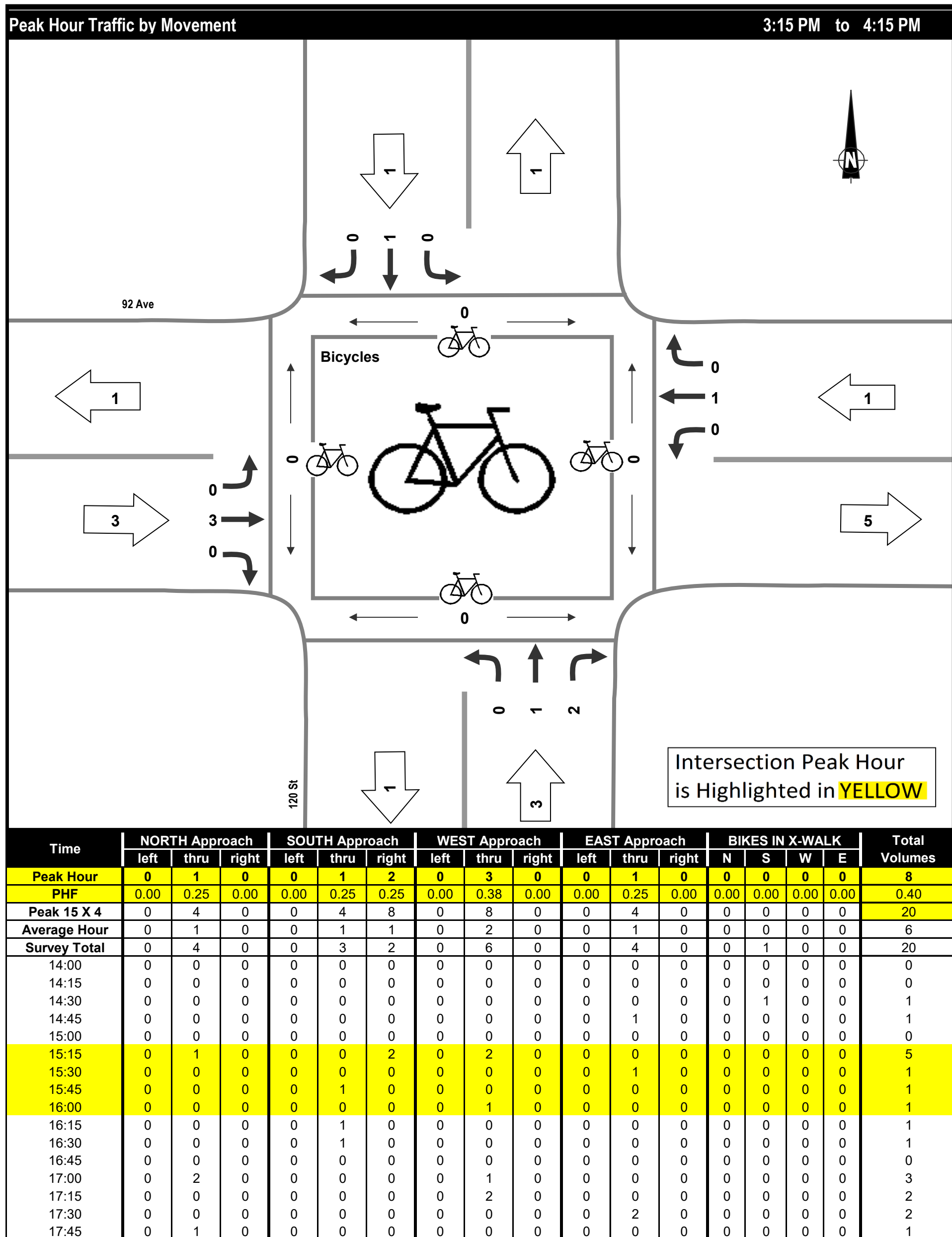


Project: #9025: 11944 92nd Avenue Traffic Impact Assessment
Municipality: Delta
Weather: Clear
Vehicle Class: Bicycles

Morning Peak Period



Afternoon Peak Period



Appendix C

Capacity Analysis Worksheets

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2023 Base
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	34	34	181	55	20	12	282	92	10	394	10
Future Volume (vph)	7	34	34	181	55	20	12	282	92	10	394	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		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	1.00	0.98		0.99	0.99			0.99			1.00	
Frt		0.925			0.960			0.968			0.997	
Flt Protected	0.950			0.950				0.998			0.999	
Satd. Flow (prot)	1770	1697	0	1770	1775	0	0	1786	0	0	1854	0
Flt Permitted	0.706			0.711				0.981			0.988	
Satd. Flow (perm)	1310	1697	0	1316	1775	0	0	1756	0	0	1834	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35			21			28			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		7	5		6	2		8	3		5
Confl. Bikes (#/hr)			1									1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	7	35	35	189	57	21	13	294	96	10	410	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	70	0	189	78	0	0	403	0	0	430	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4		29.4	29.4	
Total Split (s)	30.3	30.3		29.3	29.3		31.4	31.4		31.4	31.4	
Total Split (%)	45.4%	45.4%		43.9%	43.9%		47.1%	47.1%		47.1%	47.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4			5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes										
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	11.3	11.3		11.4	11.4			19.3			19.3	
Actuated g/C Ratio	0.30	0.30		0.31	0.31			0.52			0.52	
v/c Ratio	0.02	0.13		0.47	0.14			0.44			0.45	
Control Delay	10.3	7.2		15.6	8.8			10.1			10.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	10.3	7.2		15.6	8.8			10.1			10.8	
LOS	B	A		B	A			B			B	
Approach Delay		7.5			13.6			10.1			10.8	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2023 Base
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	A			B			B			B		
Queue Length 50th (m)	0.3	1.5		8.9	2.4			16.5			19.3	
Queue Length 95th (m)	2.5	8.7		27.9	10.6			44.5			49.8	
Internal Link Dist (m)		218.7			776.5			241.2			300.3	
Turn Bay Length (m)	25.0			35.0								
Base Capacity (vph)	917	1199		922	1250			1287			1337	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.01	0.06		0.20	0.06			0.31			0.32	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 37.2

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 11.0

Intersection LOS: B

Intersection Capacity Utilization 52.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: 116 Street & 92 Avenue

 Ø2		 Ø3		 Ø4	
31.4 s		5 s		30.3 s	
 Ø6		 Ø7		 Ø8	
31.4 s		5 s		29.3 s	

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2026 Base
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	36	37	192	59	21	13	299	98	11	418	11
Future Volume (vph)	8	36	37	192	59	21	13	299	98	11	418	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		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	1.00	0.98		0.99	0.99			0.99			1.00	
Frt		0.924			0.960			0.968			0.997	
Flt Protected	0.950			0.950				0.998			0.999	
Satd. Flow (prot)	1770	1695	0	1770	1775	0	0	1786	0	0	1854	0
Flt Permitted	0.703			0.707				0.980			0.987	
Satd. Flow (perm)	1305	1695	0	1309	1775	0	0	1754	0	0	1832	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39			22			28			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		7	5		6	2		8	3		5
Confl. Bikes (#/hr)			1									1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	8	38	39	200	61	22	14	311	102	11	435	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	77	0	200	83	0	0	427	0	0	457	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4		29.4	29.4	
Total Split (s)	30.3	30.3		29.3	29.3		31.4	31.4		31.4	31.4	
Total Split (%)	45.4%	45.4%		43.9%	43.9%		47.1%	47.1%		47.1%	47.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4			5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes										
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	12.1	12.1		12.1	12.1			18.2			18.2	
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.44			0.44	
v/c Ratio	0.02	0.15		0.52	0.16			0.54			0.57	
Control Delay	10.8	7.5		17.5	9.3			11.8			12.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	10.8	7.5		17.5	9.3			11.8			12.7	
LOS	B	A		B	A			B			B	
Approach Delay		7.8			15.1			11.8			12.7	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2026 Base
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	A			B			B			B		
Queue Length 50th (m)	0.4	1.7		10.0	2.7			18.5			21.7	
Queue Length 95th (m)	2.8	9.7		31.1	11.7			49.2			55.0	
Internal Link Dist (m)	218.7			776.5			241.2			300.3		
Turn Bay Length (m)	25.0			35.0								
Base Capacity (vph)	814	1072		817	1116			1148			1190	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.01	0.07		0.24	0.07			0.37			0.38	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 41.4

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 12.6

Intersection LOS: B

Intersection Capacity Utilization 55.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: 116 Street & 92 Avenue

 Ø2	 Ø3	 Ø4
31.4 s	5 s	30.3 s
 Ø6	 Ø7	 Ø8
31.4 s	5 s	29.3 s

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2031 Base
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	40	40	209	64	23	14	328	107	11	458	12
Future Volume (vph)	9	40	40	209	64	23	14	328	107	11	458	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		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	1.00	0.98		0.99	0.99			0.99			1.00	
Frt		0.925			0.960			0.968			0.996	
Flt Protected	0.950			0.950				0.998			0.999	
Satd. Flow (prot)	1770	1697	0	1770	1775	0	0	1786	0	0	1852	0
Flt Permitted	0.698			0.702				0.979			0.987	
Satd. Flow (perm)	1296	1697	0	1300	1775	0	0	1752	0	0	1830	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			24			28			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		7	5		6	2		8	3		5
Confl. Bikes (#/hr)			1									1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	9	42	42	218	67	24	15	342	111	11	477	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	84	0	218	91	0	0	468	0	0	501	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4		29.4	29.4	
Total Split (s)	30.3	30.3		29.3	29.3		31.4	31.4		31.4	31.4	
Total Split (%)	45.4%	45.4%		43.9%	43.9%		47.1%	47.1%		47.1%	47.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4			5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes										
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	13.2	13.2		13.2	13.2			19.6			19.6	
Actuated g/C Ratio	0.30	0.30		0.30	0.30			0.45			0.45	
v/c Ratio	0.02	0.16		0.56	0.17			0.59			0.61	
Control Delay	11.2	7.7		19.0	9.6			12.9			13.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	11.2	7.7		19.0	9.6			12.9			13.9	
LOS	B	A		B	A			B			B	
Approach Delay		8.0			16.2			12.9			13.9	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2031 Base
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	A			B			B			B		
Queue Length 50th (m)	0.4	2.0		12.0	3.2			22.5			26.3	
Queue Length 95th (m)	3.0	10.6		35.3	12.8			58.1			65.1	
Internal Link Dist (m)	218.7			776.5			241.2			300.3		
Turn Bay Length (m)	25.0			35.0								
Base Capacity (vph)	762	1016		765	1054			1083			1121	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.01	0.08		0.28	0.09			0.43			0.45	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 43.8

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 13.7

Intersection LOS: B

Intersection Capacity Utilization 58.6%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: 116 Street & 92 Avenue

 Ø2	 Ø3	 Ø4
31.4 s	5 s	30.3 s
 Ø6	 Ø7	 Ø8
31.4 s	5 s	29.3 s

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2036 Base
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	43	43	226	70	24	16	356	115	12	497	13
Future Volume (vph)	9	43	43	226	70	24	16	356	115	12	497	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		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	1.00	0.98		0.99	0.99			0.99			1.00	
Frt		0.925			0.962			0.968			0.997	
Flt Protected	0.950			0.950				0.998			0.999	
Satd. Flow (prot)	1770	1697	0	1770	1779	0	0	1786	0	0	1854	0
Flt Permitted	0.694			0.699				0.976			0.985	
Satd. Flow (perm)	1288	1697	0	1294	1779	0	0	1747	0	0	1828	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			25			27			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		7	5		6	2		8	3		5
Confl. Bikes (#/hr)			1									1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	9	45	45	235	73	25	17	371	120	13	518	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	90	0	235	98	0	0	508	0	0	545	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4		29.4	29.4	
Total Split (s)	30.3	30.3		29.3	29.3		31.4	31.4		31.4	31.4	
Total Split (%)	45.4%	45.4%		43.9%	43.9%		47.1%	47.1%		47.1%	47.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4			5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes										
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	14.1	14.1		14.1	14.1			21.1			21.1	
Actuated g/C Ratio	0.31	0.31		0.31	0.31			0.46			0.46	
v/c Ratio	0.02	0.16		0.60	0.18			0.62			0.65	
Control Delay	11.6	7.8		20.6	10.1			14.1			15.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	11.6	7.8		20.6	10.1			14.1			15.2	
LOS	B	A		C	B			B			B	
Approach Delay		8.2			17.5			14.1			15.2	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2036 Base
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	A			B			B			B		
Queue Length 50th (m)	0.5	2.4		14.7	3.9			27.5			31.8	
Queue Length 95th (m)	3.0	11.0		38.2	13.5			68.6			76.3	
Internal Link Dist (m)		218.7			776.5			241.2			300.3	
Turn Bay Length (m)	25.0			35.0								
Base Capacity (vph)	715	962		718	999			1020			1056	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.01	0.09		0.33	0.10			0.50			0.52	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 46.2

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 14.9

Intersection LOS: B

Intersection Capacity Utilization 62.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: 116 Street & 92 Avenue

 Ø2	 Ø3	 Ø4
31.4 s	5 s	30.3 s
 Ø6	 Ø7	 Ø8
31.4 s	5 s	29.3 s

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2026 Base+Site
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	36	37	192	59	22	13	299	99	13	418	11
Future Volume (vph)	8	36	37	192	59	22	13	299	99	13	418	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		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	1.00	0.98		0.99	0.99			0.99			1.00	
Frt		0.924			0.959			0.968			0.997	
Flt Protected	0.950			0.950				0.998			0.998	
Satd. Flow (prot)	1770	1695	0	1770	1773	0	0	1786	0	0	1852	0
Flt Permitted	0.702			0.707				0.980			0.982	
Satd. Flow (perm)	1303	1695	0	1309	1773	0	0	1754	0	0	1822	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39			23			28			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		7	5		6	2		8	3		5
Confl. Bikes (#/hr)			1									1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	8	38	39	200	61	23	14	311	103	14	435	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	77	0	200	84	0	0	428	0	0	460	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4		29.4	29.4	
Total Split (s)	30.3	30.3		29.3	29.3		31.4	31.4		31.4	31.4	
Total Split (%)	45.4%	45.4%		43.9%	43.9%		47.1%	47.1%		47.1%	47.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4			5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes										
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	12.2	12.2		12.2	12.2			18.3			18.3	
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.44			0.44	
v/c Ratio	0.02	0.15		0.52	0.16			0.54			0.57	
Control Delay	10.9	7.6		17.7	9.3			11.8			12.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	10.9	7.6		17.7	9.3			11.8			12.8	
LOS	B	A		B	A			B			B	
Approach Delay		7.9			15.2			11.8			12.8	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2026 Base+Site
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	A			B			B			B		
Queue Length 50th (m)	0.4	1.7		10.0	2.7			18.5			21.9	
Queue Length 95th (m)	2.8	9.8		31.3	11.8			49.2			55.5	
Internal Link Dist (m)	218.7			776.5			241.2			300.3		
Turn Bay Length (m)	25.0			35.0								
Base Capacity (vph)	809	1068		813	1111			1144			1178	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.01	0.07		0.25	0.08			0.37			0.39	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 41.5

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 12.7

Intersection LOS: B

Intersection Capacity Utilization 55.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: 116 Street & 92 Avenue

 Ø2	 Ø3	 Ø4
31.4 s	5 s	30.3 s
 Ø6	 Ø7	 Ø8
31.4 s	5 s	29.3 s

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2031 Base+Site
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	40	40	209	64	24	14	328	108	13	458	12
Future Volume (vph)	9	40	40	209	64	24	14	328	108	13	458	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		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	1.00	0.98		0.99	0.99			0.99			1.00	
Frt		0.925			0.959			0.968			0.997	
Flt Protected	0.950			0.950				0.998			0.999	
Satd. Flow (prot)	1770	1697	0	1770	1773	0	0	1786	0	0	1854	0
Flt Permitted	0.697			0.702				0.979			0.983	
Satd. Flow (perm)	1294	1697	0	1300	1773	0	0	1752	0	0	1824	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			25			28			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		7	5		6	2		8	3		5
Confl. Bikes (#/hr)			1									1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	9	42	42	218	67	25	15	342	113	14	477	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	84	0	218	92	0	0	470	0	0	504	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4		29.4	29.4	
Total Split (s)	30.3	30.3		29.3	29.3		31.4	31.4		31.4	31.4	
Total Split (%)	45.4%	45.4%		43.9%	43.9%		47.1%	47.1%		47.1%	47.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4			5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes										
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	13.2	13.2		13.2	13.2			19.8			19.8	
Actuated g/C Ratio	0.30	0.30		0.30	0.30			0.45			0.45	
v/c Ratio	0.02	0.16		0.56	0.17			0.59			0.61	
Control Delay	11.3	7.7		19.1	9.6			12.9			14.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	11.3	7.7		19.1	9.6			12.9			14.0	
LOS	B	A		B	A			B			B	
Approach Delay		8.1			16.3			12.9			14.0	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2031 Base+Site
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	A			B			B			B		
Queue Length 50th (m)	0.4	2.0		12.1	3.2			22.7			26.5	
Queue Length 95th (m)	3.0	10.6		35.3	12.8			58.3			65.6	
Internal Link Dist (m)		218.7			776.5			241.2			300.3	
Turn Bay Length (m)	25.0			35.0								
Base Capacity (vph)	757	1011		761	1048			1078			1112	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.01	0.08		0.29	0.09			0.44			0.45	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 44

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 13.7

Intersection LOS: B

Intersection Capacity Utilization 58.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: 116 Street & 92 Avenue

 Ø2		 Ø3		 Ø4	
31.4 s		5 s		30.3 s	
 Ø6		 Ø7		 Ø8	
31.4 s		5 s		29.3 s	

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2036 Base+Site
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	43	43	226	70	25	16	356	116	14	497	13
Future Volume (vph)	9	43	43	226	70	25	16	356	116	14	497	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		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	1.00	0.98		0.99	0.99			0.99			1.00	
Frt		0.925			0.961			0.968			0.997	
Flt Protected	0.950			0.950				0.998			0.999	
Satd. Flow (prot)	1770	1697	0	1770	1777	0	0	1786	0	0	1854	0
Flt Permitted	0.693			0.699				0.976			0.982	
Satd. Flow (perm)	1286	1697	0	1294	1777	0	0	1747	0	0	1822	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			26			28			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		7	5		6	2		8	3		5
Confl. Bikes (#/hr)			1									1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	9	45	45	235	73	26	17	371	121	15	518	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	90	0	235	99	0	0	509	0	0	547	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4		29.4	29.4	
Total Split (s)	30.3	30.3		29.3	29.3		31.4	31.4		31.4	31.4	
Total Split (%)	45.4%	45.4%		43.9%	43.9%		47.1%	47.1%		47.1%	47.1%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4			5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes										
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	14.1	14.1		14.1	14.1			21.3			21.3	
Actuated g/C Ratio	0.30	0.30		0.30	0.30			0.46			0.46	
v/c Ratio	0.02	0.16		0.60	0.18			0.62			0.65	
Control Delay	11.7	7.9		20.7	10.1			14.0			15.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	11.7	7.9		20.7	10.1			14.0			15.2	
LOS	B	A		C	B			B			B	
Approach Delay		8.2			17.5			14.0			15.2	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2036 Base+Site
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	A			B			B			B		
Queue Length 50th (m)	0.5	2.4		14.8	3.9			27.5			32.0	
Queue Length 95th (m)	3.0	11.0		38.2	13.6			68.6			77.0	
Internal Link Dist (m)	218.7			776.5			241.2			300.3		
Turn Bay Length (m)	25.0			35.0								
Base Capacity (vph)	711	959		716	995			1017			1049	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.01	0.09		0.33	0.10			0.50			0.52	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 46.4

