From	Michael Dowdall – Echelon Engineering Solutions Ltd.
To	Kyle Munroe – Town of Caledon Genevieve Scott – Town of Caledon
Cc	Andreanne Simiard – CBM Aggregates Jennifer Deleemans – CBM Aggregates
Date	April 16, 2026
Title	Caledon Pit / Quarry Response to CAART Transportation Comments Proposed Official Plan Amendment (POPA 2022-0006) and Zoning By-law Amendment (RZ 2022-0010)

CBM Aggregates has retained Echelon Engineering Solutions Limited (Echelon) to take over the Caledon Pit / Quarry transportation consulting engineering services from TYLin International Canada Limited (TYLin). TYLin was informed of the change as per the Professional Engineers of Ontario (PEO) requirements and TYLin has provided Echelon with the previous submission documents.

Echelon has reviewed the Transportation Impact Study (TIS) and Haul Route Assessment, along with the associated Traffic Memorandums listed below:

- TIS – First submission (December 2022)
- TIS – Second submission (July 2023)
- TIS – Third submission (March 2025)
- Transportation Technical Meeting Memorandum (October 31, 2025)

Echelon confirms that the findings and recommendations contained in the TIS documents and accompanying memorandums remain valid

Echelon Engineering Solutions is pleased to provide responses to the comments received in December 2025 from the Caledon Aggregate Review Team (CAART) on the March 2025 Transportation Impact Study and Haul Route Assessment – Third submission prepared by TYLin.

The attachments provided herein are intended to supplement and support the responses set out in CAART Comment Summary Table Response #1 – [Transportation].

Attachment #1: Existing Heavy Vehicle Restrictions

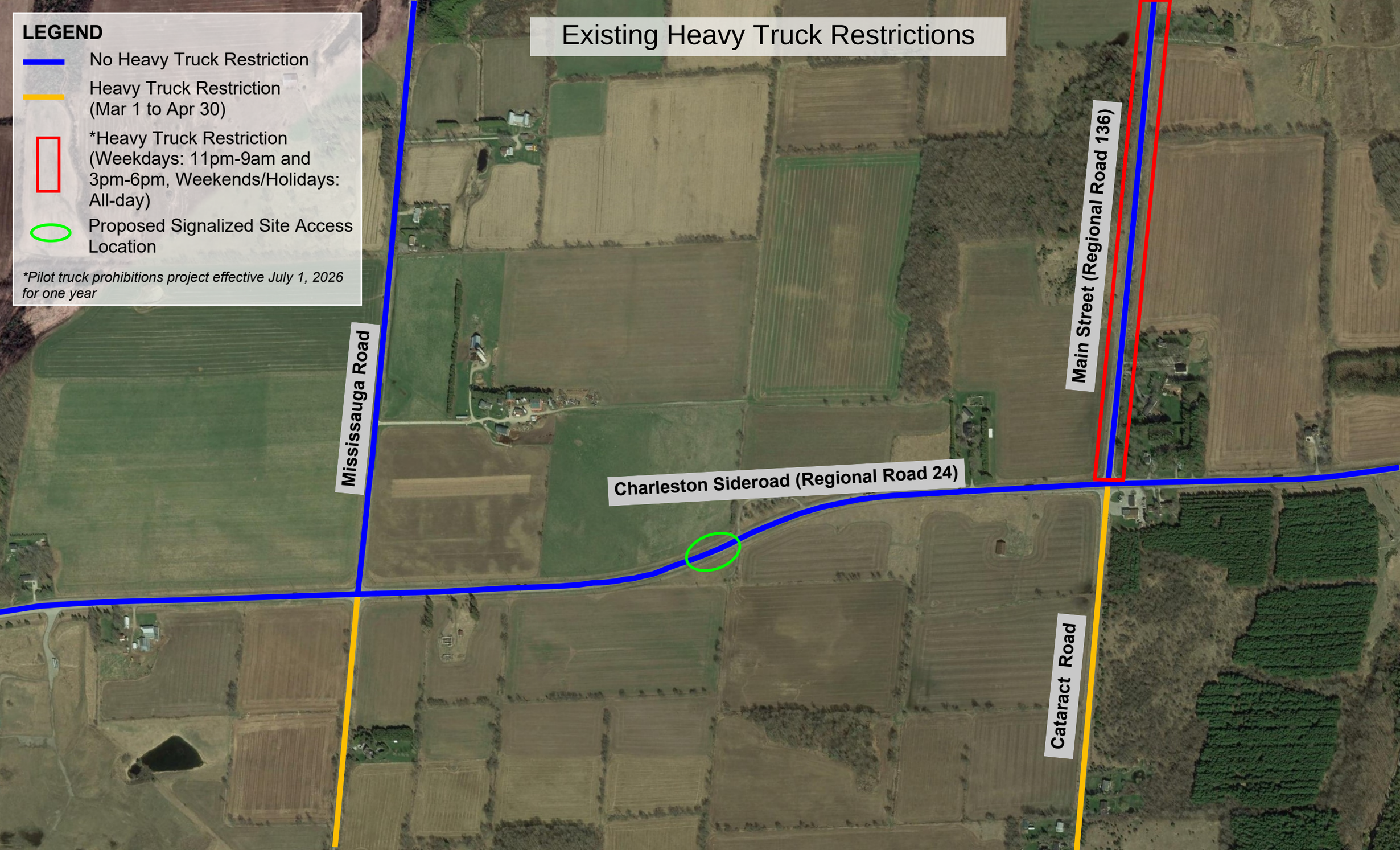
Attachment #2: Sightline Figures

Attachment #3: Summary of Proxy Shipping Data Analysis

Attachment #4: Capacity Analysis

Attachment #1

Existing Heavy Vehicle Restrictions


Existing Heavy Truck Restrictions
LEGEND
No Heavy Truck Restriction
Heavy Truck Restriction (Mar 1 to Apr 30)
*Heavy Truck Restriction (Weekdays: 11pm-9am and 3pm-6pm, Weekends/Holidays: All-day)
Proposed Signalized Site Access Location
*Pilot truck prohibitions project effective July 1, 2026 for one year
Mississauga Road
Main Street (Regional Road 136)
Charleston Sideroad (Regional Road 24)
Cataract Road

Attachment #2

Sightline Figures


LEGEND
Available Sightline
No Available Sightline
Mississauga Road
Charleston Sideroad (Regional Road 24)
Main Street (Regional Road 136)
1
2
3
4
5
530m
880m

LEFT TURN MANEUVER

RIGHT TURN MANEUVER

BASED ON A DESIGN SPEED OF 100km/h, THE ISD FOR A COMBINATION TRUCK IS 320m FOR A LEFT-TURN AND 295m FOR A RIGHT-TURN.

THE AVAILABLE RIGHT-TURN ISD IS 210m, WHICH EXCEEDS THE PASSENGER CAR ISD REQUIREMENT OF 185m.

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ECHELON ENGINEERING SOLUTIONS

CALEDON PIT & QUARRY
INTERSECTION SIGHT DISTANCE REVIEW
MISSISSAUGA ROAD AT ACCESS #1 (SOUTH ACCESS)

N

SCALE: 1:200
2 0 2 4 6m

PROJECT No.	DRAWN BY	DRAWING No.
26108	J.D.	01
	CHECKED BY: M.D.	DATE: MAR 2026

BASED ON A DESIGN SPEED OF 100km/h, THE SSD IS 185m.
THE SIGHTLINES HAVE BEEN MET.

185m

MISSISSAUGA ROAD

ACCESS #1

185m

SIGHT LINE
TRAVEL DISTANCE

ECHELON ENGINEERING SOLUTIONS

CALEDON PIT & QUARRY
STOPPING SIGHT DISTANCE REVIEW
MISSISSAUGA ROAD AT ACCESS #1 (SOUTH ACCESS)

N

SCALE: 1:150
1.5 0 1.5 3 4.5m

PROJECT No.	DRAWN BY	DRAWING No.
26108	J.D.	02
	CHECKED BY: M.D.	DATE: MAR 2026

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LEFT TURN MANEUVER

RIGHT TURN MANEUVER

BASED ON A DESIGN SPEED OF 100km/h, THE ISD FOR A COMBINATION TRUCK IS 320m FOR A LEFT-TURN AND 295m FOR A RIGHT-TURN. THE SIGHTLINES HAVE BEEN MET.

SIGHT LINE
TRAVEL DISTANCE

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ECHELON ENGINEERING SOLUTIONS

CALEDON PIT & QUARRY
INTERSECTION SIGHT DISTANCE REVIEW
MISSISSAUGA ROAD AT ACCESS #2 (NORTH ACCESS)

N

SCALE: 1:200
2 0 2 4 6m

PROJECT No.	DRAWN BY	DRAWING No.
26108	J.D.	03
	CHECKED BY: M.D.	DATE: MAR 2026

BASED ON A DESIGN SPEED OF 100km/h, THE SSD IS 185m.
THE SIGHTLINES HAVE BEEN MET.

MISSISSAUGA ROAD

185m

ACCESS #2

185m

SIGHT LINE
TRAVEL DISTANCE

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ECHELON ENGINEERING SOLUTIONS

CALEDON PIT & QUARRY
STOPPING SIGHT DISTANCE REVIEW
MISSISSAUGA ROAD AT ACCESS #2 (NORTH ACCESS)

N

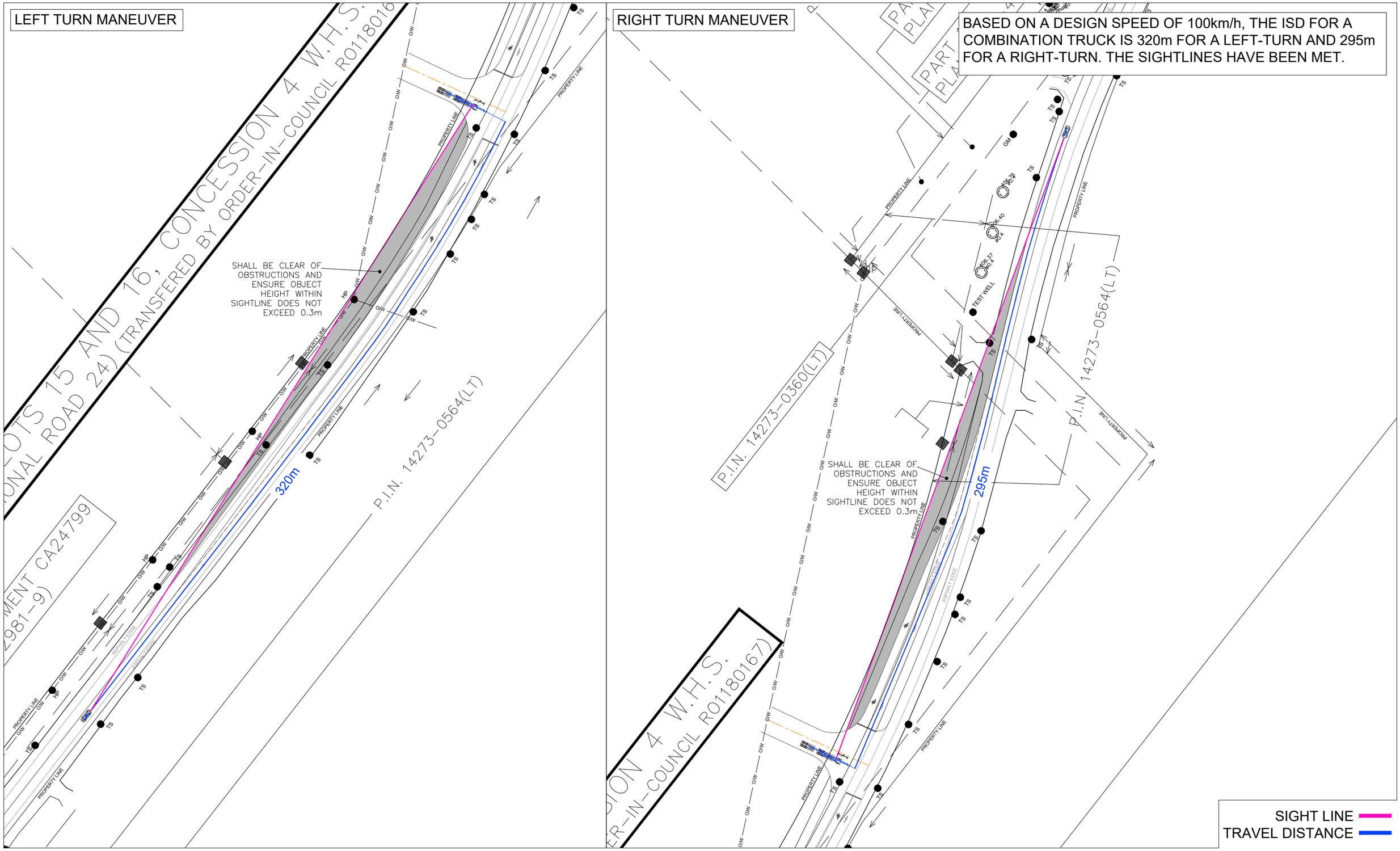
SCALE: 1:150
1.5 0 1.5 3 4.5m

PROJECT No.	DRAWN BY	DRAWING No.
26108	J.D.	04
	CHECKED BY: M.D.	DATE: MAR 2026

LEFT TURN MANEUVER

RIGHT TURN MANEUVER

BASED ON A DESIGN SPEED OF 100km/h, THE ISD FOR A COMBINATION TRUCK IS 320m FOR A LEFT-TURN AND 295m FOR A RIGHT-TURN. THE SIGHTLINES HAVE BEEN MET.



