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1.1 SUMMARY OF DEVELOPMENT

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424 Churchill Avenue Residential Apartments Development

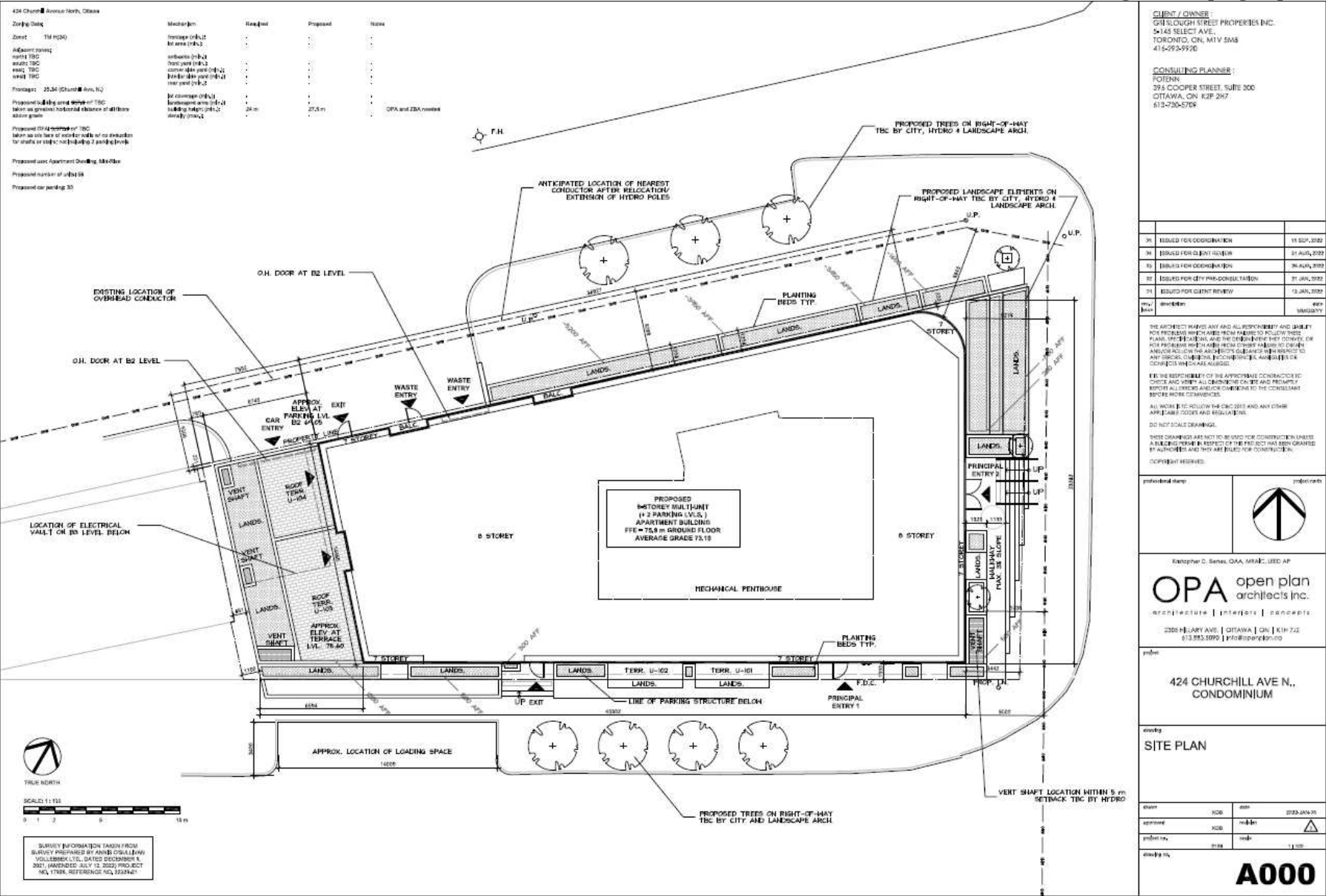


Exhibit 2-2: Site Plan (REV 05 2022)

2.1.2 Existing Conditions

2.1.2.1 Study Area Roadways

이 단락을 통해 본 연구의 목적과 연구 범위, 그리고 연구의 필요성을 설명한다. 또한, 연구의 범위와 연구의 방법론을 설명한다. 연구의 범위는 연구 지역의 도로망과 연구 지역의 교통 상황을 포함한다. 연구의 방법론은 연구 지역의 도로망과 교통 상황을 조사하고, 연구 지역의 도로망과 교통 상황을 분석하고, 연구 지역의 도로망과 교통 상황을 평가한다.

Richmond Road

- 연구 지역의 도로망과 교통 상황을 조사하고, 연구 지역의 도로망과 교통 상황을 분석하고, 연구 지역의 도로망과 교통 상황을 평가한다.
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Churchill Avenue North

- 연구 지역의 도로망과 교통 상황을 조사하고, 연구 지역의 도로망과 교통 상황을 분석하고, 연구 지역의 도로망과 교통 상황을 평가한다.
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Byron Avenue

- 연구 지역의 도로망과 교통 상황을 조사하고, 연구 지역의 도로망과 교통 상황을 분석하고, 연구 지역의 도로망과 교통 상황을 평가한다.
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Roosevelt Avenue

- 연구 지역의 도로망과 교통 상황을 조사하고, 연구 지역의 도로망과 교통 상황을 분석하고, 연구 지역의 도로망과 교통 상황을 평가한다.
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Danforth Avenue

- 연구 지역의 도로망과 교통 상황을 조사하고, 연구 지역의 도로망과 교통 상황을 분석하고, 연구 지역의 도로망과 교통 상황을 평가한다.
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7. Danforth Avenue and MEC Parking Accesses

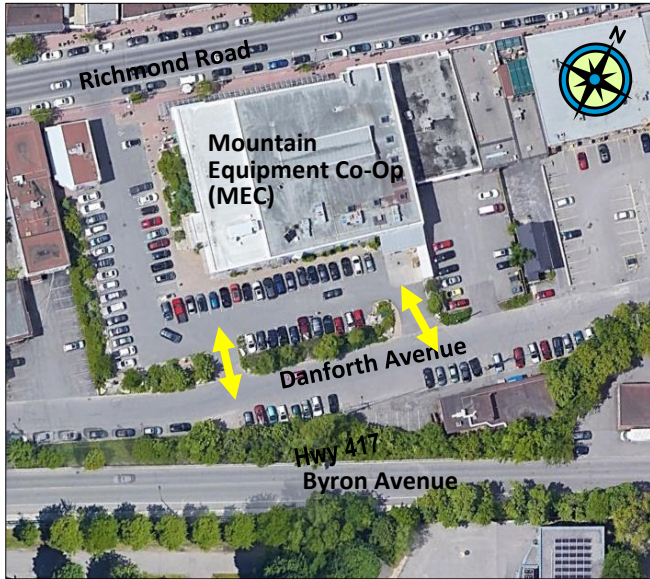


Exhibit 2-9: Danforth Avenue and MEC Parking Accesses

အလယ်အလတ် (၂၀၁၈ ခုနှစ်) မှ စတင် အလုပ်အကိုင် ပြုလုပ်ခဲ့ပြီး နေရာအားလုံးကို အသုံးပြုနိုင်ရန် အတွက် အဆောက်အအုံ အခြေခံအဆောက်အအုံများကို အဆင့်မြှင့်တင်ခဲ့ပါသည်။

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Exhibit 2-10: Overview of Existing Adjacent Driveways



Churchill Avenue North Accesses:

- 470-450 Churchill Avenue North (even)
- 345 Ravenhill Avenue
- 430 Churchill Avenue
- 428 Churchill Avenue
- 337 Richmond Road

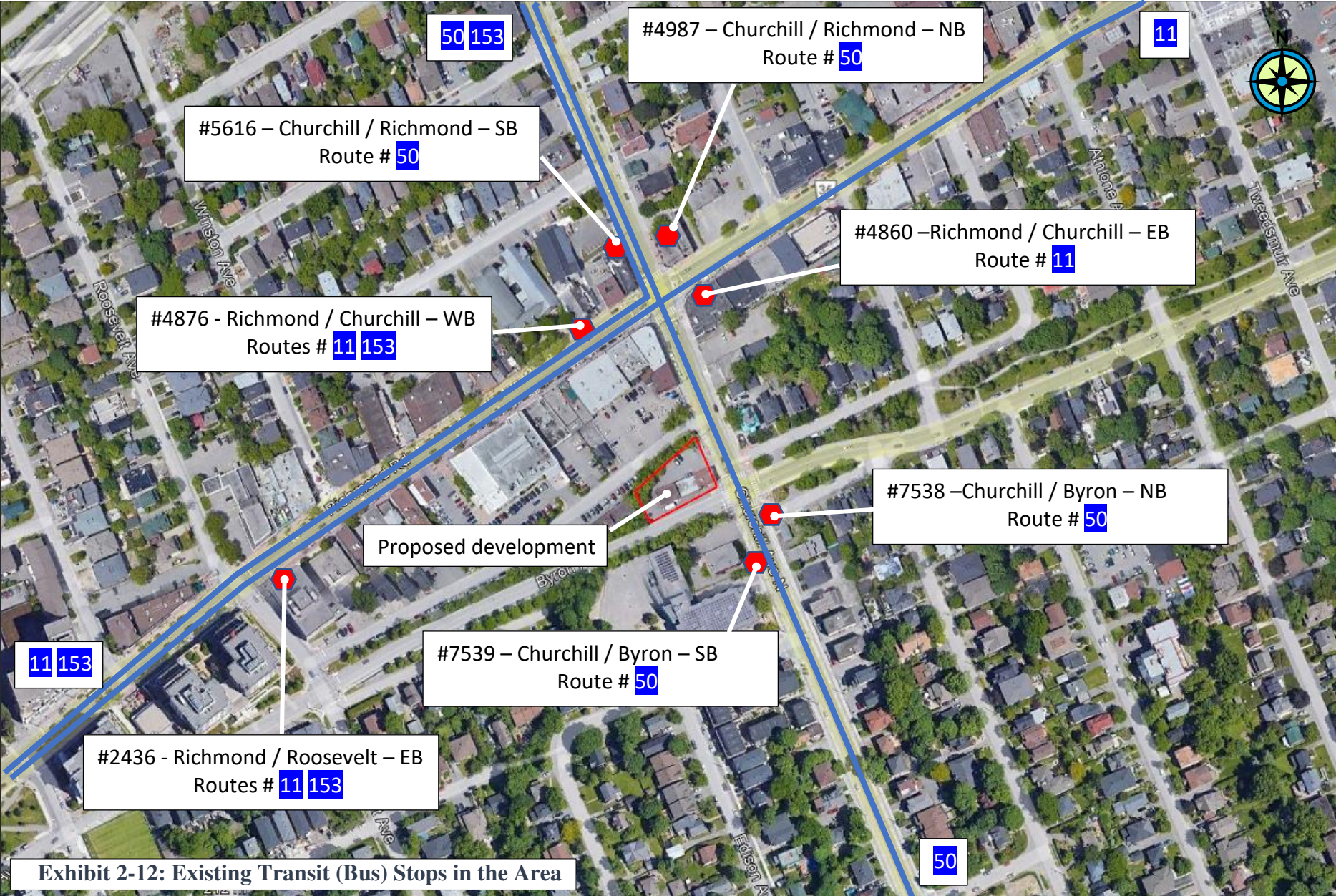


Exhibit 2-12: Existing Transit (Bus) Stops in the Area



Exhibit 2-13: Distance Around Dominion and Westboro Rapid Transit Stations



Exhibit 2-14: Walking Distances to Dominion and Westboro Rapid Transit Stations

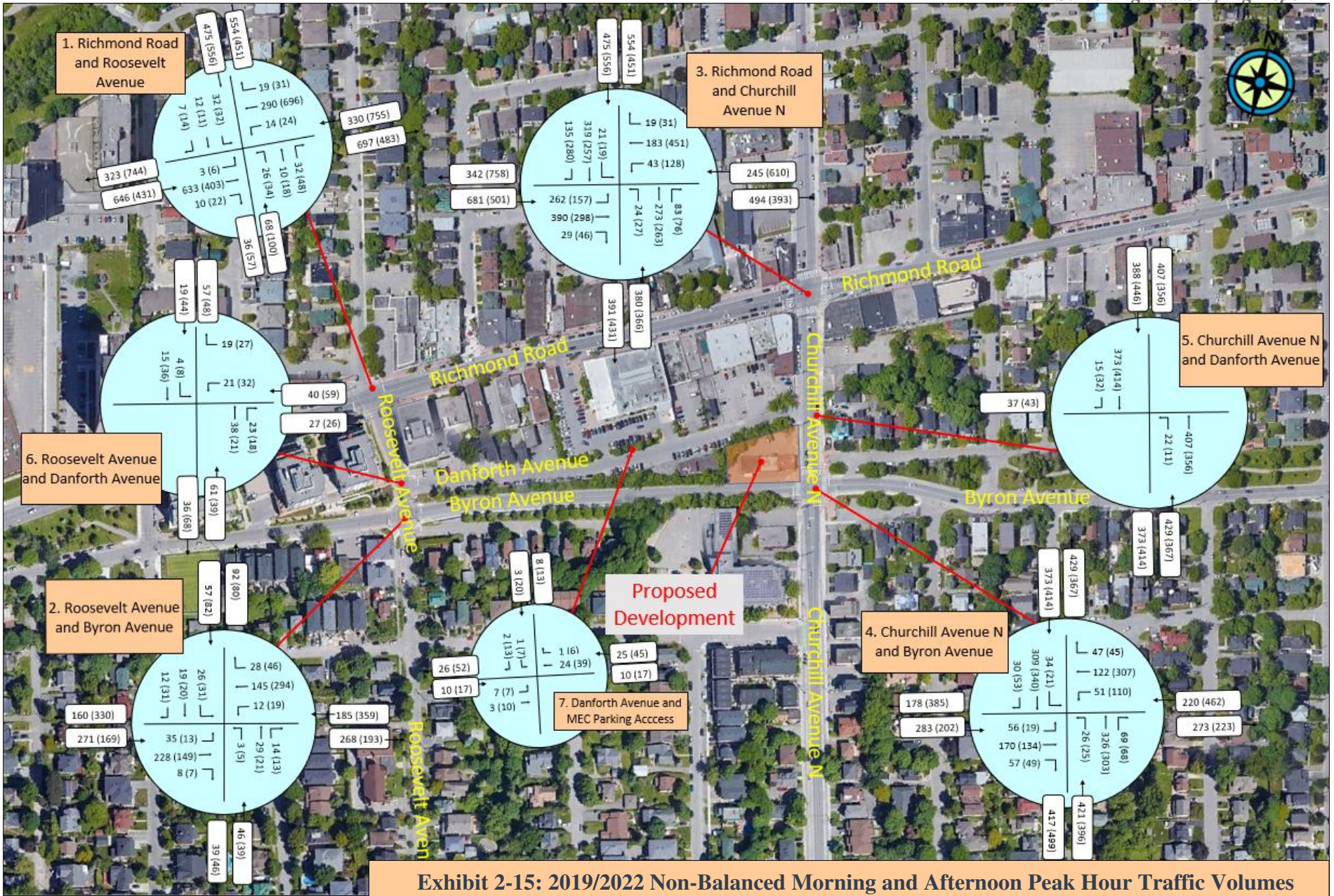
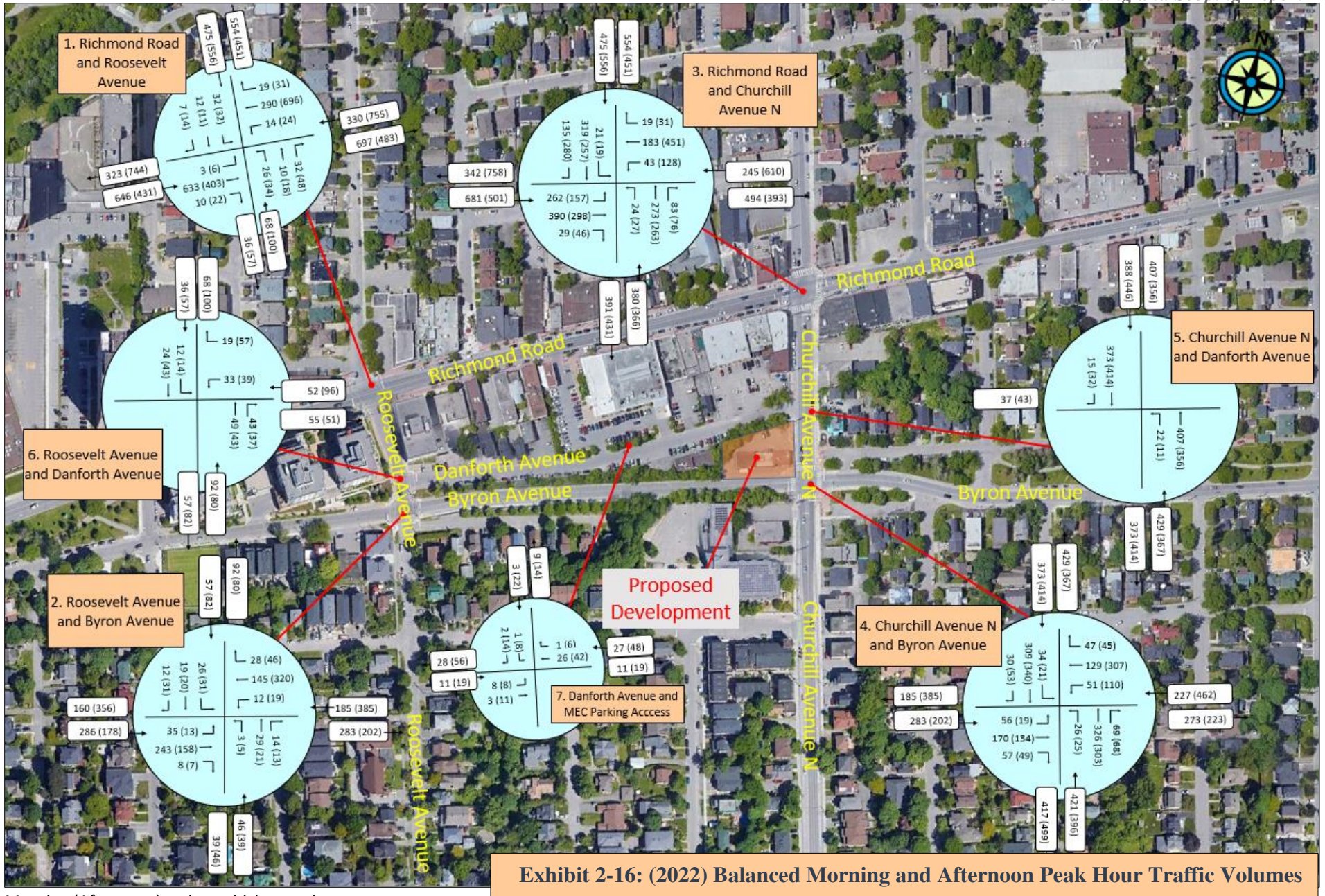


Exhibit 2-15: 2019/2022 Non-Balanced Morning and Afternoon Peak Hour Traffic Volumes

Morning (Afternoon), vph = vehicles-per-hour



Morning (Afternoon), vph = vehicles-per-hour

424 Churchill Avenue Residential Apartments Development

SEPA, CMAA, B+C, O, W, S, E, T, R

B

SEPA, CMAA, B+C, O, W, S, E, T, R

Existing Traffic Volumes Intersection Capacity Analysis

Table 2-4: Existing (2022) Traffic Analysis

Intersection	Control Type	Weekday Morning Peak Hour (Afternoon Peak Hour)				
		Critical Movement				
		Left Turn (L)	Through-Right (TR)	Through-Left (TL)	Right Turn (R)	Other (O)
1. Richmond Road and Roosevelt Avenue (Distance to Dominion Station – 440 m)	Traffic Signal	EB-TH (WB-TH)	144 (190)	24.3 (28.3)	D (D)	0.81 (0.88)
2. Roosevelt Avenue and Byron Avenue (Distance to Dominion Station – 530 m)	Traffic Signal	SB-TH (NB-TH)	14 (17)	20.0 (17.5)	A (A)	0.16 (0.11)
		EB-TH (WB-TH)	26 (36)	6.3 (6.8)	A (A)	0.28 (0.37)
3. Richmond Road and Churchill Avenue (Distance to Westboro Station – 650 m)	Traffic Signal	NB-TH (NB-TH)	31 (82)	31.1 (38.0)	D (C)	0.81 (0.70)
		SB-TH (SB-TH)	73 (72)	37.4 (35.2)	C (B)	0.78 (0.65)
4. Churchill Avenue North and Byron Avenue (Distance to Westboro Station – 800 m)	Traffic Signal	EB-TH (WB-TH)	53 (116)	19.1 (30.6)	A (C)	0.47 (0.77)
		NB-TH (SB-TH)	68 (90)	17.3 (27.1)	A (A)	0.51 (0.55)
		SB-LT (SB-LT)	2 (6)	4.8 (18.9)	A (A)	0.12 (0.08)
5. Churchill Avenue and Danforth Avenue (Distance to Westboro Station – 740 m)	Free Flow (Inbound only)	N/A				
6. Roosevelt Avenue and Danforth Avenue (Distance to Dominion Station – 500 m)	Minor Leg- STOP control	WB (WB)	2 (3)	9.3 (94)	A (A)	0.06 (0.11)

Table 2-4: Existing (2022) Traffic Analysis

Multi-Modal Level of Service (MMLOS) Guidelines (September 2015)

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2.1.1.2.8 Existing Road Safety Information

2.1.1.2.8 2.1.1.2.8 2.1.1.2.8 2.1.1.2.8 2.1.1.2.8 2.1.1.2.8 2.1.1.2.8 2.1.1.2.8 2.1.1.2.8 2.1.1.2.8

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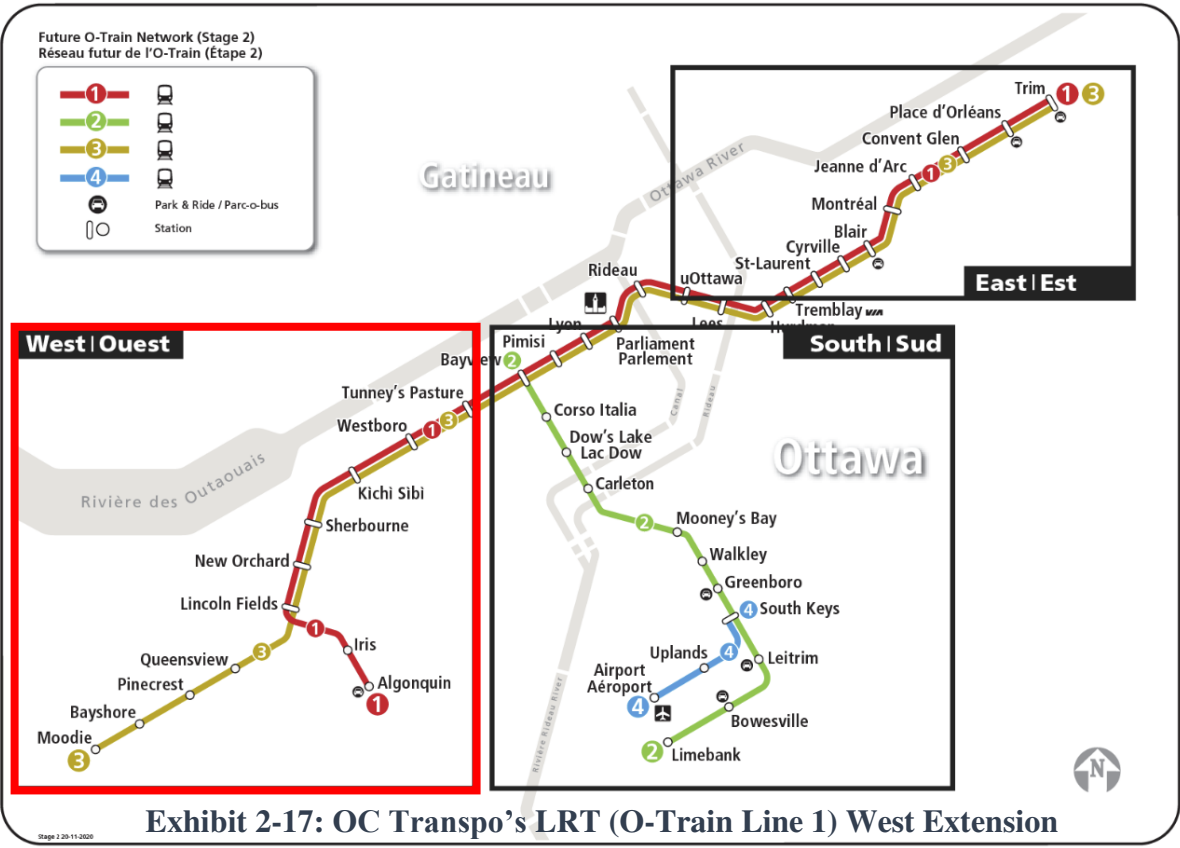
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2.1.3 Planned Conditions

2.1.3.1 Changes to the Study Area Transportation Network

- 1. **Future O-Train Network (Stage 2)**: This map shows the planned LRT network for Stage 2, extending from the downtown core westward into the Outaouais region. The network is divided into four color-coded segments: 1 (red), 2 (green), 3 (yellow), and 4 (blue). Key stations include Moodie, Bayshore, Pinecrest, Queensview, Lincoln Fields, New Orchard, Sherbourne, Kichi Sibi, Westboro, Tunney's Pasture, Bayview, Pimisi, Parliament, Corso Italia, Dow's Lake, Lac Dow, Carleton, Mooney's Bay, Walkley, Greenboro, South Keys, Uplands, Airport Aéroport, Limebank, Bowesville, Leirtrim, and Tremblay. Major transfer points are highlighted at Parliament and Leirtrim. The map also shows the Ottawa River, Gatineau, and various suburban areas like Place d'Orléans, Convent Glen, Jeanne d'Arc, Montréal, Blair, St-Laurent, and Tremblay.



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2.1.3.2 Other Study Area Developments

საზღვრის რაიონის განვითარების გეგმის მიხედვით, რაიონში განთავსდება რამდენიმე ახალი სასაზღვრო რაიონი. ესენია: „საზღვრო რაიონი“, „საზღვრო რაიონი“, „საზღვრო რაიონი“ და „საზღვრო რაიონი“. ესენია: „საზღვრო რაიონი“, „საზღვრო რაიონი“, „საზღვრო რაიონი“ და „საზღვრო რაიონი“.

249-255 Richmond Road & 372 Tweedsmuir Avenue:

ეს განვითარება მოიცავს 249-255 რიჩმონდის რაიონს და 372 ტუედსმირის რაიონს. ესენია: „საზღვრო რაიონი“, „საზღვრო რაიონი“, „საზღვრო რაიონი“ და „საზღვრო რაიონი“.

319-327 Richmond Road, 380 Winona Avenue & 381 Churchill Avenue

ეს განვითარება მოიცავს 319-327 რიჩმონდის რაიონს, 380 ვინონას რაიონს და 381 ჩიურჩილის რაიონს. ესენია: „საზღვრო რაიონი“, „საზღვრო რაიონი“, „საზღვრო რაიონი“ და „საზღვრო რაიონი“.

335 Roosevelt Avenue

ეს განვითარება მოიცავს 335 რუზველტის რაიონს. ესენია: „საზღვრო რაიონი“, „საზღვრო რაიონი“, „საზღვრო რაიონი“ და „საზღვრო რაიონი“.

2050 Scott Street

ეს განვითარება მოიცავს 2050 სკოტის რაიონს. ესენია: „საზღვრო რაიონი“, „საზღვრო რაიონი“, „საზღვრო რაიონი“ და „საზღვრო რაიონი“.

398-406 Roosevelt Avenue

ეს განვითარება მოიცავს 398-406 რუზველტის რაიონს. ესენია: „საზღვრო რაიონი“, „საზღვრო რაიონი“, „საზღვრო რაიონი“ და „საზღვრო რაიონი“.

403 Richmond Road

此處為一處住宅發展項目，位於里士滿路403號。該項目將興建多間獨立屋，預計將增加交通流量。此項發展將對周邊道路造成交通壓力，特別是里士滿路。此外，該項目亦會增加停車需求，對現有停車位造成壓力。因此，建議在該項目附近增加停車位，以緩解交通壓力。

397-399 Richmond Road

此處為一處商業發展項目，位於里士滿路397-399號。該項目將興建多間商業單位，預計將增加交通流量。此項發展將對周邊道路造成交通壓力，特別是里士滿路。此外，該項目亦會增加停車需求，對現有停車位造成壓力。因此，建議在該項目附近增加停車位，以緩解交通壓力。



Exhibit 2-18: Adjacent Development Initiatives

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2.2 STUDY AREA AND TIME PERIODS

2.2.1 Study Area

Project location map, site plan, and other relevant information are provided in the Appendix. The study area is defined as the area immediately surrounding the project site, including the project site, adjacent streets, and surrounding residential areas. The study area is shown in the map below. The study area is bounded by [Address Range] on the north, [Address Range] on the south, [Address Range] on the west, and [Address Range] on the east. The study area includes the project site and the surrounding residential areas. The study area is shown in the map below. The study area is bounded by [Address Range] on the north, [Address Range] on the south, [Address Range] on the west, and [Address Range] on the east. The study area includes the project site and the surrounding residential areas. The study area is shown in the map below.