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 14.9

Intersection LOS: B

Intersection Capacity Utilization 61.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: 116 Street & 92 Avenue

 Ø2	 Ø3	 Ø4
31.4 s	5 s	30.3 s
 Ø6	 Ø7	 Ø8
31.4 s	5 s	29.3 s

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2023 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	134	26	192	101	37	25	404	300	31	358	8
Future Volume (vph)	18	134	26	192	101	37	25	404	300	31	358	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		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	1.00	0.99		0.99	0.99			0.98			1.00	
Frt		0.976			0.960			0.944			0.997	
Flt Protected	0.950			0.950				0.998			0.996	
Satd. Flow (prot)	1770	1806	0	1770	1773	0	0	1725	0	0	1849	0
Flt Permitted	0.662			0.647				0.978			0.914	
Satd. Flow (perm)	1229	1806	0	1194	1773	0	0	1690	0	0	1696	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			31			63			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		11	9		8	2		14	5		5
Confl. Bikes (#/hr)			6			1			3			4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	146	28	209	110	40	27	439	326	34	389	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	174	0	209	150	0	0	792	0	0	432	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4		29.4	29.4	
Total Split (s)	29.3	29.3		29.3	29.3		32.4	32.4		32.4	32.4	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		48.6%	48.6%		48.6%	48.6%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4			5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	14.2	14.2		14.2	14.2			27.8			27.8	
Actuated g/C Ratio	0.27	0.27		0.27	0.27			0.53			0.53	
v/c Ratio	0.06	0.35		0.65	0.30			0.86			0.48	
Control Delay	13.4	15.3		26.6	13.1			24.9			11.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	13.4	15.3		26.6	13.1			24.9			11.5	
LOS	B	B		C	B			C			B	
Approach Delay		15.1			21.0			24.9			11.5	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2023 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	B					C					B	
Queue Length 50th (m)	1.4	12.2		17.9	9.0			55.6			24.0	
Queue Length 95th (m)	5.2	24.7		35.6	20.0			#154.6			58.5	
Internal Link Dist (m)		218.7			776.5			241.2			300.3	
Turn Bay Length (m)	25.0			35.0								
Base Capacity (vph)	562	834		546	827			919			893	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.04	0.21		0.38	0.18			0.86			0.48	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 52.8

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 19.8

Intersection LOS: B

Intersection Capacity Utilization 83.2%

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: 116 Street & 92 Avenue

 Ø2	 Ø3	 Ø4
32.4 s	5 s	29.3 s
 Ø6	 Ø7	 Ø8
32.4 s	5 s	29.3 s

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2026 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	142	28	204	108	40	27	429	318	33	380	9
Future Volume (vph)	20	142	28	204	108	40	27	429	318	33	380	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		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	1.00	0.99		0.99	0.99			0.98			1.00	
Frt		0.976			0.960			0.944			0.997	
Flt Protected	0.950			0.950				0.998			0.996	
Satd. Flow (prot)	1770	1806	0	1770	1773	0	0	1725	0	0	1849	0
Flt Permitted	0.656			0.641				0.976			0.907	
Satd. Flow (perm)	1218	1806	0	1183	1773	0	0	1687	0	0	1683	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			31			63			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		11	9		8	2		14	5		5
Confl. Bikes (#/hr)			6			1			3			4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	154	30	222	117	43	29	466	346	36	413	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	184	0	222	160	0	0	841	0	0	459	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4		29.4	29.4	
Total Split (s)	29.3	29.3		29.3	29.3		32.4	32.4		32.4	32.4	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		48.6%	48.6%		48.6%	48.6%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4			5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	14.9	14.9		14.9	14.9			27.5			27.5	
Actuated g/C Ratio	0.28	0.28		0.28	0.28			0.52			0.52	
v/c Ratio	0.06	0.36		0.67	0.31			0.93			0.53	
Control Delay	13.2	15.2		27.0	13.1			34.0			12.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	13.2	15.2		27.0	13.1			34.0			12.7	
LOS	B	B		C	B			C			B	
Approach Delay		15.0			21.2			34.0			12.7	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2026 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	B			C			C			B		
Queue Length 50th (m)	1.6	13.1		19.3	9.8			65.3			27.1	
Queue Length 95th (m)	5.5	25.8		37.8	21.2			#174.0			66.7	
Internal Link Dist (m)		218.7			776.5			241.2			300.3	
Turn Bay Length (m)	25.0			35.0								
Base Capacity (vph)	554	830		538	823			901			870	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.04	0.22		0.41	0.19			0.93			0.53	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 53.2

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 24.2

Intersection LOS: C

Intersection Capacity Utilization 87.2%

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: 116 Street & 92 Avenue

 Ø2	 Ø3	 Ø4
32.4 s	5 s	29.3 s
 Ø6	 Ø7	 Ø8
32.4 s	5 s	29.3 s

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2031 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	156	31	223	118	43	29	469	348	36	416	10
Future Volume (vph)	21	156	31	223	118	43	29	469	348	36	416	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		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	1.00	0.99		0.99	0.99			0.98			1.00	
Frt		0.975			0.960			0.945			0.997	
Flt Protected	0.950			0.950				0.998			0.996	
Satd. Flow (prot)	1770	1804	0	1770	1773	0	0	1727	0	0	1848	0
Flt Permitted	0.647			0.630				0.973			0.908	
Satd. Flow (perm)	1201	1804	0	1163	1773	0	0	1683	0	0	1685	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			31			63			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		11	9		8	2		14	5		5
Confl. Bikes (#/hr)			6			1			3			4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	170	34	242	128	47	32	510	378	39	452	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	204	0	242	175	0	0	920	0	0	502	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4		29.4	29.4	
Total Split (s)	29.3	29.3		29.3	29.3		32.4	32.4		32.4	32.4	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		48.6%	48.6%		48.6%	48.6%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4			5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	16.0	16.0		16.0	16.0			27.3			27.3	
Actuated g/C Ratio	0.30	0.30		0.30	0.30			0.50			0.50	
v/c Ratio	0.06	0.37		0.70	0.32			1.05			0.59	
Control Delay	13.0	15.2		28.3	13.1			61.6			14.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	13.0	15.2		28.3	13.1			61.6			14.5	
LOS	B	B		C	B			E			B	
Approach Delay		15.0			21.9			61.6			14.5	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2031 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	B			C			E			B		
Queue Length 50th (m)	1.7	14.7		21.6	11.0			~103.4			33.0	
Queue Length 95th (m)	5.7	28.3		41.9	23.0			#200.2			77.3	
Internal Link Dist (m)		218.7			776.5			241.2			300.3	
Turn Bay Length (m)	25.0			35.0								
Base Capacity (vph)	538	817		521	811			879			850	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.04	0.25		0.46	0.22			1.05			0.59	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 54.1

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 37.0

Intersection LOS: D

Intersection Capacity Utilization 93.3%

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: 3: 116 Street & 92 Avenue

 Ø2	 Ø3	 Ø4
32.4 s	5 s	29.3 s
 Ø6	 Ø7	 Ø8
32.4 s	5 s	29.3 s

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2036 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	169	33	242	128	47	32	510	378	39	452	11
Future Volume (vph)	23	169	33	242	128	47	32	510	378	39	452	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		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	1.00	0.99		0.99	0.99			0.98			1.00	
Frt		0.975			0.960			0.945			0.997	
Flt Protected	0.950			0.950				0.998			0.996	
Satd. Flow (prot)	1770	1804	0	1770	1773	0	0	1727	0	0	1848	0
Flt Permitted	0.638			0.621				0.970			0.895	
Satd. Flow (perm)	1185	1804	0	1147	1773	0	0	1678	0	0	1661	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			31			63			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		11	9		8	2		14	5		5
Confl. Bikes (#/hr)			6			1			3			4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	184	36	263	139	51	35	554	411	42	491	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	25	220	0	263	190	0	0	1000	0	0	545	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4		29.4	29.4	
Total Split (s)	29.3	29.3		29.3	29.3		32.4	32.4		32.4	32.4	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		48.6%	48.6%		48.6%	48.6%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4			5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	17.5	17.5		17.5	17.5			27.2			27.2	
Actuated g/C Ratio	0.32	0.32		0.32	0.32			0.49			0.49	
v/c Ratio	0.07	0.38		0.73	0.33			1.17			0.67	
Control Delay	12.8	15.1		29.2	13.0			108.3			17.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	12.8	15.1		29.2	13.0			108.3			17.7	
LOS	B	B		C	B			F			B	
Approach Delay		14.9			22.4			108.3			17.7	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2036 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	B			C			F			B		
Queue Length 50th (m)	1.8	16.2		24.1	12.3			~130.9			41.1	
Queue Length 95th (m)	6.0	30.6		46.7	25.1			#223.3			#100.2	
Internal Link Dist (m)		218.7			776.5			241.2			300.3	
Turn Bay Length (m)	25.0			35.0								
Base Capacity (vph)	516	795		500	790			855			815	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.05	0.28		0.53	0.24			1.17			0.67	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 55.5

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.17

Intersection Signal Delay: 58.7

Intersection LOS: E

Intersection Capacity Utilization 99.7%

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: 3: 116 Street & 92 Avenue

 Ø2	 Ø3	 Ø4
32.4 s	5 s	29.3 s
 Ø6	 Ø7	 Ø8
32.4 s	5 s	29.3 s

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2026 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	144	28	209	109	45	27	429	327	38	380	9
Future Volume (vph)	20	144	28	209	109	45	27	429	327	38	380	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		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	1.00	0.99		0.99	0.99			0.98			1.00	
Frt		0.976			0.956			0.944			0.997	
Flt Protected	0.950			0.950				0.998			0.996	
Satd. Flow (prot)	1770	1806	0	1770	1764	0	0	1724	0	0	1849	0
Flt Permitted	0.651			0.640				0.976			0.900	
Satd. Flow (perm)	1209	1806	0	1181	1764	0	0	1686	0	0	1670	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			35			65			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		11	9		8	2		14	5		5
Confl. Bikes (#/hr)			6			1			3			4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	157	30	227	118	49	29	466	355	41	413	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	187	0	227	167	0	0	850	0	0	464	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4		29.4	29.4	
Total Split (s)	29.3	29.3		29.3	29.3		32.4	32.4		32.4	32.4	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		48.6%	48.6%		48.6%	48.6%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4			5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	15.2	15.2		15.2	15.2			27.3			27.3	
Actuated g/C Ratio	0.29	0.29		0.29	0.29			0.51			0.51	
v/c Ratio	0.06	0.36		0.68	0.32			0.95			0.54	
Control Delay	13.2	15.1		27.2	12.9			36.8			13.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	13.2	15.1		27.2	12.9			36.8			13.2	
LOS	B	B		C	B			D			B	
Approach Delay		14.9			21.1			36.8			13.2	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2026 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	B			C			D			B		
Queue Length 50th (m)	1.6	13.3		19.8	10.1			67.8			28.0	
Queue Length 95th (m)	5.5	26.1		38.8	21.7			#178.1			69.1	
Internal Link Dist (m)		218.7			776.5			241.2			300.3	
Turn Bay Length (m)	25.0			35.0								
Base Capacity (vph)	549	828		536	820			895			856	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.04	0.23		0.42	0.20			0.95			0.54	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 53.3

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 25.5

Intersection LOS: C

Intersection Capacity Utilization 87.5%

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: 3: 116 Street & 92 Avenue

 Ø2	 Ø3	 Ø4
32.4 s	5 s	29.3 s
 Ø6	 Ø7	 Ø8
32.4 s	5 s	29.3 s

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2031 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	158	31	228	119	48	29	469	357	41	416	10
Future Volume (vph)	21	158	31	228	119	48	29	469	357	41	416	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		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	1.00	0.99		0.99	0.99			0.98			1.00	
Frt		0.975			0.957			0.944			0.997	
Flt Protected	0.950			0.950				0.998			0.996	
Satd. Flow (prot)	1770	1804	0	1770	1767	0	0	1724	0	0	1849	0
Flt Permitted	0.643			0.629				0.973			0.891	
Satd. Flow (perm)	1194	1804	0	1161	1767	0	0	1681	0	0	1653	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			34			65			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		11	9		8	2		14	5		5
Confl. Bikes (#/hr)			6			1			3			4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	172	34	248	129	52	32	510	388	45	452	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	206	0	248	181	0	0	930	0	0	508	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4		29.4	29.4	
Total Split (s)	29.3	29.3		29.3	29.3		32.4	32.4		32.4	32.4	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		48.6%	48.6%		48.6%	48.6%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4			5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	16.3	16.3		16.3	16.3			27.3			27.3	
Actuated g/C Ratio	0.30	0.30		0.30	0.30			0.50			0.50	
v/c Ratio	0.06	0.37		0.71	0.33			1.06			0.61	
Control Delay	13.0	15.1		28.7	12.9			67.3			15.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	13.0	15.1		28.7	12.9			67.3			15.3	
LOS	B	B		C	B			E			B	
Approach Delay		14.9			22.0			67.3			15.3	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2031 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	B			C			E			B		
Queue Length 50th (m)	1.7	14.9		22.2	11.3			~107.2			34.5	
Queue Length 95th (m)	5.7	28.5		43.2	23.5			#202.9			79.5	
Internal Link Dist (m)		218.7			776.5			241.2			300.3	
Turn Bay Length (m)	25.0			35.0								
Base Capacity (vph)	531	813		517	806			875			829	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.04	0.25		0.48	0.22			1.06			0.61	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 54.4

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 39.7

Intersection LOS: D

Intersection Capacity Utilization 93.6%

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: 3: 116 Street & 92 Avenue

 Ø2	 Ø3	 Ø4
32.4 s	5 s	29.3 s
 Ø6	 Ø7	 Ø8
32.4 s	5 s	29.3 s

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2036 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	171	33	247	129	52	32	510	387	44	452	11
Future Volume (vph)	23	171	33	247	129	52	32	510	387	44	452	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		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	1.00	0.99		0.99	0.99			0.98			1.00	
Frt		0.976			0.957			0.944			0.997	
Flt Protected	0.950			0.950				0.998			0.996	
Satd. Flow (prot)	1770	1806	0	1770	1766	0	0	1724	0	0	1849	0
Flt Permitted	0.634			0.619				0.970			0.872	
Satd. Flow (perm)	1177	1806	0	1143	1766	0	0	1676	0	0	1618	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			34			65			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		11	9		8	2		14	5		5
Confl. Bikes (#/hr)			6			1			3			4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	186	36	268	140	57	35	554	421	48	491	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	25	222	0	268	197	0	0	1010	0	0	551	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4		29.4	29.4	
Total Split (s)	29.3	29.3		29.3	29.3		32.4	32.4		32.4	32.4	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		48.6%	48.6%		48.6%	48.6%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4			5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	17.9	17.9		17.9	17.9			27.2			27.2	
Actuated g/C Ratio	0.32	0.32		0.32	0.32			0.49			0.49	
v/c Ratio	0.07	0.38		0.73	0.34			1.19			0.70	
Control Delay	12.7	15.0		29.3	12.9			116.4			19.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	12.7	15.0		29.3	12.9			116.4			19.2	
LOS	B	B		C	B			F			B	
Approach Delay		14.8			22.4			116.4			19.2	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2036 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	B			C			F			B		
Queue Length 50th (m)	1.8	16.4		24.7	12.7			~135.3			43.3	
Queue Length 95th (m)	6.0	30.9		48.1	25.7			#226.0			#104.6	
Internal Link Dist (m)		218.7			776.5			241.2			300.3	
Turn Bay Length (m)	25.0			35.0								
Base Capacity (vph)	509	790		494	783			849			788	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.05	0.28		0.54	0.25			1.19			0.70	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 55.9

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 62.6

Intersection LOS: E

Intersection Capacity Utilization 100.0%

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: 3: 116 Street & 92 Avenue

 Ø2	 Ø3	 Ø4
32.4 s	5 s	29.3 s
 Ø6	 Ø7	 Ø8
32.4 s	5 s	29.3 s

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2023 Base
Timing Plan: AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Volume (vph)	85	77	42	62	116	31	35	497	67	14	481	55
Future Volume (vph)	85	77	42	62	116	31	35	497	67	14	481	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	35.0		0.0	35.0		0.0
Storage Lanes	0		0	0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.99		0.99	0.99		0.98	0.99	
Frt		0.972			0.980			0.982			0.985	
Flt Protected		0.980			0.985		0.950			0.950		
Satd. Flow (prot)	0	1758	0	0	1781	0	1752	3316	0	1770	3337	0
Flt Permitted		0.797			0.844		0.346			0.430		
Satd. Flow (perm)	0	1426	0	0	1520	0	633	3316	0	787	3337	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			7			20			13	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	8		20	13		18	7		23	10		15
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	3%	6%	2%	2%	6%	4%
Adj. Flow (vph)	89	80	44	65	121	32	36	518	70	15	501	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	213	0	0	218	0	36	588	0	15	558	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.9			6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)		16.2			16.2		22.9	20.3		17.1	17.1	
Actuated g/C Ratio		0.32			0.32		0.45	0.40		0.33	0.33	
v/c Ratio		0.46			0.45		0.08	0.44		0.06	0.50	
Control Delay		19.0			18.8		8.8	11.7		16.1	16.5	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		19.0			18.8		8.8	11.7		16.1	16.5	
LOS		B			B		A	B		B	B	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2023 Base
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		19.0			18.8			11.5			16.5	
Approach LOS		B			B			B			B	
Queue Length 50th (m)		12.6			13.2		1.7	18.7		0.8	17.8	
Queue Length 95th (m)		42.3			43.4		6.8	37.7		5.6	48.6	
Internal Link Dist (m)		776.5			363.0			314.3			289.1	
Turn Bay Length (m)							35.0			35.0		
Base Capacity (vph)		1136			823		476	3229		719	3051	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.19			0.26		0.08	0.18		0.02	0.18	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 51.1