SIGHT LINE
TRAVEL DISTANCE

ECHELON ENGINEERING SOLUTIONS

CALEDON PIT & QUARRY
INTERSECTION SIGHT DISTANCE REVIEW
CHARLESTON SIDEROAD AT ACCESS #3

N

SCALE: 1:150
1.5 0 1.5 3 4.5m

PROJECT No.	DRAWN BY	DRAWING No.
26108	J.D.	05
	CHECKED BY: M.D.	DATE: MAR 2026

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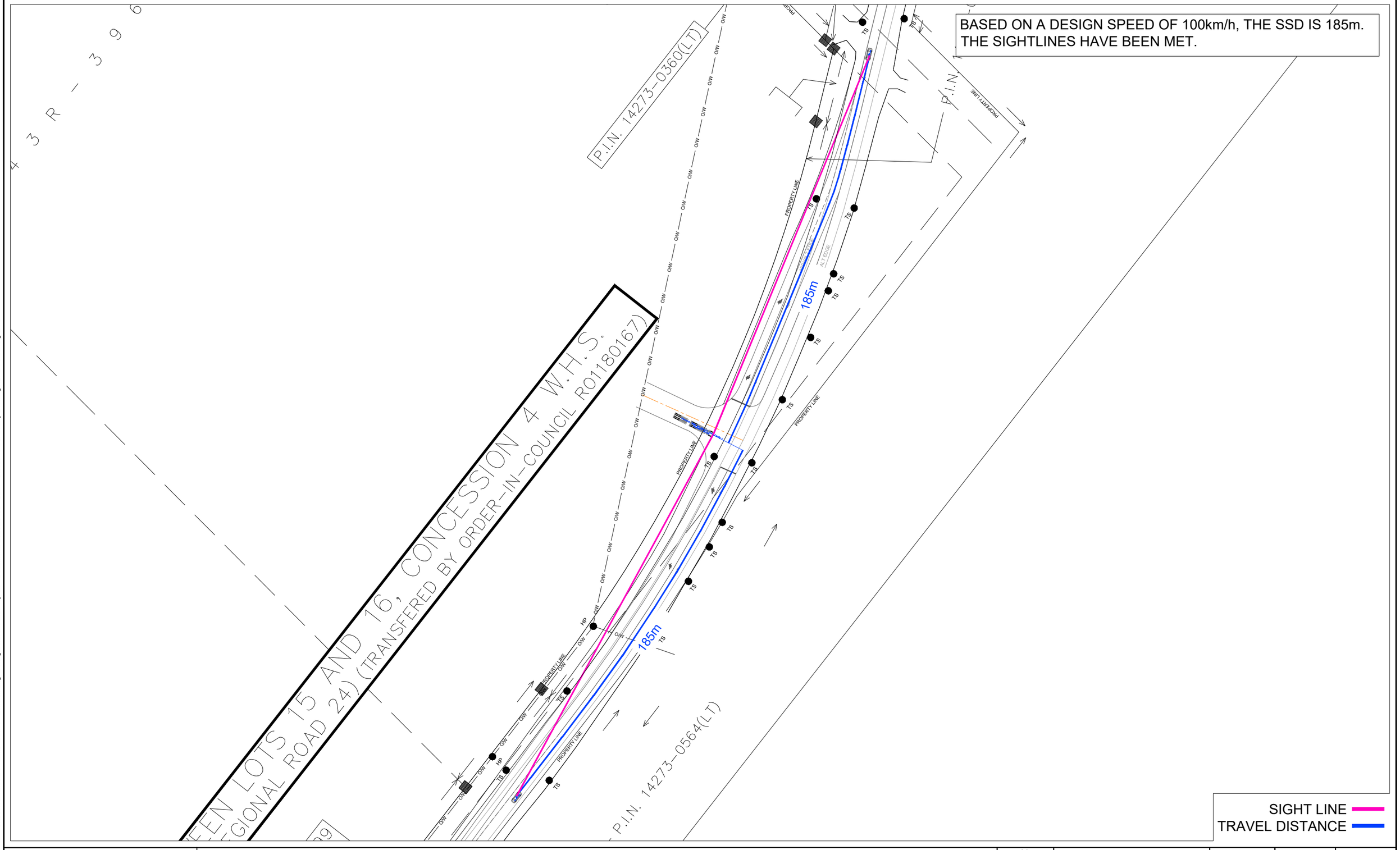
BASED ON A DESIGN SPEED OF 100km/h, THE SSD IS 185m.
THE SIGHTLINES HAVE BEEN MET.



SIGHT LINE
TRAVEL DISTANCE

ECHELON ENGINEERING SOLUTIONS

CALEDON PIT & QUARRY
STOPPING SIGHT DISTANCE REVIEW
CHARLESTON SIDEROAD AT ACCESS #3

N

SCALE: 1:150
1.5 0 1.5 3 4.5m

PROJECT No.	DRAWN BY	DRAWING No.
26108	J.D.	06
	CHECKED BY: M.D.	DATE: MAR 2026

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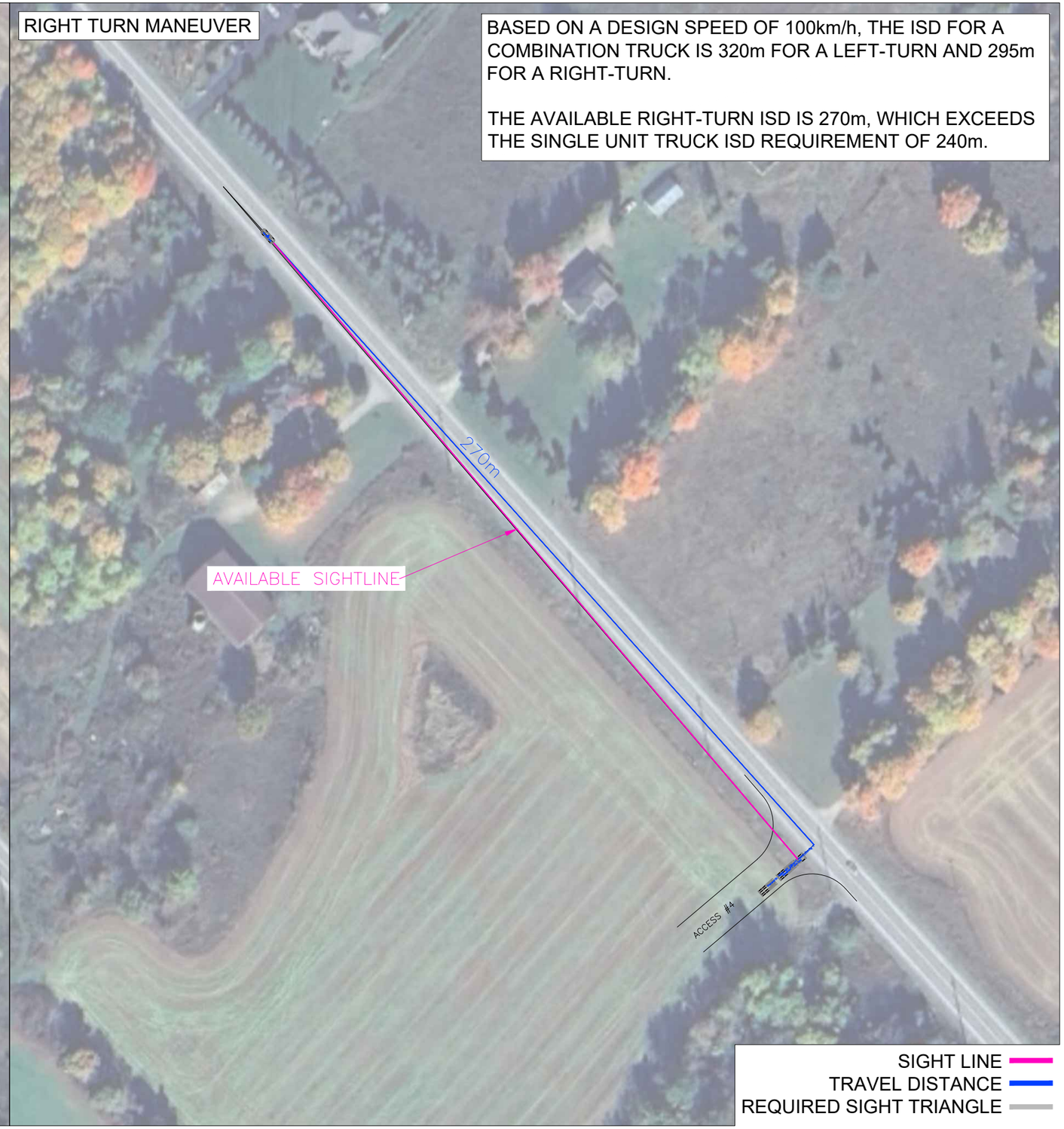
LEFT TURN MANEUVER

RIGHT TURN MANEUVER



BASED ON A DESIGN SPEED OF 100km/h, THE ISD FOR A COMBINATION TRUCK IS 320m FOR A LEFT-TURN AND 295m FOR A RIGHT-TURN.

THE AVAILABLE RIGHT-TURN ISD IS 270m, WHICH EXCEEDS THE SINGLE UNIT TRUCK ISD REQUIREMENT OF 240m.

SIGHT LINE
TRAVEL DISTANCE
REQUIRED SIGHT TRIANGLE

C:\Users\JessicaDeng\OneDrive - Echelon Engineering Solutions Ltd\Projects - Documents\2026\26108 - CBM - Caledon Pit & Quarry\Drawings\CAD Folder\Sightline

ECHELON ENGINEERING SOLUTIONS

CALEDON PIT & QUARRY
INTERSECTION SIGHT DISTANCE REVIEW
MAIN STREET AT ACCESS #4 (NORTH ACCESS)

N

SCALE: 1:150
1.5 0 1.5 3 4.5m

PROJECT No.	DRAWN BY	DRAWING No.
26108	J.D.	07
	CHECKED BY: M.D.	DATE: MAR 2026

BASED ON A DESIGN SPEED OF 100km/h, THE SSD IS 185m.
THE SIGHTLINES HAVE BEEN MET.

185m

ACCESS #4

185m

SIGHT LINE
TRAVEL DISTANCE

C:\Users\JessicaDeng\OneDrive - Echelon Engineering Solutions Ltd\Projects - Documents\26108 - CBM - Caledon Pit & Quarry\Drawings\CAD Folder\Sightline

ECHELON ENGINEERING SOLUTIONS

CALEDON PIT & QUARRY
STOPPING SIGHT DISTANCE REVIEW
MAIN STREET AT ACCESS #4 (NORTH ACCESS)

N

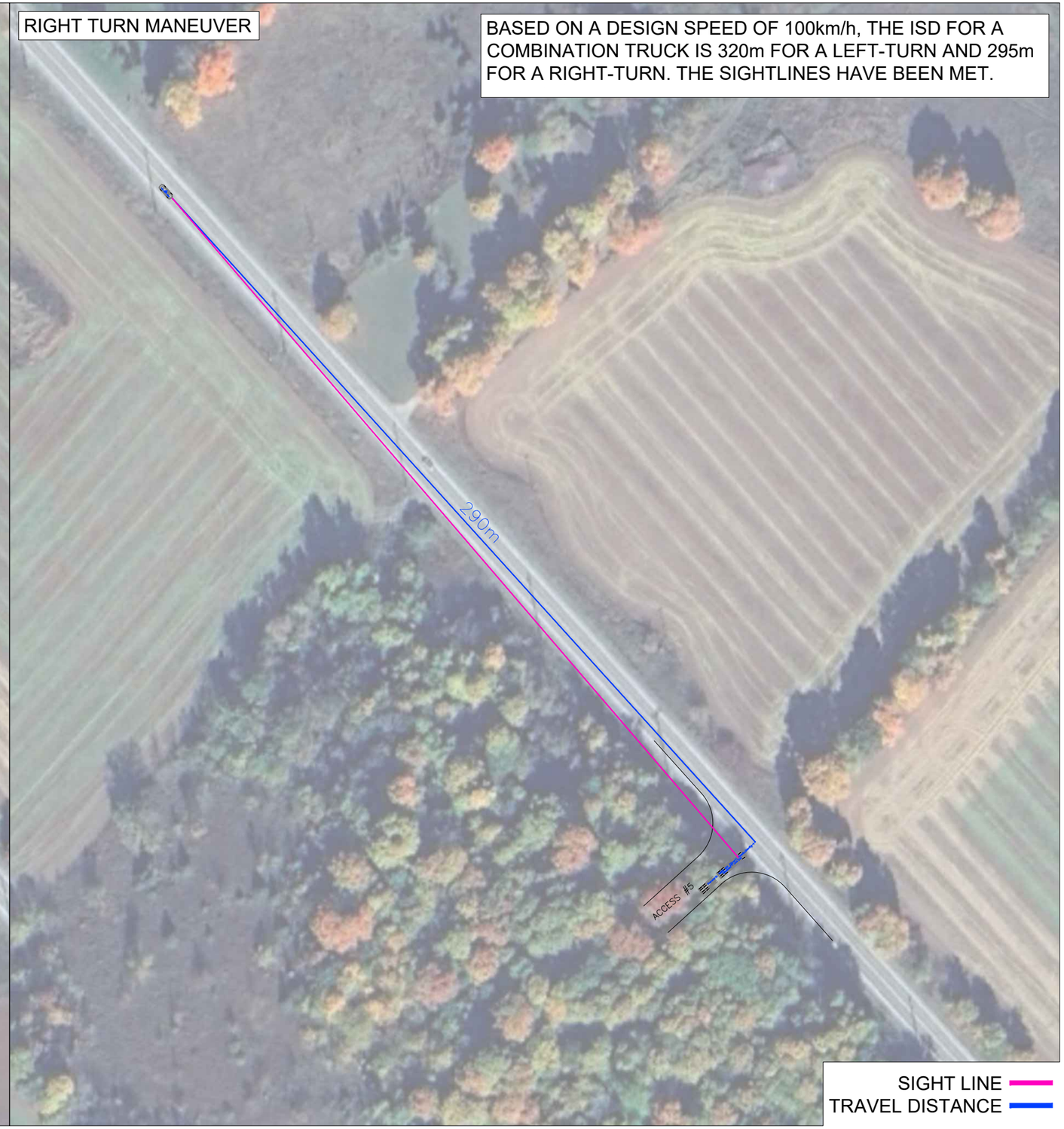
SCALE: 1:150
1.5 0 1.5 3 4.5m

PROJECT No.	DRAWN BY	DRAWING No.
26108	J.D.	08
	CHECKED BY: M.D.	DATE: MAR 2026

LEFT TURN MANEUVER

RIGHT TURN MANEUVER

BASED ON A DESIGN SPEED OF 100km/h, THE ISD FOR A COMBINATION TRUCK IS 320m FOR A LEFT-TURN AND 295m FOR A RIGHT-TURN. THE SIGHTLINES HAVE BEEN MET.



SIGHT LINE
TRAVEL DISTANCE

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ECHELON ENGINEERING SOLUTIONS

CALEDON PIT & QUARRY
INTERSECTION SIGHT DISTANCE REVIEW
MAIN STREET AT ACCESS #5 (SOUTH ACCESS)

N

SCALE: 1:150
1.5 0 1.5 3 4.5m

PROJECT No.	DRAWN BY	DRAWING No.
26108	J.D.	09
	CHECKED BY: M.D.	DATE: MAR 2026

BASED ON A DESIGN SPEED OF 100km/h, THE SSD IS 185m.
THE SIGHTLINES HAVE BEEN MET.

185m

ACCESS #5

185m

SIGHT LINE
TRAVEL DISTANCE

C:\Users\JessicaDeng\OneDrive - Echelon Engineering Solutions Ltd\Projects - Documents\2026\26108 - CBM - Caledon Pit & Quarry\Drawings\CAD Folder\Slightline

ECHELON ENGINEERING SOLUTIONS

CALEDON PIT & QUARRY
STOPPING SIGHT DISTANCE REVIEW
MAIN STREET AT ACCESS #5 (SOUTH ACCESS)

N

SCALE: 1:150
1.5 0 1.5 3 4.5m

PROJECT No.	DRAWN BY	DRAWING No.
26108	J.D.	10
	CHECKED BY	DATE
	M.D.	MAR 2026

Attachment #3

Summary of Proxy Shipping Data Analysis

Attachment #3 - Summary of Proxy Data Analysis

As requested through CARRT's comments on TYLin's Caledon Pit / Quarry traffic report, Echelon has acquired shipping data from a comparable quarry/proxy site for the purposes of aggregate truck trip generation review. The Pit selected as a proxy site is located in Aberfoyle, Ontario. Detailed shipping information (weigh scale data/tickets) for 2024 was provided to Echelon for review.