2.2.2 Time Periods

The project is located in a residential area. The project will generate additional traffic during peak hours. The project will generate additional traffic during peak hours. The project will generate additional traffic during peak hours. The project will generate additional traffic during peak hours. The project will generate additional traffic during peak hours.

2.2.3 Horizon Years

The project is located in a residential area. The project will generate additional traffic during peak hours. The project will generate additional traffic during peak hours. The project will generate additional traffic during peak hours. The project will generate additional traffic during peak hours. The project will generate additional traffic during peak hours.

2.3 EXEMPTION REQUEST

The project is located in a residential area. The project will generate additional traffic during peak hours. The project will generate additional traffic during peak hours. The project will generate additional traffic during peak hours. The project will generate additional traffic during peak hours. The project will generate additional traffic during peak hours.

Table 2-6: Exemptions as per TIA Guidelines

Module	Element	Exemption Considerations	Include Module in TIA
Design Review Component			
4.1 Development Design	4.1.3 New Street Networks	There are no new streets being proposed as part of this development.	Yes
4.2 Parking	4.2.2 Spillover Parking	The project will not generate more than 60 vehicle-trips during the peak hours of travel demand.	Yes
Network Impact Component			
4.5 through 4.9	All Elements	The development is not expected to generate more than 60 vehicle-trips during the peak hours of travel demand. Therefore, the “Network Impact” component of the TIA is not required.	Yes



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APPENDIX A: CERTIFICATION FORM FOR TIA STUDY PROJECT MANAGER

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Certification Form for TIA Study PM

TIA Plan Reports

On 14 June 2017, the Council of the City of Ottawa adopted new Transportation Impact Assessment (TIA) Guidelines. In adopting the guidelines, Council established a requirement for those preparing and delivering transportation impact assessments and reports to sign a letter of certification.

Individuals submitting TIA reports will be responsible for all aspects of development-related transportation assessment and reporting, and undertaking such work, in accordance and compliance with the City of Ottawa's Official Plan, the Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines.

By submitting the attached TIA report (and any associated documents) and signing this document, the individual acknowledges that s/he meets the four criteria listed below.

CERTIFICATION

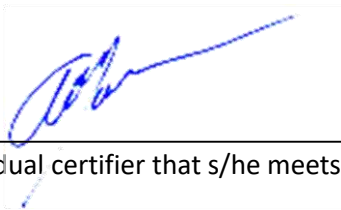
- I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
- I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
- I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
- I am either a licensed¹ or registered² professional in good standing, whose field of expertise
 - is either transportation engineering
 - or transportation planning.

^{1,2} License of registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works.

Dated at this day of , 20 .
(City)

Name :

Professional title:



Signature of individual certifier that s/he meets the above criteria

Office Contact Information (Please Print)	
Address:	<input type="text" value="2460 Lancaster Road, Suite 200"/>
City / Postal Code:	<input type="text" value="K1B 4S5"/>
Telephone / Extension:	<input type="text" value="(613) 731-4052"/>
E-Mail Address:	<input type="text" value="agordon@castleglenn.ca"/>

Stamp





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APPENDIX B: SCREENING FORM

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City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	424 Churchill Avenue
Description of Location	7-storey residential building with 58 units
Land Use Classification	TM H(24) - Traditional Mainstreet
Development Size (units)	58 units
Development Size (m ²)	N/A
Number of Accesses and Locations	1 Access off Danforth Avenue
Phase of Development	1
Buildout Year	2025

If available, please attach a sketch of the development or site plan to this form.

2. Trip Generation Trigger

Considering the Development’s Land Use type and Size (as filled out in the previous section), please refer to the Trip Generation Trigger checks below.

Land Use Type	Minimum Development Size
Single-family homes	40 units
Townhomes or apartments	90 units
Office	3,500 m ²
Industrial	5,000 m ²
Fast-food restaurant or coffee shop	100 m ²
Destination retail	1,000 m ²
Gas station or convenience market	75 m ²

** If the development has a land use type other than what is presented in the table above, estimates of person-trip generation may be made based on average trip generation characteristics represented in the current edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual.*

If the proposed development size is greater than the sizes identified above, the Trip Generation Trigger is satisfied.

B. Location Triggers

B	Yes	No
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit or Spine Bicycle Networks?	B	
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?*		B

*DPA and TOD are identified in the City of Ottawa Official Plan (DPA in Section 2.5.1 and Schedules A and B; TOD in Annex 6). See Chapter 4 for a list of City of Ottawa Planning and Engineering documents that support the completion of TIA).

If any of the above questions were answered with 'Yes,' the Location Trigger is satisfied.

B. Safety Triggers

B	Yes	No
Are posted speed limits on a boundary street are 80 km/hr or greater?	B	B
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?	B	B
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions)?	B	B
Is the proposed driveway within auxiliary lanes of an intersection?	B	B
Does the proposed driveway make use of an existing median break that serves an existing site?	B	B
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?	B	B
Does the development include a drive-thru facility?	B	B

If any of the above questions were answered with 'Yes,' the Safety Trigger is satisfied.

B. Summary

B	Yes	No
Does the development satisfy the Trip Generation Trigger?	B	B
Does the development satisfy the Location Trigger?	B	B
Does the development satisfy the Safety Trigger?	B	B

If none of the triggers are satisfied, the TIA Study is complete. If one or more of the triggers is satisfied, the TIA Study must continue into the next stage (Screening and Scoping).



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APPENDIX C: SITE PLAN

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424 Churchill Avenue North, Ottawa

Zoning Data:
 Zone: TM H(24)
 Adjacent zones:
 north: TBC
 south: TBC
 east: TBC
 west: TBC
 Frontage: 25.34 (Churchill Ave. N.)
 Proposed building area: 657.8 m² TBC
 taken as greatest horizontal distance of all floors above grade

Mechanism	Required	Proposed	Notes
frontage (min.):	-	-	-
lot area (min.):	-	-	-
setbacks (min.):	-	-	-
front yard (min.):	-	-	-
corner side yard (min.):	-	-	-
interior side yard (min.):	-	-	-
rear yard (min.):	-	-	-
lot coverage (min.):	-	-	-
landscaped area (min.):	-	-	-
building height (min.):	24 m	27.5 m	OPA and ZBA needed
density (max.):	-	-	-

Proposed GFA: 5:572.8 m² TBC
 taken as o/s face of exterior walls w/ no deduction for shafts or stairs; not including 2 parking levels

Proposed use: Apartment Dwelling, Mid-Rise

Proposed number of units: 58

Proposed car parking: 30

CLIENT / OWNER :
 GSI SLOUGH STREET PROPERTIES INC.
 5-145 SELECT AVE.,
 TORONTO, ON, M1V 5M8
 416-292-9920

CONSULTING PLANNER :
 FOTENN
 396 COOPER STREET, SUITE 300
 OTTAWA, ON K2P 2H7
 613-730-5709

rev. / issue	description	date
05	ISSUED FOR COORDINATION	15 SEP. 2022
04	ISSUED FOR CLIENT REVIEW	31 AUG. 2022
03	ISSUED FOR COORDINATION	26 AUG. 2022
02	ISSUED FOR CITY PRE-CONSULTATION	21 JAN. 2022
01	ISSUED FOR CLIENT REVIEW	13 JAN. 2022

THE ARCHITECT WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS, AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ARCHITECT'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND PROMPTLY REPORT ALL ERRORS AND/OR OMISSIONS TO THE CONSULTANT BEFORE WORK COMMENCES.

ALL WORK IS TO FOLLOW THE OBC 2012 AND ANY OTHER APPLICABLE CODES AND REGULATIONS.

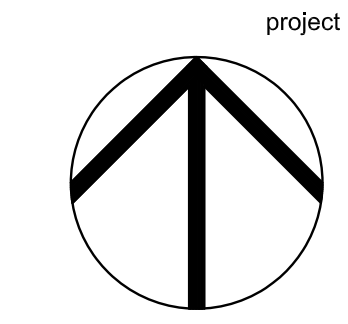
DO NOT SCALE DRAWINGS.

THESE DRAWINGS ARE NOT TO BE USED FOR CONSTRUCTION UNLESS A BUILDING PERMIT IN RESPECT OF THIS PROJECT HAS BEEN GRANTED BY AUTHORITIES AND THEY ARE ISSUED FOR CONSTRUCTION.

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professional stamp

project north



Kristopher D. Benes, OAA, MRAIC, LEED AP

OPA open plan architects inc.
 architecture | interiors | concepts

2305 HILLARY AVE. | OTTAWA | ON | K1H 7J2
 613.883.5090 | info@openplan.ca

project

**424 CHURCHILL AVE N.,
 CONDOMINIUM**

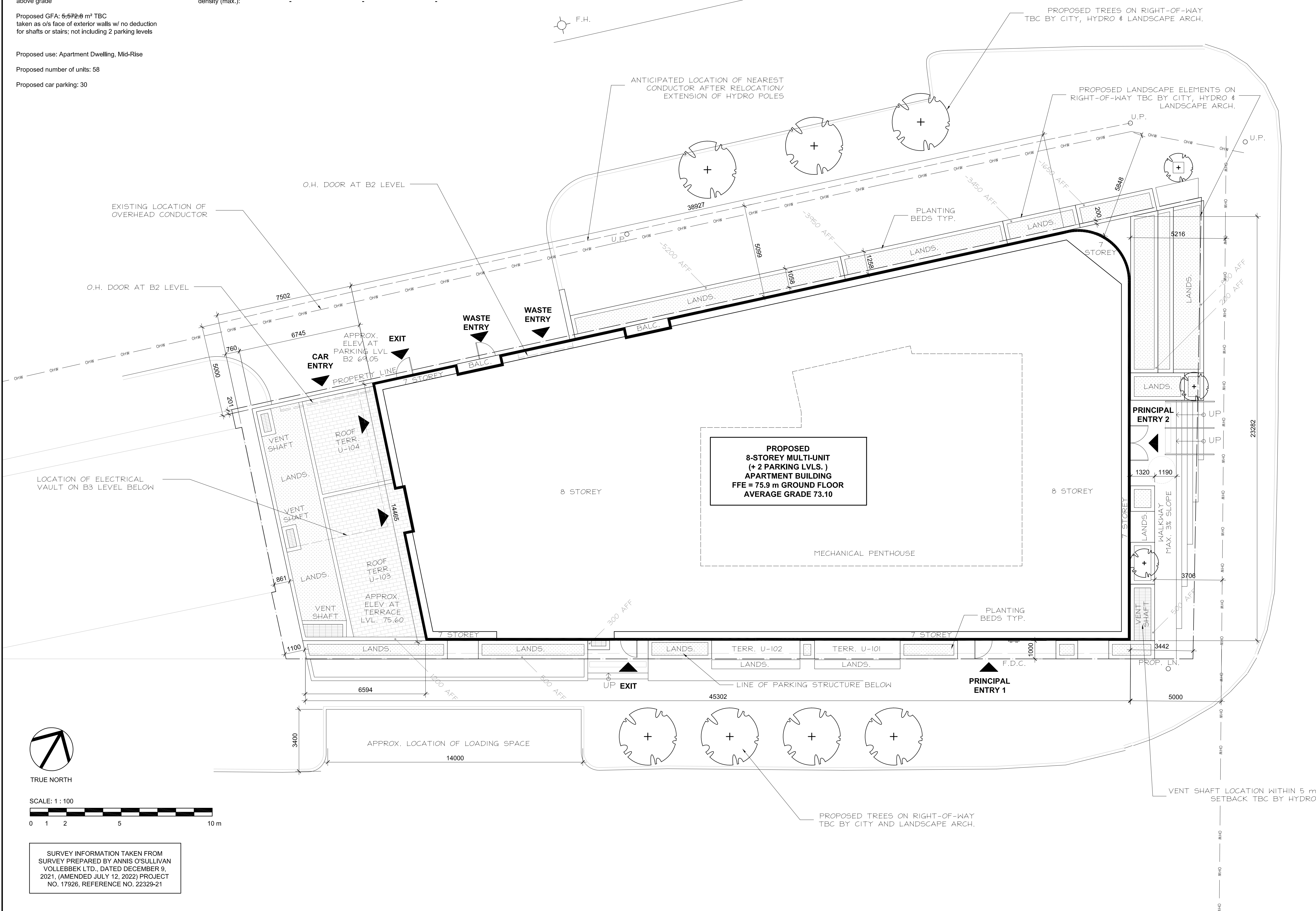
drawing

SITE PLAN

drawn	KDB	date	2022-JAN-06
approved	KDB	revision	0
project no.	2109	scale	1:100

drawing no.

A000



SURVEY INFORMATION TAKEN FROM SURVEY PREPARED BY ANNIS O'SULLIVAN VOLLEBBEK LTD., DATED DECEMBER 9, 2021, (AMENDED JULY 12, 2022) PROJECT NO. 17926, REFERENCE NO. 22329-21



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APPENDIX D: EXISTING TRAFFIC COUNTS, SIGNAL TIMINGS AND COLLISION DATA

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Turning Movement Count - Study Results

BYRON AVE @ CHURCHILL AVE

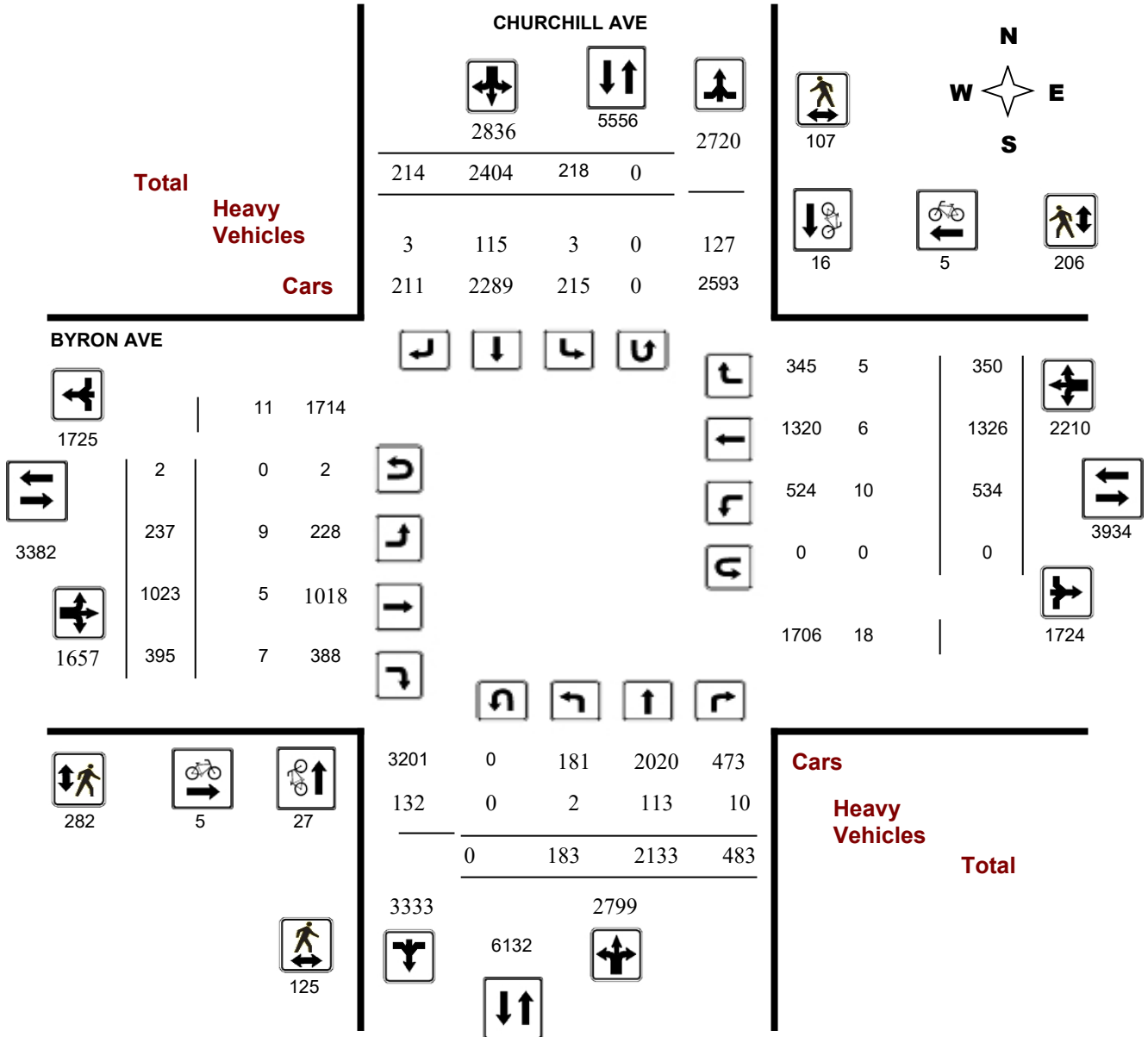
Survey Date: Thursday, January 23, 2020

WO No: 39387

Start Time: 07:00

Device: Miovision

Full Study Diagram



5472205 - THU JAN 23, 2020 - 8HRS - LORETTA



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

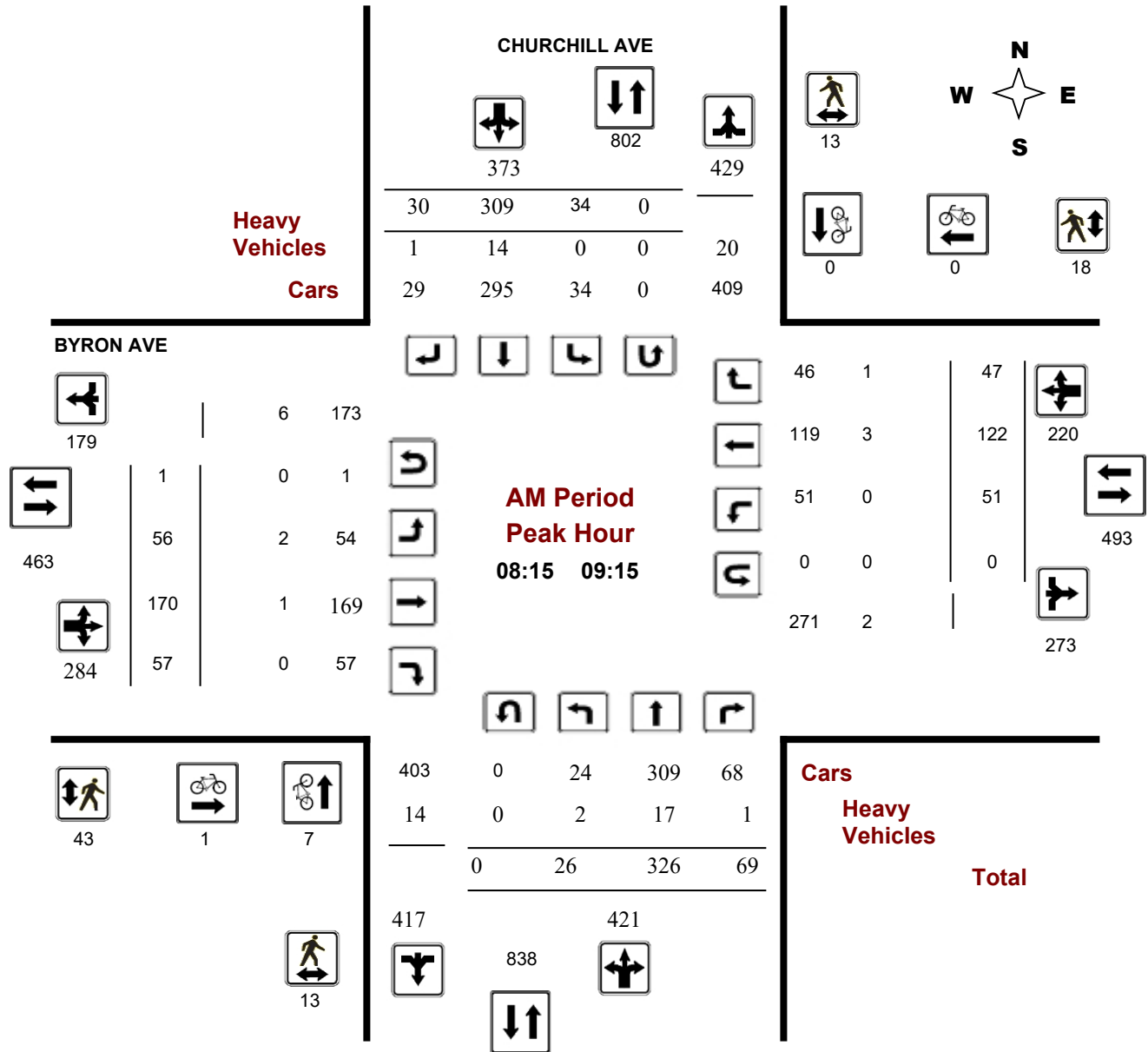
BYRON AVE @ CHURCHILL AVE

Survey Date: Thursday, January 23, 2020

Start Time: 07:00

WO No: 39387

Device: Miovision



Comments 5472205 - THU JAN 23, 2020 - 8HRS - LORETTA

Turning Movement Count - Peak Hour Diagram

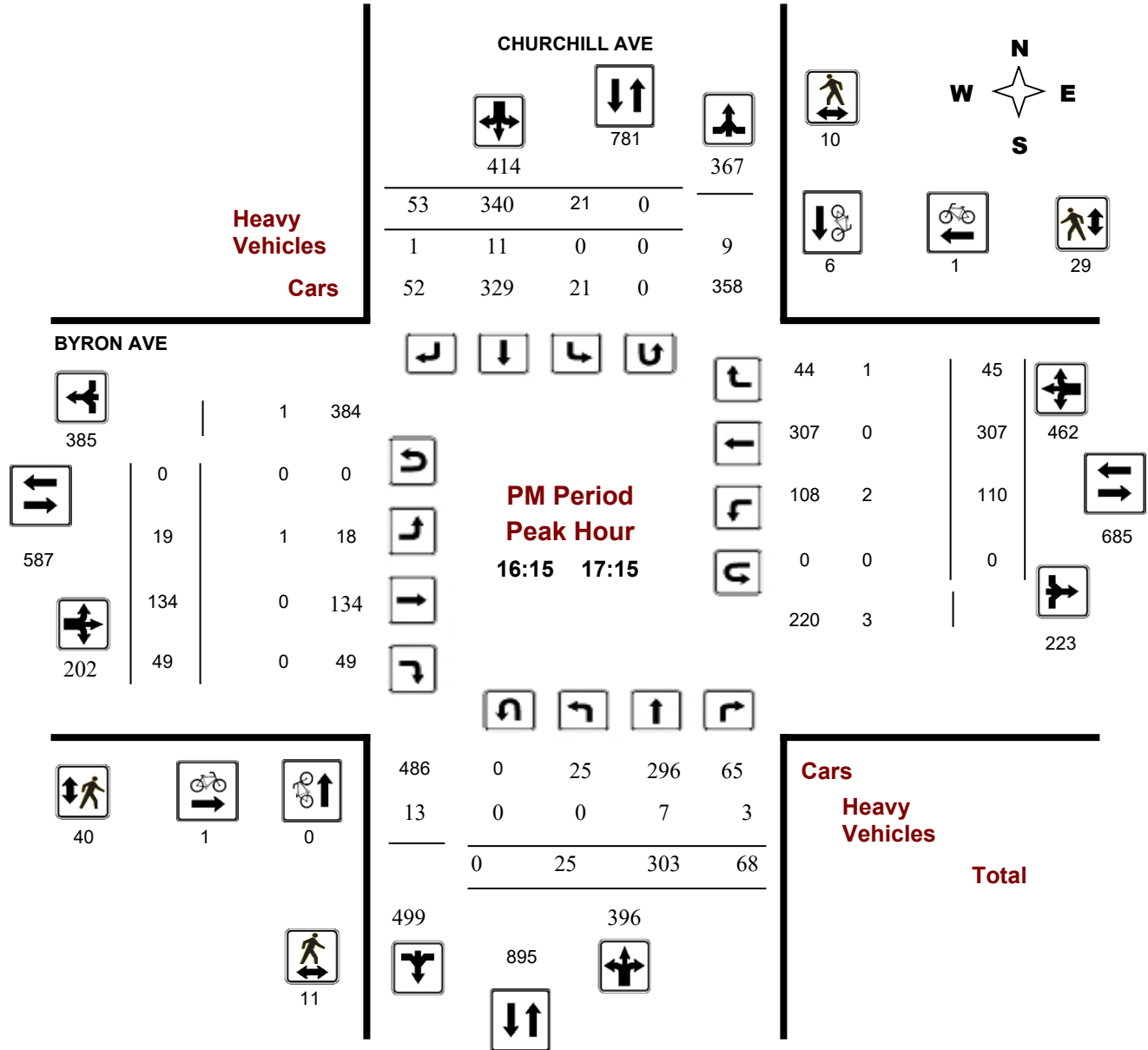
BYRON AVE @ CHURCHILL AVE

Survey Date: Thursday, January 23, 2020

Start Time: 07:00

WO No: 39387

Device: Miovision



Comments 5472205 - THU JAN 23, 2020 - 8HRS - LORETTA



Transportation Services - Traffic Services

Turning Movement Count - Study Results

BYRON AVE @ CHURCHILL AVE

Survey Date: Thursday, January 23, 2020

WO No: 39387

Start Time: 07:00

Device: Miovision

Full Study Summary (8 HR Standard)

Survey Date: Thursday, January 23, 2020

Total Observed U-Turns

AADT Factor

Northbound: 0 Southbound: 0
 Eastbound: 2 Westbound: 0

1.00

CHURCHILL AVE

BYRON AVE

Period	CHURCHILL AVE Northbound					CHURCHILL AVE Southbound					BYRON AVE Eastbound					BYRON AVE Westbound					Grand Total	
	LT	ST	RT	NB TOT	STR TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	STR TOT	LT	ST	RT	WB TOT	STR TOT		
07:00 08:00	12	215	42	269	545	18	255	3	276	662	20	89	34	143	277	42	70	22	134	277	822	
08:00 09:00	25	325	62	412	762	32	293	25	350	662	53	165	53	271	472	50	108	43	201	472	1234	
09:00 10:00	23	273	65	361	662	19	257	25	301	662	36	125	51	212	391	32	99	48	179	391	1053	
11:30 12:30	25	240	73	338	670	40	275	17	332	670	24	126	46	196	466	58	153	59	270	466	1136	
12:30 13:30	23	240	49	312	661	39	284	26	349	661	27	105	48	180	467	56	192	39	287	467	1128	
15:00 16:00	23	257	52	332	760	25	373	30	428	760	24	150	70	244	588	85	213	46	344	588	1348	
16:00 17:00	22	293	72	387	805	22	346	50	418	805	25	122	46	193	633	111	280	49	440	633	1438	
17:00 18:00	30	290	68	388	770	23	321	38	382	770	28	141	47	216	571	100	211	44	355	571	1341	
Sub Total	183	2133	483	2799	5635	218	2404	214	2836	5635	237	1023	395	1655	3865	534	1326	350	2210	3865	9500	
U Turns	0				0		0		0		2		0		2		0		2		2	
Total	183	2133	483	2799	5635	218	2404	214	2836	5635	237	1023	395	1657	3867	534	1326	350	2210	3867	9502	
EQ 12Hr	254	2965	671	3891	7833	303	3342	297	3942	7833	329	1422	549	2303	5375	742	1843	486	3072	5375	13208	
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														1.39								
AVG 12Hr	240	2794	633	3667	7833	286	3149	280	3715	7833	310	1340	517	2171	5375	700	1737	458	2895	5375	13208	
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														1								
AVG 24Hr	314	3660	829	4803	9670	374	4126	367	4867	9670	407	1756	678	2844	6637	916	2276	601	3793	6637	16307	
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														1.31								