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 15.2

Intersection LOS: B

Intersection Capacity Utilization 58.5%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 6: 120 Street & 92 Avenue

 Ø1	 Ø2	 Ø3	 Ø4
12 s	60.3 s	14 s	31.9 s
 Ø6		 Ø8	
72.3 s		45.9 s	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2026 Base
Timing Plan: AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Volume (vph)	90	82	45	66	123	33	38	527	72	15	510	59
Future Volume (vph)	90	82	45	66	123	33	38	527	72	15	510	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	35.0		0.0	35.0		0.0
Storage Lanes	0		0	0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.99		0.99	0.99		0.98	0.99	
Frt		0.972			0.980			0.982			0.985	
Flt Protected		0.980			0.985		0.950			0.950		
Satd. Flow (prot)	0	1758	0	0	1781	0	1752	3316	0	1770	3336	0
Flt Permitted		0.788			0.841		0.320			0.415		
Satd. Flow (perm)	0	1410	0	0	1514	0	586	3316	0	760	3336	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			7			20			14	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	8		20	13		18	7		23	10		15
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	3%	6%	2%	2%	6%	4%
Adj. Flow (vph)	94	85	47	69	128	34	40	549	75	16	531	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	226	0	0	231	0	40	624	0	16	592	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.9			6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)		17.6			17.6		26.6	24.0		18.6	18.6	
Actuated g/C Ratio		0.31			0.31		0.47	0.43		0.33	0.33	
v/c Ratio		0.50			0.48		0.10	0.44		0.06	0.53	
Control Delay		21.5			21.1		9.1	11.8		17.7	18.6	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		21.5			21.1		9.1	11.8		17.7	18.6	
LOS		C			C		A	B		B	B	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2026 Base
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		21.5			21.1			11.6			18.6	
Approach LOS		C			C			B			B	
Queue Length 50th (m)		20.0			20.8		2.0	21.3		1.3	28.6	
Queue Length 95th (m)		47.1			47.8		7.6	43.0		6.1	54.6	
Internal Link Dist (m)		776.5			363.0			314.3			289.1	
Turn Bay Length (m)							35.0			35.0		
Base Capacity (vph)		1046			762		461	3188		667	2931	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.22			0.30		0.09	0.20		0.02	0.20	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 56.2

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 16.6

Intersection LOS: B

Intersection Capacity Utilization 60.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 6: 120 Street & 92 Avenue

			
Ø1	Ø2	Ø3	Ø4
12 s	60.3 s	14 s	31.9 s
			
Ø6		Ø8	
72.3 s		45.9 s	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2031 Base
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	89	48	72	135	36	41	577	78	17	558	64
Future Volume (vph)	98	89	48	72	135	36	41	577	78	17	558	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	35.0		0.0	35.0		0.0
Storage Lanes	0		0	0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.99		0.99	0.99		0.98	0.99	
Frt		0.972			0.980			0.982			0.984	
Flt Protected		0.980			0.985		0.950			0.950		
Satd. Flow (prot)	0	1759	0	0	1781	0	1752	3316	0	1770	3333	0
Flt Permitted		0.767			0.836		0.287			0.392		
Satd. Flow (perm)	0	1373	0	0	1505	0	526	3316	0	719	3333	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			7			20			14	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	8		20	13		18	7		23	10		15
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	3%	6%	2%	2%	6%	4%
Adj. Flow (vph)	102	93	50	75	141	38	43	601	81	18	581	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	245	0	0	254	0	43	682	0	18	648	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.9			6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)		20.5			20.5		29.1	26.5		21.0	21.0	
Actuated g/C Ratio		0.33			0.33		0.47	0.43		0.34	0.34	
v/c Ratio		0.53			0.50		0.11	0.47		0.07	0.57	
Control Delay		22.6			22.0		10.2	13.3		19.1	20.2	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		22.6			22.0		10.2	13.3		19.1	20.2	
LOS		C			C		B	B		B	C	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2031 Base
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		22.6			22.0			13.1			20.2	
Approach LOS		C			C			B			C	
Queue Length 50th (m)		23.6			24.9		2.4	26.1		1.5	34.3	
Queue Length 95th (m)		53.3			54.6		8.9	52.8		7.2	65.2	
Internal Link Dist (m)		776.5			363.0			314.3			289.1	
Turn Bay Length (m)							35.0			35.0		
Base Capacity (vph)		943			705		424	3081		603	2798	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.26			0.36		0.10	0.22		0.03	0.23	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 61.6

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 18.0

Intersection LOS: B

Intersection Capacity Utilization 63.6%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 6: 120 Street & 92 Avenue

 Ø1	 Ø2	 Ø3	 Ø4
12 s	60.3 s	14 s	31.9 s
 Ø6		 Ø8	
72.3 s		45.9 s	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2036 Base
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕		↗	↕	
Traffic Volume (vph)	106	97	52	79	147	40	44	627	85	18	607	70
Future Volume (vph)	106	97	52	79	147	40	44	627	85	18	607	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	35.0		0.0	35.0		0.0
Storage Lanes	0		0	0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.99		0.99	0.99		0.99	0.99	
Frt		0.972			0.980			0.982			0.984	
Flt Protected		0.980			0.985		0.950			0.950		
Satd. Flow (prot)	0	1759	0	0	1781	0	1752	3316	0	1770	3333	0
Flt Permitted		0.744			0.824		0.256			0.370		
Satd. Flow (perm)	0	1332	0	0	1484	0	470	3316	0	680	3333	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			7			20			14	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	8		20	13		18	7		23	10		15
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	3%	6%	2%	2%	6%	4%
Adj. Flow (vph)	110	101	54	82	153	42	46	653	89	19	632	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	265	0	0	277	0	46	742	0	19	705	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.9			6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)		23.8			23.8		32.1	29.5		23.9	23.9	
Actuated g/C Ratio		0.35			0.35		0.47	0.43		0.35	0.35	
v/c Ratio		0.56			0.53		0.13	0.51		0.08	0.60	
Control Delay		24.2			23.2		11.6	15.0		20.6	22.0	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		24.2			23.2		11.6	15.0		20.6	22.0	
LOS		C			C		B	B		C	C	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2036 Base
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		24.2			23.2			14.8			22.0	
Approach LOS		C			C			B			C	
Queue Length 50th (m)		29.0			30.6		2.9	32.2		1.8	41.3	
Queue Length 95th (m)		61.3			62.9		10.5	65.7		8.0	78.4	
Internal Link Dist (m)		776.5			363.0			314.3			289.1	
Turn Bay Length (m)							35.0			35.0		
Base Capacity (vph)		846			657		388	2945		543	2665	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.31			0.42		0.12	0.25		0.03	0.26	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 67.9

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 19.7

Intersection LOS: B

Intersection Capacity Utilization 66.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: 120 Street & 92 Avenue

			
Ø1	Ø2	Ø3	Ø4
12 s	60.3 s	14 s	31.9 s
			
Ø6		Ø8	
72.3 s		45.9 s	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2026 Base+Site
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (vph)	94	83	50	66	126	33	45	527	72	15	510	65
Future Volume (vph)	94	83	50	66	126	33	45	527	72	15	510	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	35.0		0.0	35.0		0.0
Storage Lanes	0		0	0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.99		0.99	0.99		0.98	0.99	
Frt		0.970			0.980			0.982			0.983	
Flt Protected		0.980			0.985		0.950			0.950		
Satd. Flow (prot)	0	1754	0	0	1782	0	1752	3316	0	1770	3328	0
Flt Permitted		0.784			0.842		0.313			0.415		
Satd. Flow (perm)	0	1399	0	0	1517	0	573	3316	0	760	3328	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			7			20			15	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	8		20	13		18	7		23	10		15
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	3%	6%	2%	2%	6%	4%
Adj. Flow (vph)	98	86	52	69	131	34	47	549	75	16	531	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	236	0	0	234	0	47	624	0	16	599	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.9			6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)		18.8			18.8		27.3	24.8		19.2	19.2	
Actuated g/C Ratio		0.32			0.32		0.47	0.43		0.33	0.33	
v/c Ratio		0.51			0.47		0.11	0.44		0.06	0.54	
Control Delay		21.6			20.9		9.6	12.3		18.3	19.3	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		21.6			20.9		9.6	12.3		18.3	19.3	
LOS		C			C		A	B		B	B	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2026 Base+Site
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		21.6			20.9			12.1			19.2	
Approach LOS		C			C			B			B	
Queue Length 50th (m)		21.5			21.5		2.5	22.1		1.3	30.0	
Queue Length 95th (m)		49.3			48.6		9.0	44.7		6.2	56.9	
Internal Link Dist (m)		776.5			363.0			314.3			289.1	
Turn Bay Length (m)							35.0			35.0		
Base Capacity (vph)		1000			740		447	3155		657	2881	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.24			0.32		0.11	0.20		0.02	0.21	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 58.2

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 17.0

Intersection LOS: B

Intersection Capacity Utilization 61.5%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 6: 120 Street & 92 Avenue

			
Ø1	Ø2	Ø3	Ø4
12 s	60.3 s	14 s	31.9 s
			
Ø6		Ø8	
72.3 s		45.9 s	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2031 Base+Site
Timing Plan: AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Volume (vph)	102	90	53	72	138	36	48	577	78	17	558	70
Future Volume (vph)	102	90	53	72	138	36	48	577	78	17	558	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	35.0		0.0	35.0		0.0
Storage Lanes	0		0	0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.99		0.99	0.99		0.98	0.99	
Frt		0.971			0.980			0.982			0.983	
Flt Protected		0.980			0.986		0.950			0.950		
Satd. Flow (prot)	0	1756	0	0	1783	0	1752	3316	0	1770	3328	0
Flt Permitted		0.763			0.835		0.282			0.392		
Satd. Flow (perm)	0	1364	0	0	1504	0	517	3316	0	719	3328	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			7			20			15	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	8		20	13		18	7		23	10		15
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	3%	6%	2%	2%	6%	4%
Adj. Flow (vph)	106	94	55	75	144	38	50	601	81	18	581	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	255	0	0	257	0	50	682	0	18	654	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.9			6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)		21.5			21.5		29.7	27.2		21.6	21.6	
Actuated g/C Ratio		0.34			0.34		0.47	0.43		0.34	0.34	
v/c Ratio		0.54			0.50		0.13	0.48		0.07	0.57	
Control Delay		23.1			22.0		10.9	13.8		19.6	20.8	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		23.1			22.0		10.9	13.8		19.6	20.8	
LOS		C			C		B	B		B	C	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2031 Base+Site
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		23.1			22.0			13.6			20.8	
Approach LOS		C			C			B			C	
Queue Length 50th (m)		25.5			25.8		2.9	27.1		1.6	35.6	
Queue Length 95th (m)		56.8			56.0		10.5	55.3		7.3	68.2	
Internal Link Dist (m)		776.5			363.0			314.3			289.1	
Turn Bay Length (m)							35.0			35.0		
Base Capacity (vph)		919			699		415	3044		593	2749	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.28			0.37		0.12	0.22		0.03	0.24	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 63.4

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 18.5

Intersection LOS: B

Intersection Capacity Utilization 64.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: 120 Street & 92 Avenue

 Ø1	 Ø2	 Ø3	 Ø4
12 s	60.3 s	14 s	31.9 s
 Ø6		 Ø8	
72.3 s		45.9 s	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2036 Base+Site
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕		↗	↕	
Traffic Volume (vph)	110	98	57	79	150	40	51	627	85	18	607	76
Future Volume (vph)	110	98	57	79	150	40	51	627	85	18	607	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	35.0		0.0	35.0		0.0
Storage Lanes	0		0	0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.99		0.99	0.99		0.99	0.99	
Frt		0.971			0.980			0.982			0.983	
Flt Protected		0.980			0.986		0.950			0.950		
Satd. Flow (prot)	0	1756	0	0	1783	0	1752	3316	0	1770	3328	0
Flt Permitted		0.741			0.822		0.251			0.370		
Satd. Flow (perm)	0	1325	0	0	1481	0	461	3316	0	680	3328	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			7			20			15	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	8		20	13		18	7		23	10		15
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	3%	6%	2%	2%	6%	4%
Adj. Flow (vph)	115	102	59	82	156	42	53	653	89	19	632	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	276	0	0	280	0	53	742	0	19	711	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.9			6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)		24.8			24.8		32.6	30.0		24.3	24.3	
Actuated g/C Ratio		0.36			0.36		0.47	0.43		0.35	0.35	
v/c Ratio		0.57			0.52		0.15	0.51		0.08	0.61	
Control Delay		24.6			23.2		12.1	15.4		21.0	22.6	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		24.6			23.2		12.1	15.4		21.0	22.6	
LOS		C			C		B	B		C	C	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2036 Base+Site
Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		24.6			23.2			15.2			22.6	
Approach LOS		C			C			B			C	
Queue Length 50th (m)		31.3			31.7		3.5	33.7		1.8	43.2	
Queue Length 95th (m)		64.7			63.7		11.8	66.4		7.9	79.8	
Internal Link Dist (m)		776.5			363.0			314.3			289.1	
Turn Bay Length (m)							35.0			35.0		
Base Capacity (vph)		824			650		380	2963		536	2629	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.33			0.43		0.14	0.25		0.04	0.27	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 69.4

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 20.1

Intersection LOS: C

Intersection Capacity Utilization 67.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: 120 Street & 92 Avenue

			
Ø1	Ø2	Ø3	Ø4
12 s	60.3 s	14 s	31.9 s
			
Ø6		Ø8	
72.3 s		45.9 s	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2023 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕		↗	↕	
Traffic Volume (vph)	159	219	50	93	147	38	62	704	111	33	535	138
Future Volume (vph)	159	219	50	93	147	38	62	704	111	33	535	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	35.0		0.0	35.0		0.0
Storage Lanes	0		0	0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.98			0.98		0.99	0.97		0.96	0.95	
Frt		0.984			0.982			0.980			0.969	
Flt Protected		0.982			0.984		0.950			0.950		
Satd. Flow (prot)	0	1789	0	0	1761	0	1770	3372	0	1770	3244	0
Flt Permitted		0.749			0.718		0.195			0.293		
Satd. Flow (perm)	0	1351	0	0	1282	0	359	3372	0	522	3244	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			6			24			36	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	45		25	9		83	16		47	38		61
Confl. Bikes (#/hr)			1			2			2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	173	238	54	101	160	41	67	765	121	36	582	150
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	465	0	0	302	0	67	886	0	36	732	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.9			6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)		39.4			39.4		38.0	35.7		26.9	26.9	
Actuated g/C Ratio		0.45			0.45		0.43	0.40		0.30	0.30	
v/c Ratio		0.77			0.53		0.25	0.64		0.23	0.73	
Control Delay		33.2			23.8		16.2	22.5		27.8	31.0	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		33.2			23.8		16.2	22.5		27.8	31.0	
LOS		C			C		B	C		C	C	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2023 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		33.2			23.8			22.0			30.8	
Approach LOS		C			C			C			C	
Queue Length 50th (m)		70.6			39.0		6.8	62.9		5.0	60.3	
Queue Length 95th (m)		#145.1			75.7		14.0	81.7		13.3	81.0	
Internal Link Dist (m)		776.5			363.0			314.3			289.1	
Turn Bay Length (m)							35.0			35.0		
Base Capacity (vph)		605			574		283	2549		322	2016	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.77			0.53		0.24	0.35		0.11	0.36	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 88.5

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 27.1

Intersection LOS: C

Intersection Capacity Utilization 80.3%

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: 120 Street & 92 Avenue

 Ø1	 Ø2	 Ø3	 Ø4
12 s	60.3 s	14 s	31.9 s
 Ø6		 Ø8	
72.3 s		45.9 s	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2026 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (vph)	169	233	53	99	156	41	66	747	118	35	568	147
Future Volume (vph)	169	233	53	99	156	41	66	747	118	35	568	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	35.0		0.0	35.0		0.0
Storage Lanes	0		0	0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.98		0.99	0.97		0.96	0.95	
Frt		0.984			0.981			0.980			0.969	
Flt Protected		0.982			0.984		0.950			0.950		
Satd. Flow (prot)	0	1789	0	0	1759	0	1770	3373	0	1770	3243	0
Flt Permitted		0.735			0.698		0.184			0.264		
Satd. Flow (perm)	0	1339	0	0	1245	0	339	3373	0	473	3243	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			6			24			36	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	45		25	9		83	16		47	38		61
Confl. Bikes (#/hr)			1			2			2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	184	253	58	108	170	45	72	812	128	38	617	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	495	0	0	323	0	72	940	0	38	777	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.9			6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)		39.4			39.4		40.2	37.9		29.0	29.0	
Actuated g/C Ratio		0.43			0.43		0.44	0.42		0.32	0.32	
v/c Ratio		0.85			0.59		0.27	0.66		0.25	0.73	
Control Delay		40.7			27.1		16.2	22.5		28.3	30.9	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		40.7			27.1		16.2	22.5		28.3	30.9	
LOS		D			C		B	C		C	C	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2026 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		40.7			27.1			22.1			30.7	
Approach LOS		D			C			C			C	
Queue Length 50th (m)		81.3			44.8		7.3	68.4		5.3	65.5	
Queue Length 95th (m)		#167.8			87.7		14.8	87.9		14.0	86.8	
Internal Link Dist (m)		776.5			363.0			314.3			289.1	
Turn Bay Length (m)							35.0			35.0		
Base Capacity (vph)		585			544		278	2488		284	1966	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.85			0.59		0.26	0.38		0.13	0.40	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 90.7

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 28.8

Intersection LOS: C

Intersection Capacity Utilization 83.7%

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: 6: 120 Street & 92 Avenue

 Ø1	 Ø2	 Ø3	 Ø4
12 s	60.3 s	14 s	31.9 s
 Ø6		 Ø8	
72.3 s		45.9 s	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2031 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕		↗	↕	
Traffic Volume (vph)	185	254	58	108	171	45	72	817	129	39	621	160
Future Volume (vph)	185	254	58	108	171	45	72	817	129	39	621	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	35.0		0.0	35.0		0.0
Storage Lanes	0		0	0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.98			0.97		0.97	0.95	
Frt		0.984			0.981			0.980			0.969	
Flt Protected		0.982			0.984		0.950			0.950		
Satd. Flow (prot)	0	1789	0	0	1759	0	1770	3373	0	1770	3244	0
Flt Permitted		0.715			0.673		0.164			0.223		
Satd. Flow (perm)	0	1303	0	0	1201	0	305	3373	0	403	3244	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			6			24			36	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	45		25	9		83	16		47	38		61
Confl. Bikes (#/hr)			1			2			2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	201	276	63	117	186	49	78	888	140	42	675	174
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	540	0	0	352	0	78	1028	0	42	849	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.9			6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)		39.5			39.5		43.6	41.3		32.3	32.3	
Actuated g/C Ratio		0.42			0.42		0.46	0.44		0.34	0.34	
v/c Ratio		0.98			0.69		0.31	0.69		0.30	0.75	
Control Delay		64.9			33.5		16.3	22.8		30.0	30.9	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		64.9			33.5		16.3	22.8		30.0	30.9	
LOS		E			C		B	C		C	C	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2031 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		64.9			33.5			22.3			30.8	
Approach LOS		E			C			C			C	
Queue Length 50th (m)		~106.0			55.4		8.0	77.8		6.1	74.4	
Queue Length 95th (m)		#204.6			#116.6		15.5	98.4		15.9	96.5	
Internal Link Dist (m)		776.5			363.0			314.3			289.1	
Turn Bay Length (m)							35.0			35.0		
Base Capacity (vph)		550			507		267	2401		233	1899	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.98			0.69		0.29	0.43		0.18	0.45	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 94.1