Of note, the CBM Aberfoyle Pit data included "internal" transfer shipments between the north and south portions of the Pit that require the use of the external road network. For the purposes of calculating proxy trip generation rates, the proxy data was filtered to exclude these internal transfer shipments, resulting in outbound, external trips only.

The Aberfoyle Pit operates with an unlimited haulage license, but it is Echelon's understanding that the pit typically ships an average of 1 to 2 million tonnes per year. The total amount of aggregate shipped externally in 2024 was calculated to be approximately 1.3 million tonnes. Upon totaling shipping data for each month, it was determined that October documented the highest amount of material shipped during a single month in 2024. The months with the highest percentage of the annual tonnes shipped are from May to October, corresponding to the typical peak construction season. **Table 1** summarizes the percentage of the total annual tonnes that were shipped each month.

The monthly shipping estimates provided in Table 1 are comparable to those provided from historical data in Table 6-2 of TYLin's March 2025 report, which identified peak shipping months that represented 11% or 12% of the total aggregate shipped during the years of 2019 and 2020, respectively.

Table 1 Percentage of Annual Shipping per Month

Month	% of Total Tonnes Shipped (2024)
January	5.51%
February	6.31%
March	7.56%
April	7.92%
May	10.27%
June	8.92%
July	9.76%
August	9.47%
September	10.17%
October	10.43%
November	7.98%
December	5.69%
TOTAL	100.00%

After identifying the peak month, daily records from October were reviewed. The total number of trucks per day, effective operating hours (time between the first and last shipment on a given day), and the maximum number of trucks recorded in a single hour were calculated. Weigh scale data for each day was grouped into 15-minute intervals based on the weigh time documented for each scale ticket. **Table 2** summarizes Daily variations in shipping during the peak month. The peak shipping day has also been identified. Note that the "Trucks/hour" column represents an estimate of the average trucks/hour on a given day (trucks/day divided by the effective operating hours).

Table 2 Peak Month Shipping Data (Outbound Trucks)

Shipping Day	Trucks / Day	Effective Operating Hours	Trucks / Hour	AM Max Trucks / Hour	PM Max Trucks / Hour	Max Trucks / Hour
1	170	12.5	14	23	16	23
2	175	12.75	14	23	16	23
3	196	12.5	16	26	17	26
4	169	12.75	14	27	13	27
5	250	13	20	27	28	28
6	224	12.5	18	24	24	24
7	218	12.75	18	24	20	24
8	198	12.5	16	22	16	22
9	149	11.75	13	19	12	19
10	174	12.75	14	21	17	21
11	133	12.5	11	17	10	17
12	216	12.75	17	23	21	23
13	188	12.25	16	28	18	28
14	148	12.5	12	24	13	24
15	189	12.5	16	24	15	24
16	183	12.5	15	28	18	28
17	160	12.75	13	25	12	25
18	156	12.75	13	18	14	18
19	172	12.5	14	21	19	21
20	94	12.25	8	17	4	17
21	116	12.75	10	17	10	17
22	119	11.75	11	22	12	22
Average:	**172.59**	**12.52**	**14.23**	**22.73**	**15.68**	**22.77**

The shipping data indicates that approximately 1.3 million tonnes of material was shipped in 2024 at the proxy site. In order to apply the results in **Table 2** to the future Caledon Pit / Quarry, a scaling factor of approximately 1.55 was applied to create **Table 3** representing the equivalent number of outbound trucks had the proxy site shipped 2 million tonnes in 2024.

When compared to TYLin's trip generation estimates, the proxy data values presented in **Table 3** are similar. TYLin estimated in their March 2025 report that the proposed Caledon Pit / Quarry would generate 30 trucks in and out of the quarry during all peak hours, with the exception of 45 outbound trucks during the a.m. peak hour.

As per **Table 3**, the maximum number of trucks/hour for outbound shipments is 44 trucks/hour based on the peak shipping day within the peak month of 2024. Other shipping days during the peak month also recorded an a.m. peak of 44 trucks/hour, which is very similar to TYLin's 45 outbound trucks during the a.m. peak hour. While the shipping data records only provide results for outbound trucks, it is assumed that the same, or similar, number of inbound truck traffic can be expected each hour.

The average a.m. maximum trucks/hour is approximately 36 trucks, while the average p.m. maximum trucks/hour is approximately 25 trucks. These results from the proxy data are similar to the estimated 30 trucks/hour for inbound and outbound truck traffic presented in TYLin's March 2025 report. In particular, the lower volume of trucks/hour during the p.m. peak from the proxy data would result in less site trips assigned to Caledon Pit / Quarry during the p.m. peak hour (reducing site trips during the study hour that had higher capacity results) should the TYLin trip generation assumptions be modified.

While further proxy data review and processing would be required to fully assess the a.m. peak hour "peak within a peak" increase of 50% to the a.m. outbound traffic presented in TYLin's report, it should be noted that the proxy data shows that generally more trucks leave the Aberfoyle Pit in the morning compared to the afternoon. Of the 22 shipping days listed in Table 3, there are only two days when the maximum number of outbound trucks/hour during the a.m. period are lower than that of the p.m. period.

Table 3 Scaled Peak Month Shipping Data (Outbound Trucks)

Shipping Day	Trucks / Day	Trucks / Hour	AM Max Trucks / Hour	PM Max Trucks / Hour	Max Trucks / Hour
1	264	22	36	25	36
2	272	22	36	25	36
3	304	25	41	27	41
4	262	21	42	21	42
5	388	30	42	44	44
6	348	28	38	38	38
7	338	27	38	31	38
8	307	25	35	25	35
9	231	20	30	19	30
10	270	22	33	27	33
11	207	17	27	16	27
12	335	27	36	33	36
13	292	24	44	28	44
14	230	19	38	21	38
15	293	24	38	24	38
16	284	23	44	28	44
17	248	20	39	19	39
18	242	19	28	22	28
19	267	22	33	30	33
20	146	12	27	7	27
21	180	15	27	16	27
22	185	16	35	19	35
Average:	**267.86**	**21.82**	**35.77**	**24.77**	**35.86**

Overall, Echelon is of the opinion that any modifications made to TYLin's truck trip generation estimates, and the subsequent updates to the traffic analysis, to align with the proxy data truck rates would not result any significant changes to capacity results at key study intersections.

Attachment #4

Capacity Analysis

Attachment #4 - Capacity Analysis

Table 1 Future Background 2032 Capacity Analysis

Intersection	Movement	Weekday a.m. Peak Hour			Weekday p.m. Peak Hour			Saturday Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)	*Overall*	***0.86***	*36*	*D*	***0.94***	*42*	*D*	*0.80*	*33*	*C*
	EBL	0.30	44	D	0.44	42	D	0.58	46	D
	EBT	0.70	60	E	0.88	73	E	0.84	71	E
	EBR	0.29	49	D	0.10	43	D	0.07	45	D
	WBL	0.54	45	D	0.64	47	D	0.80	66	E
	WBT	0.71	59	E	0.84	66	E	0.81	66	E
	WBR	0.02	45	D	0.06	42	D	0.02	44	D
	NBL	0.81	61	E	0.67	21	C	0.71	23	C
	NBTR	0.61	19	B	**0.98**	46	D	0.78	25	C
	SBL	0.25	13	B	0.43	31	C	0.41	20	B
	SBTR	**0.93**	37	D	0.66	24	C	0.68	24	C
Charleston Sideroad (RR24) & Main Street (RR 136) / Cataract Road	*Overall*	*0.30*	*9*	*A*	*0.37*	*10*	*A*	*0.29*	*9*	*A*
	EBL	0.05	4	A	0.11	5	A	0.07	4	A
	EBTR	0.30	6	A	0.39	7	A	0.30	6	A
	WBL	0.01	4	A	0.01	4	A	0.01	4	A
	WBT	0.31	6	A	0.36	6	A	0.26	6	A
	WBR	0.03	4	A	0.06	4	A	0.03	4	A
	NBL	0.03	30	C	0.06	30	C	0.02	30	C
	NBTR	0.03	30	C	0.05	30	C	0.03	30	C
	SBL	0.25	32	C	0.29	32	C	0.26	32	C
	SBTR	0.07	30	C	0.11	31	C	0.08	30	C
Charleston Sideroad (RR24) & Mississauga Road	EBL	0.01	8	A	0.01	9	A	<0.01	8	A
	EBTR	0.23	0	A	0.30	0	A	0.23	0	A
	WBL	0.04	9	A	0.01	9	A	<0.01	8	A
	WBTR	0.21	0	A	0.30	0	A	0.22	0	A
	SBLTR	0.06	15	B	0.14	19	C	0.08	15	C
	NBLTR	0.12	18	C	0.18	24	C	0.10	15	C

Table 2 Future Total 2032 Capacity Analysis

Intersection	Movement	Weekday a.m. Peak Hour			Weekday p.m. Peak Hour			Saturday Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)	*Overall*	***0.90***	*43*	*D*	***0.95***	*43*	*D*	*0.88*	*34*	*C*
	EBL	0.34	44	D	0.56	44	D	0.60	48	D
	EBT	0.70	60	E	0.89	78	E	0.84	71	E
	EBR	0.55	53	D	0.15	44	D	0.11	45	D
	WBL	0.54	45	D	0.65	50	D	0.80	66	E
	WBT	0.71	59	E	**0.91**	79	E	0.81	66	E
	WBR	0.02	45	D	0.06	43	D	0.02	44	D
	NBL	0.88	74	E	0.89	45	D	0.87	44	D
	NBTR	0.61	19	B	**0.98**	44	D	0.77	25	C
	SBL	0.25	14	B	0.42	30	C	0.41	20	B
	SBTR	**0.99**	51	D	0.67	25	C	0.70	25	C
Charleston Sideroad (RR24) & Main Street (RR 136) / Cataract Road	*Overall*	*0.35*	*9*	*A*	*0.43*	*10*	*A*	*0.33*	*9*	*A*
	EBL	0.06	4	A	0.12	5	A	0.07	5	A
	EBTR	0.37	6	A	0.46	7	A	0.35	6	A
	WBL	0.01	4	A	0.01	4	A	0.01	4	A
	WBT	0.36	6	A	0.42	7	A	0.31	6	A
	WBR	0.03	4	A	0.06	4	A	0.03	4	A
	NBL	0.03	30	C	0.06	30	C	0.01	30	C
	NBTR	0.03	30	C	0.05	30	C	0.03	30	C
	SBL	0.25	32	C	0.29	32	C	0.26	32	C
	SBTR	0.07	30	C	0.11	31	C	0.08	30	C
Charleston Sideroad (RR24) & Mississauga Road	EBL	0.01	8	A	0.01	9	A	<0.01	8	A
	EBTR	0.24	0	A	0.30	0	A	0.23	0	A
	WBL	0.04	9	A	0.02	9	A	<0.01	8	A
	WBTR	0.22	0	A	0.30	0	A	0.23	0	A
	SBLTR	0.06	14	B	0.15	18	C	0.08	15	C
	NBLTR	0.12	18	C	0.19	25	C	0.10	15	C
Charleston Sideroad (RR24) & Site Access	*Overall*	*0.37*	*18*	*B*	*0.43*	*20*	*C*	*0.31*	*16*	*B*
	EBL	0.02	11	B	0.04	11	B	0.01	11	B
	EBT	0.58	18	B	0.73	22	C	0.55	17	B
	WBT	0.61	19	B	0.70	21	C	0.49	16	B
	WBR	0.04	11	B	0.05	11	B	0.04	11	B
	SBLR	0.14	12	B	0.13	12	B	0.08	12	B

Attachment #4A

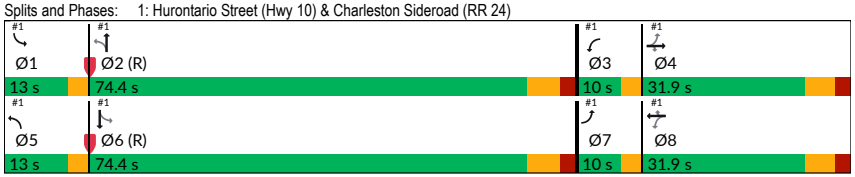
Future Background 2032 Conditions

Synchro Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	58	166	204	124	194	31	139	948	59	1653
Future Volume (vph)	58	166	204	124	194	31	139	948	59	1653
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	7.0	20.0
Minimum Split (s)	10.0	17.9	17.9	10.0	17.9	17.9	10.0	44.4	10.0	44.4
Total Split (s)	10.0	31.9	31.9	10.0	31.9	31.9	13.0	74.4	13.0	74.4
Total Split (%)	7.7%	24.7%	24.7%	7.7%	24.7%	24.7%	10.1%	57.5%	10.1%	57.5%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.0	3.0	5.0
All-Red Time (s)	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	0.0	2.4
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)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4	3.0	7.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	30.8	19.9	19.9	31.4	21.9	21.9	89.1	76.4	83.1	71.0
Actuated g/C Ratio	0.24	0.15	0.15	0.24	0.17	0.17	0.69	0.59	0.64	0.55
v/c Ratio	0.25	0.72	0.56	0.51	0.71	0.11	0.79	0.60	0.22	0.93
Control Delay (s/veh)	37.6	68.5	17.8	45.1	64.9	0.7	58.4	19.7	9.4	36.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.6	68.5	17.8	45.1	64.9	0.7	58.4	19.7	9.4	36.9
LOS	D	E	B	D	E	A	E	B	A	D
Approach Delay (s/veh)		40.2			52.1			24.2		36.0
Approach LOS		D			D			C		D

Intersection Summary			
Cycle Length: 129.3			
Actuated Cycle Length: 129.3			
Offset: 85 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay (s/veh): 34.3		Intersection LOS: C	
Intersection Capacity Utilization 89.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)