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

BYRON AVE @ CHURCHILL AVE

Survey Date: Thursday, January 23, 2020

WO No: 39387

Start Time: 07:00

Device: Miovision

Full Study 15 Minute Increments

CHURCHILL AVE

BYRON AVE

Northbound

Southbound

Eastbound

Westbound

Time Period	LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00 07:15	2	40	10	52	4	53	0	57	4	1	15	7	23	5	3	7	15	4	147
07:15 07:30	0	32	7	39	5	56	1	62	4	4	31	10	45	6	20	1	27	4	173
07:30 07:45	6	62	11	79	3	64	2	69	10	3	17	12	32	17	15	6	38	10	218
07:45 08:00	4	81	14	99	6	82	0	88	7	12	26	5	43	14	32	8	54	7	284
08:00 08:15	7	80	9	96	5	66	6	77	7	8	38	8	54	10	12	9	31	7	258
08:15 08:30	6	89	14	109	16	83	3	102	7	13	38	15	66	10	17	15	42	7	319
08:30 08:45	5	85	22	112	8	67	11	86	8	20	45	14	79	15	31	9	55	8	332
08:45 09:00	7	71	17	95	3	77	5	85	8	12	44	16	73	15	48	10	73	8	326
09:00 09:15	8	81	16	105	7	82	11	100	12	11	43	12	66	11	26	13	50	12	321
09:15 09:30	2	62	15	79	5	69	5	79	16	14	37	13	64	8	24	12	44	16	266
09:30 09:45	4	71	14	89	4	53	7	64	12	4	18	16	38	4	19	9	32	12	223
09:45 10:00	9	59	20	88	3	53	2	58	10	7	27	10	44	9	30	14	53	10	243
11:30 11:45	6	54	27	87	6	75	3	84	19	2	37	9	48	11	24	14	49	19	268
11:45 12:00	7	71	20	98	9	56	7	72	13	6	37	9	52	17	42	14	73	13	295
12:00 12:15	6	62	15	83	14	77	2	93	12	9	26	13	48	15	43	16	74	12	298
12:15 12:30	6	53	11	70	11	67	5	83	5	7	26	15	48	15	44	15	74	5	275
12:30 12:45	5	68	11	84	11	74	4	89	10	7	28	14	49	13	34	8	55	10	277
12:45 13:00	6	71	16	93	7	66	8	81	5	9	25	13	47	13	63	12	88	5	309
13:00 13:15	7	52	11	70	6	77	10	93	9	5	28	11	44	17	45	8	70	9	277
13:15 13:30	5	49	11	65	15	67	4	86	11	6	24	10	40	13	50	11	74	11	265
15:00 15:15	5	65	11	81	7	103	4	114	9	5	45	23	73	18	47	12	77	9	345
15:15 15:30	5	64	10	79	5	99	8	112	5	8	50	17	76	21	55	14	90	5	357
15:30 15:45	7	60	18	85	9	81	7	97	3	5	25	14	44	18	50	9	77	3	303
15:45 16:00	6	68	13	87	4	90	11	105	3	6	30	16	52	28	61	11	100	3	344
16:00 16:15	10	71	25	106	4	91	5	100	5	7	30	11	48	25	53	13	91	5	345
16:15 16:30	7	82	17	106	6	73	18	97	8	7	33	16	56	30	78	9	117	8	376
16:30 16:45	3	73	14	90	6	93	13	112	7	4	23	10	37	25	77	13	115	7	354
16:45 17:00	2	67	16	85	6	89	14	109	5	7	36	9	52	31	72	14	117	5	363
17:00 17:15	13	81	21	115	3	85	8	96	2	1	42	14	57	24	80	9	113	2	381
17:15 17:30	5	76	14	95	4	86	10	100	4	10	35	9	54	28	48	7	83	4	332
17:30 17:45	7	63	16	86	8	80	10	98	5	8	36	13	57	18	52	13	83	5	324
17:45 18:00	5	70	17	92	8	70	10	88	1	9	28	11	48	30	31	15	76	1	304
Total:	183	2133	483	2799	218	2404	214	2836	246	237	1023	395	1657	534	1326	350	2210	246	9,502

Note: U-Turns are included in Totals.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

BYRON AVE @ CHURCHILL AVE

Survey Date: Thursday, January 23, 2020

WO No: 39387

Start Time: 07:00

Device: Miovision

Full Study Cyclist Volume

Time Period	CHURCHILL AVE			BYRON AVE			Grand Total
	Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	
07:00 07:15	1	0	1	0	0	0	1
07:15 07:30	1	1	2	0	0	0	2
07:30 07:45	1	0	1	1	1	2	3
07:45 08:00	4	0	4	0	0	0	4
08:00 08:15	6	0	6	0	0	0	6
08:15 08:30	4	0	4	0	0	0	4
08:30 08:45	1	0	1	1	0	1	2
08:45 09:00	0	0	0	0	0	0	0
09:00 09:15	2	0	2	0	0	0	2
09:15 09:30	0	0	0	1	0	1	1
09:30 09:45	0	0	0	0	0	0	0
09:45 10:00	1	0	1	0	0	0	1
11:30 11:45	0	0	0	0	0	0	0
11:45 12:00	1	0	1	0	0	0	1
12:00 12:15	2	1	3	0	0	0	3
12:15 12:30	0	0	0	0	0	0	0
12:30 12:45	0	0	0	0	1	1	1
12:45 13:00	1	0	1	0	1	1	2
13:00 13:15	0	0	0	0	0	0	0
13:15 13:30	0	0	0	0	0	0	0
15:00 15:15	0	0	0	0	0	0	0
15:15 15:30	0	0	0	0	0	0	0
15:30 15:45	0	0	0	0	0	0	0
15:45 16:00	0	1	1	1	0	1	2
16:00 16:15	0	1	1	0	0	0	1
16:15 16:30	0	0	0	0	0	0	0
16:30 16:45	0	1	1	0	0	0	1
16:45 17:00	0	0	0	0	0	0	0
17:00 17:15	0	5	5	1	1	2	7
17:15 17:30	0	3	3	0	0	0	3
17:30 17:45	0	3	3	0	1	1	4
17:45 18:00	2	0	2	0	0	0	2
Total	27	16	43	5	5	10	53



Transportation Services - Traffic Services

Turning Movement Count - Study Results

BYRON AVE @ CHURCHILL AVE

Survey Date: Thursday, January 23, 2020

WO No: 39387

Start Time: 07:00

Device: Miovision

Full Study Pedestrian Volume

CHURCHILL AVE

BYRON AVE

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	0	0	0	2	1	3	3
07:15 07:30	6	0	6	1	6	7	13
07:30 07:45	5	3	8	7	3	10	18
07:45 08:00	11	5	16	22	5	27	43
08:00 08:15	18	6	24	18	6	24	48
08:15 08:30	2	5	7	12	2	14	21
08:30 08:45	6	0	6	11	6	17	23
08:45 09:00	2	3	5	13	4	17	22
09:00 09:15	3	5	8	7	6	13	21
09:15 09:30	2	4	6	3	7	10	16
09:30 09:45	2	2	4	3	3	6	10
09:45 10:00	6	6	12	7	7	14	26
11:30 11:45	3	2	5	6	1	7	12
11:45 12:00	4	2	6	10	7	17	23
12:00 12:15	4	9	13	8	2	10	23
12:15 12:30	3	5	8	10	4	14	22
12:30 12:45	3	1	4	13	3	16	20
12:45 13:00	2	4	6	7	10	17	23
13:00 13:15	2	1	3	6	7	13	16
13:15 13:30	3	2	5	4	6	10	15
15:00 15:15	2	2	4	8	10	18	22
15:15 15:30	2	5	7	13	6	19	26
15:30 15:45	4	10	14	13	17	30	44
15:45 16:00	4	4	8	7	7	14	22
16:00 16:15	5	3	8	10	7	17	25
16:15 16:30	2	4	6	18	10	28	34
16:30 16:45	2	1	3	6	5	11	14
16:45 17:00	4	3	7	11	11	22	29
17:00 17:15	3	2	5	5	3	8	13
17:15 17:30	8	2	10	8	13	21	31
17:30 17:45	1	2	3	9	10	19	22
17:45 18:00	1	4	5	4	11	15	20
Total	125	107	232	282	206	488	720

5472205 - THU JAN 23, 2020 - 8HRS - LORETTA



Transportation Services - Traffic Services

Turning Movement Count - Study Results

BYRON AVE @ CHURCHILL AVE

Survey Date: Thursday, January 23, 2020

WO No: 39387

Start Time: 07:00

Device: Miovision

Full Study Heavy Vehicles

CHURCHILL AVE

BYRON AVE

Northbound

Southbound

Eastbound

Westbound

Time Period	CHURCHILL AVE Northbound			N TOT	CHURCHILL AVE Southbound			S TOT	STR TOT	BYRON AVE Eastbound			E TOT	BYRON AVE Westbound			W TOT	STR TOT	Grand Total	
	LT	ST	RT		LT	ST	RT			LT	ST	RT		LT	ST	RT				
07:00 07:15	0	2	1	3	0	1	0	1	4	0	0	1	1	0	0	0	0	1	5	
07:15 07:30	0	2	0	2	0	2	0	2	4	1	0	0	1	0	1	0	1	2	6	
07:30 07:45	0	6	0	6	0	4	0	4	10	1	0	1	2	3	0	0	3	5	15	
07:45 08:00	0	3	0	3	0	4	0	4	7	0	0	1	1	0	0	0	0	1	8	
08:00 08:15	0	6	0	6	0	1	0	1	7	0	0	0	0	0	0	0	0	0	7	
08:15 08:30	1	2	0	3	0	4	0	4	7	0	0	0	0	0	1	0	1	1	8	
08:30 08:45	0	7	0	7	0	1	0	1	8	2	0	0	2	0	0	0	0	2	10	
08:45 09:00	1	4	1	6	0	1	1	2	8	0	0	0	0	0	0	1	1	1	9	
09:00 09:15	0	4	0	4	0	8	0	8	12	0	1	0	1	0	2	0	2	3	15	
09:15 09:30	0	8	0	8	0	8	0	8	16	0	0	0	0	0	0	0	0	0	16	
09:30 09:45	0	10	0	10	0	2	0	2	12	0	0	0	0	0	0	1	1	1	13	
09:45 10:00	0	5	0	5	0	5	0	5	10	1	0	1	2	0	0	0	0	2	12	
11:30 11:45	0	5	2	7	0	12	0	12	19	0	0	0	0	0	0	0	0	0	19	
11:45 12:00	0	10	0	10	0	3	0	3	13	0	0	1	1	0	1	0	1	2	15	
12:00 12:15	0	6	0	6	0	6	0	6	12	0	0	0	0	0	0	0	0	0	12	
12:15 12:30	0	0	1	1	0	4	0	4	5	1	1	0	2	0	0	0	0	2	7	
12:30 12:45	0	7	0	7	0	3	0	3	10	0	0	0	0	2	0	0	2	2	12	
12:45 13:00	0	4	0	4	0	1	0	1	5	0	0	0	0	0	0	1	1	1	6	
13:00 13:15	0	4	0	4	1	4	0	5	9	0	0	0	0	0	0	0	0	0	9	
13:15 13:30	0	0	0	0	1	10	0	11	11	0	1	0	1	0	0	1	1	2	13	
15:00 15:15	0	3	0	3	1	5	0	6	9	1	1	0	2	1	0	0	1	3	12	
15:15 15:30	0	1	0	1	0	4	0	4	5	0	1	0	1	0	0	0	0	1	6	
15:30 15:45	0	0	0	0	0	2	1	3	3	0	0	0	0	0	0	0	0	0	3	
15:45 16:00	0	1	1	2	0	1	0	1	3	0	0	1	1	0	0	0	0	1	4	
16:00 16:15	0	2	1	3	0	2	0	2	5	1	0	1	2	2	0	0	2	4	9	
16:15 16:30	0	3	1	4	0	3	1	4	8	1	0	0	1	1	0	0	1	2	10	
16:30 16:45	0	1	1	2	0	5	0	5	7	0	0	0	0	1	0	0	1	1	8	
16:45 17:00	0	1	1	2	0	3	0	3	5	0	0	0	0	0	0	1	1	1	6	
17:00 17:15	0	2	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	
17:15 17:30	0	2	0	2	0	2	0	2	4	0	0	0	0	0	1	0	1	1	5	
17:30 17:45	0	2	0	2	0	3	0	3	5	0	0	0	0	0	0	0	0	0	5	
17:45 18:00	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	1	
Total:	None	2	113	10	125	3	115	3	121	246	9	5	7	21	10	6	5	21	42	288



Transportation Services - Traffic Services

Turning Movement Count - Study Results

BYRON AVE @ CHURCHILL AVE

Survey Date: Thursday, January 23, 2020

WO No: 39387

Start Time: 07:00

Device: Miovision

Full Study 15 Minute U-Turn Total

CHURCHILL AVE

BYRON AVE

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	1	0	1
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	1	0	1
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	2	0	2

Turning Movement Count - Study Results

BYRON AVE @ ROOSEVELT AVE

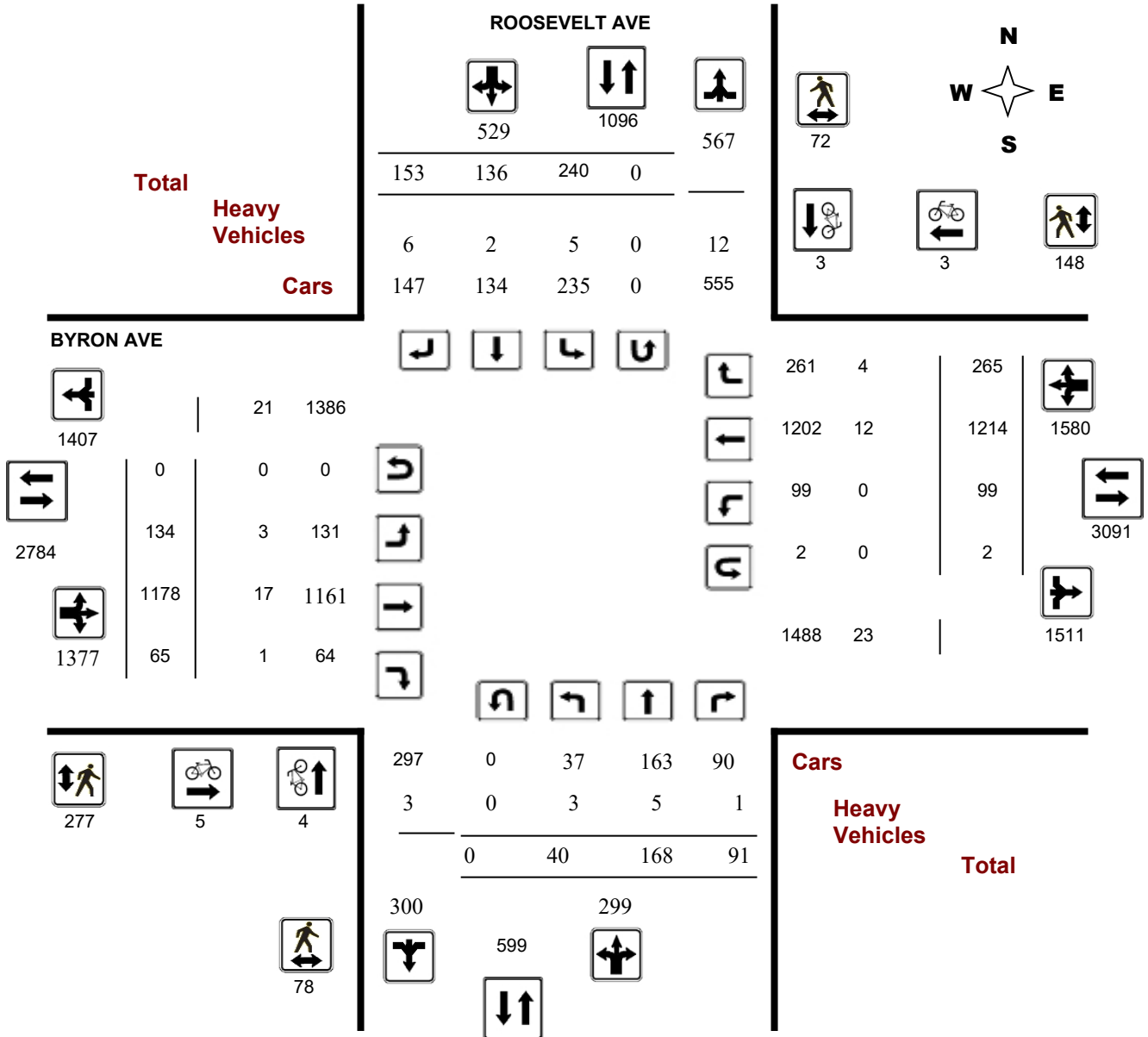
Survey Date: Wednesday, February 27, 2019

WO No: 38395

Start Time: 07:00

Device: Miovision

Full Study Diagram



Turning Movement Count - Study Results

BYRON AVE @ ROOSEVELT AVE

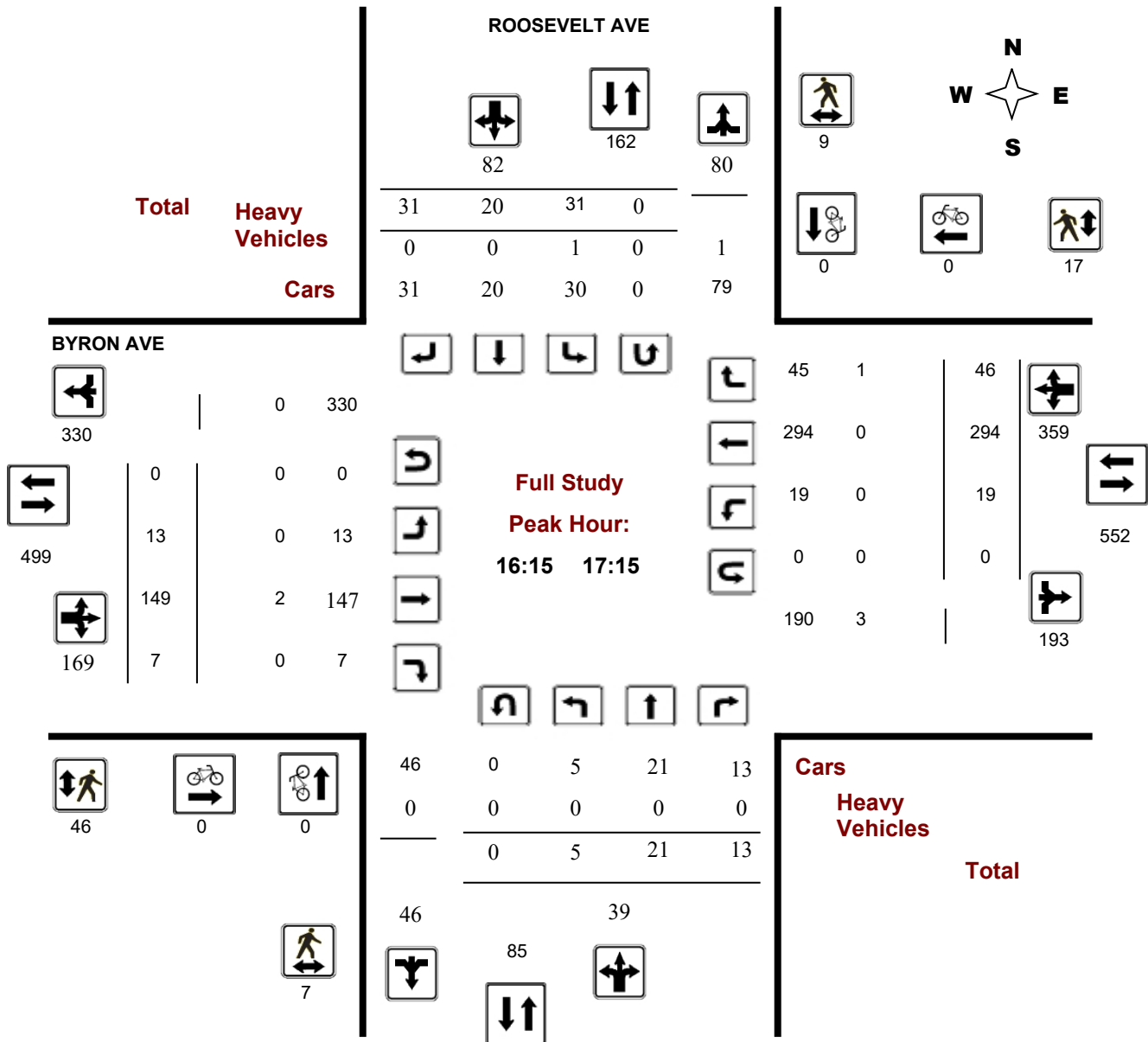
Survey Date: Wednesday, February 27, 2019