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 34.3

Intersection LOS: C

Intersection Capacity Utilization 89.2%

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: 6: 120 Street & 92 Avenue

			
Ø1	Ø2	Ø3	Ø4
12 s	60.3 s	14 s	31.9 s
			
Ø6		Ø8	
72.3 s		45.9 s	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2036 Base
Timing Plan: PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Volume (vph)	200	276	63	118	186	48	78	888	140	42	675	174
Future Volume (vph)	200	276	63	118	186	48	78	888	140	42	675	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	35.0		0.0	35.0		0.0
Storage Lanes	0		0	0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.98			0.97		0.98	0.95	
Frt		0.984			0.982			0.980			0.969	
Flt Protected		0.982			0.984		0.950			0.950		
Satd. Flow (prot)	0	1789	0	0	1761	0	1770	3373	0	1770	3244	0
Flt Permitted		0.696			0.657		0.147			0.189		
Satd. Flow (perm)	0	1268	0	0	1174	0	274	3373	0	344	3244	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			6			24			36	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	45		25	9		83	16		47	38		61
Confl. Bikes (#/hr)			1			2			2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	217	300	68	128	202	52	85	965	152	46	734	189
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	585	0	0	382	0	85	1117	0	46	923	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.9			6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)		39.4			39.4		47.0	44.7		35.7	35.7	
Actuated g/C Ratio		0.40			0.40		0.48	0.46		0.37	0.37	
v/c Ratio		1.13			0.80		0.35	0.72		0.37	0.76	
Control Delay		112.1			42.3		16.7	23.1		32.9	31.0	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		112.1			42.3		16.7	23.1		32.9	31.0	
LOS		F			D		B	C		C	C	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2036 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay	112.1			42.3			22.7			31.1		
Approach LOS	F			D			C			C		
Queue Length 50th (m)	~141.0			66.9			8.7	88.1		6.9	84.0	
Queue Length 95th (m)	#241.1			#142.1			16.6	110.2		18.0	107.2	
Internal Link Dist (m)	776.5			363.0			314.3			289.1		
Turn Bay Length (m)							35.0			35.0		
Base Capacity (vph)	516			478			256	2317		192	1833	
Starvation Cap Reductn	0			0			0	0		0	0	
Spillback Cap Reductn	0			0			0	0		0	0	
Storage Cap Reductn	0			0			0	0		0	0	
Reduced v/c Ratio	1.13			0.80			0.33	0.48		0.24	0.50	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 97.5

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.13

Intersection Signal Delay: 44.3

Intersection LOS: D

Intersection Capacity Utilization 94.5%

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: 6: 120 Street & 92 Avenue

 Ø1		 Ø2		 Ø3		 Ø4	
12 s		60.3 s		14 s		31.9 s	
 Ø6				 Ø8			
72.3 s				45.9 s			

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2026 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕		↗	↕	
Traffic Volume (vph)	177	236	58	99	160	41	77	747	118	35	568	156
Future Volume (vph)	177	236	58	99	160	41	77	747	118	35	568	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	35.0		0.0	35.0		0.0
Storage Lanes	0		0	0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.98		0.99	0.97		0.96	0.95	
Frt		0.983			0.981			0.980			0.968	
Flt Protected		0.982			0.984		0.950			0.950		
Satd. Flow (prot)	0	1787	0	0	1759	0	1770	3373	0	1770	3233	0
Flt Permitted		0.730			0.694		0.181			0.266		
Satd. Flow (perm)	0	1328	0	0	1238	0	334	3373	0	476	3233	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			6			24			39	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	45		25	9		83	16		47	38		61
Confl. Bikes (#/hr)			1			2			2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	192	257	63	108	174	45	84	812	128	38	617	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	512	0	0	327	0	84	940	0	38	787	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.9			6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)		39.5			39.5		40.9	38.6		29.6	29.6	
Actuated g/C Ratio		0.43			0.43		0.45	0.42		0.32	0.32	
v/c Ratio		0.89			0.61		0.32	0.65		0.25	0.73	
Control Delay		45.9			28.0		16.8	22.3		28.0	30.8	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		45.9			28.0		16.8	22.3		28.0	30.8	
LOS		D			C		B	C		C	C	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2026 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		45.9			28.0			21.8			30.7	
Approach LOS		D			C			C			C	
Queue Length 50th (m)		87.6			46.3		8.6	68.4		5.3	66.8	
Queue Length 95th (m)		#178.2			90.3		16.7	87.9		14.0	87.9	
Internal Link Dist (m)		776.5			363.0			314.3			289.1	
Turn Bay Length (m)							35.0			35.0		
Base Capacity (vph)		576			537		276	2470		284	1948	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.89			0.61		0.30	0.38		0.13	0.40	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 91.4

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 29.9

Intersection LOS: C

Intersection Capacity Utilization 85.4%

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: 6: 120 Street & 92 Avenue

 Ø1	 Ø2	 Ø3	 Ø4
12 s	60.3 s	14 s	31.9 s
 Ø6		 Ø8	
72.3 s		45.9 s	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2031 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	193	257	63	108	175	45	83	817	129	39	621	169
Future Volume (vph)	193	257	63	108	175	45	83	817	129	39	621	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	35.0		0.0	35.0		0.0
Storage Lanes	0		0	0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.98			0.97		0.97	0.95	
Frt		0.984			0.981			0.980			0.968	
Flt Protected		0.981			0.984		0.950			0.950		
Satd. Flow (prot)	0	1787	0	0	1759	0	1770	3373	0	1770	3234	0
Flt Permitted		0.709			0.672		0.161			0.225		
Satd. Flow (perm)	0	1292	0	0	1199	0	300	3373	0	406	3234	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			6			24			38	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	45		25	9		83	16		47	38		61
Confl. Bikes (#/hr)			1			2			2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	210	279	68	117	190	49	90	888	140	42	675	184
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	557	0	0	356	0	90	1028	0	42	859	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.9			6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)		39.5			39.5		44.1	41.7		32.7	32.7	
Actuated g/C Ratio		0.42			0.42		0.47	0.44		0.35	0.35	
v/c Ratio		1.03			0.71		0.35	0.68		0.30	0.75	
Control Delay		76.5			34.4		17.1	22.6		29.7	31.0	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		76.5			34.4		17.1	22.6		29.7	31.0	
LOS		E			C		B	C		C	C	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2031 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		76.5			34.4			22.2			30.9	
Approach LOS		E			C			C			C	
Queue Length 50th (m)		~121.0			57.1		9.3	77.8		6.1	75.6	
Queue Length 95th (m)		#215.8			#119.9		17.4	98.4		15.8	97.9	
Internal Link Dist (m)		776.5			363.0			314.3			289.1	
Turn Bay Length (m)							35.0			35.0		
Base Capacity (vph)		542			504		265	2389		234	1885	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		1.03			0.71		0.34	0.43		0.18	0.46	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 94.6

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 36.7

Intersection LOS: D

Intersection Capacity Utilization 90.9%

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: 6: 120 Street & 92 Avenue

			
Ø1	Ø2	Ø3	Ø4
12 s	60.3 s	14 s	31.9 s
			
Ø6		Ø8	
72.3 s		45.9 s	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2036 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕		↗	↕	
Traffic Volume (vph)	208	279	68	118	190	48	89	888	140	42	675	183
Future Volume (vph)	208	279	68	118	190	48	89	888	140	42	675	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	35.0		0.0	35.0		0.0
Storage Lanes	0		0	0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.98			0.97		0.98	0.95	
Frt		0.983			0.982			0.980			0.968	
Flt Protected		0.982			0.984		0.950			0.950		
Satd. Flow (prot)	0	1787	0	0	1762	0	1770	3373	0	1770	3235	0
Flt Permitted		0.690			0.657		0.145			0.190		
Satd. Flow (perm)	0	1256	0	0	1175	0	270	3373	0	345	3235	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			6			24			38	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	45		25	9		83	16		47	38		61
Confl. Bikes (#/hr)			1			2			2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	226	303	74	128	207	52	97	965	152	46	734	199
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	603	0	0	387	0	97	1117	0	46	933	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.9			6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)		39.5			39.5		47.7	45.3		36.2	36.2	
Actuated g/C Ratio		0.40			0.40		0.49	0.46		0.37	0.37	
v/c Ratio		1.19			0.81		0.39	0.71		0.36	0.77	
Control Delay		132.3			43.9		17.6	22.9		32.4	30.9	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		132.3			43.9		17.6	22.9		32.4	30.9	
LOS		F			D		B	C		C	C	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2036 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay	132.3			43.9			22.5			31.0		
Approach LOS	F			D			C			C		
Queue Length 50th (m)	~151.2			68.8			10.0	88.1		6.9	85.2	
Queue Length 95th (m)	#256.1			#147.5			18.4	109.8		17.7	108.6	
Internal Link Dist (m)	776.5			363.0			314.3			289.1		
Turn Bay Length (m)							35.0			35.0		
Base Capacity (vph)	508			476			254	2303		192	1818	
Starvation Cap Reductn	0			0			0	0		0	0	
Spillback Cap Reductn	0			0			0	0		0	0	
Storage Cap Reductn	0			0			0	0		0	0	
Reduced v/c Ratio	1.19			0.81			0.38	0.49		0.24	0.51	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 98.2

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 48.5

Intersection LOS: D

Intersection Capacity Utilization 96.2%

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: 6: 120 Street & 92 Avenue

			
Ø1	Ø2	Ø3	Ø4
12 s	60.3 s	14 s	31.9 s
			
Ø6		Ø8	
72.3 s		45.9 s	

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2023 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	134	26	192	101	37	25	404	300	31	358	8
Future Volume (vph)	18	134	26	192	101	37	25	404	300	31	358	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		40.0	0.0		0.0
Storage Lanes	1		0	1		0	0		1	0		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	1.00	0.99		0.99	0.99			1.00	0.96		1.00	
Frt		0.976			0.960				0.850		0.997	
Flt Protected	0.950			0.950				0.997			0.996	
Satd. Flow (prot)	1770	1806	0	1770	1773	0	0	1857	1583	0	1849	0
Flt Permitted	0.662			0.647				0.960			0.940	
Satd. Flow (perm)	1229	1806	0	1194	1773	0	0	1788	1517	0	1744	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			31				326		2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		11	9		8	2		14	5		5
Confl. Bikes (#/hr)			6			1			3			4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	146	28	209	110	40	27	439	326	34	389	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	174	0	209	150	0	0	466	326	0	432	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4	29.4	29.4	29.4	
Total Split (s)	29.3	29.3		29.3	29.3		32.4	32.4	32.4	32.4	32.4	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		48.6%	48.6%	48.6%	48.6%	48.6%	
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)	2.0	2.0		2.0	2.0		2.1	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	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4	5.4		5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	13.3	13.3		13.3	13.3			17.5	17.5		17.5	
Actuated g/C Ratio	0.32	0.32		0.32	0.32			0.41	0.41		0.41	
v/c Ratio	0.05	0.30		0.56	0.26			0.63	0.40		0.60	
Control Delay	11.8	12.2		19.4	10.9			14.8	3.0		14.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	11.8	12.2		19.4	10.9			14.8	3.0		14.1	
LOS	B	B		B	B			B	A		B	
Approach Delay		12.2			15.8			9.9			14.1	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2023 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	B			B			A			B		
Queue Length 50th (m)	1.0	8.1		11.9	6.0			24.5	0.0		22.3	
Queue Length 95th (m)	5.2	24.7		35.6	20.0			62.9	11.6		57.6	
Internal Link Dist (m)	218.7			776.5			241.2			300.3		
Turn Bay Length (m)	25.0			35.0					40.0			
Base Capacity (vph)	743	1098		722	1084			1216	1136		1186	
Starvation Cap Reductn	0	0		0	0			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.03	0.16		0.29	0.14			0.38	0.29		0.36	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 42.2

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 12.4

Intersection LOS: B

Intersection Capacity Utilization 81.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: 116 Street & 92 Avenue

 Ø2	 Ø3	 Ø4
32.4 s	5 s	29.3 s
 Ø6	 Ø7	 Ø8
32.4 s	5 s	29.3 s

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2026 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	142	28	204	108	40	27	429	318	33	380	9
Future Volume (vph)	20	142	28	204	108	40	27	429	318	33	380	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		40.0	0.0		0.0
Storage Lanes	1		0	1		0	0		1	0		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	1.00	0.99		0.99	0.99			1.00	0.96		1.00	
Frt		0.976			0.960				0.850		0.997	
Flt Protected	0.950			0.950				0.997			0.996	
Satd. Flow (prot)	1770	1806	0	1770	1773	0	0	1857	1583	0	1849	0
Flt Permitted	0.656			0.641				0.957			0.936	
Satd. Flow (perm)	1218	1806	0	1183	1773	0	0	1783	1517	0	1737	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			31				346		2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		11	9		8	2		14	5		5
Confl. Bikes (#/hr)			6			1			3			4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	154	30	222	117	43	29	466	346	36	413	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	184	0	222	160	0	0	495	346	0	459	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4	29.4	29.4	29.4	
Total Split (s)	29.3	29.3		29.3	29.3		32.4	32.4	32.4	32.4	32.4	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		48.6%	48.6%	48.6%	48.6%	48.6%	
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)	2.0	2.0		2.0	2.0		2.1	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	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4	5.4		5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	14.1	14.1		14.1	14.1			18.2	18.2		18.2	
Actuated g/C Ratio	0.32	0.32		0.32	0.32			0.42	0.42		0.42	
v/c Ratio	0.06	0.31		0.58	0.27			0.67	0.42		0.63	
Control Delay	11.9	12.5		20.3	11.2			16.2	3.2		15.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	11.9	12.5		20.3	11.2			16.2	3.2		15.5	
LOS	B	B		C	B			B	A		B	
Approach Delay		12.5			16.5			10.8			15.5	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2026 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	B			B			B			B		
Queue Length 50th (m)	1.1	9.2		13.5	6.9			28.0	0.0		25.5	
Queue Length 95th (m)	5.5	25.8		37.8	21.2			71.3	12.5		65.3	
Internal Link Dist (m)	218.7			776.5			241.2			300.3		
Turn Bay Length (m)	25.0			35.0				40.0				
Base Capacity (vph)	714	1066		694	1053			1176	1119		1147	
Starvation Cap Reductn	0	0		0	0			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.03	0.17		0.32	0.15			0.42	0.31		0.40	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 43.8

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 13.3

Intersection LOS: B

Intersection Capacity Utilization 85.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: 116 Street & 92 Avenue

 Ø2	 Ø3	 Ø4
32.4 s	5 s	29.3 s
 Ø6	 Ø7	 Ø8
32.4 s	5 s	29.3 s

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2031 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	156	31	223	118	43	29	469	348	36	416	10
Future Volume (vph)	21	156	31	223	118	43	29	469	348	36	416	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		40.0	0.0		0.0
Storage Lanes	1		0	1		0	0		1	0		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	1.00	0.99		0.99	0.99			1.00	0.96		1.00	
Frt		0.975			0.960				0.850		0.997	
Flt Protected	0.950			0.950				0.997			0.996	
Satd. Flow (prot)	1770	1804	0	1770	1773	0	0	1857	1583	0	1848	0
Flt Permitted	0.647			0.630				0.954			0.933	
Satd. Flow (perm)	1201	1804	0	1163	1773	0	0	1777	1517	0	1731	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			31				378		2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		11	9		8	2		14	5		5
Confl. Bikes (#/hr)			6			1			3			4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	170	34	242	128	47	32	510	378	39	452	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	204	0	242	175	0	0	542	378	0	502	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4	29.4	29.4	29.4	
Total Split (s)	29.3	29.3		29.3	29.3		32.4	32.4	32.4	32.4	32.4	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		48.6%	48.6%	48.6%	48.6%	48.6%	
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)	2.0	2.0		2.0	2.0		2.1	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	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4	5.4		5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	15.6	15.6		15.6	15.6			21.2	21.2		21.2	
Actuated g/C Ratio	0.32	0.32		0.32	0.32			0.44	0.44		0.44	
v/c Ratio	0.06	0.34		0.64	0.29			0.69	0.43		0.66	
Control Delay	12.6	13.7		23.6	12.2			17.3	3.1		16.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	12.6	13.7		23.6	12.2			17.3	3.1		16.4	
LOS	B	B		C	B			B	A		B	
Approach Delay		13.6			18.8			11.5			16.4	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2031 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	B			B			B			B		
Queue Length 50th (m)	1.5	12.8		18.7	9.6			36.1	0.0		32.6	
Queue Length 95th (m)	5.7	28.3		41.9	23.0			83.1	13.2		75.9	
Internal Link Dist (m)	218.7			776.5			241.2			300.3		
Turn Bay Length (m)	25.0				35.0				40.0			
Base Capacity (vph)	635	962		615	952			1057	1056		1031	
Starvation Cap Reductn	0	0		0	0			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.04	0.21		0.39	0.18			0.51	0.36		0.49	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 48.1

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 14.4

Intersection LOS: B

Intersection Capacity Utilization 91.6%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 3: 116 Street & 92 Avenue