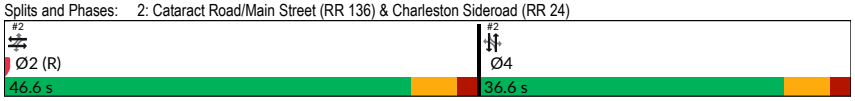
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	166	204	124	194	31	139	948	92	59	1653	58
Future Volume (vph)	58	166	204	124	194	31	139	948	92	59	1653	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1690	1575	1555	1772	1700	1384	1534	3095		1484	3545	
Flt Permitted	0.46	1.00	1.00	0.46	1.00	1.00	0.05	1.00		0.21	1.00	
Satd. Flow (perm)	824	1575	1555	864	1700	1384	88	3095		330	3545	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	61	175	215	131	204	33	146	998	97	62	1740	61
RTOR Reduction (vph)	0	0	144	0	0	27	0	5	0	0	2	0
Lane Group Flow (vph)	61	175	71	131	204	6	146	1090	0	62	1799	0
Heavy Vehicles (%)	8%	22%	5%	3%	13%	18%	19%	16%	20%	23%	2%	15%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	26.1	20.5	20.5	28.9	21.9	21.9	84.5	75.2		76.7	70.4	
Effective Green, g (s)	26.1	20.5	20.5	28.9	21.9	21.9	84.5	75.2		76.7	70.4	
Actuated g/C Ratio	0.20	0.16	0.16	0.22	0.17	0.17	0.65	0.58		0.59	0.54	
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4		3.0	4.4	
Lane Grp Cap (vph)	203	249	246	242	287	234	181	1800		251	1930	
v/s Ratio Prot	0.01	0.11		c0.03	c0.12		c0.07	0.35		0.01	c0.51	
v/s Ratio Perm	0.05		0.05	0.09		0.00	0.46			0.13		
v/c Ratio	0.30	0.70	0.29	0.54	0.71	0.02	0.81	0.61		0.25	0.93	
Uniform Delay, d1	42.8	51.5	48.0	43.0	50.7	44.8	38.8	17.5		12.0	27.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	8.7	0.7	2.5	8.0	0.0	22.4	1.5		0.5	9.7	
Delay (s)	43.7	60.2	48.6	45.4	58.8	44.8	61.3	19.0		12.5	37.0	
Level of Service	D	E	D	D	E	D	E	B		B	D	
Approach Delay (s/veh)		52.4			52.8			24.0			36.2	
Approach LOS		D			D			C			D	

Intersection Summary					
HCM 2000 Control Delay (s/veh)	35.7	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.86				
Actuated Cycle Length (s)	129.3	Sum of lost time (s)		20.3	
Intersection Capacity Utilization	89.9%	ICU Level of Service		E	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	38	344	6	328	43	6	7	52	10
Future Volume (vph)	38	344	6	328	43	6	7	52	10
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2		2			4		4
Permitted Phases	2		2		2	4		4	
Detector Phase	2	2	2	2	2	4	4	4	4
Switch Phase									
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	16.0	16.0	16.0	16.0
Minimum Split (s)	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6
Total Split (s)	46.6	46.6	46.6	46.6	46.6	36.6	36.6	36.6	36.6
Total Split (%)	56.0%	56.0%	56.0%	56.0%	56.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	59.8	59.8	59.8	59.8	59.8	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.19	0.19	0.19	0.19
v/c Ratio	0.05	0.29	0.01	0.30	0.04	0.02	0.05	0.20	0.16
Control Delay (s/veh)	5.6	6.6	5.2	6.8	1.7	27.7	18.7	30.4	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	5.6	6.6	5.2	6.8	1.7	27.7	18.7	30.4	12.8
LOS	A	A	A	A	A	C	B	C	B
Approach Delay (s/veh)		6.5		6.2			20.9		21.5
Approach LOS		A		A			C		C

Intersection Summary			
Cycle Length: 83.2			
Actuated Cycle Length: 83.2			
Offset: 22.5 (27%), Referenced to phase 2:EBWB and 6:, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.30			
Intersection Signal Delay (s/veh): 8.5		Intersection LOS: A	
Intersection Capacity Utilization 63.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	344	6	6	328	43	6	7	11	52	10	44
Future Volume (vph)	38	344	6	6	328	43	6	7	11	52	10	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.91		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	1745		1825	1588	1633	1825	1745		1825	1619	
Flt Permitted	0.56	1.00		0.55	1.00	1.00	0.72	1.00		0.75	1.00	
Satd. Flow (perm)	1039	1745		1048	1588	1633	1385	1745		1433	1619	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	39	355	6	6	338	44	6	7	11	54	10	45
RTOR Reduction (vph)	0	0	0	0	0	14	0	9	0	0	38	0
Lane Group Flow (vph)	39	361	0	6	338	30	6	9	0	54	17	0
Heavy Vehicles (%)	3%	10%	0%	0%	21%	0%	0%	0%	0%	0%	0%	5%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Effective Green, g (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.69	0.69		0.69	0.69	0.69	0.15	0.15		0.15	0.15	
Clearance Time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	714	1199		720	1091	1122	213	268		220	249	
v/s Ratio Prot		0.21			c0.21			0.00			0.01	
v/s Ratio Perm	0.04			0.01		0.02	0.00			c0.04		
v/c Ratio	0.05	0.30		0.01	0.31	0.03	0.03	0.03		0.25	0.07	
Uniform Delay, d1	4.2	5.1		4.1	5.2	4.1	29.9	29.9		31.0	30.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.6		0.0	0.7	0.0	0.1	0.0		0.6	0.1	
Delay (s)	4.4	5.8		4.1	5.9	4.2	30.0	30.0		31.5	30.2	
Level of Service	A	A		A	A	A	C	C		C	C	
Approach Delay (s/veh)		5.6			5.7			30.0			30.9	
Approach LOS		A			A			C			C	

Intersection Summary					
HCM 2000 Control Delay (s/veh)	9.3	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.30				
Actuated Cycle Length (s)	83.2	Sum of lost time (s)		13.2	
Intersection Capacity Utilization	63.2%	ICU Level of Service		B	
Analysis Period (min)	15				
c Critical Lane Group					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	375	2	33	327	15	2	6	13	15	10	11
Future Volume (Veh/h)	16	375	2	33	327	15	2	6	13	15	10	11
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	17	395	2	35	344	16	2	6	14	16	11	12
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	360			397			862	860	396	868	853	352
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	360			397			862	860	396	868	853	352
tC, single (s)	4.1			4.9			7.2	6.5	6.8	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.9			3.6	4.0	3.9	3.5	4.0	3.3
p0 queue free %	99			96			99	98	97	94	96	98
cM capacity (veh/h)	1210			853			241	280	536	252	282	696

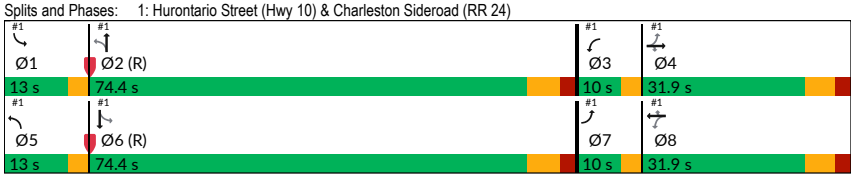
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	17	397	35	360	22	39
Volume Left	17	0	35	0	2	16
Volume Right	0	2	0	16	14	12
cSH	1210	1700	853	1700	394	326
Volume to Capacity	0.01	0.23	0.04	0.21	0.06	0.12
Queue Length 95th (m)	0.3	0.0	1.0	0.0	1.3	3.1
Control Delay (s/veh)	8.0	0.0	9.4	0.0	14.7	17.5
Lane LOS	A		A		B	C
Approach Delay (s/veh)	0.3		0.8		14.7	17.5
Approach LOS					B	C

Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			39.0%	ICU Level of Service		A
Analysis Period (min)			15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	75	266	151	113	282	84	181	1670	52	1032
Future Volume (vph)	75	266	151	113	282	84	181	1670	52	1032
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	7.0	20.0
Minimum Split (s)	10.0	17.9	17.9	10.0	17.9	17.9	10.0	44.4	10.0	44.4
Total Split (s)	10.0	31.9	31.9	10.0	31.9	31.9	13.0	74.4	13.0	74.4
Total Split (%)	7.7%	24.7%	24.7%	7.7%	24.7%	24.7%	10.1%	57.5%	10.1%	57.5%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.0	3.0	5.0
All-Red Time (s)	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	0.0	2.4
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)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4	3.0	7.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	34.9	24.0	24.0	35.5	26.0	26.0	84.8	72.5	80.5	68.5
Actuated g/C Ratio	0.27	0.19	0.19	0.27	0.20	0.20	0.66	0.56	0.62	0.53
v/c Ratio	0.37	0.90	0.38	0.61	0.84	0.23	0.65	0.97	0.37	0.65
Control Delay (s/veh)	38.9	82.2	9.3	50.0	71.4	10.2	20.0	42.2	17.6	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	38.9	82.2	9.3	50.0	71.4	10.2	20.0	42.2	17.6	24.3
LOS	D	F	A	D	E	B	B	D	B	C
Approach Delay (s/veh)		53.2			55.7			40.2		24.0
Approach LOS		D			E			D		C

Intersection Summary		
Cycle Length: 129.3		
Actuated Cycle Length: 129.3		
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		
Natural Cycle: 115		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.97		
Intersection Signal Delay (s/veh): 39.0	Intersection LOS: D	
Intersection Capacity Utilization 99.1%	ICU Level of Service F	
Analysis Period (min) 15		

Splits and Phases: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	266	151	113	282	84	181	1670	152	52	1032	66
Future Volume (vph)	75	266	151	113	282	84	181	1670	152	52	1032	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1754	1685	1546	1658	1762	1562	1772	3531		1601	3322	
Flt Permitted	0.29	1.00	1.00	0.28	1.00	1.00	0.15	1.00		0.06	1.00	
Satd. Flow (perm)	542	1685	1546	482	1762	1562	284	3531		99	3322	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	79	280	159	119	297	88	191	1758	160	55	1086	69
RTOR Reduction (vph)	0	0	129	0	0	70	0	5	0	0	3	0
Lane Group Flow (vph)	79	280	30	119	297	18	191	1913	0	55	1152	0
Confl. Peds. (#/hr)	5		6	6		5	7		5	5		7
Heavy Vehicles (%)	4%	14%	5%	10%	9%	4%	3%	2%	2%	14%	9%	6%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	30.2	24.6	24.6	33.0	26.0	26.0	80.4	71.2		74.1	67.9	
Effective Green, g (s)	30.2	24.6	24.6	33.0	26.0	26.0	80.4	71.2		74.1	67.9	
Actuated g/C Ratio	0.23	0.19	0.19	0.26	0.20	0.20	0.62	0.55		0.57	0.53	
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4		3.0	4.4	
Lane Grp Cap (vph)	179	320	294	186	354	314	285	1944		128	1744	
v/s Ratio Prot	0.02	0.17		c0.03	c0.17		c0.05	c0.54		0.02	0.35	
v/s Ratio Perm	0.08		0.02	0.13		0.01	0.37			0.22		
v/c Ratio	0.44	0.88	0.10	0.64	0.84	0.06	0.67	0.98		0.43	0.66	
Uniform Delay, d1	40.4	50.9	43.2	40.2	49.6	41.7	15.2	28.5		28.4	22.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	22.3	0.2	7.0	15.8	0.1	6.1	17.0		2.3	2.0	
Delay (s)	42.1	73.2	43.4	47.2	65.5	41.8	21.2	45.5		30.7	24.3	
Level of Service	D	E	D	D	E	D	C	D		C	C	
Approach Delay (s/veh)		59.3			57.0			43.3			24.6	
Approach LOS		E			E			D			C	

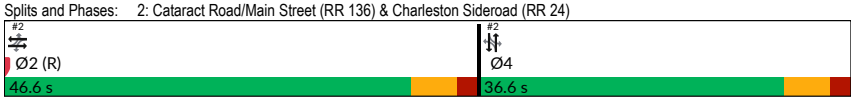
Intersection Summary					
HCM 2000 Control Delay (s/veh)	41.6	HCM 2000 Level of Service	D		
HCM 2000 Volume to Capacity ratio	0.94				
Actuated Cycle Length (s)	129.3	Sum of lost time (s)	20.3		
Intersection Capacity Utilization	99.1%	ICU Level of Service	F		
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	73	430	4	417	85	12	12	62	18
Future Volume (vph)	73	430	4	417	85	12	12	62	18
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2		2			4		4
Permitted Phases	2		2		2	4		4	
Detector Phase	2	2	2	2	2	4	4	4	4
Switch Phase									
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	16.0	16.0	16.0	16.0
Minimum Split (s)	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6
Total Split (s)	46.6	46.6	46.6	46.6	46.6	36.6	36.6	36.6	36.6
Total Split (%)	56.0%	56.0%	56.0%	56.0%	56.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	59.8	59.8	59.8	59.8	59.8	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.19	0.19	0.19	0.19
v/c Ratio	0.11	0.37	0.01	0.35	0.08	0.05	0.06	0.23	0.22
Control Delay (s/veh)	6.1	7.3	5.3	7.1	1.5	28.2	20.9	31.1	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.1	7.3	5.3	7.1	1.5	28.2	20.9	31.1	13.1
LOS	A	A	A	A	A	C	C	C	B
Approach Delay (s/veh)		7.2		6.1			23.5		21.1
Approach LOS		A		A			C		C

Intersection Summary			
Cycle Length: 83.2			
Actuated Cycle Length: 83.2			
Offset: 22.5 (27%), Referenced to phase 2:EBWB and 6:, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.37			
Intersection Signal Delay (s/veh): 8.8		Intersection LOS: A	
Intersection Capacity Utilization 69.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	430	11	4	417	85	12	12	9	62	18	58
Future Volume (vph)	73	430	11	4	417	85	12	12	9	62	18	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.94		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1699		1825	1731	1555	1706	1798		1825	1652	
Flt Permitted	0.50	1.00		0.48	1.00	1.00	0.71	1.00		0.74	1.00	
Satd. Flow (perm)	957	1699		926	1731	1555	1267	1798		1429	1652	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	75	443	11	4	430	88	12	12	9	64	19	60
RTOR Reduction (vph)	0	1	0	0	0	28	0	8	0	0	51	0
Lane Group Flow (vph)	75	453	0	4	430	61	12	13	0	64	28	0
Heavy Vehicles (%)	0%	13%	0%	0%	11%	5%	7%	0%	0%	0%	0%	4%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Effective Green, g (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.69	0.69		0.69	0.69	0.69	0.15	0.15		0.15	0.15	
Clearance Time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	657	1168		636	1190	1069	194	276		219	254	
v/s Ratio Prot		c0.27			0.25			0.01			0.02	
v/s Ratio Perm	0.08			0.00		0.04	0.01			c0.04		
v/c Ratio	0.11	0.39		0.01	0.36	0.06	0.06	0.05		0.29	0.11	
Uniform Delay, d1	4.4	5.5		4.1	5.4	4.2	30.1	30.0		31.2	30.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	1.0		0.0	0.9	0.1	0.1	0.1		0.7	0.2	
Delay (s)	4.8	6.5		4.1	6.3	4.3	30.2	30.1		31.9	30.5	
Level of Service	A	A		A	A	A	C	C		C	C	
Approach Delay (s/veh)		6.3			5.9			30.1			31.1	
Approach LOS		A			A			C			C	