WO No: 38395

Start Time: 07:00

Device: Miovision

Full Study Peak Hour Diagram





Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

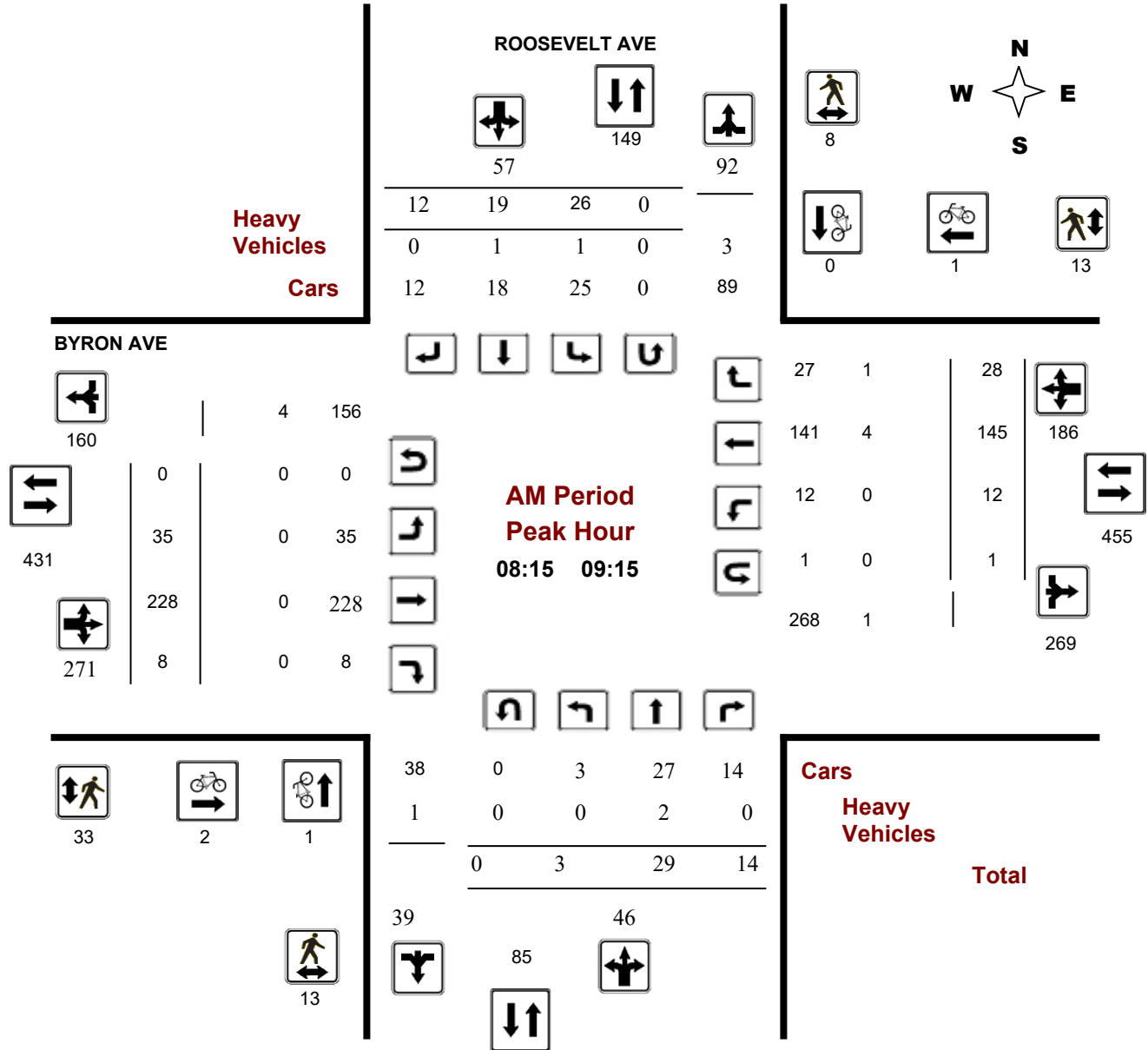
BYRON AVE @ ROOSEVELT AVE

Survey Date: Wednesday, February 27, 2019

Start Time: 07:00

WO No: 38395

Device: Miovision



Comments

Turning Movement Count - Peak Hour Diagram

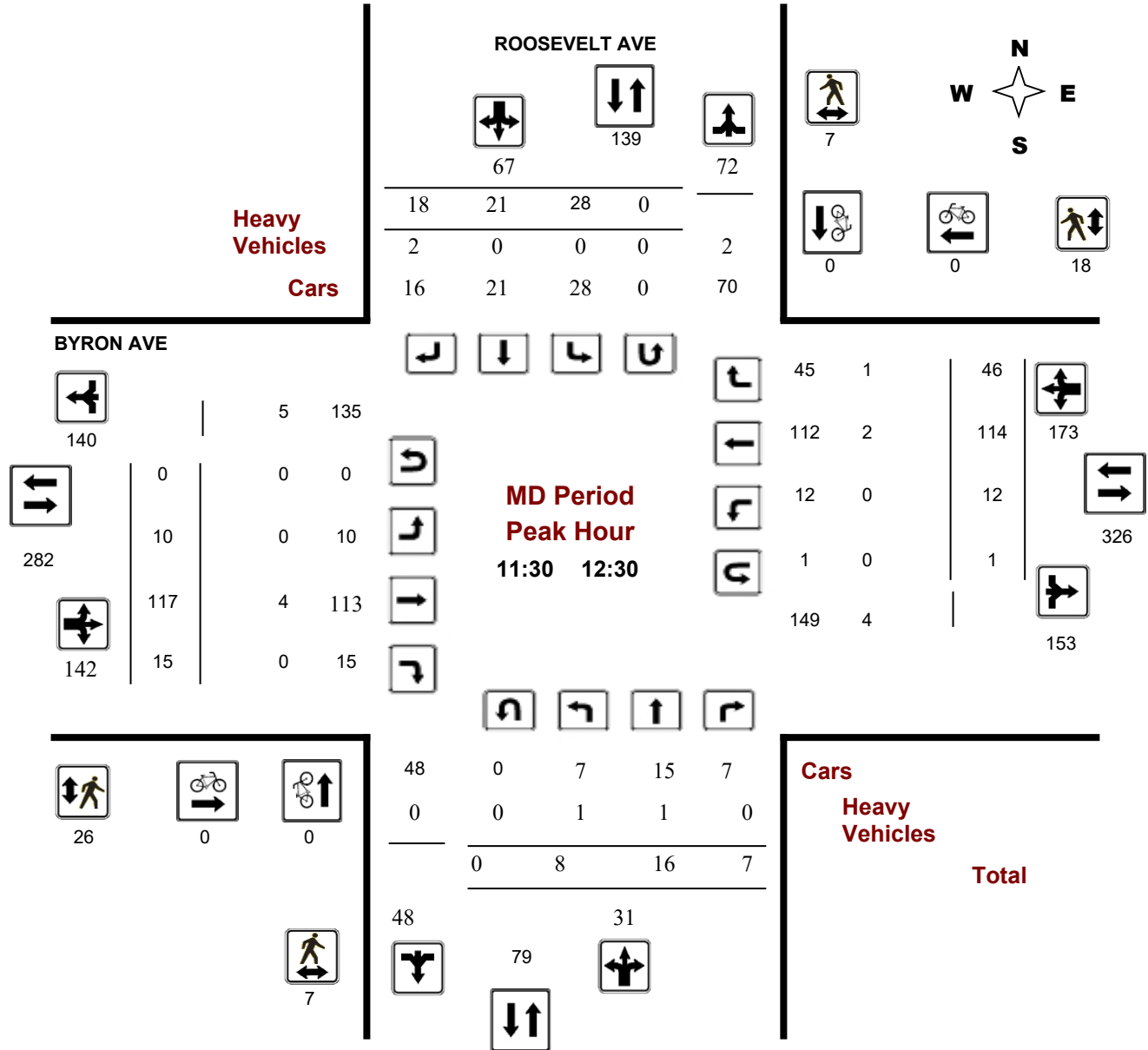
BYRON AVE @ ROOSEVELT AVE

Survey Date: Wednesday, February 27, 2019

Start Time: 07:00

WO No: 38395

Device: Miovision



Comments

Turning Movement Count - Peak Hour Diagram

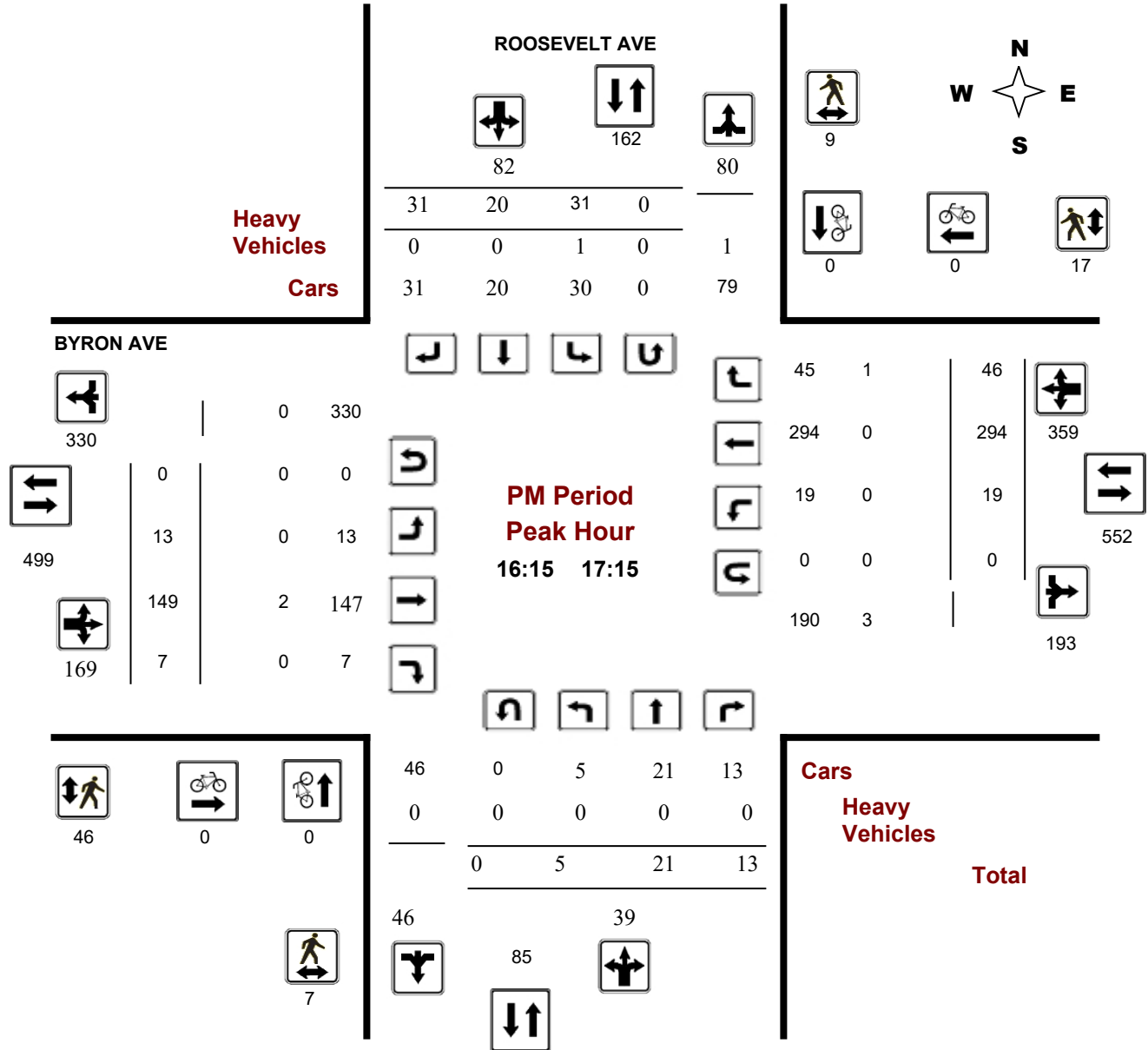
BYRON AVE @ ROOSEVELT AVE

Survey Date: Wednesday, February 27, 2019

Start Time: 07:00

WO No: 38395

Device: Miovision





Transportation Services - Traffic Services

Turning Movement Count - Study Results

BYRON AVE @ ROOSEVELT AVE

Survey Date: Wednesday, February 27, 2019

WO No: 38395

Start Time: 07:00

Device: Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, February 27, 2019

Total Observed U-Turns

AADT Factor

Northbound: 0 Southbound: 0
 Eastbound: 0 Westbound: 2

1.00

ROOSEVELT AVE

BYRON AVE

Period	ROOSEVELT AVE Northbound					ROOSEVELT AVE Southbound					BYRON AVE Eastbound					BYRON AVE Westbound					Grand Total
	LT	ST	RT	NB TOT	STR TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	STR TOT	LT	ST	RT	WB TOT	STR TOT	
07:00 08:00	3	19	17	39	69	14	9	7	30	69	9	161	7	177	177	5	54	17	76	253	322
08:00 09:00	3	32	17	52	106	27	15	12	54	106	28	247	2	277	277	10	138	28	176	453	559
09:00 10:00	0	25	13	38	86	21	15	12	48	86	28	152	12	192	192	12	104	30	146	338	424
11:30 12:30	8	16	7	31	98	28	21	18	67	98	10	117	15	142	142	12	114	46	172	314	412
12:30 13:30	11	18	6	35	116	37	20	24	81	116	17	101	4	122	122	13	111	30	154	276	392
15:00 16:00	8	14	9	31	110	38	19	22	79	110	16	133	5	154	154	12	189	31	232	386	496
16:00 17:00	6	23	9	38	118	30	21	29	80	118	12	137	12	161	161	14	253	47	314	475	593
17:00 18:00	1	21	13	35	125	45	16	29	90	125	14	130	8	152	152	21	251	36	308	460	585
Sub Total	40	168	91	299	828	240	136	153	529	828	134	1178	65	1377	1377	99	1214	265	1578	2955	3783
U Turns				0	0				0	0				0	0				2	2	2
Total	40	168	91	299	828	240	136	153	529	828	134	1178	65	1377	1377	99	1214	265	1580	2957	3785
EQ 12Hr	56	234	126	416	1151	334	189	213	735	1151	186	1637	90	1914	1914	138	1687	368	2196	4110	5261
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.															1.39						
AVG 12Hr	52	220	119	392	1151	314	178	200	693	1151	176	1543	85	1804	1804	130	1590	347	2070	4110	5261
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.															1						
AVG 24Hr	69	288	156	513	1421	412	233	263	908	1421	230	2022	112	2363	2363	170	2083	455	2711	5074	6495
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.															1.31						
Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.																					



Transportation Services - Traffic Services

Turning Movement Count - Study Results

BYRON AVE @ ROOSEVELT AVE

Survey Date: Wednesday, February 27, 2019

WO No: 38395

Start Time: 07:00

Device: Miovision

Full Study 15 Minute Increments

ROOSEVELT AVE

BYRON AVE

Northbound

Southbound

Eastbound

Westbound

Time Period	LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00 07:15	0	5	3	8	3	2	1	6	0	1	17	0	18	0	4	2	6	0	38
07:15 07:30	2	4	4	10	3	2	0	5	0	1	45	0	46	1	14	2	17	0	78
07:30 07:45	0	6	2	8	4	2	3	9	0	2	41	2	45	2	14	5	21	0	83
07:45 08:00	1	4	8	13	4	3	3	10	0	5	58	5	68	2	22	8	32	0	123
08:00 08:15	0	11	7	18	7	3	2	12	2	5	66	0	71	3	30	5	38	2	139
08:15 08:30	1	13	5	19	6	4	4	14	1	7	69	0	76	2	25	8	36	1	145
08:30 08:45	0	6	2	8	10	1	5	16	1	9	60	1	70	2	32	11	45	1	139
08:45 09:00	2	2	3	7	4	7	1	12	0	7	52	1	60	3	51	4	58	0	137
09:00 09:15	0	8	4	12	6	7	2	15	2	12	47	6	65	5	37	5	47	2	139
09:15 09:30	0	6	3	9	5	2	1	8	0	10	40	3	53	2	23	7	32	0	102
09:30 09:45	0	5	3	8	4	1	2	7	0	3	37	2	42	2	25	8	35	0	92
09:45 10:00	0	6	3	9	6	5	7	18	1	3	28	1	32	3	19	10	32	1	91
11:30 11:45	2	3	0	5	8	4	4	16	2	3	35	7	45	2	26	10	38	2	104
11:45 12:00	3	6	2	11	5	5	5	15	2	3	27	4	34	5	30	11	46	2	106
12:00 12:15	2	3	2	7	6	8	7	21	0	2	27	0	29	0	32	12	44	0	101
12:15 12:30	1	4	3	8	9	4	2	15	0	2	28	4	34	5	26	13	45	0	102
12:30 12:45	5	4	2	11	9	3	7	19	1	4	21	0	25	1	33	8	42	1	97
12:45 13:00	0	5	2	7	10	5	5	20	1	7	29	1	37	3	29	7	39	1	103
13:00 13:15	3	6	2	11	12	3	2	17	0	5	23	2	30	7	24	9	40	0	98
13:15 13:30	3	3	0	6	6	9	10	25	0	1	28	1	30	2	25	6	33	0	94
15:00 15:15	4	3	2	9	7	5	6	18	3	7	24	0	31	4	36	7	47	3	105
15:15 15:30	3	4	1	8	14	6	7	27	2	3	36	4	43	2	44	11	57	2	135
15:30 15:45	1	3	0	4	7	4	6	17	1	2	38	0	40	3	51	7	61	1	122
15:45 16:00	0	4	6	10	10	4	3	17	1	4	35	1	40	3	58	6	67	1	134
16:00 16:15	1	10	2	13	9	4	6	19	1	4	30	5	39	2	46	15	63	1	134
16:15 16:30	1	3	3	7	3	7	2	12	0	3	33	0	36	4	77	13	94	0	149
16:30 16:45	1	7	3	11	8	5	12	25	1	1	24	1	26	4	57	8	69	1	131
16:45 17:00	3	3	1	7	10	5	9	24	0	4	50	6	60	4	73	11	88	0	179
17:00 17:15	0	8	6	14	10	3	8	21	0	5	42	0	47	7	87	14	108	0	190
17:15 17:30	1	3	3	7	7	4	8	19	0	5	27	3	35	9	72	5	86	0	147
17:30 17:45	0	6	1	7	12	4	8	24	0	4	31	2	37	2	53	8	63	0	131
17:45 18:00	0	4	3	7	16	5	5	26	0	0	30	3	33	3	39	9	51	0	117
Total:	40	168	91	299	240	136	153	529	22	134	1178	65	1377	99	1214	265	1580	22	3,785

Note: U-Turns are included in Totals.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

BYRON AVE @ ROOSEVELT AVE

Survey Date: Wednesday, February 27, 2019

WO No: 38395

Start Time: 07:00

Device: Miovision

Full Study Cyclist Volume

ROOSEVELT AVE

BYRON AVE

Time Period	Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00 07:15	0	0	0	0	0	0	0
07:15 07:30	1	0	1	1	0	1	2
07:30 07:45	0	0	0	0	0	0	0
07:45 08:00	1	0	1	0	0	0	1
08:00 08:15	1	0	1	2	0	2	3
08:15 08:30	0	0	0	1	0	1	1
08:30 08:45	1	0	1	0	0	0	1
08:45 09:00	0	0	0	1	1	2	2
09:00 09:15	0	0	0	0	0	0	0
09:15 09:30	0	0	0	0	0	0	0
09:30 09:45	0	0	0	0	2	2	2
09:45 10:00	0	0	0	0	0	0	0
11:30 11:45	0	0	0	0	0	0	0
11:45 12:00	0	0	0	0	0	0	0
12:00 12:15	0	0	0	0	0	0	0
12:15 12:30	0	0	0	0	0	0	0
12:30 12:45	0	0	0	0	0	0	0
12:45 13:00	0	0	0	0	0	0	0
13:00 13:15	0	0	0	0	0	0	0
13:15 13:30	0	0	0	0	0	0	0
15:00 15:15	0	0	0	0	0	0	0
15:15 15:30	0	0	0	0	0	0	0
15:30 15:45	0	0	0	0	0	0	0
15:45 16:00	0	0	0	0	0	0	0
16:00 16:15	0	1	1	0	0	0	1
16:15 16:30	0	0	0	0	0	0	0
16:30 16:45	0	0	0	0	0	0	0
16:45 17:00	0	0	0	0	0	0	0
17:00 17:15	0	0	0	0	0	0	0
17:15 17:30	0	0	0	0	0	0	0
17:30 17:45	0	1	1	0	0	0	1
17:45 18:00	0	1	1	0	0	0	1
Total	4	3	7	5	3	8	15



Transportation Services - Traffic Services

Turning Movement Count - Study Results

BYRON AVE @ ROOSEVELT AVE

Survey Date: Wednesday, February 27, 2019

WO No: 38395

Start Time: 07:00

Device: Miovision

Full Study Pedestrian Volume

ROOSEVELT AVE

BYRON AVE

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	2	0	2	4	1	5	7
07:15 07:30	2	1	3	7	2	9	12
07:30 07:45	1	0	1	5	2	7	8
07:45 08:00	2	0	2	13	4	17	19
08:00 08:15	2	1	3	9	5	14	17
08:15 08:30	5	2	7	12	2	14	21
08:30 08:45	4	3	7	7	4	11	18
08:45 09:00	3	3	6	10	5	15	21
09:00 09:15	1	0	1	4	2	6	7
09:15 09:30	2	3	5	9	0	9	14
09:30 09:45	1	1	2	3	3	6	8
09:45 10:00	1	0	1	0	3	3	4
11:30 11:45	1	0	1	6	1	7	8
11:45 12:00	1	4	5	10	8	18	23
12:00 12:15	2	1	3	7	6	13	16
12:15 12:30	3	2	5	3	3	6	11
12:30 12:45	16	17	33	26	18	44	77
12:45 13:00	1	0	1	10	7	17	18
13:00 13:15	2	3	5	12	8	20	25
13:15 13:30	1	2	3	6	2	8	11
15:00 15:15	6	4	10	4	8	12	22
15:15 15:30	0	1	1	0	6	6	7
15:30 15:45	1	3	4	9	7	16	20
15:45 16:00	2	5	7	14	5	19	26
16:00 16:15	3	2	5	14	6	20	25
16:15 16:30	0	1	1	9	8	17	18
16:30 16:45	0	4	4	11	1	12	16
16:45 17:00	3	4	7	11	4	15	22
17:00 17:15	4	0	4	15	4	19	23
17:15 17:30	4	2	6	10	6	16	22
17:30 17:45	1	1	2	13	3	16	18
17:45 18:00	1	2	3	4	4	8	11
Total	78	72	150	277	148	425	575



Transportation Services - Traffic Services

Turning Movement Count - Study Results

BYRON AVE @ ROOSEVELT AVE

Survey Date: Wednesday, February 27, 2019

WO No: 38395

Start Time: 07:00

Device: Miovision

Full Study Heavy Vehicles

ROOSEVELT AVE

BYRON AVE

Northbound

Southbound

Eastbound

Westbound

Time Period	Northbound			N TOT	Southbound			S TOT	STR TOT	Eastbound			E TOT	Westbound			W TOT	STR TOT	Grand Total
	LT	ST	RT		LT	ST	RT			LT	ST	RT		LT	ST	RT			
07:00 07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1
07:45 08:00	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2	2
08:00 08:15	0	0	0	0	0	0	2	2	2	0	0	0	0	0	1	0	1	1	3
08:15 08:30	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
08:30 08:45	0	0	0	0	1	0	0	1	1	0	0	0	0	0	1	1	2	2	3
08:45 09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2	2
09:00 09:15	0	1	0	1	0	1	0	1	2	0	0	0	0	0	1	0	1	1	3
09:15 09:30	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	2	2
09:30 09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 10:00	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	1
11:30 11:45	0	1	0	1	0	0	1	1	2	0	2	0	2	0	1	0	1	3	5
11:45 12:00	1	0	0	1	0	0	1	1	2	0	2	0	2	0	0	0	0	2	4
12:00 12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1
12:15 12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
12:30 12:45	0	1	0	1	0	0	0	0	1	0	1	0	1	0	0	0	0	1	2
12:45 13:00	0	0	0	0	1	0	0	1	1	0	1	0	1	0	0	0	0	1	2
13:00 13:15	0	0	0	0	0	0	0	0	0	1	1	1	3	0	0	0	0	3	3
13:15 13:30	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2	2
15:00 15:15	2	0	0	2	1	0	0	1	3	1	2	0	3	0	0	1	1	4	7
15:15 15:30	0	0	0	0	0	0	2	2	2	0	0	0	0	0	2	0	2	2	4
15:30 15:45	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1
15:45 16:00	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
16:00 16:15	0	1	0	1	0	0	0	0	1	0	1	0	1	0	1	0	1	2	3
16:15 16:30	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	1	1	3	3
16:30 16:45	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1
16:45 17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00 17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15 17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1
17:30 17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total: None	3	5	1	9	5	2	6	13	22	3	17	1	21	0	12	4	16	37	59



Transportation Services - Traffic Services

Turning Movement Count - Study Results

BYRON AVE @ ROOSEVELT AVE

Survey Date: Wednesday, February 27, 2019

WO No: 38395

Start Time: 07:00

Device: Miovision

Full Study 15 Minute U-Turn Total

ROOSEVELT AVE

BYRON AVE

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	1	1
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	1	1
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	2	2

Turning Movement Count - Study Results

CHURCHILL AVE @ RICHMOND RD

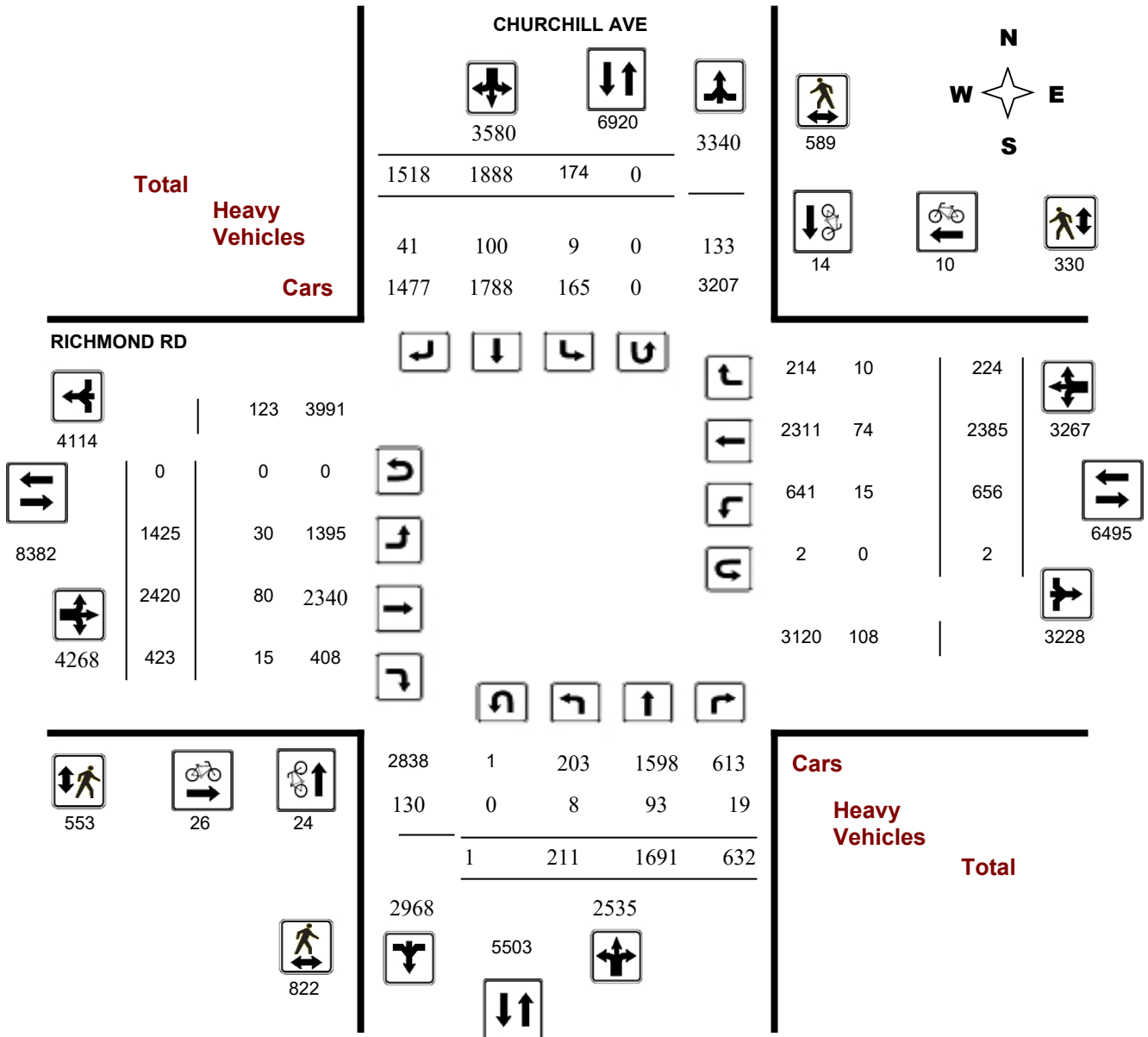
Survey Date: Thursday, January 23, 2020

WO No: 39644

Start Time: 07:00

Device: Miovision

Full Study Diagram



Turning Movement Count - Study Results

CHURCHILL AVE @ RICHMOND RD

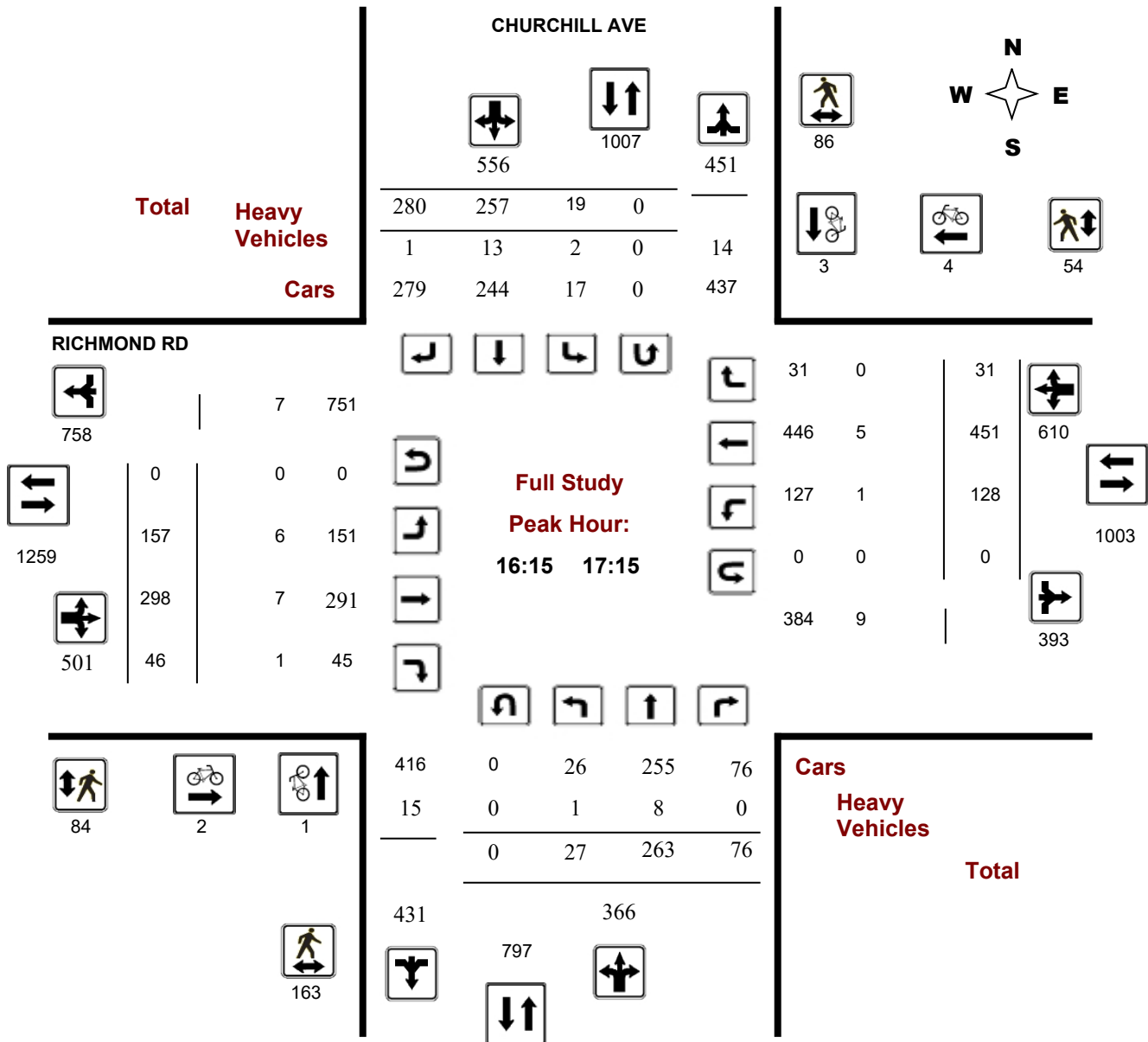
Survey Date: Thursday, January 23, 2020

WO No: 39644

Start Time: 07:00

Device: Miovision

Full Study Peak Hour Diagram





Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020

WO No: 39644

Start Time: 07:00

Device: Miovision

Full Study Summary (8 HR Standard)

Survey Date: Thursday, January 23, 2020

Total Observed U-Turns

AADT Factor

Northbound: 1 Southbound: 0
 Eastbound: 0 Westbound: 2

1.00

CHURCHILL AVE

RICHMOND RD

Period	CHURCHILL AVE Northbound					CHURCHILL AVE Southbound					RICHMOND RD Eastbound					RICHMOND RD Westbound					Grand Total
	LT	ST	RT	NB TOT	STR TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	STR TOT	LT	ST	RT	WB TOT	STR TOT	
07:00 08:00	14	161	59	234	566	16	226	90	332	614	274	347	24	645	828	35	126	22	183	828	1394
08:00 09:00	16	270	93	379	832	21	296	136	453	832	287	373	32	692	930	40	182	16	238	930	1762
09:00 10:00	27	205	81	313	687	18	219	137	374	687	162	329	35	526	796	64	173	33	270	796	1483
11:30 12:30	42	173	77	292	684	36	195	161	392	684	122	289	72	483	903	79	308	33	420	903	1587
12:30 13:30	31	183	83	297	729	30	215	187	432	729	128	254	83	465	905	73	340	27	440	905	1634
15:00 16:00	28	201	84	313	854	18	247	276	541	854	145	283	78	506	1044	116	393	29	538	1044	1898
16:00 17:00	28	260	71	359	901	16	256	270	542	901	145	279	57	481	1091	132	453	25	610	1091	1992
17:00 18:00	25	238	84	347	861	19	234	261	514	861	162	266	42	470	1036	117	410	39	566	1036	1897
Sub Total	211	1691	632	2534	6114	174	1888	1518	3580	6114	1425	2420	423	4268	7533	656	2385	224	3265	7533	13647
U Turns				1					0	1				0					2	2	3
Total	211	1691	632	2535	6115	174	1888	1518	3580	6115	1425	2420	423	4268	7535	656	2385	224	3267	7535	13650
EQ 12Hr	293	2350	878	3524	8500	242	2624	2110	4976	8500	1981	3364	588	5933	10474	912	3315	311	4541	10474	18974
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.																	1.39				
AVG 12Hr	276	2215	828	3321	8500	228	2473	1989	4690	8500	1867	3170	554	5591	10474	859	3124	293	4280	10474	18974
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.																	1				
AVG 24Hr	362	2902	1085	4350	10494	299	3240	2605	6144	10494	2445	4153	726	7324	12930	1126	4093	384	5606	12930	23424
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.																	1.31				
Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.																					