 Ø2	 Ø3	 Ø4
32.4 s	5 s	29.3 s
 Ø6	 Ø7	 Ø8
32.4 s	5 s	29.3 s

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2036 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	169	33	242	128	47	32	510	378	39	452	11
Future Volume (vph)	23	169	33	242	128	47	32	510	378	39	452	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		40.0	0.0		0.0
Storage Lanes	1		0	1		0	0		1	0		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	1.00	0.99		0.99	0.99			1.00	0.96		1.00	
Frt		0.975			0.960				0.850		0.997	
Flt Protected	0.950			0.950				0.997			0.996	
Satd. Flow (prot)	1770	1804	0	1770	1773	0	0	1857	1583	0	1848	0
Flt Permitted	0.638			0.621				0.951			0.929	
Satd. Flow (perm)	1185	1804	0	1147	1773	0	0	1771	1517	0	1724	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			31				380			2
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		11	9		8	2		14	5		5
Confl. Bikes (#/hr)			6			1			3			4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	184	36	263	139	51	35	554	411	42	491	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	25	220	0	263	190	0	0	589	411	0	545	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4	29.4	29.4	29.4	
Total Split (s)	29.3	29.3		29.3	29.3		32.4	32.4	32.4	32.4	32.4	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		48.6%	48.6%	48.6%	48.6%	48.6%	
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)	2.0	2.0		2.0	2.0		2.1	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	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4	5.4		5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	17.5	17.5		17.5	17.5			27.2	27.2		27.2	
Actuated g/C Ratio	0.32	0.32		0.32	0.32			0.49	0.49		0.49	
v/c Ratio	0.07	0.38		0.73	0.33			0.68	0.44		0.64	
Control Delay	12.8	15.1		29.2	13.0			17.7	3.6		16.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	12.8	15.1		29.2	13.0			17.7	3.6		16.6	
LOS	B	B		C	B			B	A		B	
Approach Delay		14.9			22.4			11.9			16.6	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2036 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	B			C			B			B		
Queue Length 50th (m)	1.8	16.2		24.1	12.3			45.0	1.6		40.4	
Queue Length 95th (m)	6.0	30.6		46.7	25.1			#107.2	16.3		85.4	
Internal Link Dist (m)		218.7			776.5			241.2			300.3	
Turn Bay Length (m)	25.0			35.0					40.0			
Base Capacity (vph)	516	795		500	790			868	937		846	
Starvation Cap Reductn	0	0		0	0			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.05	0.28		0.53	0.24			0.68	0.44		0.64	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 55.5

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 15.5

Intersection LOS: B

Intersection Capacity Utilization 97.6%

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: 116 Street & 92 Avenue

 Ø2	 Ø3	 Ø4
32.4 s	5 s	29.3 s
 Ø6	 Ø7	 Ø8
32.4 s	5 s	29.3 s

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2026 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	144	28	209	109	45	27	429	327	38	380	9
Future Volume (vph)	20	144	28	209	109	45	27	429	327	38	380	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		40.0	0.0		0.0
Storage Lanes	1		0	1		0	0		1	0		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	1.00	0.99		0.99	0.99			1.00	0.96		1.00	
Frt		0.976			0.956				0.850		0.997	
Flt Protected	0.950			0.950				0.997			0.996	
Satd. Flow (prot)	1770	1806	0	1770	1764	0	0	1857	1583	0	1849	0
Flt Permitted	0.651			0.640				0.956			0.926	
Satd. Flow (perm)	1209	1806	0	1181	1764	0	0	1781	1517	0	1718	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			35				355		2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		11	9		8	2		14	5		5
Confl. Bikes (#/hr)			6			1			3			4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	157	30	227	118	49	29	466	355	41	413	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	187	0	227	167	0	0	495	355	0	464	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4	29.4	29.4	29.4	
Total Split (s)	29.3	29.3		29.3	29.3		32.4	32.4	32.4	32.4	32.4	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		48.6%	48.6%	48.6%	48.6%	48.6%	
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)	2.0	2.0		2.0	2.0		2.1	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	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4	5.4		5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	14.4	14.4		14.4	14.4			18.2	18.2		18.2	
Actuated g/C Ratio	0.33	0.33		0.33	0.33			0.41	0.41		0.41	
v/c Ratio	0.06	0.31		0.59	0.28			0.67	0.43		0.65	
Control Delay	11.8	12.5		20.5	11.0			16.6	3.2		16.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	11.8	12.5		20.5	11.0			16.6	3.2		16.2	
LOS	B	B		C	B			B	A		B	
Approach Delay		12.4			16.4			11.0			16.2	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2026 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	B			B			B			B		
Queue Length 50th (m)	1.1	9.4		14.0	7.1			28.6	0.0		26.2	
Queue Length 95th (m)	5.5	26.1		38.8	21.7			72.5	12.8		67.9	
Internal Link Dist (m)	218.7			776.5			241.2			300.3		
Turn Bay Length (m)	25.0			35.0				40.0				
Base Capacity (vph)	707	1062		690	1046			1171	1119		1130	
Starvation Cap Reductn	0	0		0	0			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.03	0.18		0.33	0.16			0.42	0.32		0.41	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 44.1

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 13.5

Intersection LOS: B

Intersection Capacity Utilization 89.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: 116 Street & 92 Avenue

 Ø2	 Ø3	 Ø4
32.4 s	5 s	29.3 s
 Ø6	 Ø7	 Ø8
32.4 s	5 s	29.3 s

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2031 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	158	31	228	119	48	29	469	357	41	416	10
Future Volume (vph)	21	158	31	228	119	48	29	469	357	41	416	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		40.0	0.0		0.0
Storage Lanes	1		0	1		0	0		1	0		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	1.00	0.99		0.99	0.99			1.00	0.96		1.00	
Frt		0.975			0.957				0.850		0.997	
Flt Protected	0.950			0.950				0.997			0.996	
Satd. Flow (prot)	1770	1804	0	1770	1767	0	0	1857	1583	0	1849	0
Flt Permitted	0.643			0.629				0.954			0.922	
Satd. Flow (perm)	1194	1804	0	1161	1767	0	0	1777	1517	0	1711	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			34				388		2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		11	9		8	2		14	5		5
Confl. Bikes (#/hr)			6			1			3			4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	172	34	248	129	52	32	510	388	45	452	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	206	0	248	181	0	0	542	388	0	508	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4	29.4	29.4	29.4	
Total Split (s)	29.3	29.3		29.3	29.3		32.4	32.4	32.4	32.4	32.4	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		48.6%	48.6%	48.6%	48.6%	48.6%	
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)	2.0	2.0		2.0	2.0		2.1	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	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4	5.4		5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	16.1	16.1		16.1	16.1			23.0	23.0		23.0	
Actuated g/C Ratio	0.32	0.32		0.32	0.32			0.46	0.46		0.46	
v/c Ratio	0.06	0.35		0.67	0.31			0.67	0.43		0.65	
Control Delay	12.8	14.2		25.3	12.5			16.5	3.1		16.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	12.8	14.2		25.3	12.5			16.5	3.1		16.1	
LOS	B	B		C	B			B	A		B	
Approach Delay		14.1			19.9			10.9			16.1	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2031 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	B			B			B			B		
Queue Length 50th (m)	1.6	14.6		21.8	11.1			36.8	0.0		33.9	
Queue Length 95th (m)	5.7	28.5		43.2	23.5			83.1	13.4		77.6	
Internal Link Dist (m)	218.7			776.5			241.2			300.3		
Turn Bay Length (m)	25.0			35.0					40.0			
Base Capacity (vph)	597	911		580	900			1000	1023		963	
Starvation Cap Reductn	0	0		0	0			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.04	0.23		0.43	0.20			0.54	0.38		0.53	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 50.3

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 14.4

Intersection LOS: B

Intersection Capacity Utilization 95.1%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 3: 116 Street & 92 Avenue

 Ø2		 Ø3		 Ø4	
32.4 s		5 s		29.3 s	
 Ø6		 Ø7		 Ø8	
32.4 s		5 s		29.3 s	

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2036 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	171	33	247	129	52	32	510	387	44	452	11
Future Volume (vph)	23	171	33	247	129	52	32	510	387	44	452	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	35.0		0.0	0.0		40.0	0.0		0.0
Storage Lanes	1		0	1		0	0		1	0		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	1.00	0.99		0.99	0.99			1.00	0.96		1.00	
Frt		0.976			0.957				0.850		0.997	
Flt Protected	0.950			0.950				0.997			0.996	
Satd. Flow (prot)	1770	1806	0	1770	1766	0	0	1857	1583	0	1849	0
Flt Permitted	0.634			0.619				0.950			0.898	
Satd. Flow (perm)	1177	1806	0	1143	1766	0	0	1770	1517	0	1666	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			34				389		2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.7			800.5			265.2			324.3	
Travel Time (s)		17.5			57.6			19.1			23.3	
Confl. Peds. (#/hr)	3		11	9		8	2		14	5		5
Confl. Bikes (#/hr)			6			1			3			4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	186	36	268	140	57	35	554	421	48	491	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	25	222	0	268	197	0	0	589	421	0	551	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	30.3	30.3		30.3	30.3		29.4	29.4	29.4	29.4	29.4	
Total Split (s)	29.3	29.3		29.3	29.3		32.4	32.4	32.4	32.4	32.4	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		48.6%	48.6%	48.6%	48.6%	48.6%	
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)	2.0	2.0		2.0	2.0		2.1	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	
Total Lost Time (s)	5.3	5.3		5.3	5.3			5.4	5.4		5.4	
Lead/Lag	Lag	Lag		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	17.9	17.9		17.9	17.9			27.2	27.2		27.2	
Actuated g/C Ratio	0.32	0.32		0.32	0.32			0.49	0.49		0.49	
v/c Ratio	0.07	0.38		0.73	0.34			0.68	0.45		0.68	
Control Delay	12.7	15.0		29.3	12.9			18.1	3.6		18.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	12.7	15.0		29.3	12.9			18.1	3.6		18.2	
LOS	B	B		C	B			B	A		B	
Approach Delay		14.8			22.4			12.1			18.2	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

Lanes, Volumes, Timings
3: 116 Street & 92 Avenue

2036 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	B			C			B			B		
Queue Length 50th (m)	1.8	16.4		24.7	12.7			45.9	1.7		42.7	
Queue Length 95th (m)	6.0	30.9		48.1	25.7			#107.2	16.6		#101.7	
Internal Link Dist (m)		218.7			776.5			241.2			300.3	
Turn Bay Length (m)	25.0			35.0					40.0			
Base Capacity (vph)	509	790		494	783			861	938		812	
Starvation Cap Reductn	0	0		0	0			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.05	0.28		0.54	0.25			0.68	0.45		0.68	

Intersection Summary

Area Type: Other

Cycle Length: 66.7

Actuated Cycle Length: 55.9

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 16.0

Intersection LOS: B

Intersection Capacity Utilization 101.2%

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: 116 Street & 92 Avenue

 Ø2	 Ø3	 Ø4
32.4 s	5 s	29.3 s
 Ø6	 Ø7	 Ø8
32.4 s	5 s	29.3 s

Lane Group	Ø3	Ø7
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2023 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	219	50	93	147	38	62	704	111	33	535	138
Future Volume (vph)	159	219	50	93	147	38	62	704	111	33	535	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	25.0		0.0	35.0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.95	0.99		0.99	0.97		0.99	0.97		0.96	0.95	
Frt		0.972			0.969			0.980			0.969	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1794	0	1770	1747	0	1770	3372	0	1770	3244	0
Flt Permitted	0.474			0.581			0.224			0.321		
Satd. Flow (perm)	841	1794	0	1072	1747	0	413	3372	0	572	3244	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			10			24			36	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	45		25	9		83	16		47	38		61
Confl. Bikes (#/hr)			1			2			2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	173	238	54	101	160	41	67	765	121	36	582	150
Shared Lane Traffic (%)												
Lane Group Flow (vph)	173	292	0	101	201	0	67	886	0	36	732	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	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	
Total Lost Time (s)	4.0	6.9		6.9	6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)	31.5	28.5		14.9	14.9		35.8	33.4		24.9	24.9	
Actuated g/C Ratio	0.42	0.38		0.20	0.20		0.47	0.44		0.33	0.33	
v/c Ratio	0.37	0.43		0.48	0.57		0.21	0.59		0.19	0.67	
Control Delay	19.1	21.1		38.4	35.3		12.8	17.2		23.4	25.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.1	21.1		38.4	35.3		12.8	17.2		23.4	25.1	
LOS	B	C		D	D		B	B		C	C	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2023 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		20.4			36.4			16.8			25.1	
Approach LOS		C			D			B			C	
Queue Length 50th (m)	17.2	32.2		14.2	27.3		5.2	49.1		4.0	49.3	
Queue Length 95th (m)	37.1	63.8		33.2	55.0		13.2	76.8		12.4	77.3	
Internal Link Dist (m)		776.5			363.0			314.3			289.1	
Turn Bay Length (m)	25.0			25.0			35.0			35.0		
Base Capacity (vph)	478	975		371	612		345	2875		419	2387	
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	0.36	0.30		0.27	0.33		0.19	0.31		0.09	0.31	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 75.7

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 22.4

Intersection LOS: C

Intersection Capacity Utilization 78.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: 120 Street & 92 Avenue

 Ø1	 Ø2	 Ø3	 Ø4
12 s	60.3 s	14 s	31.9 s
 Ø6		 Ø8	
72.3 s		45.9 s	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2026 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	233	53	99	156	41	66	747	118	35	568	147
Future Volume (vph)	169	233	53	99	156	41	66	747	118	35	568	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	25.0		0.0	35.0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.96	0.99		0.99	0.97		0.99	0.97		0.96	0.95	
Frt		0.972			0.969			0.980			0.969	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1794	0	1770	1745	0	1770	3373	0	1770	3243	0
Flt Permitted	0.448			0.571			0.208			0.299		
Satd. Flow (perm)	797	1794	0	1054	1745	0	384	3373	0	535	3243	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			10			24			36	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	45		25	9		83	16		47	38		61
Confl. Bikes (#/hr)			1			2			2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	184	253	58	108	170	45	72	812	128	38	617	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	311	0	108	215	0	72	940	0	38	777	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	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	
Total Lost Time (s)	4.0	6.9		6.9	6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)	32.6	29.6		15.9	15.9		38.3	35.9		27.3	27.3	
Actuated g/C Ratio	0.41	0.37		0.20	0.20		0.48	0.45		0.34	0.34	
v/c Ratio	0.42	0.46		0.51	0.60		0.23	0.61		0.21	0.68	
Control Delay	20.7	22.6		40.7	37.3		13.3	17.8		24.0	25.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.7	22.6		40.7	37.3		13.3	17.8		24.0	25.7	
LOS	C	C		D	D		B	B		C	C	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2026 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		21.9			38.4			17.5			25.6	
Approach LOS		C			D			B			C	
Queue Length 50th (m)	19.3	36.4		15.8	30.6		5.8	54.6		4.4	54.7	
Queue Length 95th (m)	41.0	71.4		36.4	60.6		14.4	85.6		13.5	85.2	
Internal Link Dist (m)		776.5			363.0			314.3			289.1	
Turn Bay Length (m)	25.0			25.0			35.0			35.0		
Base Capacity (vph)	456	932		349	585		332	2782		380	2313	
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	0.40	0.33		0.31	0.37		0.22	0.34		0.10	0.34	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 79.3

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 23.4

Intersection LOS: C

Intersection Capacity Utilization 80.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: 120 Street & 92 Avenue

 Ø1	 Ø2	 Ø3	 Ø4
12 s	60.3 s	14 s	31.9 s
 Ø6		 Ø8	
72.3 s		45.9 s	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2031 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	254	58	108	171	45	72	817	129	39	621	160
Future Volume (vph)	185	254	58	108	171	45	72	817	129	39	621	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	25.0		0.0	35.0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.96	0.99		0.99	0.97			0.97		0.97	0.95	
Frt		0.972			0.969			0.980			0.969	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1794	0	1770	1746	0	1770	3373	0	1770	3244	0
Flt Permitted	0.407			0.557			0.184			0.250		
Satd. Flow (perm)	727	1794	0	1029	1746	0	343	3373	0	451	3244	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			10			24			36	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	45		25	9		83	16		47	38		61
Confl. Bikes (#/hr)			1			2			2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	201	276	63	117	186	49	78	888	140	42	675	174
Shared Lane Traffic (%)												
Lane Group Flow (vph)	201	339	0	117	235	0	78	1028	0	42	849	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	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	
Total Lost Time (s)	4.0	6.9		6.9	6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)	34.2	31.1		17.2	17.2		41.7	39.3		30.7	30.7	
Actuated g/C Ratio	0.41	0.37		0.20	0.20		0.49	0.47		0.36	0.36	
v/c Ratio	0.49	0.51		0.56	0.65		0.27	0.65		0.26	0.71	
Control Delay	23.7	25.1		44.4	40.5		13.9	18.8		25.9	26.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	23.7	25.1		44.4	40.5		13.9	18.8		25.9	26.5	
LOS	C	C		D	D		B	B		C	C	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2031 Base
Timing Plan: PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		24.6			41.8			18.4			26.5	
Approach LOS		C			D			B			C	
Queue Length 50th (m)	23.4	44.4		18.6	36.5		6.6	64.9		5.2	64.3	
Queue Length 95th (m)	47.6	83.8		41.3	69.5		15.5	98.4		15.4	96.5	
Internal Link Dist (m)		776.5			363.0			314.3			289.1	
Turn Bay Length (m)	25.0			25.0			35.0			35.0		
Base Capacity (vph)	424	877		320	550		312	2650		303	2194	
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	0.47	0.39		0.37	0.43		0.25	0.39		0.14	0.39	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 84.3

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 24.9

Intersection LOS: C

Intersection Capacity Utilization 83.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: 120 Street & 92 Avenue

12 s		60.3 s		14 s		31.9 s		72.3 s		45.9 s	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2036 Base
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	276	63	118	186	48	78	888	140	42	675	174
Future Volume (vph)	200	276	63	118	186	48	78	888	140	42	675	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	25.0		0.0	35.0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.96	0.99		0.99	0.97			0.97		0.98	0.95	
Frt		0.972			0.969			0.980			0.969	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1794	0	1770	1747	0	1770	3373	0	1770	3244	0
Flt Permitted	0.368			0.542			0.163			0.210		
Satd. Flow (perm)	659	1794	0	1001	1747	0	304	3373	0	382	3244	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			10			24			36	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	45		25	9		83	16		47	38		61
Confl. Bikes (#/hr)			1			2			2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	217	300	68	128	202	52	85	965	152	46	734	189
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	368	0	128	254	0	85	1117	0	46	923	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	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	
Total Lost Time (s)	4.0	6.9		6.9	6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)	35.4	32.4		18.4	18.4		45.4	43.0		34.3	34.3	
Actuated g/C Ratio	0.40	0.36		0.21	0.21		0.51	0.48		0.38	0.38	
v/c Ratio	0.57	0.56		0.62	0.69		0.31	0.68		0.32	0.73	
Control Delay	27.6	27.9		49.6	44.2		14.5	19.7		28.4	27.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	27.6	27.9		49.6	44.2		14.5	19.7		28.4	27.2	
LOS	C	C		D	D		B	B		C	C	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2036 Base
Timing Plan: PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		27.8			46.0			19.3			27.3	
Approach LOS		C			D			B			C	
Queue Length 50th (m)	27.5	52.7		21.8	42.2		7.5	76.6		6.0	75.0	
Queue Length 95th (m)	54.4	96.9		47.3	79.0		16.6	110.2		17.3	107.2	
Internal Link Dist (m)		776.5			363.0			314.3			289.1	
Turn Bay Length (m)	25.0			25.0			35.0			35.0		
Base Capacity (vph)	392	825		293	519		292	2550		241	2067	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.55	0.45		0.44	0.49		0.29	0.44		0.19	0.45	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 89.2