Intersection Summary					
HCM 2000 Control Delay (s/veh)	9.7	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.37				
Actuated Cycle Length (s)	83.2	Sum of lost time (s)		13.2	
Intersection Capacity Utilization	69.8%	ICU Level of Service		C	
Analysis Period (min)	15				
c Critical Lane Group					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	474	8	12	472	12	3	17	21	21	5	14
Future Volume (Veh/h)	14	474	8	12	472	12	3	17	21	21	5	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	15	499	8	13	497	13	3	18	22	22	5	15
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	510			507			1074	1069	503	1090	1067	504
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	510			507			1074	1069	503	1090	1067	504
tC, single (s)	4.2			4.2			7.2	6.5	6.3	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.0	3.4	3.5	4.0	3.4
p0 queue free %	99			99			98	92	96	87	98	97
cM capacity (veh/h)	1025			1004			178	217	547	171	218	547

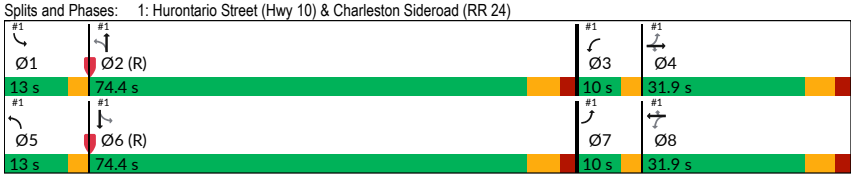
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	15	507	13	510	43	42
Volume Left	15	0	13	0	3	22
Volume Right	0	8	0	13	22	15
cSH	1025	1700	1004	1700	307	235
Volume to Capacity	0.01	0.30	0.01	0.30	0.14	0.18
Queue Length 95th (m)	0.3	0.0	0.3	0.0	3.7	4.8
Control Delay (s/veh)	8.6	0.0	8.6	0.0	18.6	23.6
Lane LOS	A		A		C	C
Approach Delay (s/veh)	0.2		0.2		18.6	23.6
Approach LOS					C	C

Intersection Summary					
Average Delay	1.8				
Intersection Capacity Utilization	41.2%	ICU Level of Service		A	
Analysis Period (min)	15				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	111	235	108	146	237	34	185	1346	60	1100
Future Volume (vph)	111	235	108	146	237	34	185	1346	60	1100
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	7.0	20.0
Minimum Split (s)	10.0	17.9	17.9	10.0	17.9	17.9	10.0	44.4	10.0	44.4
Total Split (s)	10.0	31.9	31.9	10.0	31.9	31.9	13.0	74.4	13.0	74.4
Total Split (%)	7.7%	24.7%	24.7%	7.7%	24.7%	24.7%	10.1%	57.5%	10.1%	57.5%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.0	3.0	5.0
All-Red Time (s)	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	0.0	2.4
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)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4	3.0	7.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	33.3	22.4	22.4	33.3	22.4	22.4	86.1	73.8	82.3	70.0
Actuated g/C Ratio	0.26	0.17	0.17	0.26	0.17	0.17	0.67	0.57	0.64	0.54
v/c Ratio	0.53	0.84	0.32	0.73	0.81	0.10	0.68	0.77	0.36	0.68
Control Delay (s/veh)	45.1	76.1	10.2	59.2	71.8	0.6	22.9	25.8	13.9	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.1	76.1	10.2	59.2	71.8	0.6	22.9	25.8	13.9	24.5
LOS	D	E	B	E	E	A	C	C	B	C
Approach Delay (s/veh)		52.8			61.6			25.4		23.9
Approach LOS		D			E			C		C

Intersection Summary			
Cycle Length: 129.3			
Actuated Cycle Length: 129.3			
Offset: 85 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay (s/veh): 32.2		Intersection LOS: C	
Intersection Capacity Utilization 89.1%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)



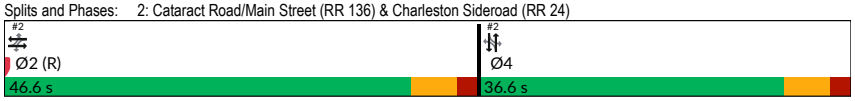
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	235	108	146	237	34	185	1346	140	60	1100	76
Future Volume (vph)	111	235	108	146	237	34	185	1346	140	60	1100	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1753	1685	1530	1658	1762	1544	1772	3520		1601	3317	
Flt Permitted	0.33	1.00	1.00	0.34	1.00	1.00	0.14	1.00		0.08	1.00	
Satd. Flow (perm)	614	1685	1530	589	1762	1544	259	3520		135	3317	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	116	245	113	152	247	35	193	1402	146	63	1146	79
RTOR Reduction (vph)	0	0	93	0	0	29	0	6	0	0	4	0
Lane Group Flow (vph)	116	245	20	152	247	6	193	1542	0	63	1221	0
Confl. Peds. (#/hr)	5		4	4		5	2		3	3		2
Confl. Bikes (#/hr)			1			1			1			1
Heavy Vehicles (%)	4%	14%	5%	10%	9%	4%	3%	2%	2%	14%	9%	6%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	29.4	22.4	22.4	29.4	22.4	22.4	82.6	73.1		76.5	70.0	
Effective Green, g (s)	29.4	22.4	22.4	29.4	22.4	22.4	82.6	73.1		76.5	70.0	
Actuated g/C Ratio	0.23	0.17	0.17	0.23	0.17	0.17	0.64	0.57		0.59	0.54	
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4		3.0	4.4	
Lane Grp Cap (vph)	201	291	265	191	305	267	277	1990		153	1795	
v/s Ratio Prot	0.03	c0.15		c0.04	0.14		c0.05	c0.44		0.02	0.37	
v/s Ratio Perm	0.10		0.01	0.14		0.00	0.39			0.22		
v/c Ratio	0.58	0.84	0.07	0.80	0.81	0.02	0.70	0.78		0.41	0.68	
Uniform Delay, d1	41.9	51.7	44.8	45.9	51.4	44.4	15.3	21.7		17.7	21.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.0	19.3	0.1	20.1	14.6	0.0	7.4	3.0		1.8	2.1	
Delay (s)	45.8	71.0	44.9	66.0	66.0	44.4	22.7	24.8		19.5	23.6	
Level of Service	D	E	D	E	E	D	C	C		B	C	
Approach Delay (s/veh)		58.6			64.3			24.5			23.4	
Approach LOS		E			E			C			C	

Intersection Summary					
HCM 2000 Control Delay (s/veh)	32.7	HCM 2000 Level of Service	C		
HCM 2000 Volume to Capacity ratio	0.80				
Actuated Cycle Length (s)	129.3	Sum of lost time (s)	20.3		
Intersection Capacity Utilization	89.1%	ICU Level of Service	E		
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	49	327	6	302	51	3	8	55	12
Future Volume (vph)	49	327	6	302	51	3	8	55	12
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2		2			4		4
Permitted Phases	2		2		2	4		4	
Detector Phase	2	2	2	2	2	4	4	4	4
Switch Phase									
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	16.0	16.0	16.0	16.0
Minimum Split (s)	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6
Total Split (s)	46.6	46.6	46.6	46.6	46.6	36.6	36.6	36.6	36.6
Total Split (%)	56.0%	56.0%	56.0%	56.0%	56.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	59.8	59.8	59.8	59.8	59.8	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.19	0.19	0.19	0.19
v/c Ratio	0.06	0.29	0.01	0.25	0.05	0.01	0.04	0.21	0.16
Control Delay (s/veh)	5.7	6.6	5.2	6.3	1.7	27.7	22.4	30.6	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	5.7	6.6	5.2	6.3	1.7	27.7	22.4	30.6	13.7
LOS	A	A	A	A	A	C	C	C	B
Approach Delay (s/veh)		6.5		5.7			23.4		22.3
Approach LOS		A		A			C		C

Intersection Summary			
Cycle Length: 83.2			
Actuated Cycle Length: 83.2			
Offset: 22.5 (27%), Referenced to phase 2:EBWB and 6:, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.29			
Intersection Signal Delay (s/veh): 8.4		Intersection LOS: A	
Intersection Capacity Utilization 64.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	327	8	6	302	51	3	8	5	55	12	40
Future Volume (vph)	49	327	8	6	302	51	3	8	5	55	12	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.94		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1699		1825	1731	1555	1706	1810		1825	1651	
Flt Permitted	0.57	1.00		0.55	1.00	1.00	0.72	1.00		0.75	1.00	
Satd. Flow (perm)	1093	1699		1060	1731	1555	1295	1810		1439	1651	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	51	341	8	6	315	53	3	8	5	57	12	42
RTOR Reduction (vph)	0	1	0	0	0	17	0	4	0	0	36	0
Lane Group Flow (vph)	51	348	0	6	315	36	3	9	0	57	19	0
Heavy Vehicles (%)	0%	13%	0%	0%	11%	5%	7%	0%	0%	0%	0%	4%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Effective Green, g (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.69	0.69		0.69	0.69	0.69	0.15	0.15		0.15	0.15	
Clearance Time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	751	1168		728	1190	1069	199	278		221	254	
v/s Ratio Prot		c0.21			0.18			0.00			0.01	
v/s Ratio Perm	0.05			0.01		0.02	0.00			c0.04		
v/c Ratio	0.07	0.30		0.01	0.26	0.03	0.02	0.03		0.26	0.08	
Uniform Delay, d1	4.3	5.1		4.1	5.0	4.2	29.9	29.9		31.0	30.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.7		0.0	0.5	0.1	0.0	0.0		0.6	0.1	
Delay (s)	4.4	5.8		4.1	5.5	4.2	29.9	30.0		31.6	30.3	
Level of Service	A	A		A	A	A	C	C		C	C	
Approach Delay (s/veh)		5.6			5.3			30.0			31.0	
Approach LOS		A			A			C			C	

Intersection Summary					
HCM 2000 Control Delay (s/veh)	9.1	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.29				
Actuated Cycle Length (s)	83.2	Sum of lost time (s)		13.2	
Intersection Capacity Utilization	64.2%	ICU Level of Service		C	
Analysis Period (min)	15				
c Critical Lane Group					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	355	8	7	350	8	7	10	10	16	4	17
Future Volume (Veh/h)	8	355	8	7	350	8	7	10	10	16	4	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	9	378	9	7	372	9	7	11	11	17	4	18
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	381			387			807	796	383	803	796	377
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	381			387			807	796	383	803	796	377
tC, single (s)	4.2			4.2			7.2	6.5	6.3	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.0	3.4	3.5	4.0	3.4
p0 queue free %	99			99			97	97	98	94	99	97
cM capacity (veh/h)	1145			1114			276	318	641	288	318	646

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	9	387	7	381	29	39
Volume Left	9	0	7	0	7	17
Volume Right	0	9	0	9	11	18
cSH	1145	1700	1114	1700	376	392
Volume to Capacity	0.00*	0.23	0.00*	0.22	0.08	0.10
Queue Length 95th (m)	0.2	0.0	0.1	0.0	1.9	2.5
Control Delay (s/veh)	8.2	0.0	8.3	0.0	15.4	15.2
Lane LOS	A		A		C	C
Approach Delay (s/veh)	0.2		0.1		15.4	15.2
Approach LOS					C	C

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	29.4%	ICU Level of Service		A
Analysis Period (min)	15			

* Value less than 0.01.

Attachment #4B

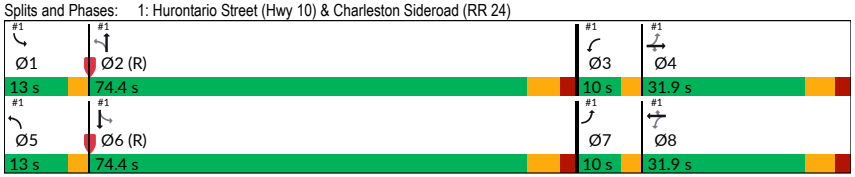
Future Total 2032 Conditions

Synchro Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	64	166	250	124	194	31	174	948	59	1653
Future Volume (vph)	64	166	250	124	194	31	174	948	59	1653
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	7.0	20.0
Minimum Split (s)	10.0	17.9	17.9	10.0	17.9	17.9	10.0	44.4	10.0	44.4
Total Split (s)	10.0	31.9	31.9	10.0	31.9	31.9	13.0	74.4	13.0	74.4
Total Split (%)	7.7%	24.7%	24.7%	7.7%	24.7%	24.7%	10.1%	57.5%	10.1%	57.5%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.0	3.0	5.0
All-Red Time (s)	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	0.0	2.4
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)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4	3.0	7.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	30.8	19.9	19.9	31.4	21.9	21.9	89.1	76.4	79.1	67.0
Actuated g/C Ratio	0.24	0.15	0.15	0.24	0.17	0.17	0.69	0.59	0.61	0.52
v/c Ratio	0.28	0.72	0.74	0.51	0.71	0.11	0.86	0.60	0.22	0.99
Control Delay (s/veh)	38.5	68.5	31.4	45.1	64.9	0.7	68.3	19.7	9.6	48.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	38.5	68.5	31.4	45.1	64.9	0.7	68.3	19.7	9.6	48.6
LOS	D	E	C	D	E	A	E	B	A	D
Approach Delay (s/veh)		45.2			52.1			26.7		47.3
Approach LOS		D			D			C		D

Intersection Summary			
Cycle Length: 129.3			
Actuated Cycle Length: 129.3			
Offset: 85 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay (s/veh): 40.9		Intersection LOS: D	
Intersection Capacity Utilization 92.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)



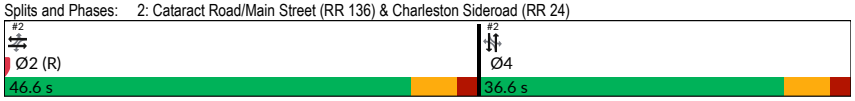
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	166	250	124	194	31	174	948	92	59	1653	65
Future Volume (vph)	64	166	250	124	194	31	174	948	92	59	1653	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1644	1575	1361	1772	1700	1372	1404	3095		1472	3539	
Flt Permitted	0.46	1.00	1.00	0.46	1.00	1.00	0.06	1.00		0.22	1.00	
Satd. Flow (perm)	802	1575	1361	864	1700	1372	85	3095		347	3539	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	67	175	263	131	204	33	183	998	97	62	1740	68
RTOR Reduction (vph)	0	0	144	0	0	27	0	5	0	0	2	0
Lane Group Flow (vph)	67	175	119	131	204	6	183	1090	0	62	1806	0
Heavy Vehicles (%)	11%	22%	20%	3%	13%	19%	30%	16%	20%	24%	2%	17%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	26.1	20.5	20.5	28.9	21.9	21.9	84.5	75.2		72.7	66.4	
Effective Green, g (s)	26.1	20.5	20.5	28.9	21.9	21.9	84.5	75.2		72.7	66.4	
Actuated g/C Ratio	0.20	0.16	0.16	0.22	0.17	0.17	0.65	0.58		0.56	0.51	
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4		3.0	4.4	
Lane Grp Cap (vph)	198	249	215	242	287	232	209	1800		249	1817	
v/s Ratio Prot	0.01	0.11		c0.03	c0.12		c0.10	0.35		0.01	c0.51	
v/s Ratio Perm	0.05		0.09	0.09		0.00	0.47			0.13		
v/c Ratio	0.34	0.70	0.55	0.54	0.71	0.02	0.88	0.61		0.25	0.99	
Uniform Delay, d1	43.1	51.5	50.2	43.0	50.7	44.8	42.6	17.5		13.3	31.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	8.7	3.1	2.5	8.0	0.0	30.9	1.5		0.5	19.7	
Delay (s)	44.1	60.2	53.3	45.4	58.8	44.8	73.6	19.0		13.9	51.0	
Level of Service	D	E	D	D	E	D	E	B		B	D	
Approach Delay (s/veh)		54.4			52.8			26.8			49.8	
Approach LOS		D			D			C			D	