Turning Movement Count - Peak Hour Diagram

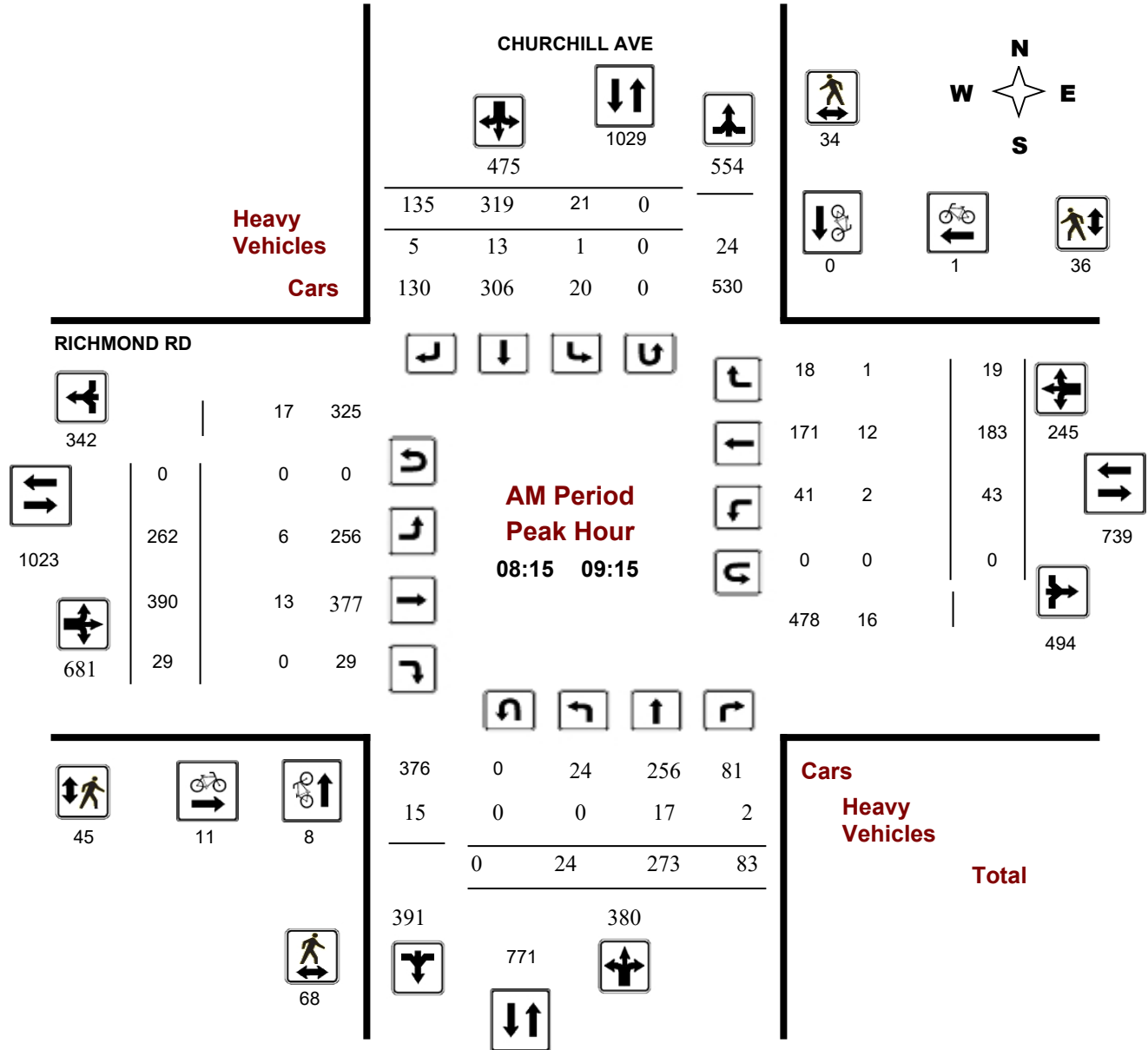
CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020

Start Time: 07:00

WO No: 39644

Device: Miovision



Turning Movement Count - Peak Hour Diagram

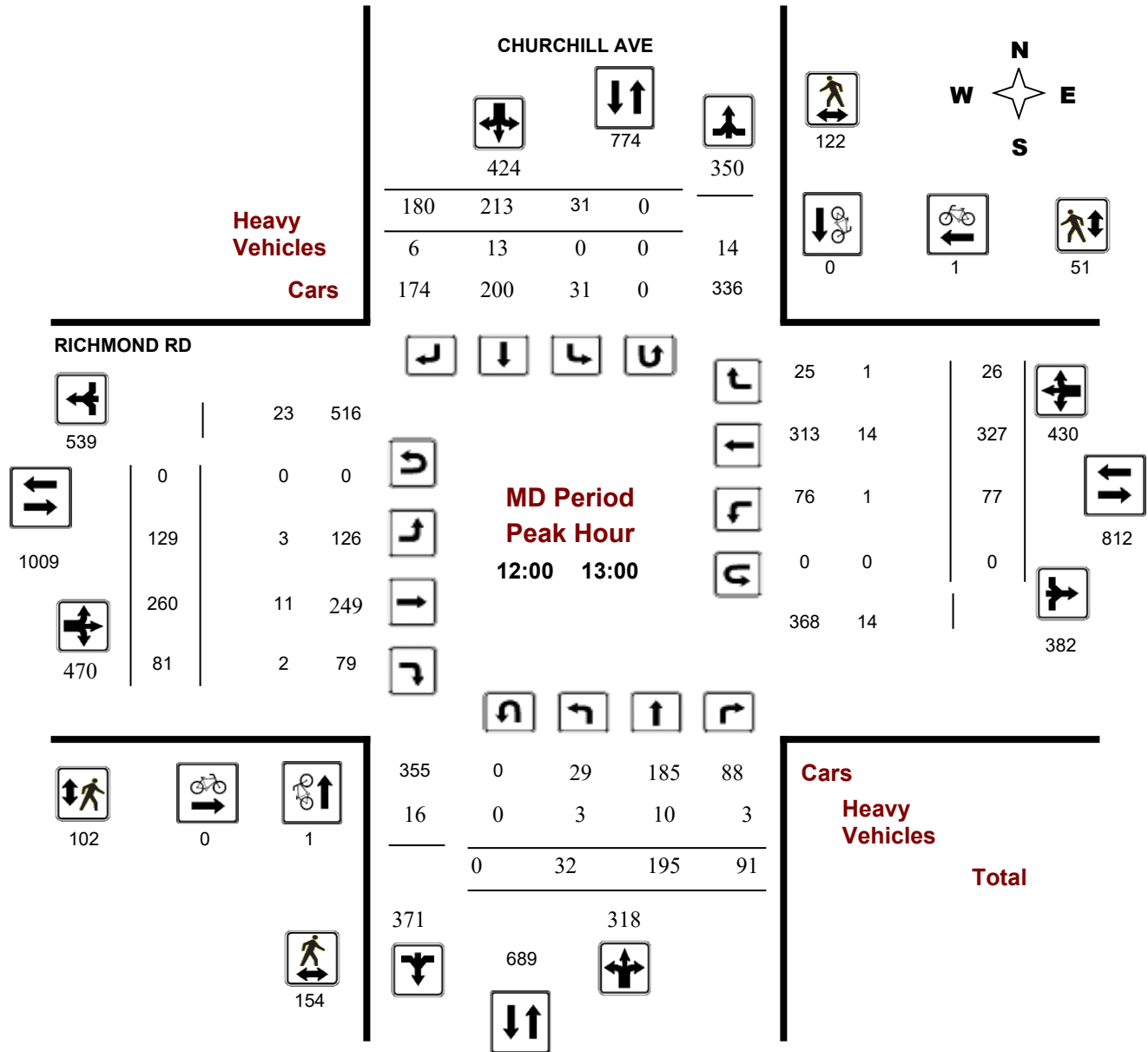
CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020

Start Time: 07:00

WO No: 39644

Device: Miovision



Turning Movement Count - Peak Hour Diagram

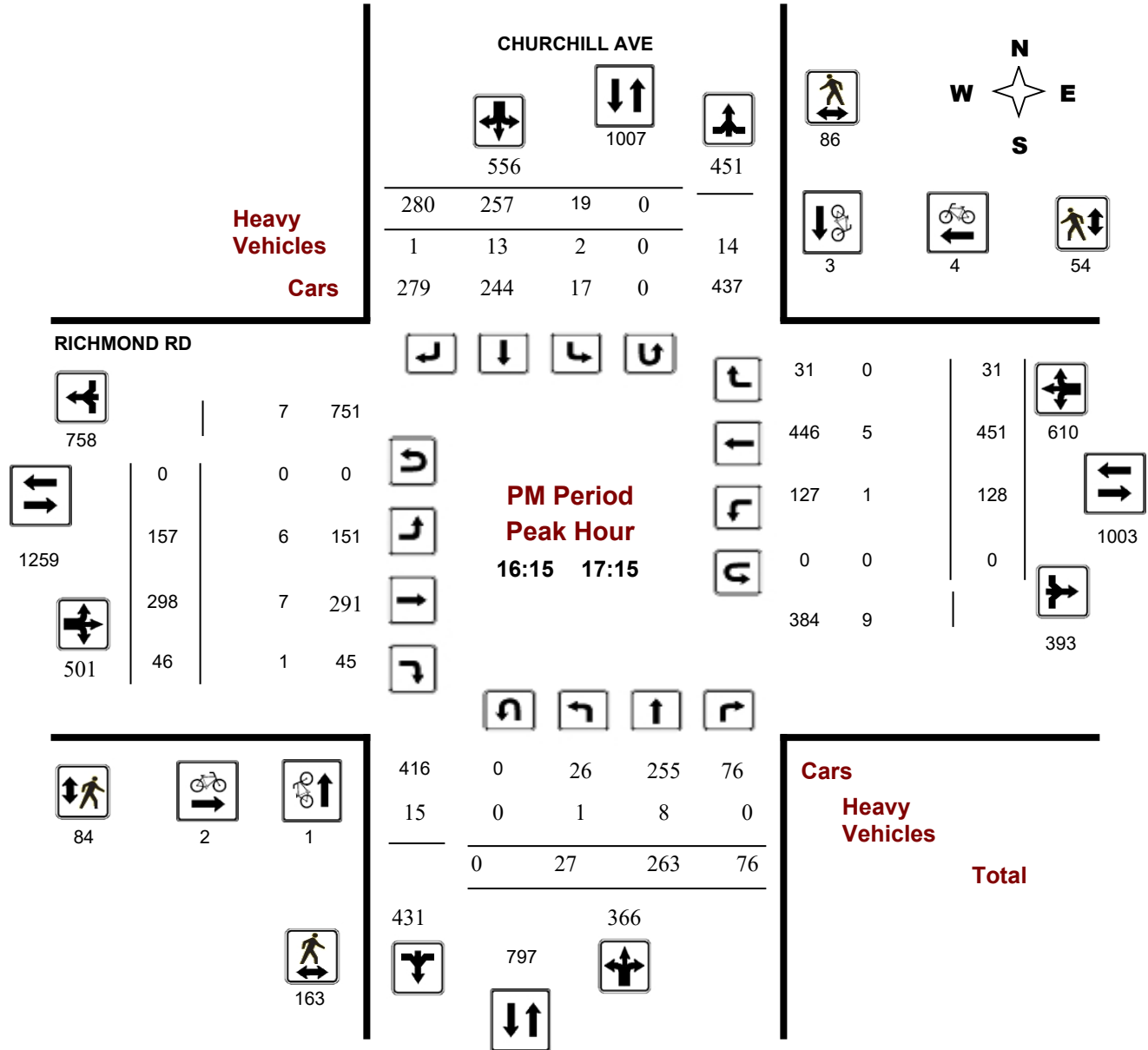
CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020

Start Time: 07:00

WO No: 39644

Device: Miovision



Comments



Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020

WO No: 39644

Start Time: 07:00

Device: Miovision

Full Study 15 Minute Increments

CHURCHILL AVE

RICHMOND RD

Northbound

Southbound

Eastbound

Westbound

Time Period	LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00 07:15	4	25	10	39	3	46	20	69	4	56	75	5	136	7	27	6	40	4	284
07:15 07:30	4	28	8	40	2	50	19	71	6	63	91	5	159	5	35	2	42	6	312
07:30 07:45	2	37	18	57	9	59	24	92	13	80	85	10	175	11	26	4	41	13	365
07:45 08:00	4	71	23	98	2	71	27	100	8	75	96	4	175	12	38	10	60	8	433
08:00 08:15	1	69	22	93	6	60	32	98	10	72	83	11	166	11	39	3	53	10	410
08:15 08:30	6	60	30	96	7	83	29	119	7	77	95	7	179	9	43	7	59	7	453
08:30 08:45	4	66	20	90	3	74	36	113	11	76	83	8	167	8	53	4	65	11	435
08:45 09:00	5	75	21	101	5	79	39	123	8	62	112	6	180	12	47	2	61	8	465
09:00 09:15	9	72	12	93	6	83	31	120	12	47	100	8	155	14	40	6	60	12	428
09:15 09:30	4	48	27	79	5	55	39	99	13	46	79	12	137	14	37	6	58	13	373
09:30 09:45	6	46	19	71	4	43	34	81	17	38	74	8	120	19	56	10	85	17	357
09:45 10:00	8	39	23	70	3	38	33	74	12	31	76	7	114	17	40	11	68	12	326
11:30 11:45	9	32	16	57	12	46	29	87	14	28	75	13	116	22	78	11	111	14	371
11:45 12:00	15	52	19	86	8	43	39	90	14	31	73	22	126	19	63	12	94	14	396
12:00 12:15	10	48	22	80	7	59	44	110	14	31	82	20	133	17	90	6	113	14	436
12:15 12:30	8	41	20	69	9	47	49	105	5	32	59	17	108	21	77	4	102	5	384
12:30 12:45	5	46	25	76	9	51	41	101	10	31	52	27	110	16	77	6	99	10	386
12:45 13:00	9	60	24	93	6	56	46	108	6	35	67	17	119	23	83	10	116	6	436
13:00 13:15	11	42	13	66	6	50	56	112	9	30	70	24	124	17	83	4	104	9	406
13:15 13:30	6	35	21	62	9	58	44	111	12	32	65	15	112	17	97	7	121	12	406
15:00 15:15	10	48	16	74	5	61	62	128	7	32	77	34	143	28	98	11	137	7	482
15:15 15:30	10	53	24	87	6	66	71	143	8	46	74	18	138	32	84	7	123	8	491
15:30 15:45	4	49	15	68	6	57	61	124	4	35	68	9	112	30	110	8	148	4	452
15:45 16:00	4	51	29	84	1	63	82	146	3	32	64	17	113	26	101	3	131	3	474
16:00 16:15	4	53	15	72	4	57	62	123	7	28	60	18	106	36	114	5	155	7	456
16:15 16:30	8	70	12	90	4	60	68	132	6	37	76	12	125	29	113	7	149	6	496
16:30 16:45	6	64	23	93	4	71	67	142	8	43	72	13	128	35	114	7	156	8	519
16:45 17:00	10	73	21	104	4	68	73	145	7	37	71	14	122	32	112	6	150	7	521
17:00 17:15	3	56	20	79	7	58	72	137	4	40	79	7	126	32	112	11	155	4	497
17:15 17:30	10	62	16	88	5	61	68	134	4	44	52	16	112	28	116	8	152	4	486
17:30 17:45	8	59	22	89	3	68	66	137	6	40	72	5	117	28	89	7	124	6	467
17:45 18:00	4	61	26	91	4	47	55	106	1	38	63	14	115	29	93	13	135	1	447
Total:	211	1691	632	2535	174	1888	1518	3580	270	1425	2420	423	4268	656	2385	224	3267	270	13,650

Note: U-Turns are included in Totals.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020

WO No: 39644

Start Time: 07:00

Device: Miovision

Full Study Cyclist Volume

Time Period	CHURCHILL AVE			RICHMOND RD			Grand Total
	Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	
07:00 07:15	0	0	0	1	0	1	1
07:15 07:30	2	0	2	0	0	0	2
07:30 07:45	1	0	1	0	0	0	1
07:45 08:00	3	0	3	4	0	4	7
08:00 08:15	4	1	5	0	1	1	6
08:15 08:30	5	0	5	4	0	4	9
08:30 08:45	2	0	2	2	1	3	5
08:45 09:00	0	0	0	2	0	2	2
09:00 09:15	1	0	1	3	0	3	4
09:15 09:30	2	1	3	0	1	1	4
09:30 09:45	0	1	1	1	1	2	3
09:45 10:00	1	0	1	0	0	0	1
11:30 11:45	0	0	0	0	0	0	0
11:45 12:00	0	0	0	0	0	0	0
12:00 12:15	0	0	0	0	0	0	0
12:15 12:30	0	0	0	0	1	1	1
12:30 12:45	0	0	0	0	0	0	0
12:45 13:00	1	0	1	0	0	0	1
13:00 13:15	0	0	0	0	0	0	0
13:15 13:30	0	0	0	0	0	0	0
15:00 15:15	0	0	0	1	0	1	1
15:15 15:30	0	0	0	1	0	1	1
15:30 15:45	0	0	0	2	0	2	2
15:45 16:00	0	1	1	1	0	1	2
16:00 16:15	0	2	2	0	1	1	3
16:15 16:30	0	0	0	0	1	1	1
16:30 16:45	0	1	1	0	0	0	1
16:45 17:00	0	0	0	1	0	1	1
17:00 17:15	1	2	3	1	3	4	7
17:15 17:30	0	2	2	0	0	0	2
17:30 17:45	0	1	1	2	0	2	3
17:45 18:00	1	2	3	0	0	0	3
Total	24	14	38	26	10	36	74



Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020

WO No: 39644

Start Time: 07:00

Device: Miovision

Full Study Pedestrian Volume

CHURCHILL AVE

RICHMOND RD

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	3	2	5	2	2	4	9
07:15 07:30	4	3	7	6	3	9	16
07:30 07:45	10	8	18	4	2	6	24
07:45 08:00	17	4	21	14	4	18	39
08:00 08:15	11	9	20	6	3	9	29
08:15 08:30	18	5	23	10	11	21	44
08:30 08:45	19	15	34	18	10	28	62
08:45 09:00	15	7	22	8	10	18	40
09:00 09:15	16	7	23	9	5	14	37
09:15 09:30	8	16	24	6	4	10	34
09:30 09:45	14	8	22	12	6	18	40
09:45 10:00	14	9	23	10	7	17	40
11:30 11:45	26	24	50	19	7	26	76
11:45 12:00	23	28	51	24	14	38	89
12:00 12:15	46	21	67	31	12	43	110
12:15 12:30	34	35	69	20	16	36	105
12:30 12:45	32	34	66	24	8	32	98
12:45 13:00	42	32	74	27	15	42	116
13:00 13:15	37	19	56	18	11	29	85
13:15 13:30	35	28	63	33	14	47	110
15:00 15:15	33	27	60	26	14	40	100
15:15 15:30	28	20	48	24	12	36	84
15:30 15:45	23	28	51	17	18	35	86
15:45 16:00	28	24	52	16	12	28	80
16:00 16:15	27	16	43	24	5	29	72
16:15 16:30	29	23	52	16	15	31	83
16:30 16:45	48	20	68	24	11	35	103
16:45 17:00	48	25	73	18	17	35	108
17:00 17:15	38	18	56	26	11	37	93
17:15 17:30	31	27	58	27	11	38	96
17:30 17:45	33	24	57	17	16	33	90
17:45 18:00	32	23	55	17	24	41	96
Total	822	589	1411	553	330	883	2294



Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020

WO No: 39644

Start Time: 07:00

Device: Miovision

Full Study Heavy Vehicles

CHURCHILL AVE

RICHMOND RD

Northbound

Southbound

Eastbound

Westbound

Time Period	Northbound			N TOT	Southbound			S TOT	STR TOT	Eastbound			E TOT	Westbound			W TOT	STR TOT	Grand Total	
	LT	ST	RT		LT	ST	RT			LT	ST	RT		LT	ST	RT				
07:00 07:15	0	1	1	2	0	1	1	2	4	3	2	0	5	0	1	0	1	6	10	
07:15 07:30	0	1	2	3	0	2	1	3	6	1	4	0	5	0	2	0	2	7	13	
07:30 07:45	0	5	1	6	1	2	4	7	13	1	1	2	4	1	1	0	2	6	19	
07:45 08:00	1	2	1	4	1	3	0	4	8	1	2	0	3	1	4	1	6	9	17	
08:00 08:15	0	8	0	8	1	1	0	2	10	2	4	0	6	0	5	1	6	12	22	
08:15 08:30	0	2	0	2	1	4	0	5	7	1	4	0	5	0	3	1	4	9	16	
08:30 08:45	0	5	2	7	0	1	3	4	11	3	3	0	6	0	2	0	2	8	19	
08:45 09:00	0	7	0	7	0	1	0	1	8	2	2	0	4	1	3	0	4	8	16	
09:00 09:15	0	3	0	3	0	7	2	9	12	0	4	0	4	1	4	0	5	9	21	
09:15 09:30	0	6	1	7	0	5	1	6	13	0	5	0	5	1	1	1	3	8	21	
09:30 09:45	1	7	2	10	1	3	3	7	17	0	5	0	5	1	3	0	4	9	26	
09:45 10:00	0	2	3	5	0	4	3	7	12	1	5	0	6	2	1	1	4	10	22	
11:30 11:45	0	2	1	3	1	10	0	11	14	0	1	1	2	0	4	2	6	8	22	
11:45 12:00	1	7	2	10	0	2	2	4	14	0	3	0	3	0	2	1	3	6	20	
12:00 12:15	0	4	2	6	0	6	2	8	14	0	4	2	6	0	4	1	5	11	25	
12:15 12:30	1	0	0	1	0	4	0	4	5	2	2	0	4	0	3	0	3	7	12	
12:30 12:45	1	4	0	5	0	3	2	5	10	1	2	0	3	0	6	0	6	9	19	
12:45 13:00	1	2	1	4	0	0	2	2	6	0	3	0	3	1	1	0	2	5	11	
13:00 13:15	0	4	0	4	1	3	1	5	9	1	2	1	4	0	1	0	1	5	14	
13:15 13:30	0	2	0	2	0	8	2	10	12	3	1	1	5	2	4	0	6	11	23	
15:00 15:15	1	1	0	2	0	3	2	5	7	1	5	4	10	2	4	0	6	16	23	
15:15 15:30	0	3	0	3	0	4	1	5	8	0	1	1	2	0	2	0	2	4	12	
15:30 15:45	0	0	0	0	0	2	2	4	4	0	2	1	3	0	0	0	0	3	7	
15:45 16:00	0	1	0	1	0	1	1	2	3	1	2	0	3	0	2	0	2	5	8	
16:00 16:15	0	2	0	2	0	1	4	5	7	0	2	0	2	1	3	1	5	7	14	
16:15 16:30	0	2	0	2	0	4	0	4	6	1	1	1	3	0	2	0	2	5	11	
16:30 16:45	1	2	0	3	1	4	0	5	8	3	1	0	4	0	0	0	0	4	12	
16:45 17:00	0	2	0	2	0	5	0	5	7	1	3	0	4	1	0	0	1	5	12	
17:00 17:15	0	2	0	2	1	0	1	2	4	1	2	0	3	0	3	0	3	6	10	
17:15 17:30	0	2	0	2	0	1	1	2	4	0	1	1	2	0	1	0	1	3	7	
17:30 17:45	0	2	0	2	0	4	0	4	6	0	0	0	0	0	1	0	1	1	7	
17:45 18:00	0	0	0	0	0	1	0	1	1	0	1	0	1	0	1	0	1	2	3	
Total:	None	8	93	19	120	9	100	41	150	270	30	80	15	125	15	74	10	99	224	494



Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020

WO No: 39644

Start Time: 07:00

Device: Miovision

Full Study 15 Minute U-Turn Total

CHURCHILL AVE

RICHMOND RD

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	1	0	0	0	1
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	1	1
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	1	1
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		1	0	0	2	3