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 26.6

Intersection LOS: C

Intersection Capacity Utilization 86.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: 120 Street & 92 Avenue

12 s	60.3 s	14 s	31.9 s
72.3 s		45.9 s	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2026 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	236	58	99	160	41	77	747	118	35	568	156
Future Volume (vph)	177	236	58	99	160	41	77	747	118	35	568	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	25.0		0.0	35.0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.96	0.99		0.99	0.97		0.99	0.97		0.96	0.95	
Frt		0.970			0.969			0.980			0.968	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1789	0	1770	1746	0	1770	3373	0	1770	3233	0
Flt Permitted	0.438			0.567			0.204			0.301		
Satd. Flow (perm)	780	1789	0	1047	1746	0	376	3373	0	539	3233	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			10			24			39	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	45		25	9		83	16		47	38		61
Confl. Bikes (#/hr)			1			2			2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	192	257	63	108	174	45	84	812	128	38	617	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	192	320	0	108	219	0	84	940	0	38	787	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	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	
Total Lost Time (s)	4.0	6.9		6.9	6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)	33.0	30.0		16.2	16.2		39.0	36.6		27.9	27.9	
Actuated g/C Ratio	0.41	0.37		0.20	0.20		0.49	0.46		0.35	0.35	
v/c Ratio	0.44	0.48		0.51	0.61		0.27	0.61		0.20	0.69	
Control Delay	21.4	23.1		41.0	37.8		13.8	17.8		24.0	25.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.4	23.1		41.0	37.8		13.8	17.8		24.0	25.8	
LOS	C	C		D	D		B	B		C	C	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2026 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		22.5			38.9			17.5			25.8	
Approach LOS		C			D			B			C	
Queue Length 50th (m)	20.6	38.3		16.1	31.7		6.9	55.2		4.5	56.3	
Queue Length 95th (m)	43.0	74.1		36.8	62.2		16.5	86.4		13.4	86.8	
Internal Link Dist (m)		776.5			363.0			314.3			289.1	
Turn Bay Length (m)	25.0			25.0			35.0			35.0		
Base Capacity (vph)	449	917		342	577		328	2747		378	2280	
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	0.43	0.35		0.32	0.38		0.26	0.34		0.10	0.35	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 80.4

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 23.6

Intersection LOS: C

Intersection Capacity Utilization 80.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: 120 Street & 92 Avenue

			
Ø1	Ø2	Ø3	Ø4
12 s	60.3 s	14 s	31.9 s
			
Ø6		Ø8	
72.3 s		45.9 s	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2031 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	193	257	63	108	175	45	83	817	129	39	621	169
Future Volume (vph)	193	257	63	108	175	45	83	817	129	39	621	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	25.0		0.0	35.0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.96	0.99		0.99	0.97			0.97		0.97	0.95	
Frt		0.971			0.969			0.980			0.968	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1791	0	1770	1747	0	1770	3373	0	1770	3234	0
Flt Permitted	0.402			0.553			0.180			0.250		
Satd. Flow (perm)	718	1791	0	1021	1747	0	335	3373	0	451	3234	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			10			24			38	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	45		25	9		83	16		47	38		61
Confl. Bikes (#/hr)			1			2			2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	210	279	68	117	190	49	90	888	140	42	675	184
Shared Lane Traffic (%)												
Lane Group Flow (vph)	210	347	0	117	239	0	90	1028	0	42	859	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	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	
Total Lost Time (s)	4.0	6.9		6.9	6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)	34.6	31.6		17.6	17.6		42.3	39.9		31.2	31.2	
Actuated g/C Ratio	0.41	0.37		0.21	0.21		0.50	0.47		0.37	0.37	
v/c Ratio	0.51	0.52		0.55	0.65		0.31	0.65		0.26	0.71	
Control Delay	24.6	25.5		44.5	40.9		14.5	18.8		25.9	26.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.6	25.5		44.5	40.9		14.5	18.8		25.9	26.8	
LOS	C	C		D	D		B	B		C	C	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2031 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		25.2			42.1			18.5			26.7	
Approach LOS		C			D			B			C	
Queue Length 50th (m)	25.1	46.3		18.9	37.7		7.7	65.5		5.2	66.0	
Queue Length 95th (m)	50.2	86.5		41.7	71.2		17.4	98.4		15.4	97.9	
Internal Link Dist (m)		776.5			363.0			314.3			289.1	
Turn Bay Length (m)	25.0			25.0			35.0			35.0		
Base Capacity (vph)	420	863		313	543		307	2630		299	2158	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.50	0.40		0.37	0.44		0.29	0.39		0.14	0.40	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 85.3

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 25.1

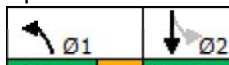
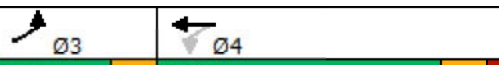
Intersection LOS: C

Intersection Capacity Utilization 83.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: 120 Street & 92 Avenue

			
12 s	60.3 s	14 s	31.9 s
			
72.3 s		45.9 s	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2036 Base+Site
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	208	279	68	118	190	48	89	888	140	42	675	183
Future Volume (vph)	208	279	68	118	190	48	89	888	140	42	675	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	25.0		0.0	35.0		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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.96	0.99		0.99	0.97			0.97		0.98	0.95	
Frt		0.971			0.970			0.980			0.968	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1791	0	1770	1750	0	1770	3373	0	1770	3235	0
Flt Permitted	0.360			0.538			0.159			0.209		
Satd. Flow (perm)	645	1791	0	994	1750	0	296	3373	0	380	3235	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			10			24			38	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		800.5			387.0			338.3			313.1	
Travel Time (s)		57.6			27.9			24.4			22.5	
Confl. Peds. (#/hr)	45		25	9		83	16		47	38		61
Confl. Bikes (#/hr)			1			2			2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	226	303	74	128	207	52	97	965	152	46	734	199
Shared Lane Traffic (%)												
Lane Group Flow (vph)	226	377	0	128	259	0	97	1117	0	46	933	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Detector Phase	3	8		4	4		1	6		2	2	
Switch Phase												
Minimum Initial (s)	7.0	9.0		9.0	9.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.9		26.9	26.9		9.0	21.3		23.3	23.3	
Total Split (s)	14.0	45.9		31.9	31.9		12.0	72.3		60.3	60.3	
Total Split (%)	11.8%	38.8%		27.0%	27.0%		10.2%	61.2%		51.0%	51.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.9		2.9	2.9		0.0	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	
Total Lost Time (s)	4.0	6.9		6.9	6.9		4.0	6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)	36.0	33.0		18.8	18.8		46.2	43.8		34.9	34.9	
Actuated g/C Ratio	0.40	0.36		0.21	0.21		0.51	0.48		0.39	0.39	
v/c Ratio	0.59	0.57		0.62	0.70		0.35	0.68		0.32	0.73	
Control Delay	29.2	28.6		49.9	44.8		15.3	19.7		28.4	27.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.2	28.6		49.9	44.8		15.3	19.7		28.4	27.5	
LOS	C	C		D	D		B	B		C	C	

Lanes, Volumes, Timings
6: 120 Street & 92 Avenue

2036 Base+Site
Timing Plan: PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		28.8			46.5			19.3			27.5	
Approach LOS		C			D			B			C	
Queue Length 50th (m)	29.2	55.1		22.1	43.8		8.7	77.2		6.1	76.8	
Queue Length 95th (m)	57.8	101.7		48.1	81.6		18.4	109.8		17.1	108.6	
Internal Link Dist (m)		776.5			363.0			314.3			289.1	
Turn Bay Length (m)	25.0			25.0			35.0			35.0		
Base Capacity (vph)	386	811		286	511		287	2527		236	2028	
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	0.59	0.46		0.45	0.51		0.34	0.44		0.19	0.46	

Intersection Summary

Area Type: Other

Cycle Length: 118.2

Actuated Cycle Length: 90.5

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 27.0

Intersection LOS: C

Intersection Capacity Utilization 86.6%

ICU Level of Service E

Analysis Period (min) 15

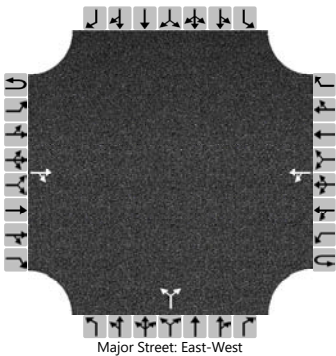
Splits and Phases: 6: 120 Street & 92 Avenue

Ø1	Ø2	Ø3	Ø4
12 s	60.3 s	14 s	31.9 s
Ø6	Ø8		
72.3 s	45.9 s		

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JJ	Intersection	Existing Driveway & 92 Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	01/29/2024	East/West Street	92 Ave
Analysis Year	2023	North/South Street	Existing Driveway
Time Analyzed	AM Base	Peak Hour Factor	0.96
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11944 92 Ave Residential Development TIA		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			205	9		2	182			17		15				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

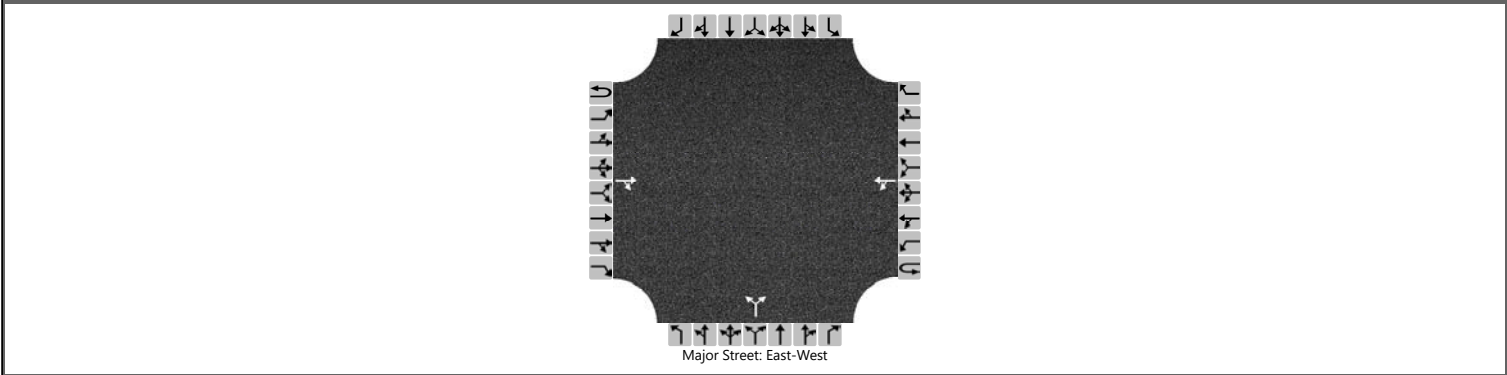
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						2						33				
Capacity, c (veh/h)						1358						688				
v/c Ratio						0.00						0.05				
95% Queue Length, Q ₉₅ (veh)						0.0						0.2				
Control Delay (s/veh)						7.7	0.0					10.5				
Level of Service (LOS)						A	A					B				
Approach Delay (s/veh)					0.1				10.5							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JJ	Intersection	Site Access & 92 Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	01/25/2024	East/West Street	92 Ave
Analysis Year	2026	North/South Street	Site Access
Time Analyzed	AM Base	Peak Hour Factor	0.96
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11944 92 Ave Residential Development TIA		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			218	9		2	193			17		15				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

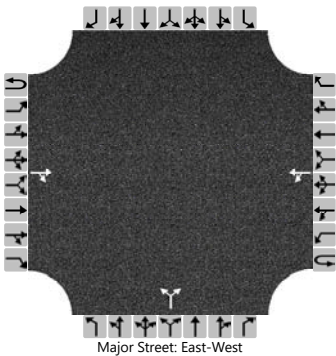
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						2						33				
Capacity, c (veh/h)						1343						669				
v/c Ratio						0.00						0.05				
95% Queue Length, Q ₉₅ (veh)						0.0						0.2				
Control Delay (s/veh)						7.7	0.0					10.7				
Level of Service (LOS)						A	A					B				
Approach Delay (s/veh)					0.1				10.7							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JJ	Intersection	Site Access & 92 Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	01/25/2024	East/West Street	92 Ave
Analysis Year	2026	North/South Street	Site Access
Time Analyzed	AM Base+Site	Peak Hour Factor	0.96
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11944 92 Ave Residential Development TIA		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			218	12		18	193			18		25				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

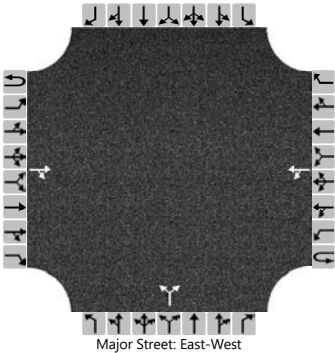
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						19						45				
Capacity, c (veh/h)						1339						674				
v/c Ratio						0.01						0.07				
95% Queue Length, Q ₉₅ (veh)						0.0						0.2				
Control Delay (s/veh)						7.7	0.1					10.7				
Level of Service (LOS)						A	A					B				
Approach Delay (s/veh)					0.8				10.7							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JJ	Intersection	Site Access & 92 Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	01/25/2024	East/West Street	92 Ave
Analysis Year	2031	North/South Street	Site Access
Time Analyzed	AM Base	Peak Hour Factor	0.96
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11944 92 Ave Residential Development TIA		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			238	9		2	212			17		15				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

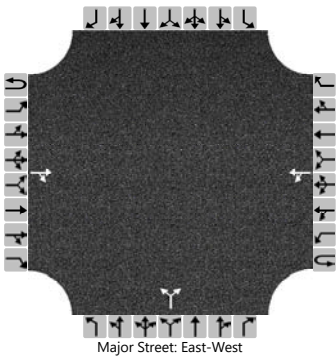
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						2						33				
Capacity, c (veh/h)						1319						641				
v/c Ratio						0.00						0.05				
95% Queue Length, Q ₉₅ (veh)						0.0						0.2				
Control Delay (s/veh)						7.7	0.0					10.9				
Level of Service (LOS)						A	A					B				
Approach Delay (s/veh)					0.1				10.9							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JJ	Intersection	Site Access & 92 Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	01/25/2024	East/West Street	92 Ave
Analysis Year	2031	North/South Street	Site Access
Time Analyzed	AM Base+Site	Peak Hour Factor	0.96
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11944 92 Ave Residential Development TIA		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			238	12		18	212			18		25				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

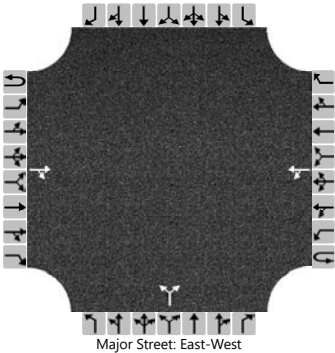
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						19						45				
Capacity, c (veh/h)						1316						647				
v/c Ratio						0.01						0.07				
95% Queue Length, Q ₉₅ (veh)						0.0						0.2				
Control Delay (s/veh)						7.8	0.1					11.0				
Level of Service (LOS)						A	A					B				
Approach Delay (s/veh)					0.7				11.0							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JJ	Intersection	Site Access & 92 Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	01/25/2024	East/West Street	92 Ave
Analysis Year	2036	North/South Street	Site Access
Time Analyzed	AM Base	Peak Hour Factor	0.96
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11944 92 Ave Residential Development TIA		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			259	9		2	230			17		15				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

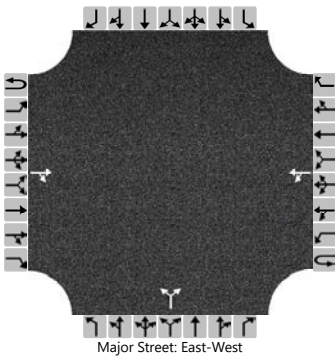
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						2						33				
Capacity, c (veh/h)						1295						613				
v/c Ratio						0.00						0.05				
95% Queue Length, Q ₉₅ (veh)						0.0						0.2				
Control Delay (s/veh)						7.8	0.0					11.2				
Level of Service (LOS)						A	A					B				
Approach Delay (s/veh)					0.1				11.2							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JJ	Intersection	Site Access & 92 Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	01/25/2024	East/West Street	92 Ave
Analysis Year	2036	North/South Street	Site Access
Time Analyzed	AM Base+Site	Peak Hour Factor	0.96
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11944 92 Ave Residential Development TIA		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			259	12		18	230			18		25				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

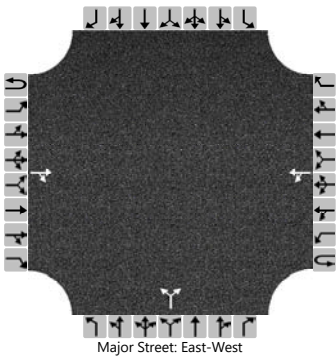
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						19						45				
Capacity, c (veh/h)						1292						620				
v/c Ratio						0.01						0.07				
95% Queue Length, Q ₉₅ (veh)						0.0						0.2				
Control Delay (s/veh)						7.8	0.1					11.3				
Level of Service (LOS)						A	A					B				
Approach Delay (s/veh)					0.7				11.3							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JJ	Intersection	Existing Driveway & 92 Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	01/29/2024	East/West Street	92 Ave
Analysis Year	2023	North/South Street	Existing Driveway
Time Analyzed	PM Base	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11944 92 Ave Residential Development TIA		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			409	4		4	328			1		5				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

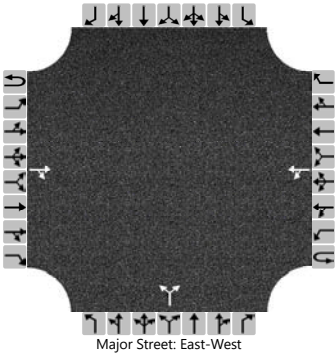
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						4						7				
Capacity, c (veh/h)						1122						547				
v/c Ratio						0.00						0.01				
95% Queue Length, Q ₉₅ (veh)						0.0						0.0				
Control Delay (s/veh)						8.2	0.0					11.7				
Level of Service (LOS)						A	A					B				
Approach Delay (s/veh)					0.1				11.7							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JJ	Intersection	Site Access & 92 Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	01/25/2024	East/West Street	92 Ave
Analysis Year	2026	North/South Street	Site Access
Time Analyzed	PM Base	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11944 92 Ave Residential Development TIA		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			434	4		4	348			1		5				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