Intersection Summary					
HCM 2000 Control Delay (s/veh)	43.3	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.90				
Actuated Cycle Length (s)	129.3	Sum of lost time (s)		20.3	
Intersection Capacity Utilization	92.0%	ICU Level of Service		F	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	39	396	6	370	43	6	7	52	10
Future Volume (vph)	39	396	6	370	43	6	7	52	10
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2		2			4		4
Permitted Phases	2		2		2	4		4	
Detector Phase	2	2	2	2	2	4	4	4	4
Switch Phase									
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	16.0	16.0	16.0	16.0
Minimum Split (s)	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6
Total Split (s)	46.6	46.6	46.6	46.6	46.6	36.6	36.6	36.6	36.6
Total Split (%)	56.0%	56.0%	56.0%	56.0%	56.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	59.8	59.8	59.8	59.8	59.8	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.19	0.19	0.19	0.19
v/c Ratio	0.06	0.36	0.01	0.35	0.04	0.02	0.05	0.20	0.16
Control Delay (s/veh)	5.6	7.3	5.3	7.3	1.7	27.7	18.7	30.4	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	5.6	7.3	5.3	7.3	1.7	27.7	18.7	30.4	12.6
LOS	A	A	A	A	A	C	B	C	B
Approach Delay (s/veh)		7.1		6.7			20.9		21.4
Approach LOS		A		A			C		C

Intersection Summary			
Cycle Length: 83.2			
Actuated Cycle Length: 83.2			
Offset: 22.5 (27%), Referenced to phase 2:EBWB and 6:, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.36			
Intersection Signal Delay (s/veh): 8.8		Intersection LOS: A	
Intersection Capacity Utilization 63.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	396	6	6	370	43	6	7	11	52	10	45
Future Volume (vph)	39	396	6	6	370	43	6	7	11	52	10	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.91		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	1615		1825	1525	1633	1825	1745		1825	1631	
Flt Permitted	0.53	1.00		0.51	1.00	1.00	0.72	1.00		0.75	1.00	
Satd. Flow (perm)	993	1615		978	1525	1633	1384	1745		1433	1631	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	40	408	6	6	381	44	6	7	11	54	10	46
RTOR Reduction (vph)	0	0	0	0	0	14	0	9	0	0	39	0
Lane Group Flow (vph)	40	414	0	6	381	30	6	9	0	54	17	0
Heavy Vehicles (%)	3%	19%	0%	0%	26%	0%	0%	0%	0%	0%	0%	4%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Effective Green, g (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.69	0.69		0.69	0.69	0.69	0.15	0.15		0.15	0.15	
Clearance Time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	682	1110		672	1048	1122	212	268		220	250	
v/s Ratio Prot		c0.26			0.25			0.00			0.01	
v/s Ratio Perm	0.04			0.01		0.02	0.00			c0.04		
v/c Ratio	0.06	0.37		0.01	0.36	0.03	0.03	0.03		0.25	0.07	
Uniform Delay, d1	4.2	5.5		4.1	5.4	4.1	29.9	29.9		31.0	30.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	1.0		0.0	1.0	0.0	0.1	0.0		0.6	0.1	
Delay (s)	4.4	6.4		4.1	6.4	4.2	30.0	30.0		31.5	30.2	
Level of Service	A	A		A	A	A	C	C		C	C	
Approach Delay (s/veh)		6.2			6.1			30.0			30.9	
Approach LOS		A			A			C			C	

Intersection Summary					
HCM 2000 Control Delay (s/veh)	9.4	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.35				
Actuated Cycle Length (s)	83.2	Sum of lost time (s)		13.2	
Intersection Capacity Utilization	63.2%	ICU Level of Service		B	
Analysis Period (min)	15				
c Critical Lane Group					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	381	2	34	333	15	2	6	15	15	10	11
Future Volume (Veh/h)	16	381	2	34	333	15	2	6	15	15	10	11
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	17	401	2	36	351	16	2	6	16	16	11	12
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	367			403			877	875	402	885	868	359
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	367			403			877	875	402	885	868	359
tC, single (s)	4.1			4.8			7.1	6.5	6.7	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.9			3.5	4.0	3.8	3.5	4.0	3.3
p0 queue free %	99			96			99	98	97	93	96	98
cM capacity (veh/h)	1203			854			248	274	551	245	276	690

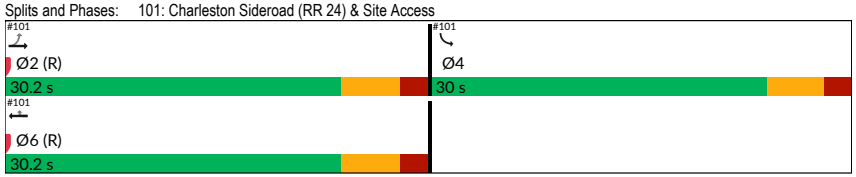
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	17	403	36	367	24	39
Volume Left	17	0	36	0	2	16
Volume Right	0	2	0	16	16	12
cSH	1203	1700	854	1700	407	318
Volume to Capacity	0.01	0.24	0.04	0.22	0.06	0.12
Queue Length 95th (m)	0.3	0.0	1.0	0.0	1.4	3.1
Control Delay (s/veh)	8.0	0.0	9.4	0.0	14.4	17.9
Lane LOS	A		A		B	C
Approach Delay (s/veh)	0.3		0.8		14.4	17.9
Approach LOS					B	C

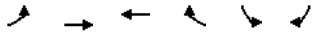
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			39.6%		ICU Level of Service	
Analysis Period (min)			15			

Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Configurations					
Traffic Volume (vph)	5	407	380	40	53
Future Volume (vph)	5	407	380	40	53
Turn Type	Perm	NA	NA	Perm	Prot
Protected Phases		2	6		4
Permitted Phases	2			6	
Detector Phase	2	2	6	6	4
Switch Phase					
Minimum Initial (s)	12.0	12.0	12.0	12.0	1.0
Minimum Split (s)	30.2	30.2	30.2	30.2	30.0
Total Split (s)	30.2	30.2	30.2	30.2	30.0
Total Split (%)	50.2%	50.2%	50.2%	50.2%	49.8%
Yellow Time (s)	4.2	4.2	4.2	4.2	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max
Act Effct Green (s)	24.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40
v/c Ratio	0.02	0.58	0.61	0.10	0.14
Control Delay (s/veh)	11.2	18.4	19.6	5.1	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	11.2	18.4	19.6	5.1	11.7
LOS	B	B	B	A	B
Approach Delay (s/veh)		18.3	18.2		11.7
Approach LOS		B	B		B

Intersection Summary		
Cycle Length: 60.2		
Actuated Cycle Length: 60.2		
Offset: 37 (61%), Referenced to phase 2:EBTL and 6:WBT, Start of Green		
Natural Cycle: 65		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.61		
Intersection Signal Delay (s/veh): 17.8	Intersection LOS: B	
Intersection Capacity Utilization 35.0%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 101: Charleston Sideroad (RR 24) & Site Access





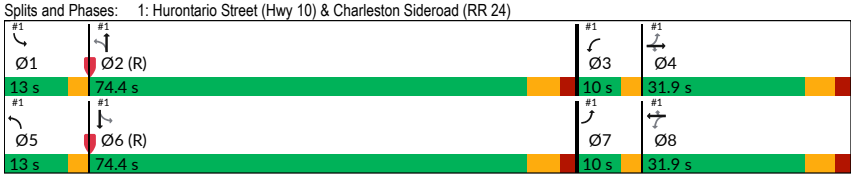
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	407	380	40	53	7
Future Volume (vph)	5	407	380	40	53	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	6.2	6.2	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.98	
Flt Protected	0.95	1.00	1.00	1.00	0.96	
Satd. Flow (prot)	1521	1746	1562	944	1035	
Flt Permitted	0.46	1.00	1.00	1.00	0.96	
Satd. Flow (perm)	734	1746	1562	944	1035	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	407	380	40	53	7
RTOR Reduction (vph)	0	0	0	24	4	0
Lane Group Flow (vph)	5	407	380	16	56	0
Heavy Vehicles (%)	20%	10%	23%	73%	81%	29%
Turn Type	Perm	NA	NA	Perm	Prot	
Protected Phases		2	6		4	
Permitted Phases	2			6		
Actuated Green, G (s)	24.0	24.0	24.0	24.0	24.0	
Effective Green, g (s)	24.0	24.0	24.0	24.0	24.0	
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	
Clearance Time (s)	6.2	6.2	6.2	6.2	6.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	
Lane Grp Cap (vph)	292	696	622	376	412	
v/s Ratio Prot		0.23	c0.24		c0.05	
v/s Ratio Perm	0.01			0.02		
v/c Ratio	0.02	0.58	0.61	0.04	0.14	
Uniform Delay, d1	11.0	14.2	14.4	11.1	11.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	3.6	4.4	0.2	0.7	
Delay (s)	11.1	17.8	18.8	11.3	12.2	
Level of Service	B	B	B	B	B	
Approach Delay (s/veh)		17.7	18.1		12.2	
Approach LOS		B	B		B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	60.2	Sum of lost time (s)	12.2
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	94	266	192	113	282	84	224	1670	52	1032
Future Volume (vph)	94	266	192	113	282	84	224	1670	52	1032
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	7.0	20.0
Minimum Split (s)	10.0	17.9	17.9	10.0	17.9	17.9	10.0	44.4	10.0	44.4
Total Split (s)	10.0	31.9	31.9	10.0	31.9	31.9	13.0	74.4	13.0	74.4
Total Split (%)	7.7%	24.7%	24.7%	7.7%	24.7%	24.7%	10.1%	57.5%	10.1%	57.5%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.0	3.0	5.0
All-Red Time (s)	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	0.0	2.4
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)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4	3.0	7.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	35.0	24.1	24.1	35.0	24.1	24.1	84.8	72.4	79.6	67.6
Actuated g/C Ratio	0.27	0.19	0.19	0.27	0.19	0.19	0.66	0.56	0.62	0.52
v/c Ratio	0.52	0.89	0.48	0.61	0.91	0.24	0.86	0.97	0.37	0.67
Control Delay (s/veh)	44.7	81.5	9.9	49.6	82.6	10.4	42.9	42.5	17.4	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	44.7	81.5	9.9	49.6	82.6	10.4	42.9	42.5	17.4	24.9
LOS	D	F	A	D	F	B	D	D	B	C
Approach Delay (s/veh)		50.3			62.2			42.5		24.6
Approach LOS		D			E			D		C

Intersection Summary			
Cycle Length: 129.3			
Actuated Cycle Length: 129.3			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay (s/veh): 40.9		Intersection LOS: D	
Intersection Capacity Utilization 99.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	266	192	113	282	84	224	1670	152	52	1032	68
Future Volume (vph)	94	266	192	113	282	84	224	1670	152	52	1032	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1737	1685	1376	1658	1762	1562	1601	3531		1615	3315	
Flt Permitted	0.25	1.00	1.00	0.28	1.00	1.00	0.15	1.00		0.06	1.00	
Satd. Flow (perm)	448	1685	1376	495	1762	1562	254	3531		101	3315	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	99	280	202	119	297	88	236	1758	160	55	1086	72
RTOR Reduction (vph)	0	0	164	0	0	72	0	5	0	0	4	0
Lane Group Flow (vph)	99	280	38	119	297	16	236	1913	0	55	1154	0
Confl. Peds. (#/hr)	5		6	6		5	7		5	5		7
Heavy Vehicles (%)	5%	14%	18%	10%	9%	4%	14%	2%	2%	13%	9%	9%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	31.1	24.1	24.1	31.1	24.1	24.1	80.9	71.7		73.8	67.6	
Effective Green, g (s)	31.1	24.1	24.1	31.1	24.1	24.1	80.9	71.7		73.8	67.6	
Actuated g/C Ratio	0.24	0.19	0.19	0.24	0.19	0.19	0.63	0.55		0.57	0.52	
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4		3.0	4.4	
Lane Grp Cap (vph)	177	314	256	182	328	291	266	1958		130	1733	
v/s Ratio Prot	0.03	0.17		c0.04	c0.17		c0.07	c0.54		0.02	0.35	
v/s Ratio Perm	0.10		0.03	0.12		0.01	0.48			0.22		
v/c Ratio	0.56	0.89	0.15	0.65	0.91	0.06	0.89	0.98		0.42	0.67	
Uniform Delay, d1	40.4	51.3	44.0	41.7	51.5	43.3	17.3	28.0		27.9	22.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.8	25.5	0.3	8.2	27.0	0.1	27.8	15.6		2.2	2.0	
Delay (s)	44.2	76.9	44.3	49.9	78.5	43.3	45.1	43.6		30.1	24.6	
Level of Service	D	E	D	D	E	D	D	D		C	C	
Approach Delay (s/veh)		60.0			65.6			43.8			24.9	
Approach LOS		E			E			D			C	

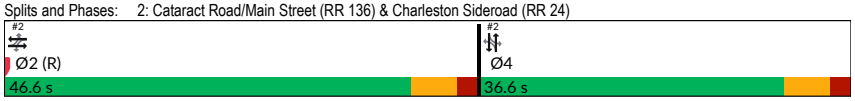
Intersection Summary					
HCM 2000 Control Delay (s/veh)	43.2	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.95				
Actuated Cycle Length (s)	129.3	Sum of lost time (s)		20.3	
Intersection Capacity Utilization	99.1%	ICU Level of Service		F	
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	74	490	4	462	85	12	12	62	18
Future Volume (vph)	74	490	4	462	85	12	12	62	18
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2		2			4		4
Permitted Phases	2		2		2	4		4	
Detector Phase	2	2	2	2	2	4	4	4	4
Switch Phase									
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	16.0	16.0	16.0	16.0
Minimum Split (s)	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6
Total Split (s)	46.6	46.6	46.6	46.6	46.6	36.6	36.6	36.6	36.6
Total Split (%)	56.0%	56.0%	56.0%	56.0%	56.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	59.8	59.8	59.8	59.8	59.8	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.19	0.19	0.19	0.19
v/c Ratio	0.12	0.44	0.01	0.40	0.08	0.05	0.06	0.23	0.21
Control Delay (s/veh)	6.2	8.1	5.3	7.7	1.5	28.3	20.9	31.1	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.2	8.1	5.3	7.7	1.5	28.3	20.9	31.1	13.1
LOS	A	A	A	A	A	C	C	C	B
Approach Delay (s/veh)		7.9		6.7			23.5		21.1
Approach LOS		A		A			C		C