Turning Movement Count - Study Results

ROOSEVELT AVE @ RICHMOND RD

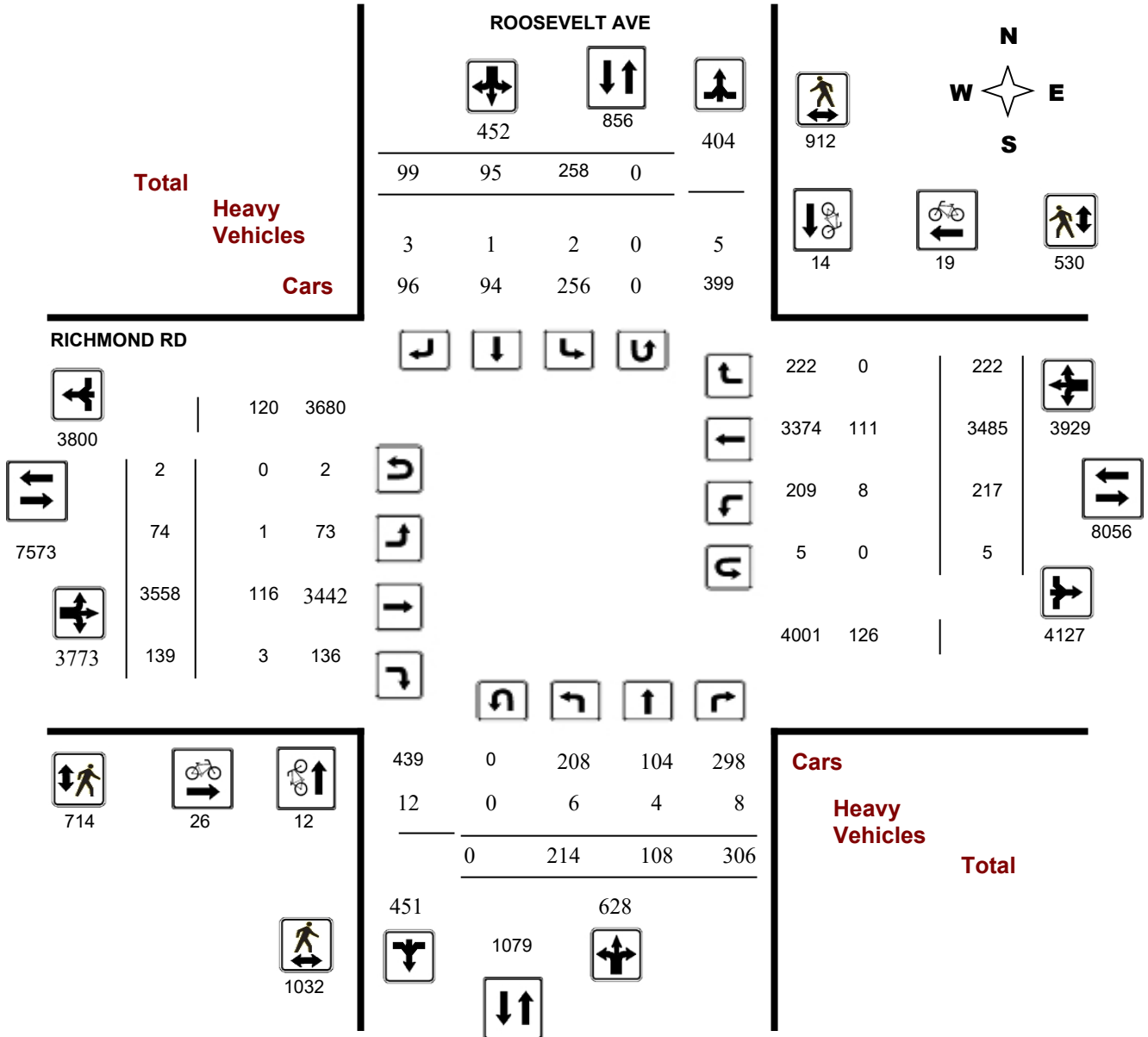
Survey Date: Thursday, January 23, 2020

WO No: 39385

Start Time: 07:00

Device: Miovision

Full Study Diagram



5472203 - THU JAN 23, 2020 - 8HRS - LORETTA

Turning Movement Count - Study Results

ROOSEVELT AVE @ RICHMOND RD

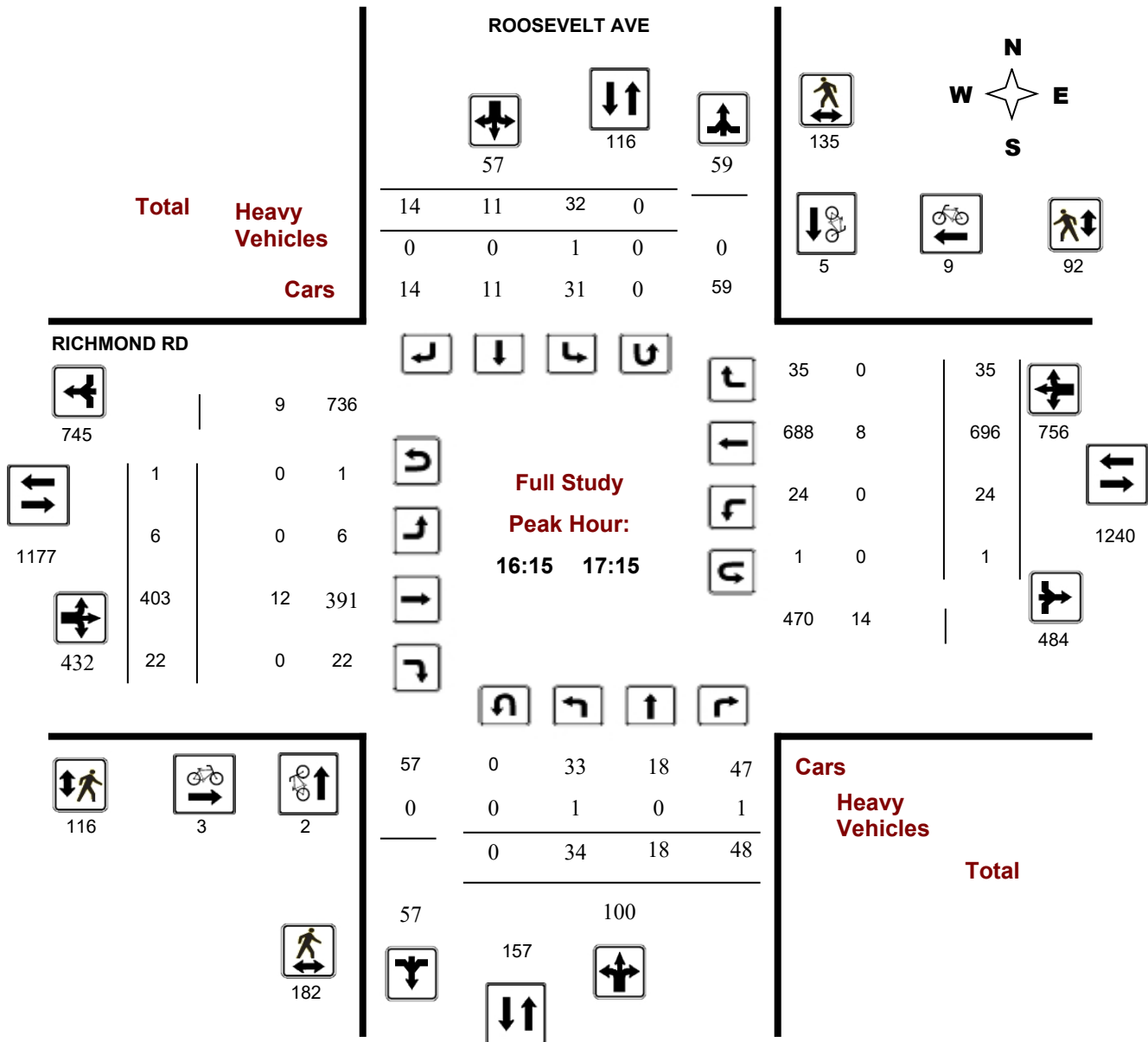
Survey Date: Thursday, January 23, 2020

WO No: 39385

Start Time: 07:00

Device: Miovision

Full Study Peak Hour Diagram



5472203 - THU JAN 23, 2020 - 8HRS - LORETTA



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

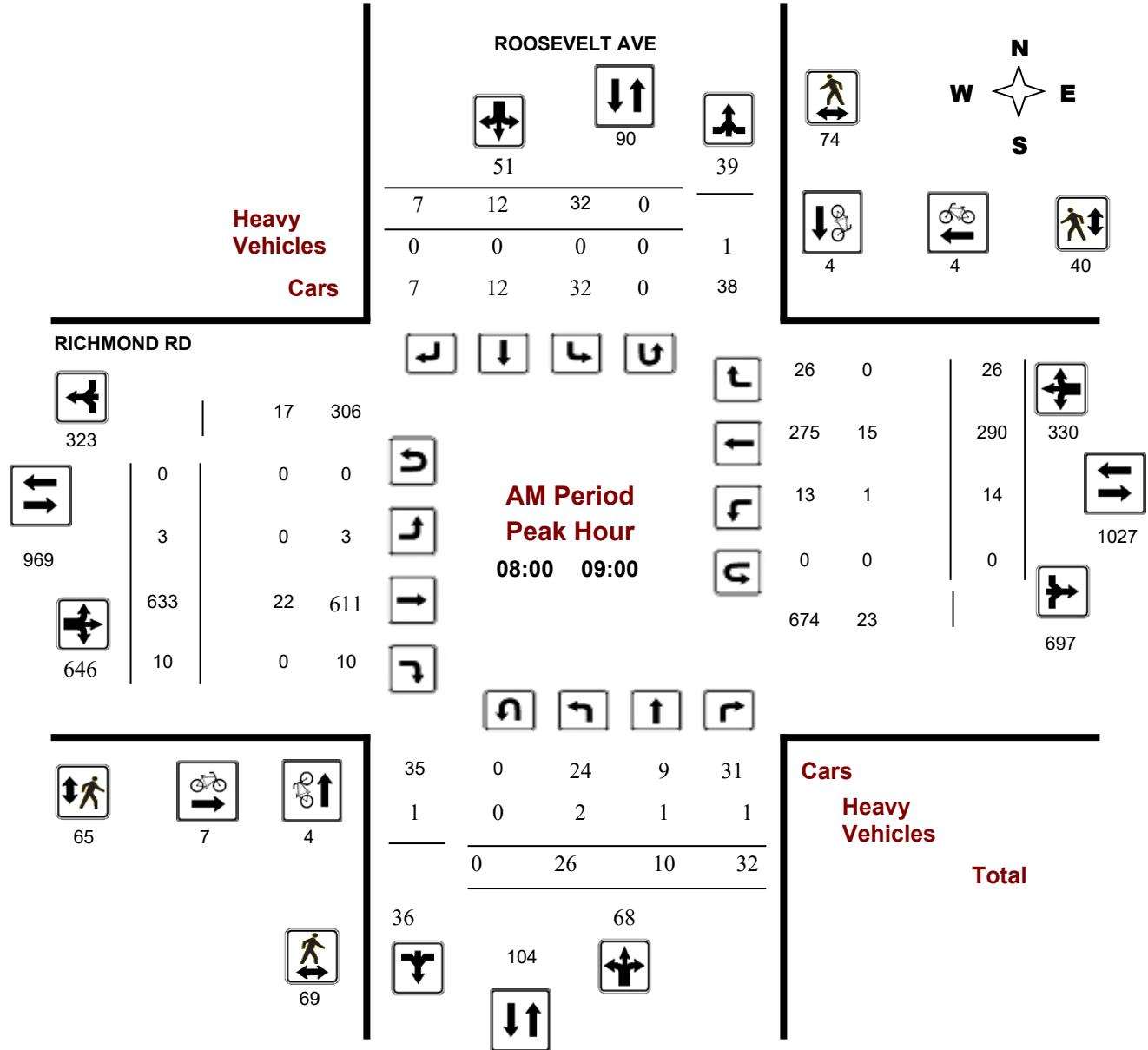
ROOSEVELT AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020

Start Time: 07:00

WO No: 39385

Device: Miovision



Comments 5472203 - THU JAN 23, 2020 - 8HRS - LORETTA



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

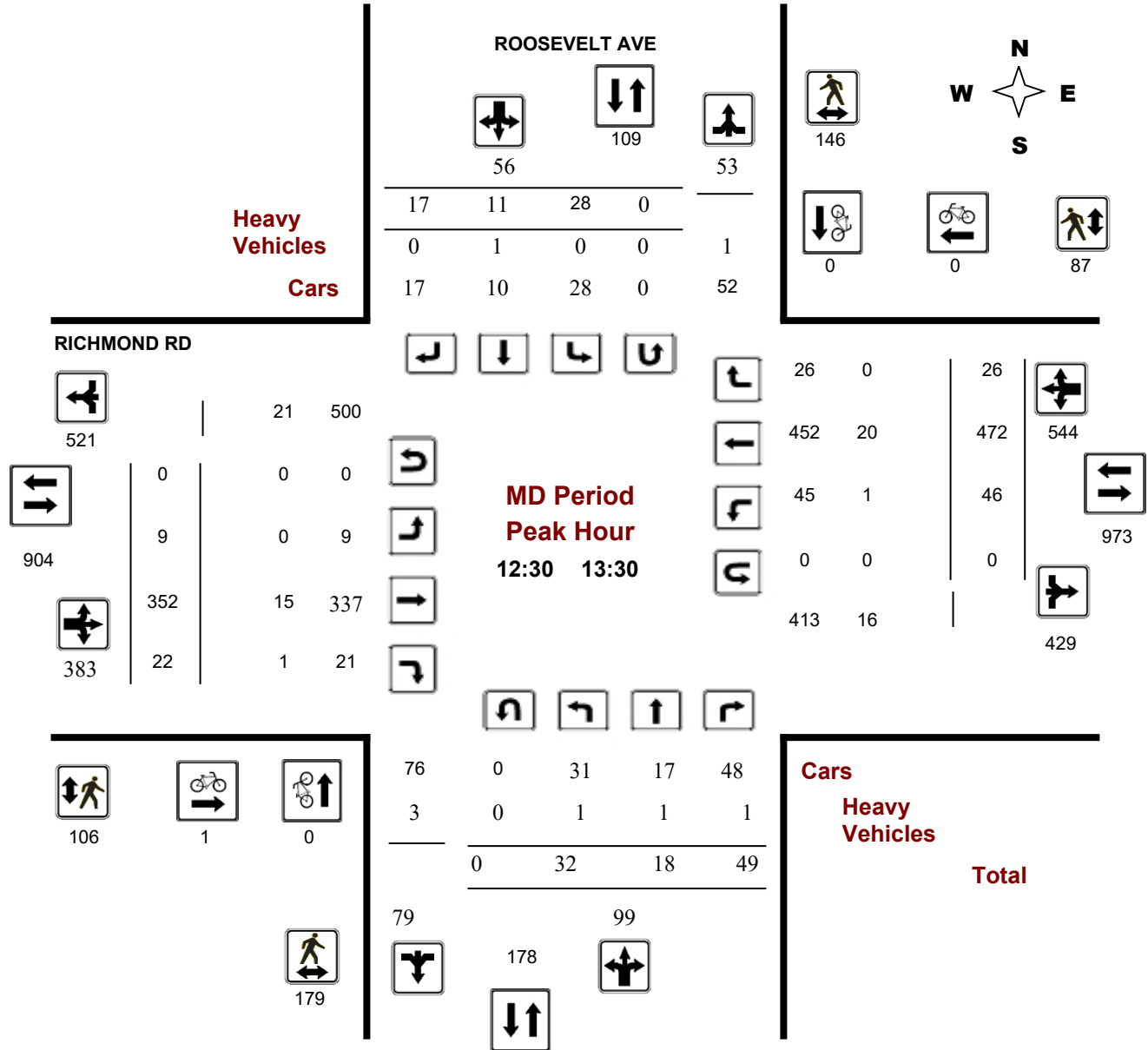
ROOSEVELT AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020

Start Time: 07:00

WO No: 39385

Device: Miovision



Comments 5472203 - THU JAN 23, 2020 - 8HRS - LORETTA



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

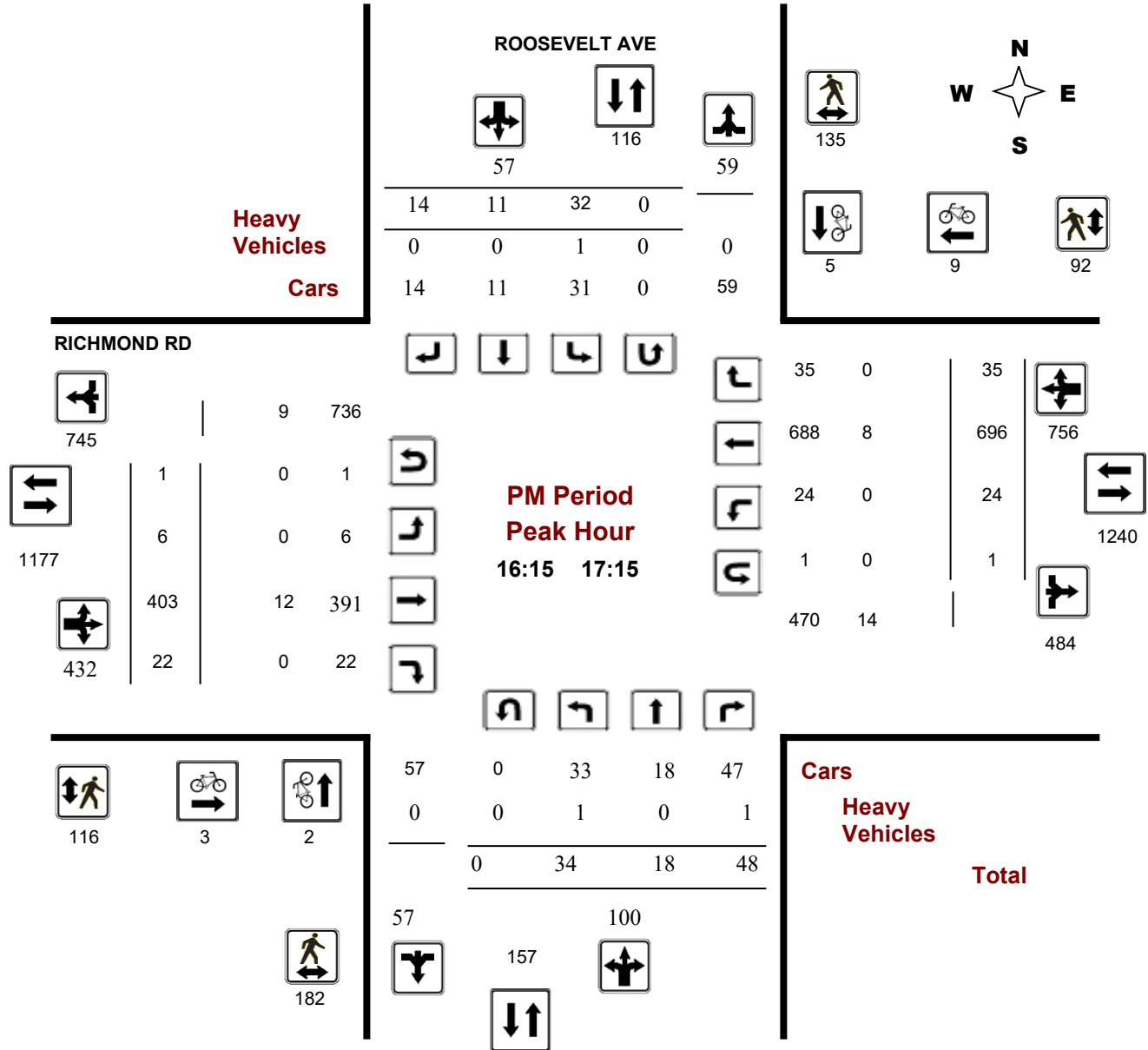
ROOSEVELT AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020

Start Time: 07:00

WO No: 39385

Device: Miovision



Comments 5472203 - THU JAN 23, 2020 - 8HRS - LORETTA



Transportation Services - Traffic Services

Turning Movement Count - Study Results

ROOSEVELT AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020

WO No: 39385

Start Time: 07:00

Device: Miovision

Full Study Summary (8 HR Standard)

Survey Date: Thursday, January 23, 2020

Total Observed U-Turns

AADT Factor

Northbound: 0 Southbound: 0
 Eastbound: 2 Westbound: 5

1.39

ROOSEVELT AVE

RICHMOND RD

Period	Northbound					Southbound					Eastbound					Westbound					STR TOT	Grand Total
	LT	ST	RT	NB TOT	STR TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	STR TOT	LT	ST	RT	WB TOT	STR TOT		
07:00 08:00	13	3	23	39	76	21	10	6	37	76	10	605	10	625	7	195	8	210	835	911		
08:00 09:00	26	10	32	68	119	32	12	7	51	119	3	633	10	646	14	290	26	330	976	1095		
09:00 10:00	20	18	27	65	122	34	15	8	57	122	4	462	12	478	25	263	21	309	787	909		
11:30 12:30	30	16	62	108	178	39	15	16	70	178	15	359	20	394	41	375	48	464	858	1036		
12:30 13:30	32	18	49	99	155	28	11	17	56	155	9	352	22	383	46	472	26	544	927	1082		
15:00 16:00	31	14	27	72	139	36	10	21	67	139	16	401	27	444	32	603	27	662	1106	1245		
16:00 17:00	27	18	50	95	148	27	13	13	53	148	8	376	22	406	17	670	37	724	1130	1278		
17:00 18:00	35	11	36	82	143	41	9	11	61	143	9	370	16	395	35	617	29	681	1076	1219		
Sub Total	214	108	306	628	1080	258	95	99	452	1080	74	3558	139	3771	217	3485	222	3924	7695	8775		
U Turns				0	0				0	0				2				5	7	7		
Total	214	108	306	628	1080	258	95	99	452	1080	74	3558	139	3773	217	3485	222	3929	7702	8782		
EQ 12Hr	297	150	425	873	1501	359	132	138	628	1501	103	4946	193	5244	302	4844	309	5461	10706	12207		
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.																	1.39					
AVG 12Hr	297	150	425	873	1501	359	132	138	628	1501	103	4946	193	5244	302	4844	309	5461	10706	12207		
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.																	1					
AVG 24Hr	390	197	557	1144	1967	470	173	180	823	1967	135	6479	253	6870	395	6346	404	7154	14024	15991		

Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor. **1.31**

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

ROOSEVELT AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020

WO No: 39385

Start Time: 07:00

Device: Miovision

Full Study 15 Minute Increments

ROOSEVELT AVE

RICHMOND RD

Northbound

Southbound

Eastbound

Westbound

Time Period	LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00 07:15	1	1	1	3	2	1	1	4	16	2	132	2	136	0	43	3	46	16	189
07:15 07:30	3	1	2	6	7	4	1	12	34	3	150	2	155	3	47	3	53	34	226
07:30 07:45	7	1	9	17	6	2	2	10	35	1	163	2	166	1	46	1	48	35	241
07:45 08:00	2	0	11	13	6	3	2	11	39	4	160	4	168	3	59	1	63	39	255
08:00 08:15	3	5	7	15	12	3	1	16	52	1	154	4	159	1	68	7	76	52	266
08:15 08:30	4	2	7	13	8	5	1	14	47	1	161	3	165	3	68	6	77	47	269
08:30 08:45	12	2	7	21	6	2	2	10	50	0	154	1	155	6	75	8	89	50	275
08:45 09:00	7	1	11	19	6	2	3	11	45	1	164	2	167	4	79	5	88	45	285
09:00 09:15	5	2	7	14	5	5	2	12	46	1	141	3	145	6	69	3	78	46	249
09:15 09:30	4	5	9	18	11	5	1	17	60	1	122	0	123	6	58	8	73	60	231
09:30 09:45	5	5	4	14	8	4	2	14	56	1	98	6	106	7	79	5	91	56	225
09:45 10:00	6	6	7	19	10	1	3	14	55	1	101	3	105	6	57	5	68	55	206
11:30 11:45	7	3	17	27	9	6	6	21	91	7	88	6	101	10	87	11	108	91	257
11:45 12:00	7	3	18	28	13	1	4	18	88	4	101	6	111	10	79	18	107	88	264
12:00 12:15	8	8	15	31	9	1	4	14	83	2	87	3	92	13	109	11	134	83	271
12:15 12:30	8	2	12	22	8	7	2	17	71	2	83	5	90	8	100	8	116	71	245
12:30 12:45	10	7	19	36	6	2	4	12	74	1	81	4	86	4	102	8	114	74	248
12:45 13:00	8	2	12	22	7	3	5	15	72	1	82	3	86	17	111	9	137	72	260
13:00 13:15	4	5	6	15	7	2	3	12	69	3	90	9	102	18	125	5	148	69	277
13:15 13:30	10	4	12	26	8	4	5	17	72	4	99	6	109	7	134	4	145	72	297
15:00 15:15	6	3	7	16	6	3	7	16	73	4	119	11	134	13	132	7	152	73	318
15:15 15:30	9	5	11	25	12	2	5	19	84	4	98	7	109	11	131	11	153	84	306
15:30 15:45	11	2	7	20	13	3	6	22	65	6	88	4	98	5	176	3	184	65	324
15:45 16:00	5	4	2	11	5	2	3	10	43	2	96	5	103	3	164	6	173	43	297
16:00 16:15	5	5	12	22	7	3	5	15	65	3	74	5	82	5	149	7	162	65	281
16:15 16:30	7	5	13	25	4	5	5	14	70	2	108	5	115	3	179	11	193	70	347
16:30 16:45	9	5	16	30	6	1	2	9	65	2	97	7	106	5	181	6	192	65	337
16:45 17:00	6	3	9	18	10	4	1	15	63	1	97	5	104	4	161	13	179	63	316
17:00 17:15	12	5	10	27	12	1	6	19	75	1	101	5	107	12	175	5	192	75	345
17:15 17:30	8	2	12	22	7	4	1	12	59	1	82	3	86	4	164	11	179	59	299
17:30 17:45	9	2	6	17	16	0	1	17	57	4	93	4	101	5	141	8	155	57	290
17:45 18:00	6	2	8	16	6	4	3	13	61	3	94	4	101	14	137	5	156	61	286
Total:	214	108	306	628	258	95	99	452	1935	74	3558	139	3773	217	3485	222	3929	1935	8,782

Note: U-Turns are included in Totals.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

ROOSEVELT AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020

WO No: 39385

Start Time: 07:00

Device: Miovision

Full Study Cyclist Volume

ROOSEVELT AVE

RICHMOND RD

Time Period		ROOSEVELT AVE			RICHMOND RD			Grand Total
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	
07:00	07:15	0	0	0	1	0	1	1
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	3	1	4	4
07:45	08:00	2	0	2	3	0	3	5
08:00	08:15	0	2	2	3	1	4	6
08:15	08:30	3	1	4	1	2	3	7
08:30	08:45	1	1	2	2	1	3	5
08:45	09:00	0	0	0	1	0	1	1
09:00	09:15	0	1	1	3	0	3	4
09:15	09:30	0	0	0	0	1	1	1
09:30	09:45	0	0	0	1	0	1	1
09:45	10:00	0	0	0	0	0	0	0
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	1	0	1	0	0	0	1
12:30	12:45	0	0	0	1	0	1	1
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
15:00	15:15	0	0	0	1	0	1	1
15:15	15:30	1	2	3	0	1	1	4
15:30	15:45	0	0	0	0	0	0	0
15:45	16:00	0	0	0	1	0	1	1
16:00	16:15	0	1	1	1	0	1	2
16:15	16:30	0	0	0	0	3	3	3
16:30	16:45	1	2	3	2	3	5	8
16:45	17:00	0	1	1	1	1	2	3
17:00	17:15	1	2	3	0	2	2	5
17:15	17:30	0	1	1	0	1	1	2
17:30	17:45	2	0	2	1	1	2	4
17:45	18:00	0	0	0	0	1	1	1
Total		12	14	26	26	19	45	71



Transportation Services - Traffic Services

Turning Movement Count - Study Results

ROOSEVELT AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020

WO No: 39385

Start Time: 07:00

Device: Miovision

Full Study Pedestrian Volume

ROOSEVELT AVE

RICHMOND RD

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	3	7	10	5	3	8	18
07:15 07:30	6	7	13	10	4	14	27
07:30 07:45	9	10	19	18	6	24	43
07:45 08:00	10	13	23	8	9	17	40
08:00 08:15	9	10	19	13	8	21	40
08:15 08:30	14	15	29	20	4	24	53
08:30 08:45	29	17	46	18	13	31	77
08:45 09:00	17	32	49	14	15	29	78
09:00 09:15	9	18	27	16	15	31	58
09:15 09:30	23	8	31	11	7	18	49
09:30 09:45	15	20	35	5	15	20	55
09:45 10:00	28	25	53	19	12	31	84
11:30 11:45	39	26	65	16	14	30	95
11:45 12:00	50	39	89	33	32	65	154
12:00 12:15	42	66	108	31	22	53	161
12:15 12:30	34	45	79	29	13	42	121
12:30 12:45	36	32	68	31	23	54	122
12:45 13:00	43	31	74	21	25	46	120
13:00 13:15	51	32	83	15	19	34	117
13:15 13:30	49	51	100	39	20	59	159
15:00 15:15	35	39	74	20	26	46	120
15:15 15:30	52	34	86	31	20	51	137
15:30 15:45	57	39	96	23	17	40	136
15:45 16:00	48	46	94	36	26	62	156
16:00 16:15	38	41	79	39	24	63	142
16:15 16:30	39	37	76	24	23	47	123
16:30 16:45	56	34	90	29	23	52	142
16:45 17:00	34	25	59	38	23	61	120
17:00 17:15	53	39	92	25	23	48	140
17:15 17:30	33	21	54	17	14	31	85
17:30 17:45	39	31	70	35	17	52	122
17:45 18:00	32	22	54	25	15	40	94
Total	1032	912	1944	714	530	1244	3188

5472203 - THU JAN 23, 2020 - 8HRS - LORETTA



Transportation Services - Traffic Services

Turning Movement Count - Study Results

ROOSEVELT AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020

WO No: 39385

Start Time: 07:00

Device: Miovision

Full Study Heavy Vehicles

ROOSEVELT AVE

RICHMOND RD

Northbound

Southbound

Eastbound

Westbound

Time Period	Northbound			N TOT	Southbound			S TOT	STR TOT	Eastbound			E TOT	Westbound			W TOT	STR TOT	Grand Total
	LT	ST	RT		LT	ST	RT			LT	ST	RT		LT	ST	RT			
07:00 07:15	0	0	0	0	0	0	0	0	0	0	5	0	7	0	2	0	7	14	7
07:15 07:30	0	0	0	2	0	0	0	0	2	0	4	1	8	1	3	0	8	16	9
07:30 07:45	0	0	1	1	0	0	0	0	1	0	3	0	8	0	5	0	9	17	9
07:45 08:00	0	0	0	0	0	0	0	0	0	0	2	0	5	0	3	0	5	10	5
08:00 08:15	0	0	0	0	0	0	0	0	0	0	7	0	12	0	5	0	12	24	12
08:15 08:30	1	0	1	2	0	0	0	0	2	0	4	0	9	0	4	0	9	18	10
08:30 08:45	1	1	0	3	0	0	0	1	4	0	6	0	10	1	3	0	10	20	12
08:45 09:00	0	0	0	0	0	0	0	0	0	0	5	0	8	0	3	0	8	16	8
09:00 09:15	0	0	0	0	0	0	1	2	2	1	4	0	12	0	6	0	10	22	12
09:15 09:30	0	0	0	0	0	0	1	1	1	0	5	0	8	0	2	0	7	15	8
09:30 09:45	0	0	0	0	0	0	0	0	0	0	5	0	11	0	6	0	11	22	11
09:45 10:00	0	2	1	3	0	0	0	2	5	0	6	0	10	0	4	0	11	21	13
11:30 11:45	0	0	1	2	0	0	0	0	2	0	1	0	4	1	3	0	6	10	6
11:45 12:00	0	0	0	2	0	0	0	0	2	0	4	0	7	2	3	0	9	16	9
12:00 12:15	0	0	1	2	0	0	0	0	2	0	5	0	11	1	6	0	13	24	13
12:15 12:30	1	0	0	2	0	0	0	0	2	0	5	0	9	1	3	0	9	18	10
12:30 12:45	0	0	1	2	0	0	0	0	2	0	3	1	13	0	9	0	13	26	14
12:45 13:00	0	0	0	1	0	1	0	1	2	0	4	0	8	0	4	0	8	16	9
13:00 13:15	1	0	0	2	0	0	0	0	2	0	3	0	5	1	1	0	5	10	6
13:15 13:30	0	1	0	1	0	0	0	1	2	0	5	0	11	0	6	0	11	22	12
15:00 15:15	0	0	1	1	0	0	0	0	1	0	6	0	8	0	2	0	9	17	9
15:15 15:30	0	0	0	0	1	0	0	1	1	0	1	0	6	0	5	0	7	13	7
15:30 15:45	0	0	0	0	0	0	0	0	0	0	3	0	5	0	2	0	5	10	5
15:45 16:00	0	0	0	0	0	0	1	1	1	0	3	0	7	0	3	0	6	13	7
16:00 16:15	1	0	0	2	0	0	0	0	2	0	3	1	11	0	6	0	9	20	11
16:15 16:30	0	0	0	0	0	0	0	0	0	0	2	0	5	0	3	0	5	10	5
16:30 16:45	1	0	1	2	0	0	0	0	2	0	3	0	5	0	1	0	5	10	6
16:45 17:00	0	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0	4	8	4
17:00 17:15	0	0	0	0	1	0	0	1	1	0	3	0	7	0	4	0	8	15	8
17:15 17:30	0	0	0	0	0	0	0	0	0	0	1	0	2	0	1	0	2	4	2
17:30 17:45	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	2	4	2
17:45 18:00	0	0	0	0	0	0	0	0	0	0	1	0	2	0	1	0	2	4	2
Total: None	6	4	8	30	2	1	3	11	41	1	116	3	240	8	111	0	245	485	263



Transportation Services - Traffic Services

Turning Movement Count - Study Results

ROOSEVELT AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020

WO No: 39385

Start Time: 07:00

Device: Miovision

Full Study 15 Minute U-Turn Total

ROOSEVELT AVE

RICHMOND RD

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	1	1
09:30	09:45	0	0	1	0	1
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	1	1
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	1	1
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	1	1	2
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	1	1
17:45	18:00	0	0	0	0	0
Total		0	0	2	5	7

Traffic Signal Timing

City of Ottawa, Public Works Department

Traffic Signal Operations Unit

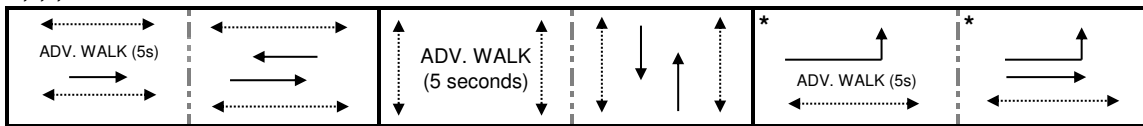
Intersection:	<i>Main:</i> Richmond	<i>Side:</i> Churchill
Controller:	ATC3	TSD: 5229
Author:	Matthew Anderson	Date: 26-May-2022

Existing Timing Plans†

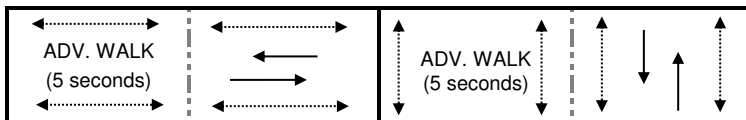
	Plan					Ped Minimum Time		
	AM Peak 1	Off Peak 2	PM Peak 3	Night 4	Weekend 5	Walk	DW	A+R
Cycle	80	75	90	65	75			
Offset	43	16	0	29	16			
EB Thru	45	43	57	33	43	14	11	3.3+2.8
WB Thru	31	31	45	33	31	14	11	3.3+2.8
NB Thru	35	32	33	32	32	7	11	3.6+2.6
SB Thru	35	32	33	32	32	7	11	3.6+2.6
EB Left	14	12	12	-	12	-	-	3.3+2.8

Phasing Sequence‡

Plan: 1,2,3,5



Plan: 4



Notes: 1) The Thru arrow is displayed during the East-West advanced walk, followed by the green ball.