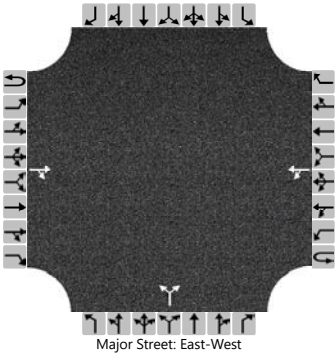
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						4						7				
Capacity, c (veh/h)						1097						523				
v/c Ratio						0.00						0.01				
95% Queue Length, Q ₉₅ (veh)						0.0						0.0				
Control Delay (s/veh)						8.3	0.0					12.0				
Level of Service (LOS)						A	A					B				
Approach Delay (s/veh)					0.1				12.0							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JJ	Intersection	Site Access & 92 Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	01/25/2024	East/West Street	92 Ave
Analysis Year	2026	North/South Street	Site Access
Time Analyzed	PM Base+Site	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11944 92 Ave Residential Development TIA		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			434	20		28	348			12		21				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

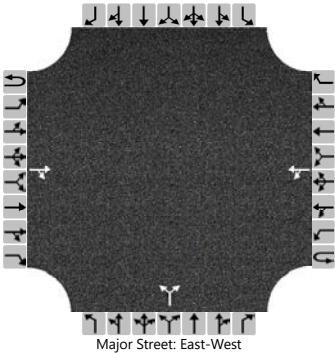
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						30						36				
Capacity, c (veh/h)						1081						430				
v/c Ratio						0.03						0.08				
95% Queue Length, Q ₉₅ (veh)						0.1						0.3				
Control Delay (s/veh)						8.4	0.3					14.1				
Level of Service (LOS)						A	A					B				
Approach Delay (s/veh)					0.9				14.1							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JJ	Intersection	Site Access & 92 Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	01/25/2024	East/West Street	92 Ave
Analysis Year	2031	North/South Street	Site Access
Time Analyzed	PM Base	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11944 92 Ave Residential Development TIA		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			475	4		4	381			1		5				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

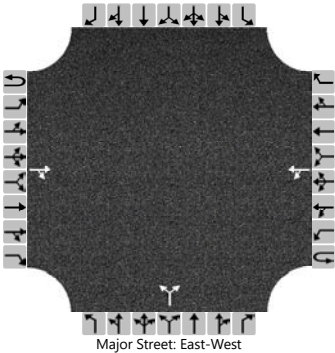
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						4						7				
Capacity, c (veh/h)						1056						487				
v/c Ratio						0.00						0.01				
95% Queue Length, Q ₉₅ (veh)						0.0						0.0				
Control Delay (s/veh)						8.4	0.0					12.5				
Level of Service (LOS)						A	A					B				
Approach Delay (s/veh)					0.1				12.5							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JJ	Intersection	Site Access & 92 Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	01/25/2024	East/West Street	92 Ave
Analysis Year	2031	North/South Street	Site Access
Time Analyzed	PM Base+Site	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11944 92 Ave Residential Development TIA		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			475	20		28	381			12		21				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

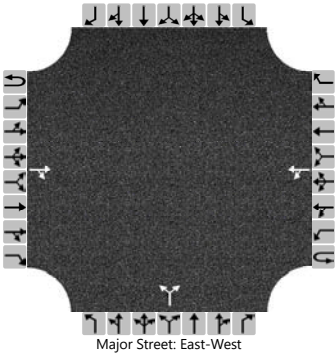
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						30						36				
Capacity, c (veh/h)						1040						394				
v/c Ratio						0.03						0.09				
95% Queue Length, Q ₉₅ (veh)						0.1						0.3				
Control Delay (s/veh)						8.6	0.3					15.1				
Level of Service (LOS)						A	A					C				
Approach Delay (s/veh)					0.9				15.1							
Approach LOS					A				C							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JJ	Intersection	Site Access & 92 Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	01/25/2024	East/West Street	92 Ave
Analysis Year	2036	North/South Street	Site Access
Time Analyzed	PM Base	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11944 92 Ave Residential Development TIA		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			516	4		4	414			1		5				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

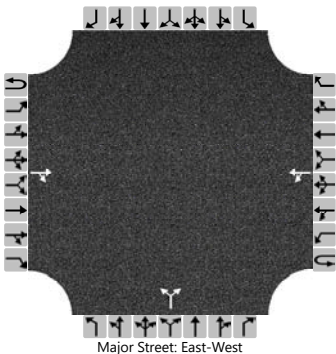
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						4						7				
Capacity, c (veh/h)						1017						453				
v/c Ratio						0.00						0.01				
95% Queue Length, Q ₉₅ (veh)						0.0						0.0				
Control Delay (s/veh)						8.6	0.0					13.1				
Level of Service (LOS)						A	A					B				
Approach Delay (s/veh)					0.1				13.1							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JJ	Intersection	Site Access & 92 Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	01/25/2024	East/West Street	92 Ave
Analysis Year	2036	North/South Street	Site Access
Time Analyzed	PM Base+Site	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11944 92 Ave Residential Development TIA		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			516	20		28	414			12		21				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

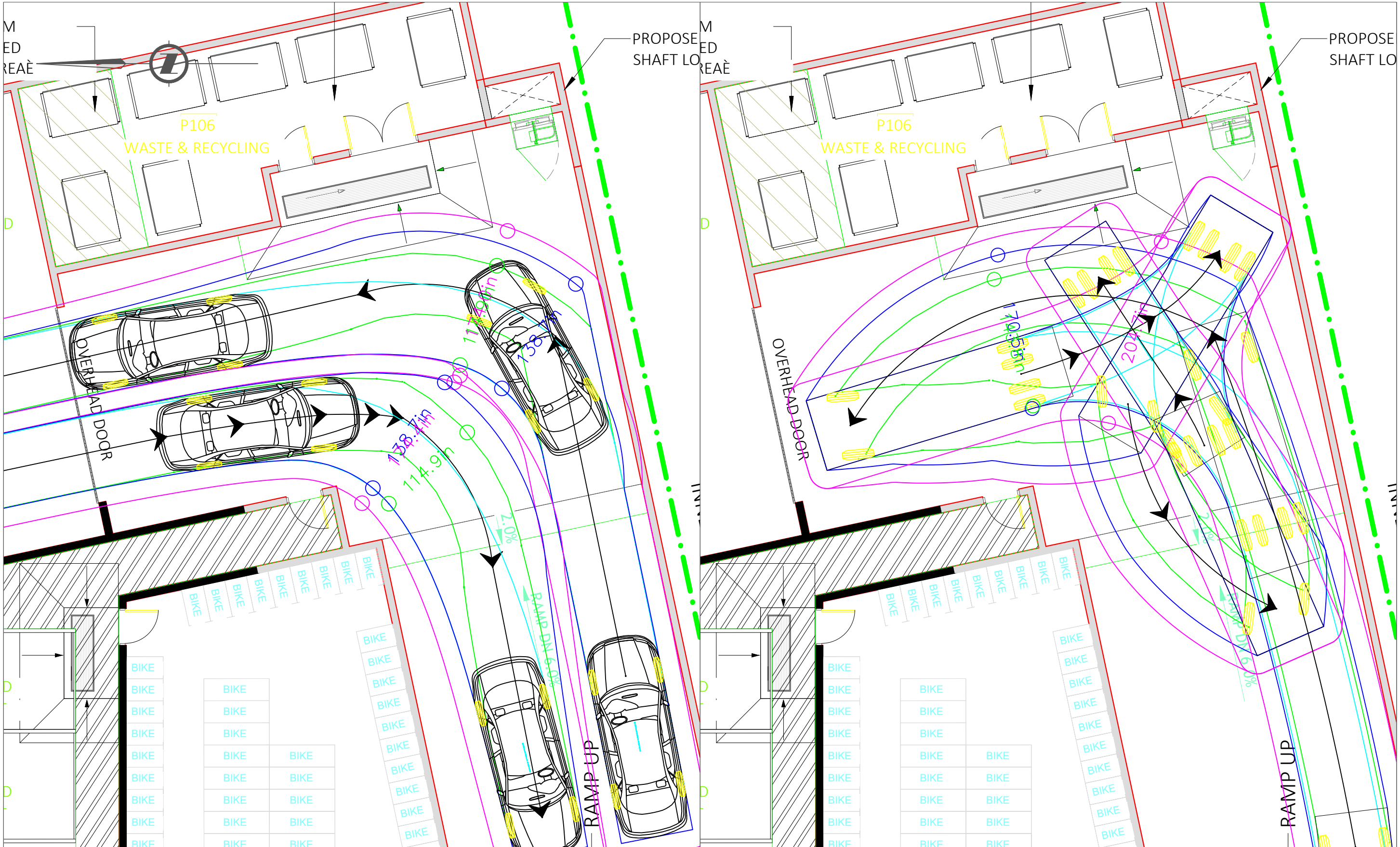
Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

Delay, Queue Length, and Level of Service

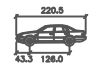
Flow Rate, v (veh/h)						30						36				
Capacity, c (veh/h)						1002						360				
v/c Ratio						0.03						0.10				
95% Queue Length, Q ₉₅ (veh)						0.1						0.3				
Control Delay (s/veh)						8.7	0.3					16.1				
Level of Service (LOS)						A	A					C				
Approach Delay (s/veh)					0.9				16.1							
Approach LOS					A				C							

Appendix D

Swept Path Analysis



LEGEND



220.5
43.3 126.0



7.68
0.97 4.81

Front Tires
Rear Tires
Vehicle Body
0.5m Body Clearance
Conflict

Width : 28.7
Track : 76.7
Lock to Lock Time : 6.0
Steering Angle : 35.9

Width : 0.90
Track : 1.80
Lock to Lock Time : 1.00
Steering Angle : 42.4

REVISIONS	DESCRIPTION	DATE	BY

CLS Traffic Engineering Specialists

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

Sandhill Development Ltd.
228-11020 No. 5 Road
Richmond, B.C. V7A 4E7

11944 - 92 Avenue Residential
Development Swept Path Analysis
(Parkade Access)

Stamp:

Scale: NTS

Designed: J.J.

Drawn: J.J.

Reviewed: G.V.

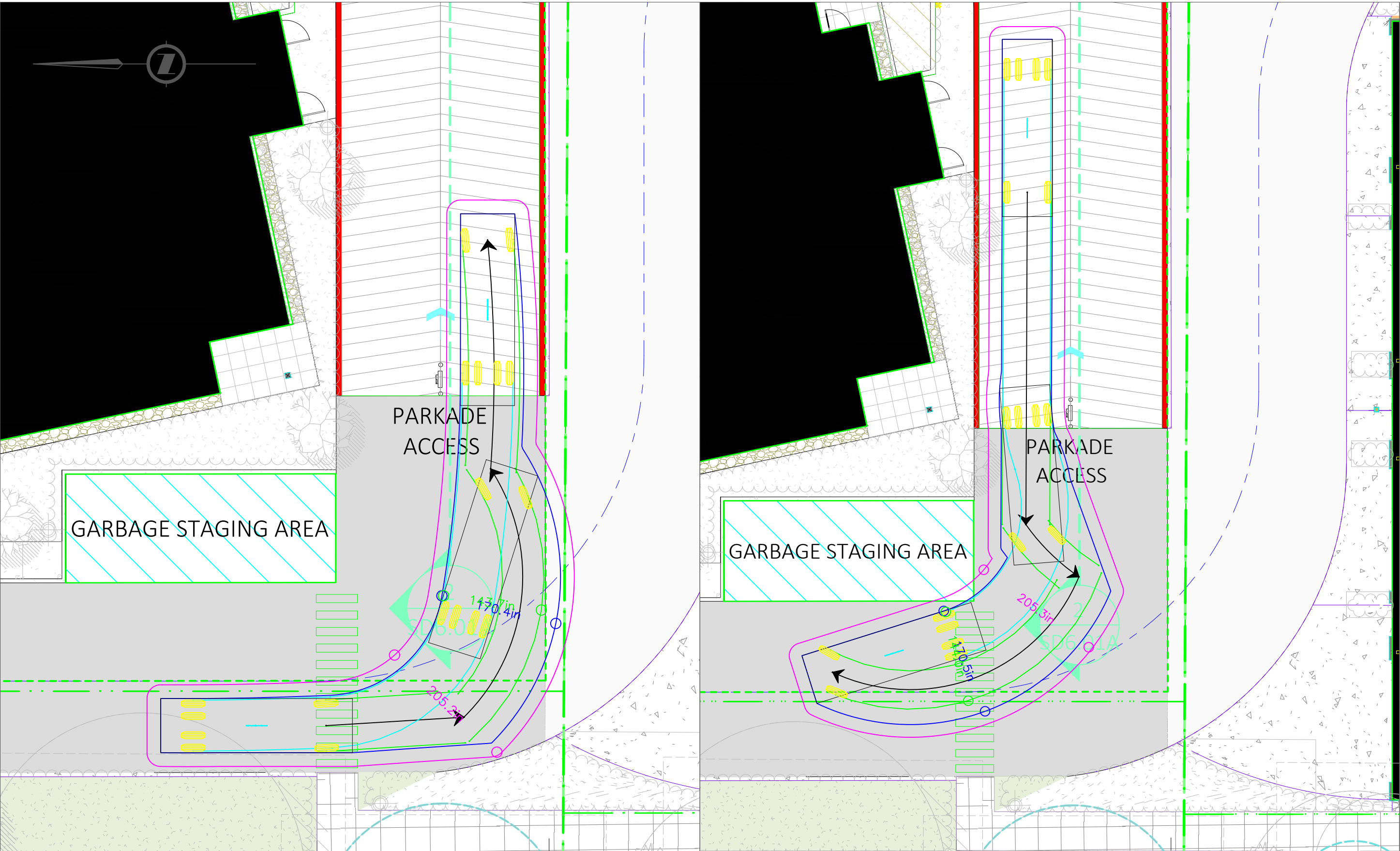
CTS Permit to Practice:

CTS Project Number: 9025

Date: FEBRUARY 2024

Drawing No.: 1

Revision No.: 1



220.5

43.3 126.0

P

Width : 78.7
Track : 78.7
Lock to Lock Time : 6.0
Steering Angle : 35.9

LEGEND

Front Tires
Rear Tires
Vehicle Body
0.5m Body Clearance
Conflict

REVISIONS	DESCRIPTION	DATE	BY

CLS

Traffic Engineering Specialists

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

Sandhill Development Ltd.
228-11020 No. 5 Road
Richmond, B.C. V7A 4E7

11944 - 92 Avenue Residential
Development Swept Path Analysis
(Parkade Access)

Stamp:

Scale: NTS

Designed: J.J.

Drawn: J.J.

Reviewed: G.V.

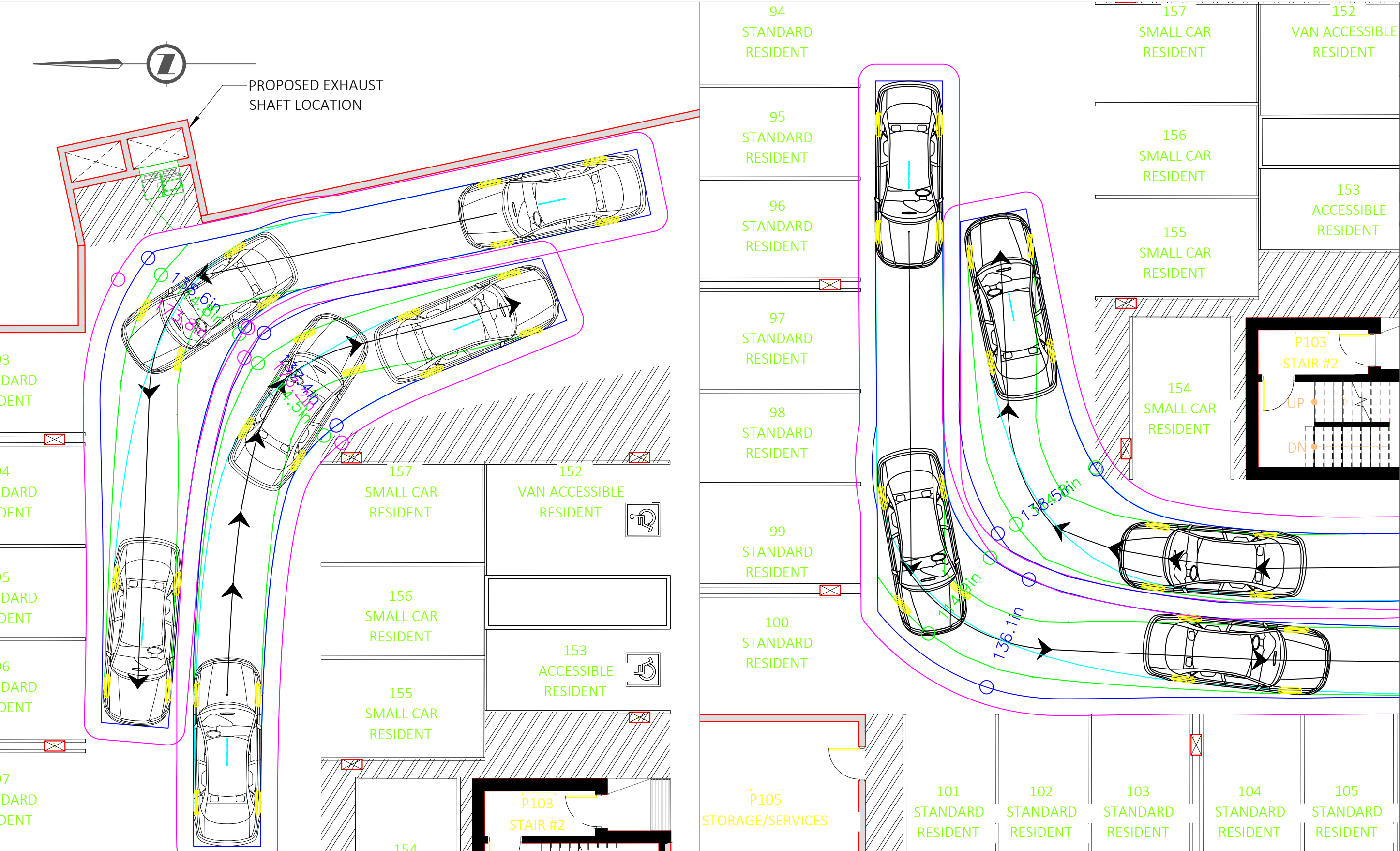
CTS Permit to Practice:

CTS Project Number: 9025

Date: FEBRUARY 2024

Drawing No.: 2

Revision No.: 1



220.5

43.3 126.0

P

Width : 78.7

Track : 78.7

Lock to Lock Time : 6.0

Steering Angle : 35.9

LEGEND

Front Tires

Rear Tires

Vehicle Body

0.5m Body Clearance

Conflict

REVISIONS	DESCRIPTION	DATE	BY
1	SITE PLAN UPDATED	20240104	JJ

CLS Traffic Engineering Specialists

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

Sandhill Development Ltd.
228-11020 No. 5 Road
Richmond, B.C. V7A 4E7

11944 - 92 Avenue Residential
Development Swept Path Analysis
(Parkade Circulation)

Stamp:

Scale: NTS

Designed: J.J.