Intersection Summary			
Cycle Length: 83.2			
Actuated Cycle Length: 83.2			
Offset: 22.5 (27%), Referenced to phase 2:EBWB and 6:, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay (s/veh): 9.2		Intersection LOS: A	
Intersection Capacity Utilization 73.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	490	11	4	462	85	12	12	9	62	18	58
Future Volume (vph)	74	490	11	4	462	85	12	12	9	62	18	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.94		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1642		1825	1656	1555	1690	1798		1825	1664	
Flt Permitted	0.47	1.00		0.44	1.00	1.00	0.71	1.00		0.74	1.00	
Satd. Flow (perm)	898	1642		848	1656	1555	1255	1798		1429	1664	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	76	505	11	4	476	88	12	12	9	64	19	60
RTOR Reduction (vph)	0	1	0	0	0	28	0	8	0	0	51	0
Lane Group Flow (vph)	76	515	0	4	476	61	12	13	0	64	28	0
Heavy Vehicles (%)	0%	17%	0%	0%	16%	5%	8%	0%	0%	0%	0%	3%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Effective Green, g (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.69	0.69		0.69	0.69	0.69	0.15	0.15		0.15	0.15	
Clearance Time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	617	1128		583	1138	1069	193	276		219	256	
v/s Ratio Prot		c0.31			0.29			0.01			0.02	
v/s Ratio Perm	0.08			0.00		0.04	0.01			c0.04		
v/c Ratio	0.12	0.46		0.01	0.42	0.06	0.06	0.05		0.29	0.11	
Uniform Delay, d1	4.4	5.9		4.1	5.7	4.2	30.1	30.0		31.2	30.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	1.3		0.0	1.1	0.1	0.1	0.1		0.7	0.2	
Delay (s)	4.8	7.3		4.1	6.8	4.3	30.2	30.1		31.9	30.5	
Level of Service	A	A		A	A	A	C	C		C	C	
Approach Delay (s/veh)		6.9			6.4			30.1			31.1	
Approach LOS		A			A			C			C	

Intersection Summary					
HCM 2000 Control Delay (s/veh)	9.9	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.43				
Actuated Cycle Length (s)	83.2	Sum of lost time (s)		13.2	
Intersection Capacity Utilization	73.0%	ICU Level of Service		C	
Analysis Period (min)	15				
c Critical Lane Group					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	479	8	15	479	12	3	17	26	21	5	14
Future Volume (Veh/h)	14	479	8	15	479	12	3	17	26	21	5	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	15	504	8	16	504	13	3	18	27	22	5	15
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	517			512			1092	1087	508	1113	1085	511
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	517			512			1092	1087	508	1113	1085	511
tC, single (s)	4.2			4.2			7.1	6.5	6.3	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.5	4.0	3.4	3.5	4.0	3.4
p0 queue free %	99			98			98	91	95	86	98	97
cM capacity (veh/h)	1024			999			181	211	545	163	212	540

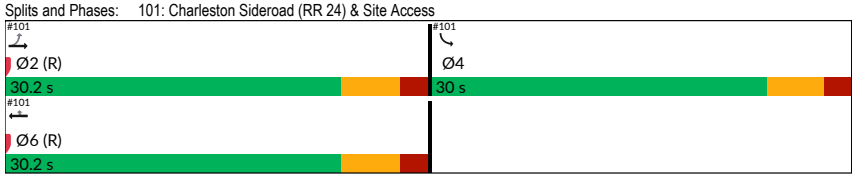
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	15	512	16	517	48	42
Volume Left	15	0	16	0	3	22
Volume Right	0	8	0	13	27	15
cSH	1024	1700	999	1700	317	225
Volume to Capacity	0.01	0.30	0.02	0.30	0.15	0.19
Queue Length 95th (m)	0.3	0.0	0.4	0.0	4.0	5.1
Control Delay (s/veh)	8.6	0.0	8.7	0.0	18.4	24.6
Lane LOS	A		A		C	C
Approach Delay (s/veh)	0.2		0.3		18.4	24.6
Approach LOS					C	C

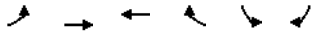
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			41.6%		ICU Level of Service	
Analysis Period (min)			15			

Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Configurations					
Traffic Volume (vph)	10	518	493	45	58
Future Volume (vph)	10	518	493	45	58
Turn Type	Perm	NA	NA	Perm	Prot
Protected Phases		2	6		4
Permitted Phases	2			6	
Detector Phase	2	2	6	6	4
Switch Phase					
Minimum Initial (s)	12.0	12.0	5.0	5.0	12.0
Minimum Split (s)	30.2	30.2	30.2	30.2	30.0
Total Split (s)	30.2	30.2	30.2	30.2	30.0
Total Split (%)	50.2%	50.2%	50.2%	50.2%	49.8%
Yellow Time (s)	4.2	4.2	4.2	4.2	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max
Act Effct Green (s)	24.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40
v/c Ratio	0.04	0.73	0.70	0.11	0.14
Control Delay (s/veh)	11.8	23.1	21.4	4.9	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	11.8	23.1	21.4	4.9	11.6
LOS	B	C	C	A	B
Approach Delay (s/veh)		22.9	20.0		11.6
Approach LOS		C	C		B

Intersection Summary		
Cycle Length: 60.2		
Actuated Cycle Length: 60.2		
Offset: 34 (56%), Referenced to phase 2:EBTL and 6:WBT, Start of Green		
Natural Cycle: 65		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.73		
Intersection Signal Delay (s/veh): 20.8	Intersection LOS: C	
Intersection Capacity Utilization 47.4%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 101: Charleston Sideroad (RR 24) & Site Access





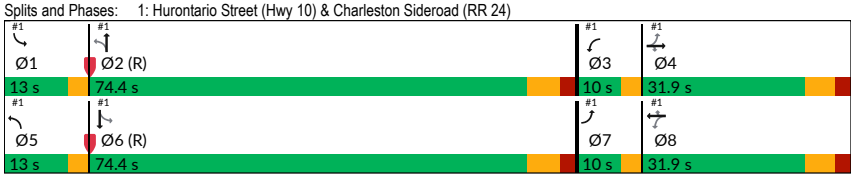
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	518	493	45	58	7
Future Volume (vph)	10	518	493	45	58	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	6.2	6.2	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.99	
Flt Protected	0.95	1.00	1.00	1.00	0.96	
Satd. Flow (prot)	1659	1779	1779	996	1239	
Flt Permitted	0.33	1.00	1.00	1.00	0.96	
Satd. Flow (perm)	582	1779	1779	996	1239	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	0.92	1.00
Adj. Flow (vph)	10	518	493	45	63	7
RTOR Reduction (vph)	0	0	0	27	4	0
Lane Group Flow (vph)	10	518	493	18	66	0
Heavy Vehicles (%)	10%	8%	8%	64%	50%	14%
Turn Type	Perm	NA	NA	Perm	Prot	
Protected Phases		2	6		4	
Permitted Phases	2			6		
Actuated Green, G (s)	24.0	24.0	24.0	24.0	24.0	
Effective Green, g (s)	24.0	24.0	24.0	24.0	24.0	
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	
Clearance Time (s)	6.2	6.2	6.2	6.2	6.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	
Lane Grp Cap (vph)	232	709	709	397	493	
v/s Ratio Prot		c0.29	0.28		c0.05	
v/s Ratio Perm	0.02			0.02		
v/c Ratio	0.04	0.73	0.70	0.05	0.13	
Uniform Delay, d1	11.1	15.4	15.1	11.1	11.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	6.5	5.6	0.2	0.6	
Delay (s)	11.4	21.9	20.6	11.3	12.1	
Level of Service	B	C	C	B	B	
Approach Delay (s/veh)		21.7	19.8		12.1	
Approach LOS		C	B		B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	60.2	Sum of lost time (s)	12.2
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	115	235	136	146	237	34	216	1346	60	1100
Future Volume (vph)	115	235	136	146	237	34	216	1346	60	1100
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	7.0	20.0
Minimum Split (s)	10.0	17.9	17.9	10.0	17.9	17.9	10.0	44.4	10.0	44.4
Total Split (s)	10.0	31.9	31.9	10.0	31.9	31.9	13.0	74.4	13.0	74.4
Total Split (%)	7.7%	24.7%	24.7%	7.7%	24.7%	24.7%	10.1%	57.5%	10.1%	57.5%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.0	3.0	5.0
All-Red Time (s)	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	0.0	2.4
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)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4	3.0	7.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	33.3	22.4	22.4	33.3	22.4	22.4	86.2	73.8	80.5	68.2
Actuated g/C Ratio	0.26	0.17	0.17	0.26	0.17	0.17	0.67	0.57	0.62	0.53
v/c Ratio	0.55	0.84	0.42	0.73	0.81	0.10	0.85	0.77	0.36	0.70
Control Delay (s/veh)	46.4	76.1	10.9	59.2	71.8	0.6	43.9	25.7	13.8	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	46.4	76.1	10.9	59.2	71.8	0.6	43.9	25.7	13.8	25.7
LOS	D	E	B	E	E	A	D	C	B	C
Approach Delay (s/veh)		50.8			61.6			28.0		25.2
Approach LOS		D			E			C		C

Intersection Summary			
Cycle Length: 129.3			
Actuated Cycle Length: 129.3			
Offset: 85 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay (s/veh): 33.6		Intersection LOS: C	
Intersection Capacity Utilization 89.1%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)



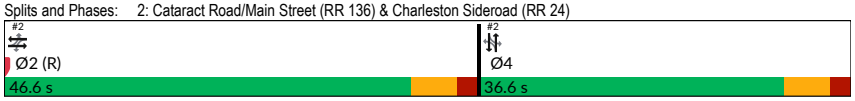
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	235	136	146	237	34	216	1346	140	60	1100	80
Future Volume (vph)	115	235	136	146	237	34	216	1346	140	60	1100	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1737	1685	1296	1658	1762	1559	1573	3520		1615	3310	
Flt Permitted	0.33	1.00	1.00	0.34	1.00	1.00	0.13	1.00		0.08	1.00	
Satd. Flow (perm)	608	1685	1296	589	1762	1559	219	3520		141	3310	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	120	245	142	152	247	35	225	1402	146	63	1146	83
RTOR Reduction (vph)	0	0	117	0	0	29	0	6	0	0	4	0
Lane Group Flow (vph)	120	245	25	152	247	6	225	1542	0	63	1225	0
Confl. Peds. (#/hr)	5		4	4		5	2		3	3		2
Confl. Bikes (#/hr)			1			1			1			1
Heavy Vehicles (%)	5%	14%	24%	10%	9%	3%	16%	2%	2%	13%	9%	9%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	29.4	22.4	22.4	29.4	22.4	22.4	82.6	73.2		74.6	68.2	
Effective Green, g (s)	29.4	22.4	22.4	29.4	22.4	22.4	82.6	73.2		74.6	68.2	
Actuated g/C Ratio	0.23	0.17	0.17	0.23	0.17	0.17	0.64	0.57		0.58	0.53	
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4		3.0	4.4	
Lane Grp Cap (vph)	199	291	224	191	305	270	259	1992		154	1745	
v/s Ratio Prot	0.03	c0.15		c0.04	0.14		c0.08	0.44		0.02	0.37	
v/s Ratio Perm	0.10		0.02	0.14		0.00	c0.48			0.22		
v/c Ratio	0.60	0.84	0.11	0.80	0.81	0.02	0.87	0.77		0.41	0.70	
Uniform Delay, d1	42.4	51.7	45.0	45.9	51.4	44.4	19.1	21.7		17.8	22.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.1	19.3	0.2	20.1	14.6	0.0	25.1	3.0		1.8	2.4	
Delay (s)	47.5	71.0	45.3	66.0	66.0	44.4	44.2	24.7		19.6	25.3	
Level of Service	D	E	D	E	E	D	D	C		B	C	
Approach Delay (s/veh)		58.2			64.3			27.2			25.0	
Approach LOS		E			E			C			C	

Intersection Summary					
HCM 2000 Control Delay (s/veh)	34.4	HCM 2000 Level of Service	C		
HCM 2000 Volume to Capacity ratio	0.88				
Actuated Cycle Length (s)	129.3	Sum of lost time (s)	20.3		
Intersection Capacity Utilization	89.1%	ICU Level of Service	E		
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	49	359	6	337	51	3	8	55	12
Future Volume (vph)	49	359	6	337	51	3	8	55	12
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2		2			4		4
Permitted Phases	2		2		2	4		4	
Detector Phase	2	2	2	2	2	4	4	4	4
Switch Phase									
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	16.0	16.0	16.0	16.0
Minimum Split (s)	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6
Total Split (s)	46.6	46.6	46.6	46.6	46.6	36.6	36.6	36.6	36.6
Total Split (%)	56.0%	56.0%	56.0%	56.0%	56.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	59.8	59.8	59.8	59.8	59.8	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.19	0.19	0.19	0.19
v/c Ratio	0.07	0.33	0.01	0.30	0.05	0.01	0.04	0.21	0.16
Control Delay (s/veh)	5.7	7.0	5.3	6.8	1.7	27.3	22.4	30.6	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	5.7	7.0	5.3	6.8	1.7	27.3	22.4	30.6	13.7
LOS	A	A	A	A	A	C	C	C	B
Approach Delay (s/veh)		6.9		6.1			23.3		22.3
Approach LOS		A		A			C		C

Intersection Summary			
Cycle Length: 83.2			
Actuated Cycle Length: 83.2			
Offset: 22.5 (27%), Referenced to phase 2:EBWB and 6:, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.33			
Intersection Signal Delay (s/veh): 8.6		Intersection LOS: A	
Intersection Capacity Utilization 65.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	359	8	6	337	51	3	8	5	55	12	40
Future Volume (vph)	49	359	8	6	337	51	3	8	5	55	12	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.94		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1601		1825	1628	1541	1825	1810		1825	1638	
Flt Permitted	0.55	1.00		0.53	1.00	1.00	0.72	1.00		0.75	1.00	
Satd. Flow (perm)	1058	1601		1021	1628	1541	1385	1810		1439	1638	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	51	374	8	6	351	53	3	8	5	57	12	42
RTOR Reduction (vph)	0	1	0	0	0	17	0	4	0	0	36	0
Lane Group Flow (vph)	51	381	0	6	351	36	3	9	0	57	19	0
Heavy Vehicles (%)	0%	20%	0%	0%	18%	6%	0%	0%	0%	0%	0%	5%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Effective Green, g (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.69	0.69		0.69	0.69	0.69	0.15	0.15		0.15	0.15	
Clearance Time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	727	1100		701	1119	1059	213	278		221	252	
v/s Ratio Prot		c0.24			0.22			0.00			0.01	
v/s Ratio Perm	0.05			0.01		0.02	0.00			c0.04		
v/c Ratio	0.07	0.35		0.01	0.31	0.03	0.01	0.03		0.26	0.08	
Uniform Delay, d1	4.3	5.3		4.1	5.2	4.2	29.8	29.9		31.0	30.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.9		0.0	0.7	0.1	0.0	0.0		0.6	0.1	
Delay (s)	4.5	6.2		4.1	5.9	4.2	29.9	30.0		31.6	30.3	
Level of Service	A	A		A	A	A	C	C		C	C	
Approach Delay (s/veh)		6.0			5.7			30.0			31.0	
Approach LOS		A			A			C			C	