Schedule

Weekday		Saturday		Sunday	
Time	Plan	Time	Plan	Time	Plan
0:15	4	0:15	4	0:15	4
6:30	1	6:30	2	6:30	2
9:30	2	9:00	5	9:00	5
15:00	3	18:30	2	18:00	2
18:30	2	22:30	4	22:30	4
22:30	4				

Notes

- †: Time for each direction includes amber and all red intervals
- ‡: Start of first phase should be used as reference point for offset
- Asterisk (*) Indicates actuated phase
- (fp): Fully Protected Left Turn
- ◄.....► Pedestrian signal

Cost is \$61.16 (\$54.12 + HST)

Traffic Signal Timing

City of Ottawa, Public Works Department

Traffic Signal Operations Unit

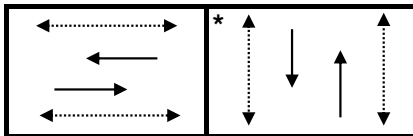
Intersection:	<i>Main:</i> Richmond	<i>Side:</i> Roosevelt
Controller:	MS 3200	TSD: 5231
Author:	Matthew Anderson	Date: 26-May-2022

Existing Timing Plans†

	Plan					Ped Minimum Time		
	AM Peak 1	Off Peak 2	PM Peak 3	Night 4	Weekend 5	Walk	DW	A+R
Cycle	75	70	85	65	70			
Offset	27	X	78	X	X			
EB Thru	45	40	55	35	40	18	8	3.3+2.1
WB Thru	45	40	55	35	40	18	8	3.3+2.1
NB Thru	30	30	30	30	30	14	10	3.3+2.3
SB Thru	30	30	30	30	30	14	10	3.3+2.3

Phasing Sequence‡

Plan: All



Schedule

Weekday		Saturday		Sunday	
Time	Plan	Time	Plan	Time	Plan
0:15	4	0:15	4	0:15	4
6:30	1	9:10	5	9:10	2
9:00	2	18:30	2	22:30	4
15:00	3	23:30	4		
18:30	2				
23:00	4				

Notes

†: Time for each direction includes amber and all red intervals

‡: Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

←.....→ Pedestrian signal

Cost is \$61.16 (\$54.12 + HST)

Traffic Signal Timing

City of Ottawa, Public Works Department

Traffic Signal Operations Unit

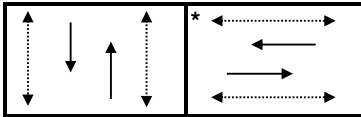
Intersection:	<i>Main:</i> Churchill	<i>Side:</i> Byron
Controller:	ATC 3	TSD: 5634
Author:	Matthew Anderson	Date: 26-May-2022

Existing Timing Plans[†]

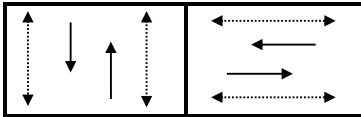
	Plan							Ped Minimum Time		
	AM Peak 1	Off Peak 2	PM Peak 3	Night 4	Weekend 5	AM School 11	PM School 12	Walk	DW	A+R
Cycle	80	75	90	60	75	80	75			
Offset	74	45	40	X	45	74	45			
NB Thru	42	40	45	32	40	42	40	10	11	3.3+2.1
SB Thru	42	40	45	32	40	42	40	10	11	3.3+2.1
EB Thru	38	35	45	28	35	38	35	10	15	3.3+2.3
WB Thru	38	35	45	28	35	38	35	10	15	3.3+2.3

Phasing Sequence[‡]

Plan: 1,2,3,4,5



Plan: 11,12



Notes: 1) In plan 4, the EW walk time is 7s

Schedule

Weekday		Saturday		Sunday	
Time	Plan	Time	Plan	Time	Plan
0:15	4	0:15	4	0:15	4
6:30	1	6:30	2	6:30	2
7:45	11	9:00	5	9:00	5
8:15	1	18:30	2	18:00	2
9:30	2	22:30	4	22:30	4
14:15	12				
15:00	3				
18:30	2				
22:30	4				

Notes

†: Time for each direction includes amber and all red intervals

‡: Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄.....► Pedestrian signal

Cost is \$61.16 (\$54.12 + HST)

Traffic Signal Timing

City of Ottawa, Public Works Department

Traffic Signal Operations Unit

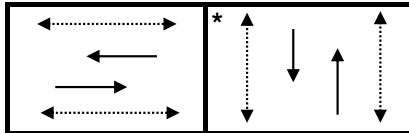
Intersection:	<i>Main:</i> Byron	<i>Side:</i> Roosevelt
Controller:	ATC 3	TSD: 6765
Author:	Matthew Anderson	Date: 26-May-2022

Existing Timing Plans[†]

	Plan					Ped Minimum Time		
	AM Peak 1	Off Peak 2	PM Peak 3	Night 4	Weekend 5	Walk	DW	A+R
Cycle	70	65	70	60	65			
Offset	X	X	X	X	X			
EB Thru	50	45	50	40	45	7	10	3.3+2.2
WB Thru	50	45	50	40	45	7	10	3.3+2.2
NB Thru	20	20	20	20	20	7	8	3.3+1.7
SB Thru	20	20	20	20	20	7	8	3.3+1.7

Phasing Sequence[‡]

Plan: All



Schedule

Weekday		Saturday		Sunday	
Time	Plan	Time	Plan	Time	Plan
0:15	4	0:15	4	0:15	4
6:30	1	9:10	5	9:10	2
9:30	2	18:30	2	22:30	4
15:00	3	23:30	4		
18:30	2				
23:00	4				

Notes

†: Time for each direction includes amber and all red intervals

‡: Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

←.....→ Pedestrian signal

Cost is \$61.16 (\$54.12 + HST)



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2016 To: December 31, 2020

Location: BYRON AVE @ CHURCHILL AVE

Traffic Control: Traffic signal

Total Collisions: 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2016-Mar-26, Sat,12:30	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Jun-11, Sat,09:49	Rain	Turning movement	P.D. only	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Pick-up truck	Other motor vehicle	
2017-Sep-12, Tue,14:43	Clear	Turning movement	P.D. only	Dry	West	Turning right	Unknown	Cyclist	0
					West	Going ahead	Bicycle	Other motor vehicle	
2019-Nov-05, Tue,21:32	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Cyclist	0
					West	Changing lanes	Bicycle	Other motor vehicle	
2020-Jan-30, Thu,08:58	Clear	SMV other	Non-fatal injury	Loose snow	South	Turning left	Passenger van	Pedestrian	1



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2016 To: December 31, 2020

Location: BYRON AVE @ ROOSEVELT AVE

Traffic Control: Traffic signal

Total Collisions: 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2017-Feb-11, Sat,08:55	Clear	Other	P.D. only	Packed snow	East	Overtaking	Automobile, station wagon	Other motor vehicle	0
					West	Reversing	Truck - closed	Other motor vehicle	
2017-Mar-24, Fri,10:41	Snow	Other	P.D. only	Packed snow	West	Reversing	Pick-up truck	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Oct-12, Thu,15:26	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2016 To: December 31, 2020

Location: CHURCHILL AVE @ DANFORTH AVE

Traffic Control: Stop sign

Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Mar-21, Wed, 11:46	Clear	Sideswipe	P.D. only	Dry	South	Merging	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2016 To: December 31, 2020

Location: CHURCHILL AVE @ RICHMOND RD

Traffic Control: Traffic signal

Total Collisions: 25

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Jan-04, Mon,12:08	Clear	Rear end	P.D. only	Wet	South	Changing lanes	Pick-up truck	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2016-Jun-02, Thu,14:22	Clear	SMV other	Non-fatal injury	Dry	South	Turning right	Automobile, station wagon	Pedestrian	1
2016-Jun-17, Fri,05:29	Clear	Angle	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Going ahead	Pick-up truck	Other motor vehicle	
2016-Aug-07, Sun,12:12	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Pick-up truck	Other motor vehicle	
2016-Aug-13, Sat,00:00	Clear	SMV unattended vehicle	P.D. only	Dry	North	Unknown	Unknown	Unattended vehicle	0
2016-Dec-09, Fri,08:40	Clear	Rear end	P.D. only	Ice	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Dec-31, Sat,12:01	Snow	SMV other	Non-fatal injury	Loose snow	East	Turning left	Automobile, station wagon	Pedestrian	1
2017-Jan-28, Sat,15:02	Snow	Rear end	Non-fatal injury	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	1
					East	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Sep-06, Wed,00:00	Clear	SMV unattended vehicle	P.D. only	Dry	Unknown	Unknown	Unknown	Unattended vehicle	0
2017-Sep-26, Tue,19:08	Clear	Turning movement	P.D. only	Dry	North	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2018-Feb-09, Fri,12:45	Clear	Sideswipe	P.D. only	Wet	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Mar-12, Mon,10:21	Clear	Turning movement	P.D. only	Dry	North	Stopped	Pick-up truck	Other motor vehicle	0
					North	Turning right	Truck - tractor	Other	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2016 To: December 31, 2020

Location: CHURCHILL AVE @ RICHMOND RD

Traffic Control: Traffic signal

Total Collisions: 25

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2018-Jun-09, Sat,10:48	Clear	Angle	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Sep-11, Tue,18:51	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Oct-27, Sat,21:39	Snow	SMV other	Non-fatal injury	Wet	West	Turning left	Passenger van	Pedestrian	2
2018-Nov-06, Tue,13:25	Rain	Rear end	Non-fatal injury	Wet	East	Going ahead	Truck - closed	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Dec-17, Mon,10:39	Clear	Sideswipe	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Turning right	Truck - open	Other motor vehicle	
2019-Jan-31, Thu,07:25	Clear	Turning movement	P.D. only	Packed snow	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Mar-20, Wed,16:55	Clear	Rear end	P.D. only	Dry	West	Going ahead	Unknown	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Jul-12, Fri,21:01	Clear	Sideswipe	P.D. only	Dry	South	Overtaking	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Dec-09, Mon,14:41	Rain	Turning movement	Non-fatal injury	Wet	South	Overtaking	Automobile, station wagon	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2020-Jan-15, Wed,13:10	Clear	Sideswipe	P.D. only	Wet	North	Overtaking	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2020-May-17, Sun,17:18	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	
2020-Sep-26, Sat,17:07	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Delivery van	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2016 To: December 31, 2020

Location: CHURCHILL AVE @ RICHMOND RD

Traffic Control: Traffic signal

Total Collisions: 25

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2020-Dec-13, Sun,07:26	Clear	Rear end	Non-fatal injury	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2016 **To:** December 31, 2020

Location: DANFORTH AVE @ ROOSEVELT AVE

Traffic Control: Stop sign

Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Aug-12, Sat, 14:08	Clear	Other	P.D. only	Dry	West	Unknown	Unknown	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2016 To: December 31, 2020

Location: DANFORTH AVE btwn CHURCHILL AVE N & ROOSEVELT AVE

Traffic Control: No control

Total Collisions: 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2016-May-12, Thu,15:51	Clear	Angle	P.D. only	Dry	North	Reversing	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	
2018-Dec-21, Fri,10:00	Clear	Angle	P.D. only	Dry	South	Reversing	Unknown	Other motor vehicle	0
					West	Going ahead	Passenger van	Other motor vehicle	
2019-Feb-24, Sun,12:00	Rain	SMV unattended vehicle	P.D. only	Wet	West	Unknown	Unknown	Unattended vehicle	0
2019-Sep-13, Fri,11:30	Clear	Other	P.D. only	Dry	East	Reversing	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2020-Mar-03, Tue,00:00	Rain	SMV unattended vehicle	P.D. only	Wet	Unknown	Unknown	Unknown	Unattended vehicle	0



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2016 To: December 31, 2020

Location: ROOSEVELT AVE @ RICHMOND RD

Traffic Control: Traffic signal

Total Collisions: 8

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2016-Apr-09, Sat,10:57	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Jan-02, Tue,12:14	Snow	Rear end	P.D. only	Loose snow	East	Slowing or stopping	Passenger van	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Jan-03, Thu,14:19	Snow	Rear end	Non-fatal injury	Loose snow	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2019-Jan-03, Thu,15:48	Snow	Rear end	P.D. only	Slush	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2019-Jul-26, Fri,07:45	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Sep-17, Tue,13:51	Clear	Sideswipe	P.D. only	Dry	East	Pulling away from shoulder or curb	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2020-Jan-06, Mon,10:55	Snow	Rear end	P.D. only	Slush	East	Unknown	Unknown	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	
2020-Jul-22, Wed,08:44	Clear	Other	P.D. only	Dry	East	Reversing	Unknown	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	



**Castleglenn
Consultants**

Engineers, Project Managers & Planners

APPENDIX E: TRANS SNAPSHOTS, 2011 AND 2031 HORIZON YEARS

TRANS Regional Model

Version 2.15 - Assigned June 16, 2020

AM Peak Hour Total Traffic Volume

Richmond Road and Churchill Ave

2011 Model - Basecase

N/A

User Initials: KN

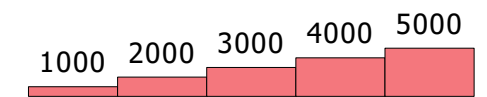
Plot Prepared: July 4, 2022

EMME Scenario: 21713

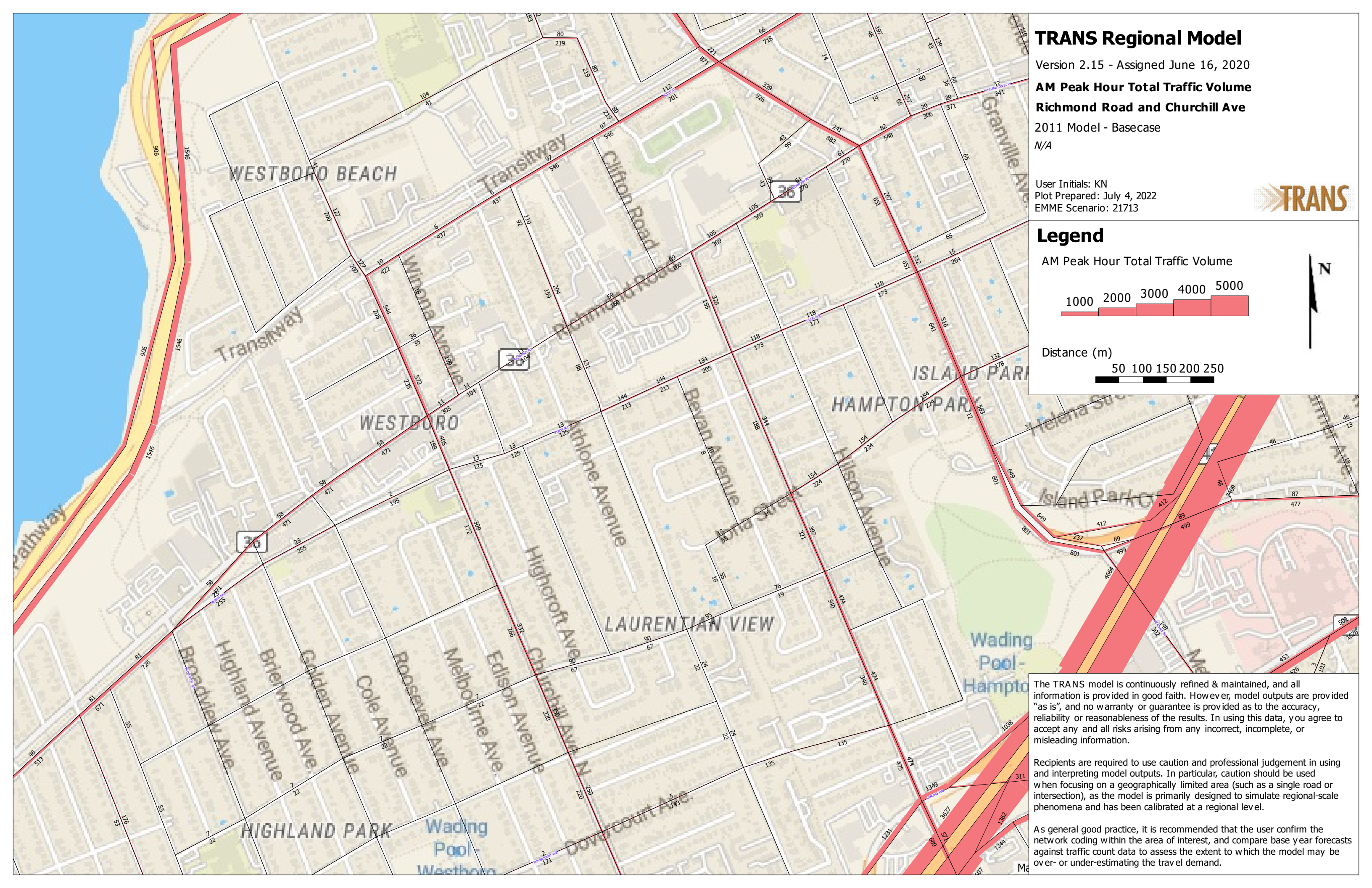
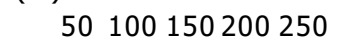


Legend

AM Peak Hour Total Traffic Volume



Distance (m)



The TRANS model is continuously refined & maintained, and all information is provided in good faith. However, model outputs are provided "as is", and no warranty or guarantee is provided as to the accuracy, reliability or reasonableness of the results. In using this data, you agree to accept any and all risks arising from any incorrect, incomplete, or misleading information.

Recipients are required to use caution and professional judgement in using and interpreting model outputs. In particular, caution should be used when focusing on a geographically limited area (such as a single road or intersection), as the model is primarily designed to simulate regional-scale phenomena and has been calibrated at a regional level.

As general good practice, it is recommended that the user confirm the network coding within the area of interest, and compare base year forecasts against traffic count data to assess the extent to which the model may be over- or under-estimating the travel demand.

TRANS Regional Model

Version 2.15 - Assigned June 16, 2020

AM Peak Hour Total Traffic Volume

Richmond Rd and Churchill Ave

2031 Model - Basecase

N/A

User Initials: KN

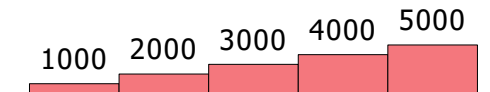
Plot Prepared: July 4, 2022

EMME Scenario: 21715

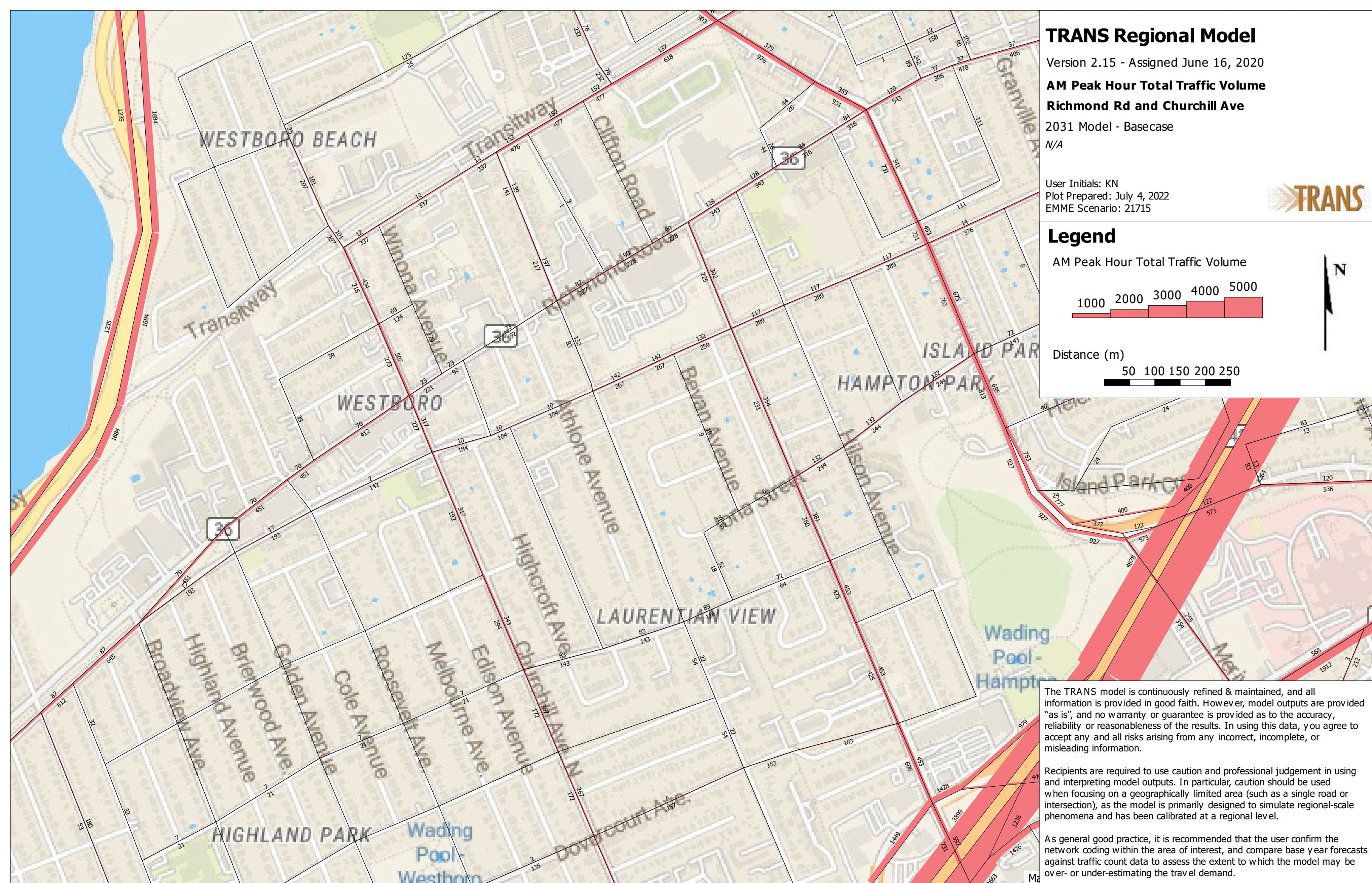
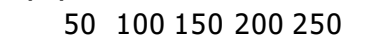


Legend

AM Peak Hour Total Traffic Volume



Distance (m)



The TRANS model is continuously refined & maintained, and all information is provided in good faith. However, model outputs are provided "as is", and no warranty or guarantee is provided as to the accuracy, reliability or reasonableness of the results. In using this data, you agree to accept any and all risks arising from any incorrect, incomplete, or misleading information.

Recipients are required to use caution and professional judgement in using and interpreting model outputs. In particular, caution should be used when focusing on a geographically limited area (such as a single road or intersection), as the model is primarily designed to simulate regional-scale phenomena and has been calibrated at a regional level.

As general good practice, it is recommended that the user confirm the network coding within the area of interest, and compare base year forecasts against traffic count data to assess the extent to which the model may be over- or under-estimating the travel demand.



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APPENDIX F: EXISTING (2022) SYNCHRO ANALYSIS

Lanes, Volumes, Timings
1: Roosevelt Avenue & Richmond Road

424 Churchill - Existing (2022) AM

07/13/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	3	633	10	14	290	19	26	10	32	32	12	7
Future Volume (vph)	3	633	10	14	290	19	26	10	32	32	12	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	4.0	3.7	3.7	4.5	3.7	3.7	4.5	3.7
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
Fr _t		0.998			0.992			0.936			0.981	
Fl _t Protected					0.998			0.981			0.969	
Satd. Flow (prot)	0	1676	0	0	1687	0	0	1812	0	0	1987	0
Fl _t Permitted		0.999			0.963			0.896			0.824	
Satd. Flow (perm)	0	1675	0	0	1628	0	0	1655	0	0	1689	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			6			36			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		154.9			294.4			54.7			103.0	
Travel Time (s)		11.2			21.2			3.9			7.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	3%	0%	7%	5%	0%	8%	10%	3%	0%	0%	0%
Parking (#/hr)		0			0							
Adj. Flow (vph)	3	703	11	16	322	21	29	11	36	36	13	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	717	0	0	359	0	0	76	0	0	57	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	30.6	30.6		30.6	30.6		30.0	30.0		30.0	30.0	
Total Split (s)	45.0	45.0		45.0	45.0		30.0	30.0		30.0	30.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	39.4	39.4		39.4	39.4		24.4	24.4		24.4	24.4	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.6			5.6			5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	14.0	14.0		14.0	14.0		14.0	14.0		14.0	14.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		39.4			39.4			24.4			24.4	
Actuated g/C Ratio		0.53			0.53			0.33			0.33	
v/c Ratio		0.81			0.42			0.14			0.10	
Control Delay		24.3			12.5			11.7			16.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		24.3			12.5			11.7			16.4	

Lanes, Volumes, Timings
1: Roosevelt Avenue & Richmond Road

424 Churchill - Existing (2022) AM

07/13/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		C			B			B			B	
Approach Delay		24.3			12.5			11.7			16.4	
Approach LOS		C			B			B			B	
Queue Length 50th (m)		78.2			28.2			3.9			4.8	
Queue Length 95th (m)		#144.0			46.8			12.4			12.3	
Internal Link Dist (m)		130.9			270.4			30.7			79.0	
Turn Bay Length (m)												
Base Capacity (vph)		880			858			562			554	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.81			0.42			0.14			0.10	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Offset: 27 (36%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 19.7
 Intersection LOS: B
 Intersection Capacity Utilization 48.9%
 ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Roosevelt Avenue & Richmond Road



Lanes, Volumes, Timings
2: Roosevelt Avenue & Byron Avenue

424 Churchill - Existing (2022) AM

07/13/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	35	243	8	12	145	28	3	29	14	26	19	12
Future Volume (vph)	35	243	8	12	145	28	3	29	14	26	19	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	4.1	3.7	3.7	4.5	3.7	3.7	4.8	3.7
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
Frt		0.996			0.980			0.958			0.972	
Flt Protected		0.994			0.997			0.997			0.978	
Satd. Flow (prot)	0	1902	0	0	1903	0	0	1912	0	0	1978	0
Flt Permitted		0.949			0.977			0.987			0.865	
Satd. Flow (perm)	0	1816	0	0	1865	0	0	1893	0	0	1749	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			25			16			13	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		113.7			54.4			135.0			20.2	
Travel Time (s)		8.2			3.9			9.7			1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	3%	4%	0%	7%	0%	4%	5%	0%
Adj. Flow (vph)	39	270	9	13	161	31	3	32	16	29	21	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	318	0	0	205	0	0	51	0	0	63	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Minimum Split (s)	23.5	23.5		23.5	23.5		20.0	20.0		20.0	20.0	
Total Split (s)	50.0	50.0		50.0	50.0		20.0	20.0		20.0	20.0	
Total Split (%)	71.4%	71.4%		71.4%	71.4%		28.6%	28.6%		28.6%	28.6%	
Maximum Green (s)	44.5	44.5		44.5	44.5		15.0	15.0		15.0	15.0	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		1.7	1.7		1.7	1.7	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		44.5			44.5			15.0			15.0	
Actuated g/C Ratio		0.64			0.64			0.21			0.21	
v/c Ratio		0.28			0.17			0.12			0.16	
Control Delay		6.3			5.0			17.7			20.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		6.3			5.0			17.7			20.0	
LOS		A			A			B			C	
Approach Delay		6.3			5.0			17.7			20.0	
Approach LOS		A			A			B			C	
Queue Length 50th (m)		15.7			8.2			3.7			5.3	
Queue Length 95th (m)		26.2			15.4			11.6			14.3	
Internal Link Dist (m)		89.7			30.4			111.0			0.1	