Drawn: J.J.

Reviewed: G.V.

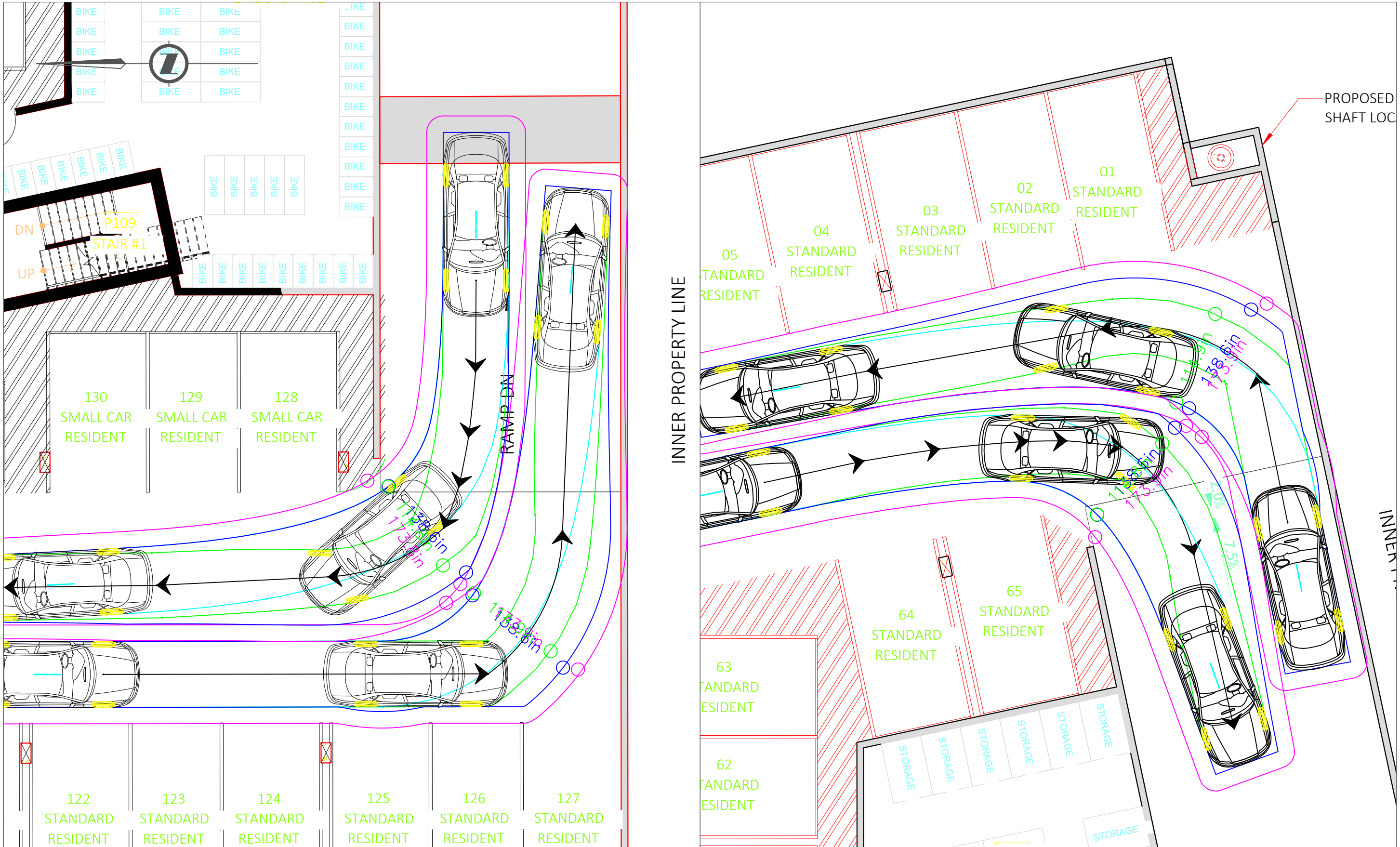
CTS Permit to Practice:

CTS Project Number: 9025

Date: JANUARY 2024

Drawing No.: 3

Revision No.: 1



220.5

43.3 126.0

P

Width : 78.7

Track : 78.7

Lock to Lock Time : 6.0

Steering Angle : 35.9

LEGEND

Front Tires

Rear Tires

Vehicle Body

0.5m Body Clearance

Conflict

REVISIONS	DESCRIPTION	DATE	BY
1	SITE PLAN UPDATED	20240104	JJ

CLS

Traffic Engineering Specialists

101A - 1952 Kingsway Avenue

Port Coquitlam, BC, Canada V3C 6C2

Tel: 604-936-6190

Fax: 604-936-6175

Sandhill Development Ltd.

228-11020 No. 5 Road

Richmond, B.C. V7A 4E7

11944 - 92 Avenue Residential

Development Swept Path Analysis

(Parkade Circulation)

Stamp:

Scale: NTS

Designed: J.J.

Drawn: J.J.

Reviewed: G.V.

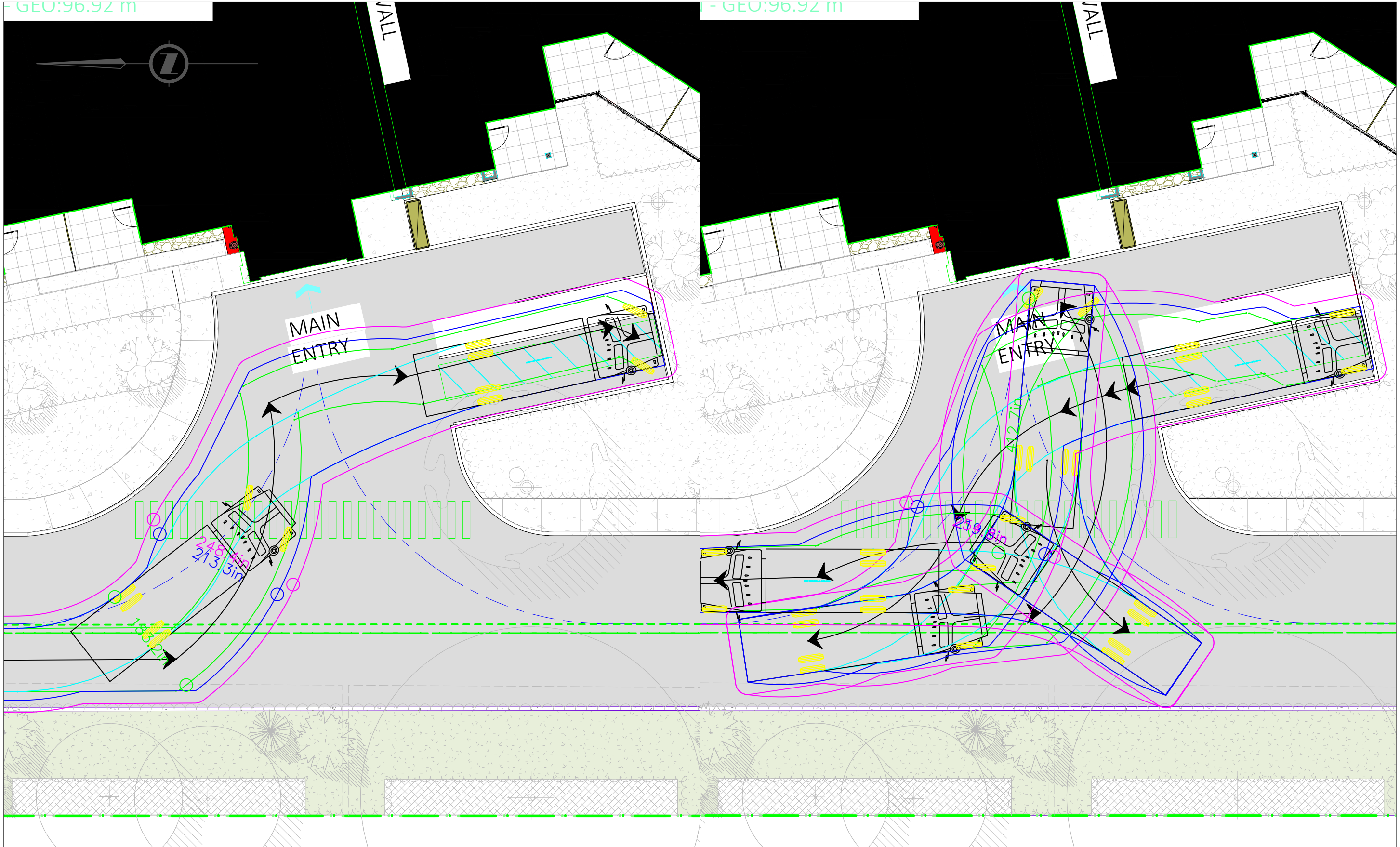
CTS Permit to Practice:

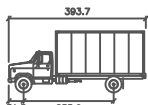
CTS Project Number: 9025

Date: JANUARY 2024

Drawing No.: 4

Revision No.: 1





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

LEGEND

Front Tires
Rear Tires
Vehicle Body
0.5m Body Clearance
Conflict

—
—
—
—
—

REVISIONS	DESCRIPTION	DATE	BY

CLS Traffic Engineering Specialists

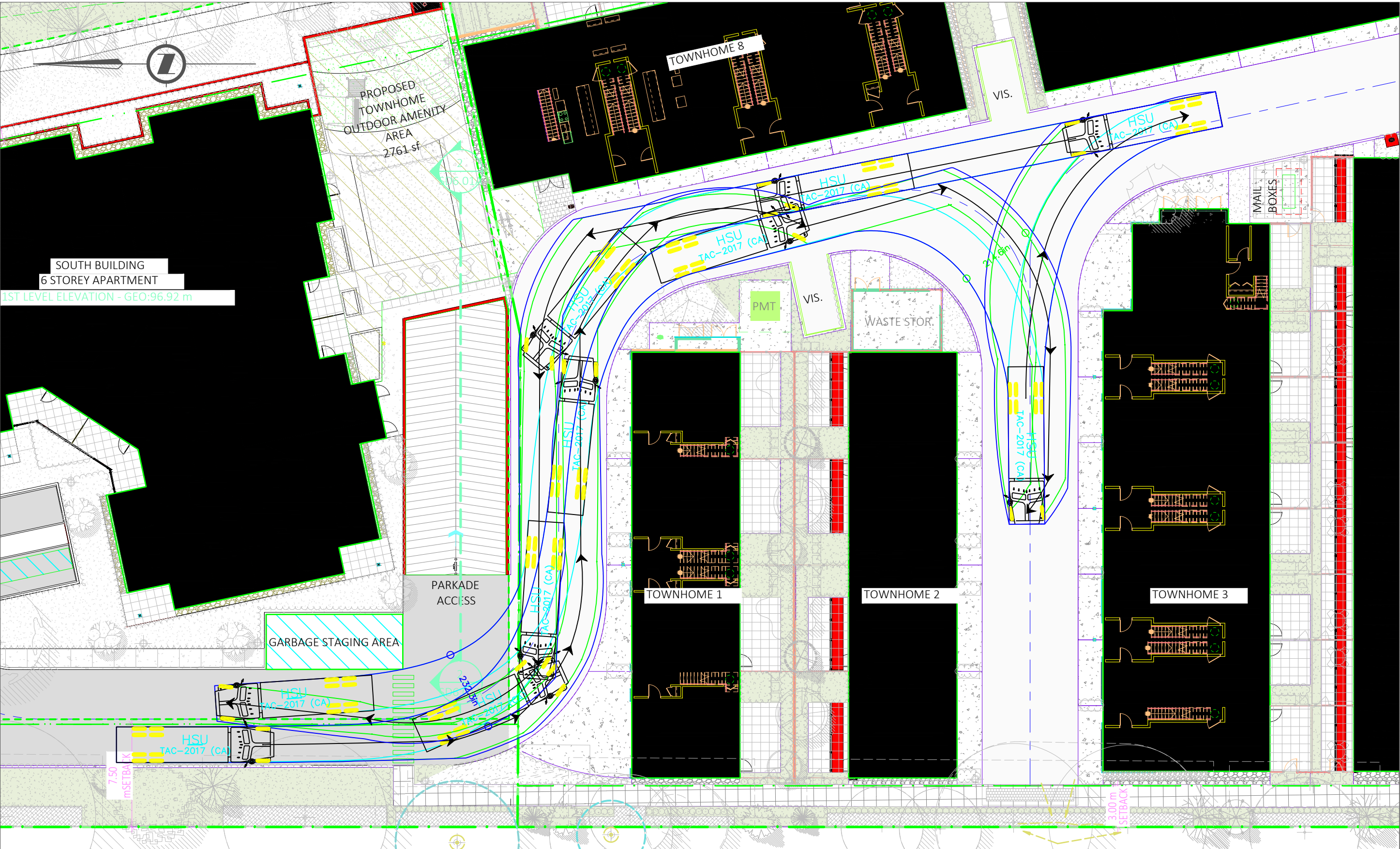
101A - 1952 Kingsway Avenue
Port Coquitlam, BC, Canada V3C 6C2
Tel: 604-936-6190
Fax: 604-936-6175

Sandhill Development Ltd.
228-11020 No. 5 Road
Richmond, B.C. V7A 4E7

11944 - 92 Avenue Residential
Development Swept Path Analysis
(Loading Access)

Stamp:

Scale: NTS	CTS Permit to Practice:	Drawing No.: 5
Designed: J.J.	CTS Project Number: 9025	Revision No.: 1
Drawn: J.J.		
Reviewed: G.V.	Date: FEBRUARY 2024	



Width: 102.4
Track: 102.4
Lock to Lock Time: 4.0
Steering Angle: 40.0

REVISIONS	DESCRIPTION	DATE	BY

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

Sandhill Development Ltd.
228-11020 No. 5 Road
Richmond, B.C. V7A 4E7

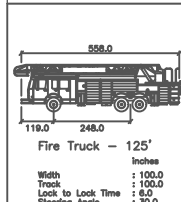
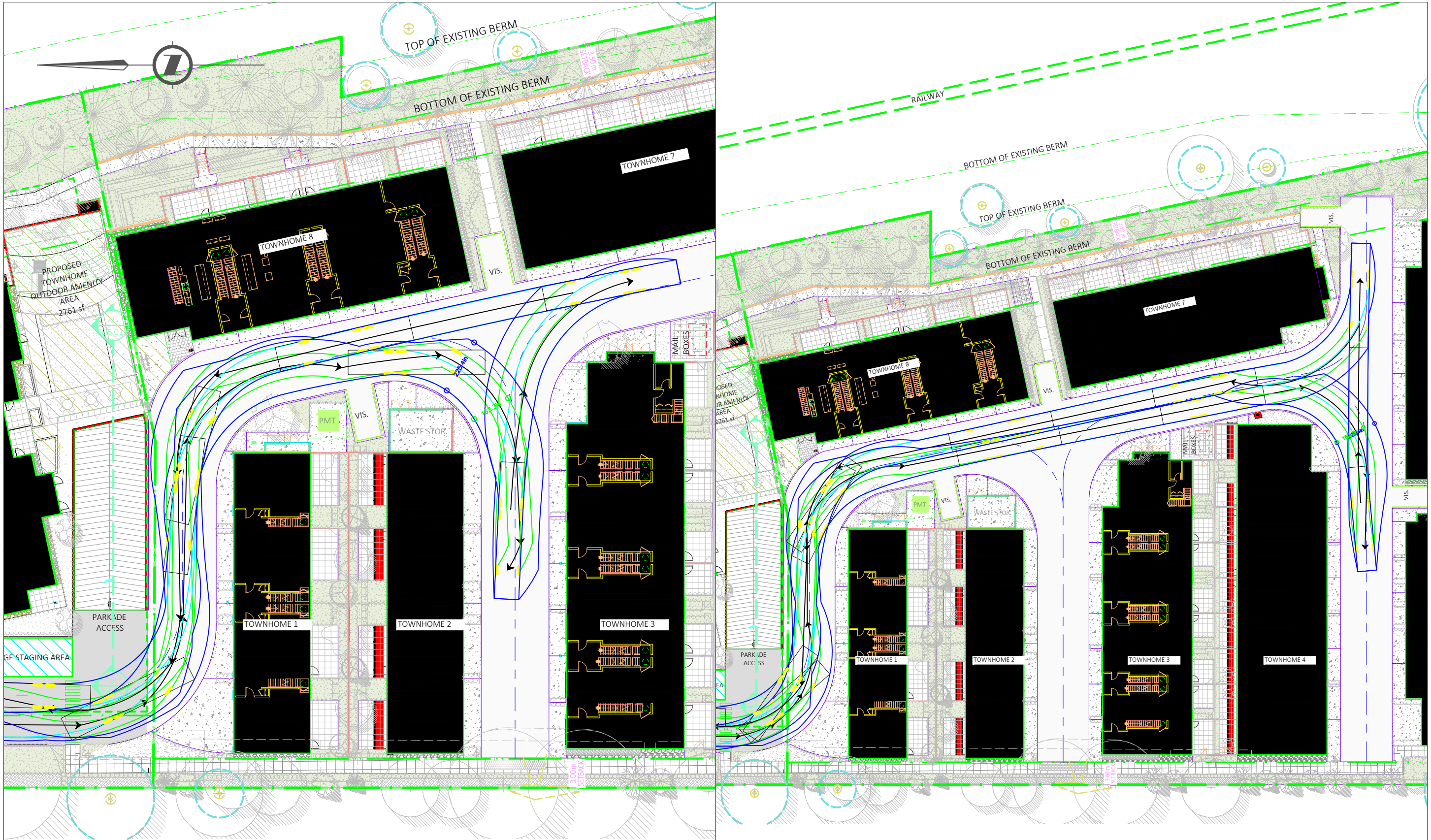
11944 - 92 Avenue Residential
Development Swept Path Analysis
(Garbage Collection)

Stamp:

Scale: NTS	CTS Permit to Practice:
Designed: J.J.	
Drawn: J.J.	CTS Project Number: 9025
Reviewed: G.V.	Date: FEBRUARY 2024

Drawing No.: 6

Revision No.: 1



LEGEND

- Front Tires
- Rear Tires
- Vehicle Body
- Conflict

REVISIONS	DESCRIPTION	DATE	BY



**Traffic
Engineering
Specialists**

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

Sandhill Development Ltd.
228-11020 No. 5 Road
Richmond, B.C. V7A 4E7

11944 - 92 Avenue Residential
Development Swept Path Analysis
(Firetruck Circulation)

Stamp:	Scale: NTS	CTS Permit to Practice:	Drawing No.: 7
	Designed: J.J.		
	Drawn: J.J.	CTS Project Number: 9025	
	Reviewed: G.V.	Date: FEBRUARY 2024	Revision No.: 1