Intersection Summary					
HCM 2000 Control Delay (s/veh)	9.1	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.33				
Actuated Cycle Length (s)	83.2	Sum of lost time (s)		13.2	
Intersection Capacity Utilization	65.1%	ICU Level of Service		C	
Analysis Period (min)	15				
c Critical Lane Group					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	360	8	8	353	8	7	10	12	16	4	17
Future Volume (Veh/h)	8	360	8	8	353	8	7	10	12	16	4	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	9	383	9	9	376	9	7	11	13	17	4	18
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	385			392			820	809	388	818	809	381
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	385			392			820	809	388	818	809	381
tC, single (s)	4.2			4.2			7.2	6.5	6.3	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.0	3.4	3.5	4.0	3.4
p0 queue free %	99			99			97	96	98	94	99	97
cM capacity (veh/h)	1116			1109			267	312	648	280	312	645

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	9	392	9	385	31	39
Volume Left	9	0	9	0	7	17
Volume Right	0	9	0	9	13	18
cSH	1116	1700	1109	1700	380	384
Volume to Capacity	0.00*	0.23	0.00*	0.23	0.08	0.10
Queue Length 95th (m)	0.2	0.0	0.2	0.0	2.0	2.6
Control Delay (s/veh)	8.3	0.0	8.3	0.0	15.3	15.4
Lane LOS	A		A		C	C
Approach Delay (s/veh)	0.2		0.2		15.3	15.4
Approach LOS					C	C

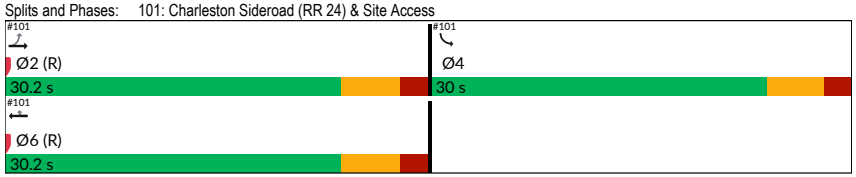
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			29.8%		ICU Level of Service	
Analysis Period (min)			15			

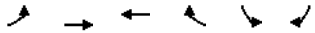
* Value less than 0.01.

Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Configurations					
Traffic Volume (vph)	1	388	350	29	29
Future Volume (vph)	1	388	350	29	29
Turn Type	Perm	NA	NA	Perm	Prot
Protected Phases		2	6		4
Permitted Phases	2			6	
Detector Phase	2	2	6	6	4
Switch Phase					
Minimum Initial (s)	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	30.2	30.2	30.2	30.2	30.0
Total Split (s)	30.2	30.2	30.2	30.2	30.0
Total Split (%)	50.2%	50.2%	50.2%	50.2%	49.8%
Yellow Time (s)	4.2	4.2	4.2	4.2	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max
Act Effct Green (s)	24.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40
v/c Ratio	0.01	0.55	0.49	0.08	0.08
Control Delay (s/veh)	11.0	17.5	16.5	5.6	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	11.0	17.5	16.5	5.6	11.8
LOS	B	B	B	A	B
Approach Delay (s/veh)		17.5	15.7		11.8
Approach LOS		B	B		B

Intersection Summary		
Cycle Length: 60.2		
Actuated Cycle Length: 60.2		
Offset: 33 (55%), Referenced to phase 2:EBTL and 6:WBT, Start of Green		
Natural Cycle: 65		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.55		
Intersection Signal Delay (s/veh): 16.4	Intersection LOS: B	
Intersection Capacity Utilization 40.6%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 101: Charleston Sideroad (RR 24) & Site Access





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1	388	350	29	29	1
Future Volume (vph)	1	388	350	29	29	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	6.2	6.2	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	1.00	
Flt Protected	0.95	1.00	1.00	1.00	0.95	
Satd. Flow (prot)	913	1779	1779	816	912	
Flt Permitted	0.49	1.00	1.00	1.00	0.95	
Satd. Flow (perm)	473	1779	1779	816	912	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	0.92
Adj. Flow (vph)	1	388	350	29	29	1
RTOR Reduction (vph)	0	0	0	17	1	0
Lane Group Flow (vph)	1	388	350	12	29	0
Heavy Vehicles (%)	100%	8%	8%	100%	100%	100%
Turn Type	Perm	NA	NA	Perm	Prot	
Protected Phases		2	6		4	
Permitted Phases	2			6		
Actuated Green, G (s)	24.0	24.0	24.0	24.0	24.0	
Effective Green, g (s)	24.0	24.0	24.0	24.0	24.0	
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	
Clearance Time (s)	6.2	6.2	6.2	6.2	6.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	
Lane Grp Cap (vph)	188	709	709	325	363	
v/s Ratio Prot		c0.22	0.20		c0.03	
v/s Ratio Perm	0.00			0.01		
v/c Ratio	0.01	0.55	0.49	0.04	0.08	
Uniform Delay, d1	10.9	13.9	13.6	11.0	11.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	3.0	2.4	0.2	0.4	
Delay (s)	11.0	16.9	16.0	11.2	11.7	
Level of Service	B	B	B	B	B	
Approach Delay (s/veh)		16.9	15.6		11.7	
Approach LOS		B	B		B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	60.2	Sum of lost time (s)	12.2
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Attachment #4C

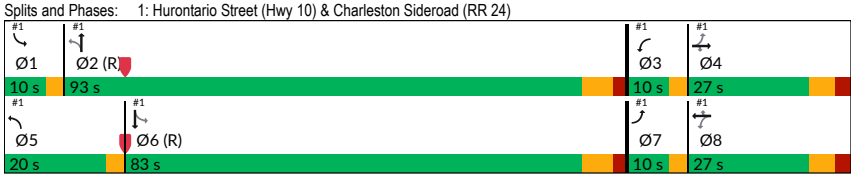
Future Total 2032 Conditions

Synchro Reports (Optimized)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	64	166	250	124	194	31	174	948	59	1653
Future Volume (vph)	64	166	250	124	194	31	174	948	59	1653
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	7.0	20.0
Minimum Split (s)	10.0	17.9	17.9	10.0	17.9	17.9	10.0	44.4	10.0	44.4
Total Split (s)	10.0	27.0	27.0	10.0	27.0	27.0	20.0	93.0	10.0	83.0
Total Split (%)	7.1%	19.3%	19.3%	7.1%	19.3%	19.3%	14.3%	66.4%	7.1%	59.3%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.0	3.0	5.0
All-Red Time (s)	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	0.0	2.4
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)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4	3.0	7.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	29.8	18.9	18.9	30.4	20.9	20.9	101.2	88.8	89.3	77.9
Actuated g/C Ratio	0.21	0.14	0.14	0.22	0.15	0.15	0.72	0.63	0.64	0.56
v/c Ratio	0.34	0.83	0.76	0.60	0.81	0.11	0.90	0.56	0.21	0.92
Control Delay (s/veh)	47.5	87.9	31.9	57.8	81.4	0.8	79.4	16.3	8.4	37.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	47.5	87.9	31.9	57.8	81.4	0.8	79.4	16.3	8.4	37.4
LOS	D	F	C	E	F	A	E	B	A	D
Approach Delay (s/veh)		53.4			65.8			25.3		36.5
Approach LOS		D			E			C		D

Intersection Summary			
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 85 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay (s/veh): 37.7		Intersection LOS: D	
Intersection Capacity Utilization 92.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)



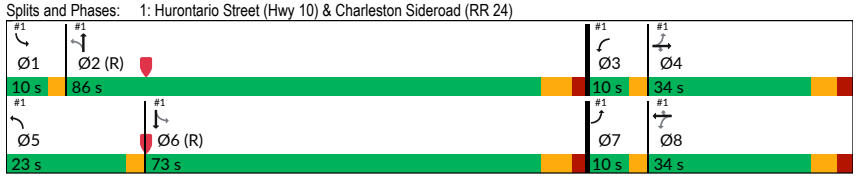
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	166	250	124	194	31	174	948	92	59	1653	65
Future Volume (vph)	64	166	250	124	194	31	174	948	92	59	1653	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1644	1575	1361	1772	1700	1372	1404	3095		1472	3539	
Flt Permitted	0.41	1.00	1.00	0.42	1.00	1.00	0.05	1.00		0.24	1.00	
Satd. Flow (perm)	703	1575	1361	775	1700	1372	74	3095		367	3539	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	67	175	263	131	204	33	183	998	97	62	1740	68
RTOR Reduction (vph)	0	0	163	0	0	28	0	5	0	0	2	0
Lane Group Flow (vph)	67	175	100	131	204	5	183	1090	0	62	1806	0
Heavy Vehicles (%)	11%	22%	20%	3%	13%	19%	30%	16%	20%	24%	2%	17%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	25.1	19.5	19.5	27.9	20.9	20.9	96.2	87.6		82.9	77.3	
Effective Green, g (s)	25.1	19.5	19.5	27.9	20.9	20.9	96.2	87.6		82.9	77.3	
Actuated g/C Ratio	0.18	0.14	0.14	0.20	0.15	0.15	0.69	0.63		0.59	0.55	
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4		3.0	4.4	
Lane Grp Cap (vph)	163	219	189	204	253	204	201	1936		261	1954	
v/s Ratio Prot	0.02	0.11		c0.03	c0.12		c0.10	0.35		0.01	0.51	
v/s Ratio Perm	0.06		0.07	0.10		0.00	c0.52			0.13		
v/c Ratio	0.41	0.80	0.53	0.64	0.81	0.02	0.91	0.56		0.24	0.92	
Uniform Delay, d1	49.3	58.4	56.0	50.2	57.6	50.8	47.7	15.1		12.4	28.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	18.1	2.8	6.7	16.9	0.0	39.4	1.2		0.5	8.9	
Delay (s)	51.0	76.5	58.8	57.0	74.5	50.9	87.2	16.3		12.8	37.6	
Level of Service	D	E	E	E	E	D	F	B		B	D	
Approach Delay (s/veh)		63.9			66.1			26.5			36.8	
Approach LOS		E			E			C			D	

Intersection Summary					
HCM 2000 Control Delay (s/veh)	39.6	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.90				
Actuated Cycle Length (s)	140.0	Sum of lost time (s)		20.3	
Intersection Capacity Utilization	92.0%	ICU Level of Service		F	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	94	266	192	113	282	84	224	1670	52	1032
Future Volume (vph)	94	266	192	113	282	84	224	1670	52	1032
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	7.0	20.0
Minimum Split (s)	10.0	17.9	17.9	10.0	17.9	17.9	10.0	44.4	10.0	44.4
Total Split (s)	10.0	34.0	34.0	10.0	34.0	34.0	23.0	86.0	10.0	73.0
Total Split (%)	7.1%	24.3%	24.3%	7.1%	24.3%	24.3%	16.4%	61.4%	7.1%	52.1%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.0	3.0	5.0
All-Red Time (s)	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	0.0	2.4
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)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4	3.0	7.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	36.9	26.0	26.0	36.9	26.0	26.0	94.1	81.7	83.0	71.6
Actuated g/C Ratio	0.26	0.19	0.19	0.26	0.19	0.19	0.67	0.58	0.59	0.51
v/c Ratio	0.56	0.90	0.48	0.65	0.91	0.24	0.76	0.93	0.42	0.68
Control Delay (s/veh)	51.3	85.8	10.2	57.7	86.8	7.2	31.2	36.5	25.7	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	51.3	85.8	10.2	57.7	86.8	7.2	31.2	36.5	25.7	29.0
LOS	D	F	B	E	F	A	C	D	C	C
Approach Delay (s/veh)		53.6			66.0			35.9		28.9
Approach LOS		D			E			D		C

Intersection Summary			
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay (s/veh): 39.7		Intersection LOS: D	
Intersection Capacity Utilization 99.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	266	192	113	282	84	224	1670	152	52	1032	68
Future Volume (vph)	94	266	192	113	282	84	224	1670	152	52	1032	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1737	1685	1375	1658	1762	1562	1601	3531		1615	3315	
Flt Permitted	0.23	1.00	1.00	0.27	1.00	1.00	0.14	1.00		0.06	1.00	
Satd. Flow (perm)	422	1685	1375	469	1762	1562	243	3531		95	3315	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	99	280	202	119	297	88	236	1758	160	55	1086	72
RTOR Reduction (vph)	0	0	164	0	0	72	0	5	0	0	3	0
Lane Group Flow (vph)	99	280	38	119	297	16	236	1913	0	55	1155	0
Confl. Peds. (#/hr)	5		6	6		5	7		5	5		7
Heavy Vehicles (%)	5%	14%	18%	10%	9%	4%	14%	2%	2%	13%	9%	9%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	33.0	26.0	26.0	33.0	26.0	26.0	89.7	81.1		77.2	71.6	
Effective Green, g (s)	33.0	26.0	26.0	33.0	26.0	26.0	89.7	81.1		77.2	71.6	
Actuated g/C Ratio	0.24	0.19	0.19	0.24	0.19	0.19	0.64	0.58		0.55	0.51	
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4		3.0	4.4	
Lane Grp Cap (vph)	165	312	255	170	327	290	302	2045		113	1695	
v/s Ratio Prot	0.03	0.17		c0.04	c0.17		c0.08	c0.54		0.02	0.35	
v/s Ratio Perm	0.11		0.03	0.13		0.01	0.42			0.25		
v/c Ratio	0.60	0.90	0.15	0.70	0.91	0.06	0.78	0.94		0.49	0.68	
Uniform Delay, d1	44.3	55.7	47.7	46.8	55.8	46.9	18.4	27.1		28.2	25.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.0	26.4	0.3	12.2	27.5	0.1	12.3	9.6		3.3	2.2	
Delay (s)	50.3	82.1	48.0	59.0	83.3	47.0	30.8	36.7		31.5	27.9	
Level of Service	D	F	D	E	F	D	C	D		C	C	
Approach Delay (s/veh)		64.8			71.2			36.0			28.0	
Approach LOS		E			E			D			C	

Intersection Summary					
HCM 2000 Control Delay (s/veh)	41.6	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.92				
Actuated Cycle Length (s)	140.0	Sum of lost time (s)		20.3	
Intersection Capacity Utilization	99.1%	ICU Level of Service		F	
Analysis Period (min)	15				

c Critical Lane Group