Lanes, Volumes, Timings
2: Roosevelt Avenue & Byron Avenue

424 Churchill - Existing (2022) AM

07/13/2022

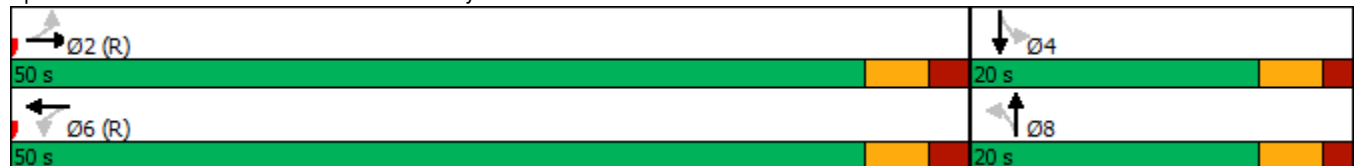


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (m)												
Base Capacity (vph)		1155			1194			418				385
Starvation Cap Reductn		0			0			0				0
Spillback Cap Reductn		0			0			0				0
Storage Cap Reductn		0			0			0				0
Reduced v/c Ratio		0.28			0.17			0.12				0.16

Intersection Summary

Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	70
Offset:	0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	45
Control Type:	Pretimed
Maximum v/c Ratio:	0.28
Intersection Signal Delay:	8.2
Intersection LOS:	A
Intersection Capacity Utilization	42.7%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 2: Roosevelt Avenue & Byron Avenue



Lanes, Volumes, Timings
3: Churchill Avenue N & Richmond Road

424 Churchill - Existing (2022) AM

07/13/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	262	390	29	43	183	19	24	273	83	21	319	135
Future Volume (vph)	262	390	29	43	183	19	24	273	83	21	319	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	4.0	3.7	3.3	4.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	33.0		0.0	27.0		0.0	0.0		25.0	0.0		35.0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (m)	7.6			7.6			7.6			7.6		
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
Fr _t		0.990			0.986				0.850			0.850
Fl _t Protected	0.950			0.950				0.996			0.997	
Satd. Flow (prot)	1711	1911	0	1662	1832	0	0	1814	1601	0	1841	1570
Fl _t Permitted	0.493			0.496				0.800			0.947	
Satd. Flow (perm)	888	1911	0	868	1832	0	0	1457	1601	0	1748	1570
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			7				180			180
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		294.4			106.1			75.8			111.4	
Travel Time (s)		21.2			7.6			5.5			8.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	3%	0%	5%	7%	5%	0%	6%	2%	5%	4%	4%
Adj. Flow (vph)	291	433	32	48	203	21	27	303	92	23	354	150
Shared Lane Traffic (%)												
Lane Group Flow (vph)	291	465	0	48	224	0	0	330	92	0	377	150
Turn Type	pm+pt	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4		4	8		8
Detector Phase	5	2		6	6		4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.1	31.1		31.0	31.0		24.2	24.2	24.2	24.2	24.2	24.2
Total Split (s)	14.0	40.0		31.0	31.0		30.0	30.0	30.0	30.0	30.0	30.0
Total Split (%)	17.5%	50.0%		38.8%	38.8%		37.5%	37.5%	37.5%	37.5%	37.5%	37.5%
Maximum Green (s)	7.9	33.9		24.9	24.9		23.8	23.8	23.8	23.8	23.8	23.8
Yellow Time (s)	3.3	3.3		3.3	3.3		3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	2.8	2.8		2.8	2.8		2.6	2.6	2.6	2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1		6.1	6.1		6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag	Lead	Lag		Lag	Lag		Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None	None	None	None	None
Walk Time (s)		14.0		14.0	14.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0		0	0		0	0	0	0	0	0
Act Effct Green (s)	45.5	45.5		29.4	29.4		22.2	22.2	22.2	22.2	22.2	22.2
Actuated g/C Ratio	0.57	0.57		0.37	0.37		0.28	0.28	0.28	0.28	0.28	0.28
v/c Ratio	0.48	0.43		0.15	0.33		0.81	0.16	0.16	0.78	0.27	0.27
Control Delay	13.5	12.4		21.2	21.1		31.1	0.5	0.5	37.4	3.2	3.2

Lane Group	Ø1	Ø3	Ø7
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Lane Width (m)			
Storage Length (m)			
Storage Lanes			
Taper Length (m)			
Lane Util. Factor			
Fr _t			
Fl _t Protected			
Satd. Flow (prot)			
Fl _t Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)			
Link Distance (m)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	1	3	7
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	3.0	3.0	1.0
Minimum Split (s)	5.0	5.0	5.0
Total Split (s)	5.0	5.0	5.0
Total Split (%)	6%	6%	6%
Maximum Green (s)	3.0	3.0	3.0
Yellow Time (s)	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	None	None
Walk Time (s)			
Flash Dont Walk (s)			
Pedestrian Calls (#/hr)			
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			

Lanes, Volumes, Timings
 3: Churchill Avenue N & Richmond Road

424 Churchill - Existing (2022) AM

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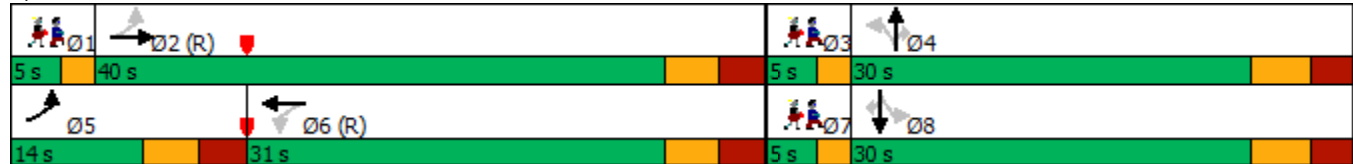


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	13.5	12.4		21.2	21.1			31.1	0.5		37.4	3.2
LOS	B	B		C	C			C	A		D	A
Approach Delay		12.8			21.1			24.4			27.7	
Approach LOS		B			C			C			C	
Queue Length 50th (m)	21.5	37.2		5.2	24.9			24.5	0.0		52.0	0.0
Queue Length 95th (m)	42.7	69.3		13.3	43.9			30.5	0.0		73.0	7.7
Internal Link Dist (m)		270.4			82.1			51.8			87.4	
Turn Bay Length (m)	33.0			27.0					25.0			35.0
Base Capacity (vph)	607	1088		318	677			457	626		549	616
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	0.48	0.43		0.15	0.33			0.72	0.15		0.69	0.24

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	80
Offset:	52 (65%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.81
Intersection Signal Delay:	20.4
Intersection LOS:	C
Intersection Capacity Utilization	76.0%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 3: Churchill Avenue N & Richmond Road



Lane Group	Ø1	Ø3	Ø7
Queue Delay			
Total Delay			
LOS			
Approach Delay			
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
4: Churchill Avenue N & Byron Avenue

424 Churchill - Existing (2022) AM

07/13/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Volume (vph)	56	170	57	51	129	47	26	326	69	34	309	30
Future Volume (vph)	56	170	57	51	129	47	26	326	69	34	309	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.0	4.0	3.7	3.0	4.0	3.7
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	18.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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
Fr _t		0.973			0.972			0.974			0.987	
Fl _t Protected		0.990			0.989		0.950			0.950		
Satd. Flow (prot)	0	1825	0	0	1819	0	1560	1853	0	1685	1869	0
Fl _t Permitted		0.889			0.869		0.449			0.389		
Satd. Flow (perm)	0	1639	0	0	1598	0	737	1853	0	690	1869	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			20			18			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		222.5			63.6			184.9			45.3	
Travel Time (s)		16.0			4.6			13.3			3.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	1%	0%	0%	2%	2%	8%	5%	1%	0%	5%	3%
Adj. Flow (vph)	62	189	63	57	143	52	29	362	77	38	343	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	314	0	0	252	0	29	439	0	38	376	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	30.6	30.6		30.6	30.6		26.4	26.4		26.4	26.4	
Total Split (s)	38.0	38.0		38.0	38.0		42.0	42.0		42.0	42.0	
Total Split (%)	47.5%	47.5%		47.5%	47.5%		52.5%	52.5%		52.5%	52.5%	
Maximum Green (s)	32.4	32.4		32.4	32.4		36.6	36.6		36.6	36.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.6			5.6		5.4	5.4		5.4	5.4	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		32.4			32.4		36.6	36.6		36.6	36.6	
Actuated g/C Ratio		0.40			0.40		0.46	0.46		0.46	0.46	
v/c Ratio		0.47			0.38		0.09	0.51		0.12	0.44	
Control Delay		19.1			17.5		13.2	17.3		4.8	5.1	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.2	
Total Delay		19.1			17.5		13.2	17.3		4.8	5.3	
LOS		B			B		B	B		A	A	
Approach Delay		19.1			17.5			17.1			5.3	
Approach LOS		B			B			B			A	

Lanes, Volumes, Timings
4: Churchill Avenue N & Byron Avenue

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07/13/2022

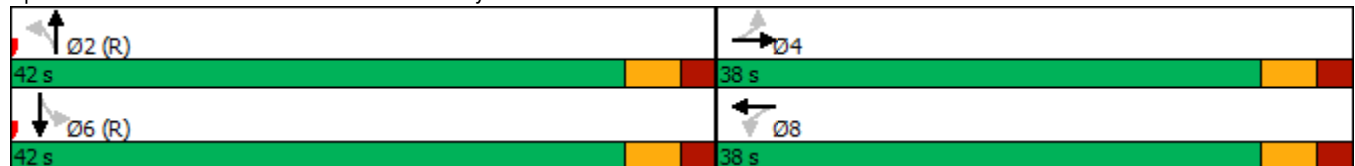


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (m)		31.7			23.9		2.4	43.3		1.0	9.7	
Queue Length 95th (m)		53.4			41.7		7.0	68.2		m2.2	18.2	
Internal Link Dist (m)		198.5			39.6			160.9			21.3	
Turn Bay Length (m)							15.0			18.0		
Base Capacity (vph)		675			659		337	857		315	859	
Starvation Cap Reductn		0			0		0	0		0	97	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.47			0.38		0.09	0.51		0.12	0.49	

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	80
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	60
Control Type:	Pretimed
Maximum v/c Ratio:	0.51
Intersection Signal Delay:	14.2
Intersection LOS:	B
Intersection Capacity Utilization	57.4%
ICU Level of Service	B
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 4: Churchill Avenue N & Byron Avenue



Intersection						
Int Delay, s/veh	3.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	33	19	49	43	12	24
Future Vol, veh/h	33	19	49	43	12	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	5	0	0	5
Mvmt Flow	37	21	54	48	13	27

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	131	78	0	0	102	0
Stage 1	78	-	-	-	-	-
Stage 2	53	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	868	988	-	-	1503	-
Stage 1	950	-	-	-	-	-
Stage 2	975	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	860	988	-	-	1503	-
Mov Cap-2 Maneuver	860	-	-	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	966	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	2.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	903	1503
HCM Lane V/C Ratio	-	-	0.064	0.009
HCM Control Delay (s)	-	-	9.3	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Lanes, Volumes, Timings
1: Roosevelt Avenue & Richmond Road

424 Churchill - Existing (2022) PM

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	6	403	22	24	696	31	34	18	48	32	11	14
Future Volume (vph)	6	403	22	24	696	31	34	18	48	32	11	14
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.7	3.7	3.7	3.7	4.0	3.7	3.7	4.5	3.7	3.7	4.5	3.7
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
Frts		0.993			0.994			0.936			0.966	
Flt Protected		0.999			0.998			0.983			0.973	
Satd. Flow (prot)	0	1581	0	0	1663	0	0	1786	0	0	1830	0
Flt Permitted		0.989			0.977			0.891			0.819	
Satd. Flow (perm)	0	1565	0	0	1628	0	0	1619	0	0	1540	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			4			53			16	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		154.9			294.4			54.7			103.0	
Travel Time (s)		11.2			21.2			3.9			7.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	3%	0%	0%	1%	0%	3%	0%	2%	3%	0%	0%
Parking (#/hr)		0			0							
Adj. Flow (vph)	7	448	24	27	773	34	38	20	53	36	12	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	479	0	0	834	0	0	111	0	0	64	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	30.6	30.6		30.6	30.6		30.0	30.0		30.0	30.0	
Total Split (s)	55.0	55.0		55.0	55.0		30.0	30.0		30.0	30.0	
Total Split (%)	64.7%	64.7%		64.7%	64.7%		35.3%	35.3%		35.3%	35.3%	
Maximum Green (s)	49.4	49.4		49.4	49.4		24.4	24.4		24.4	24.4	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.6			5.6			5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	14.0	14.0		14.0	14.0		14.0	14.0		14.0	14.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		49.4			49.4			24.4			24.4	
Actuated g/C Ratio		0.58			0.58			0.29			0.29	
v/c Ratio		0.53			0.88			0.22			0.14	
Control Delay		13.2			28.3			14.4			19.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		13.2			28.3			14.4			19.0	

Lanes, Volumes, Timings
1: Roosevelt Avenue & Richmond Road

424 Churchill - Existing (2022) PM

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		B			C			B			B	
Approach Delay		13.2			28.3			14.4			19.0	
Approach LOS		B			C			B			B	
Queue Length 50th (m)		42.7			106.3			6.9			5.7	
Queue Length 95th (m)		67.5			#190.3			18.9			14.9	
Internal Link Dist (m)		130.9			270.4			30.7			79.0	
Turn Bay Length (m)												
Base Capacity (vph)		911			947			502			453	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.53			0.88			0.22			0.14	

Intersection Summary

Area Type: Other
 Cycle Length: 85
 Actuated Cycle Length: 85
 Offset: 27 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 22.0
 Intersection LOS: C
 Intersection Capacity Utilization 71.2%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Roosevelt Avenue & Richmond Road



Lanes, Volumes, Timings
2: Roosevelt Avenue & Byron Avenue

424 Churchill - Existing (2022) PM

07/07/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	13	158	7	19	320	46	5	21	13	31	20	31
Future Volume (vph)	13	158	7	19	320	46	5	21	13	31	20	31
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.7	3.7	3.7	3.7	4.1	3.7	3.7	4.5	3.7	3.7	4.8	3.7
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
Frt		0.995			0.984			0.956			0.949	
Flt Protected		0.996			0.998			0.993			0.981	
Satd. Flow (prot)	0	1788	0	0	1861	0	0	1880	0	0	1878	0
Flt Permitted		0.967			0.983			0.964			0.883	
Satd. Flow (perm)	0	1736	0	0	1833	0	0	1825	0	0	1690	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			19			14			34	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		113.7			54.4			135.0			20.2	
Travel Time (s)		8.2			3.9			9.7			1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	1%	0%	0%	0%	2%	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	14	176	8	21	356	51	6	23	14	34	22	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	198	0	0	428	0	0	43	0	0	90	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Minimum Split (s)	23.5	23.5		23.5	23.5		20.0	20.0		20.0	20.0	
Total Split (s)	50.0	50.0		50.0	50.0		20.0	20.0		20.0	20.0	
Total Split (%)	71.4%	71.4%		71.4%	71.4%		28.6%	28.6%		28.6%	28.6%	
Maximum Green (s)	44.5	44.5		44.5	44.5		15.0	15.0		15.0	15.0	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		1.7	1.7		1.7	1.7	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.5			5.5			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		44.5			44.5			15.0			15.0	
Actuated g/C Ratio		0.64			0.64			0.21			0.21	
v/c Ratio		0.18			0.37			0.11			0.23	
Control Delay		5.6			6.8			17.5			17.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		5.6			6.8			17.5			17.3	
LOS		A			A			B			B	
Approach Delay		5.6			6.8			17.5			17.3	
Approach LOS		A			A			B			B	
Queue Length 50th (m)		8.9			21.7			3.1			6.0	
Queue Length 95th (m)		16.3			35.7			10.3			16.8	
Internal Link Dist (m)		89.7			30.4			111.0			0.1	

Lanes, Volumes, Timings
 2: Roosevelt Avenue & Byron Avenue

424 Churchill - Existing (2022) PM

07/07/2022

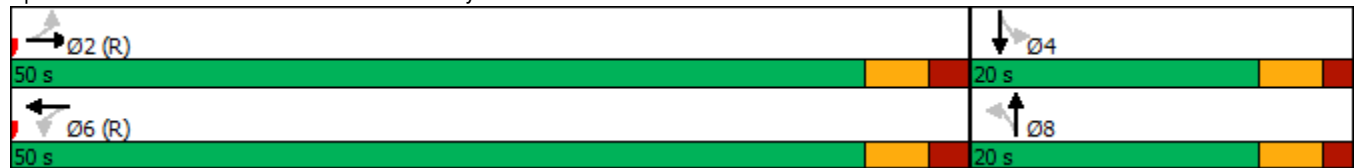


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (m)												
Base Capacity (vph)		1105			1172			402				388
Starvation Cap Reductn		0			0			0				0
Spillback Cap Reductn		0			0			0				0
Storage Cap Reductn		0			0			0				0
Reduced v/c Ratio		0.18			0.37			0.11				0.23

Intersection Summary

Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	70
Offset:	0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	45
Control Type:	Pretimed
Maximum v/c Ratio:	0.37
Intersection Signal Delay:	8.3
Intersection LOS:	A
Intersection Capacity Utilization	46.1%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 2: Roosevelt Avenue & Byron Avenue



Lanes, Volumes, Timings
3: Churchill Avenue N & Richmond Road

424 Churchill - Existing (2022) PM

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	298	46	128	451	31	27	263	76	19	257	280
Future Volume (vph)	157	298	46	128	451	31	27	263	76	19	257	280
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.3	4.0	3.7	3.3	4.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	33.0		0.0	27.0		0.0	0.0		25.0	0.0		35.0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (m)	7.6			7.6			7.6			7.6		
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
Fr _t		0.980			0.990				0.850			0.850
Fl _t Protected	0.950			0.950				0.995			0.997	
Satd. Flow (prot)	1589	1806	0	1637	1844	0	0	1757	1547	0	1721	1547
Fl _t Permitted	0.250			0.535				0.917			0.960	
Satd. Flow (perm)	418	1806	0	922	1844	0	0	1619	1547	0	1658	1547
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			5				160			300
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		294.4			106.1			75.8			111.4	
Travel Time (s)		21.2			7.6			5.5			8.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	2%	2%	1%	1%	0%	4%	3%	0%	11%	5%	0%
Adj. Flow (vph)	174	331	51	142	501	34	30	292	84	21	286	311
Shared Lane Traffic (%)												
Lane Group Flow (vph)	174	382	0	142	535	0	0	322	84	0	307	311
Turn Type	pm+pt	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4		4	8		8
Detector Phase	5	2		6	6		4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.1	31.1		32.0	32.0		24.2	24.2	24.2	24.2	24.2	24.2
Total Split (s)	12.0	52.0		45.0	45.0		28.0	28.0	28.0	28.0	28.0	28.0
Total Split (%)	13.3%	57.8%		50.0%	50.0%		31.1%	31.1%	31.1%	31.1%	31.1%	31.1%
Maximum Green (s)	5.9	45.9		38.9	38.9		21.8	21.8	21.8	21.8	21.8	21.8
Yellow Time (s)	3.3	3.3		3.3	3.3		3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	2.8	2.8		2.8	2.8		2.6	2.6	2.6	2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1		6.1	6.1		6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag	Lead	Lag		Lag	Lag		Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max		C-Max	C-Max		None	None	None	None	None	None
Walk Time (s)		14.0		14.0	14.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0		0	0		0	0	0	0	0	0
Act Effct Green (s)	52.0	52.0		39.8	39.8		25.7	25.7	25.7	25.7	25.7	25.7
Actuated g/C Ratio	0.58	0.58		0.44	0.44		0.29	0.29	0.29	0.29	0.29	0.29
v/c Ratio	0.54	0.36		0.35	0.65		0.70	0.15	0.15	0.65	0.47	0.47
Control Delay	16.5	11.3		20.1	24.6		38.0	7.4	7.4	35.2	6.2	6.2

Lane Group	Ø1	Ø3	Ø7
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Lane Width (m)			
Storage Length (m)			
Storage Lanes			
Taper Length (m)			
Lane Util. Factor			
Fr _t			
Fl _t Protected			
Satd. Flow (prot)			
Fl _t Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)			
Link Distance (m)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	1	3	7
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	3.0	3.0	1.0
Minimum Split (s)	5.0	5.0	5.0
Total Split (s)	5.0	5.0	5.0
Total Split (%)	6%	6%	6%
Maximum Green (s)	3.0	3.0	3.0
Yellow Time (s)	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	None	None
Walk Time (s)			
Flash Dont Walk (s)			
Pedestrian Calls (#/hr)			
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			

Lanes, Volumes, Timings
3: Churchill Avenue N & Richmond Road

424 Churchill - Existing (2022) PM

07/07/2022

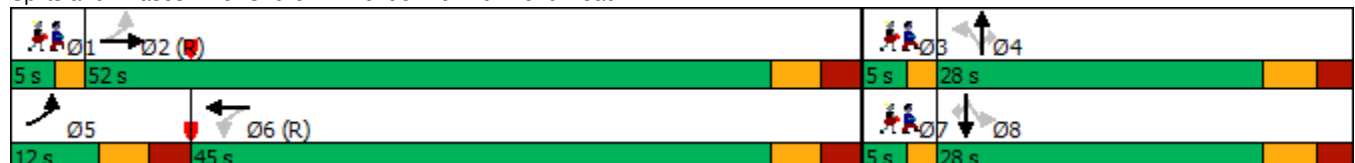


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.1	0.0			0.0	0.0		0.0	0.0
Total Delay	16.5	11.3		20.3	24.6			38.0	7.4		35.2	6.2
LOS	B	B		C	C			D	A		D	A
Approach Delay		12.9			23.7			31.7			20.6	
Approach LOS		B			C			C			C	
Queue Length 50th (m)	13.7	32.5		16.0	71.0			54.7	2.6		45.5	1.4
Queue Length 95th (m)	23.8	50.6		30.7	106.2			m82.3	m9.9		72.4	19.3
Internal Link Dist (m)		270.4			82.1			51.8			87.4	
Turn Bay Length (m)	33.0			27.0					25.0			35.0
Base Capacity (vph)	321	1049		407	817			463	557		474	657
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	46		23	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.54	0.38		0.37	0.65			0.70	0.15		0.65	0.47

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 21.6
 Intersection LOS: C
 Intersection Capacity Utilization 88.3%
 ICU Level of Service E
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Churchill Avenue N & Richmond Road



Lane Group	Ø1	Ø3	Ø7
Queue Delay			
Total Delay			
LOS			
Approach Delay			
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
4: Churchill Avenue N & Byron Avenue

424 Churchill - Existing (2022) PM

07/07/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Volume (vph)	19	134	49	110	307	45	25	303	69	21	340	53
Future Volume (vph)	19	134	49	110	307	45	25	303	69	21	340	53
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.0	4.0	3.7	3.0	4.0	3.7
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	18.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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
Flt		0.967			0.987			0.972			0.980	
Flt Protected		0.995			0.988		0.950			0.950		
Satd. Flow (prot)	0	1717	0	0	1740	0	1565	1792	0	1565	1806	0
Flt Permitted		0.936			0.859		0.371			0.393		
Satd. Flow (perm)	0	1615	0	0	1513	0	611	1792	0	647	1806	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			8			16			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		222.5			63.6			184.9			45.3	
Travel Time (s)		16.0			4.6			13.3			3.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	21	149	54	122	341	50	28	337	77	23	378	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	224	0	0	513	0	28	414	0	23	437	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	30.6	30.6		30.6	30.6		26.4	26.4		26.4	26.4	
Total Split (s)	45.0	45.0		45.0	45.0		45.0	45.0		45.0	45.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	39.4	39.4		39.4	39.4		39.6	39.6		39.6	39.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.6			5.6		5.4	5.4		5.4	5.4	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		39.4			39.4		39.6	39.6		39.6	39.6	
Actuated g/C Ratio		0.44			0.44		0.44	0.44		0.44	0.44	
v/c Ratio		0.31			0.77		0.10	0.52		0.08	0.55	
Control Delay		16.1			30.6		16.2	20.4		18.9	25.7	
Queue Delay		0.0			0.0		0.0	0.0		0.0	1.4	
Total Delay		16.1			30.6		16.2	20.4		18.9	27.1	
LOS		B			C		B	C		B	C	
Approach Delay		16.1			30.6			20.2			26.7	
Approach LOS		B			C			C			C	
Queue Length 50th (m)		21.6			71.9		2.8	48.3		2.8	56.5	

Lanes, Volumes, Timings
4: Churchill Avenue N & Byron Avenue

424 Churchill - Existing (2022) PM

07/07/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)		37.7			#115.6		8.0	74.6		m6.0	90.0	
Internal Link Dist (m)		198.5			39.6			160.9			21.3	
Turn Bay Length (m)							15.0			18.0		
Base Capacity (vph)		719			666		268	797		284	800	
Starvation Cap Reductn		0			0		0	0		0	189	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.31			0.77		0.10	0.52		0.08	0.72	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 60

Control Type: Pretimed

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 24.7

Intersection LOS: C

Intersection Capacity Utilization 74.2%

ICU Level of Service D

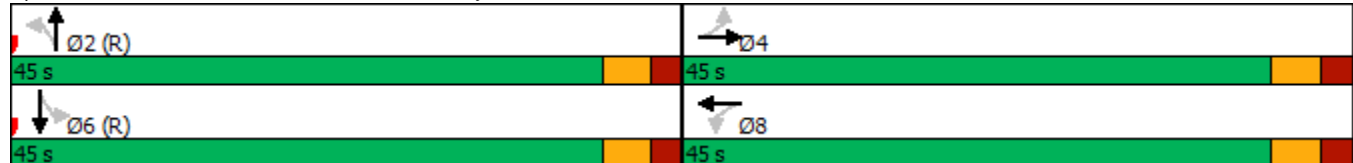
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 4: Churchill Avenue N & Byron Avenue



Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	39	57	43	37	14	43
Future Vol, veh/h	39	57	43	37	14	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	62	47	40	15	47

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	144	67	0	0	87
Stage 1	67	-	-	-	-
Stage 2	77	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	849	997	-	-	1509
Stage 1	956	-	-	-	-
Stage 2	946	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	841	997	-	-	1509
Mov Cap-2 Maneuver	841	-	-	-	-
Stage 1	956	-	-	-	-
Stage 2	937	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	1.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	927	1509
HCM Lane V/C Ratio	-	-	0.113	0.01
HCM Control Delay (s)	-	-	9.4	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0



**Castleglenn
Consultants**

Engineers, Project Managers & Planners

APPENDIX G: RESPONSE TO SCREENING AND SCOPING COMMENTS



The following email was received on September 12, 2022 regarding the Screening and Scoping Report submission:

From: McMahon, Patrick <patrick.mcmahon@ottawa.ca>
Sent: Monday, September 12, 2022 7:59 AM
To: Andrey Kirillov <akirillov@castleglenn.ca>
Cc: Arthur Gordon <agordon@castleglenn.ca>; Jemmy Taing <jemmy@gsiproperties.ca>
Subject: RE: 424 Churchill Avenue North TIA Screening and Scoping Report

Hi Andrey,

Thank you for the submission, here are my comments:

- Section 2.1.2.2: Include the pedestrian and cycling crossing treatments, as applicable.
- Section 2.1.2.6: Consider including the locations of the stops for the identified routes on Exhibit 2-13 or another figure.
- Section 2.1.3.1: Include the changes to Byron Avenue as part of the integrated road works project, see Ottawa.ca

Thank you and please proceed to the forecasting report.

Best regards,

Patrick McMahon

Project Manager, Infrastructure Approvals | GPRJ Approbation des demandes d'infrastructure
Development Review Branch | Dir Examen des projets d'aménagement
Planning, Real Estate and Economic Development Department | Direction générale de la planification,
des biens immobiliers et du développement économique
City of Ottawa | Ville d'Ottawa
Tel | Tél. : 613-580- 2424 ext. | poste 23298
web | Site Web : www.ottawa.ca

Response to Sept. 12 comments:

The following changes were made to the screening and scoping portion of this document:

- Section 2.1.2.2: Include the pedestrian and cycling crossing treatments, as applicable.
Response: Section 2.1.2.2 now includes a discussion on pedestrian and cycling treatments at each intersection, or a lack thereof.
- Section 2.1.2.6: Consider including the locations of the stops for the identified routes on Exhibit 2-13 or another figure.
Response: A new Exhibit 2-12 now includes locations of the 7 nearest bus stops and their corresponding bus routes.
- Section 2.1.3.1: Include the changes to Byron Avenue as part of the integrated road works project, see Ottawa.ca
Response: Section 2.1.3.1 now includes a discussion on changes to pedestrian and cycling infrastructure along Byron Avenue. The changes will be considered in the MMLOS segment analysis.