



HOME OPPORTUNITIES

Transportation Impact Study

280 Clair Road West, Guelph

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1.0 Introduction

1.1 Purpose

Dillon Consulting Limited (Dillon) has been retained by Home Opportunities Non-Profit Corporation (Home Opportunities) to prepare a transportation impact study (TIS) to support a proposed residential development at 280 Clair Road West in the city of Guelph, Ontario. The site is currently vacant. The development application seeks to permit the construction of 314 townhouse units as well as 642 apartment units in two separate 14- and 16-storey buildings.

The proposed residential development is found to the east of the Clair Road West and Laird Road intersection. **Figure 1** illustrates the site location; **Figure 2** presents the context of the immediate surroundings.



Figure 1: Site Location



Figure 2: Site Context

1.2 Scope

The scope of the analyses includes the following:

- Identification of existing traffic volumes, and preparation of traffic projections for the study area intersections under future background conditions and with the development of the site (total future conditions);
- Analysis of intersection capacity and operations under existing conditions, future background conditions and total future conditions; and
- Identification of potential modifications to transportation infrastructure (roads, intersection traffic control and/or geometry) that may be required.

The study analysed traffic operations at the following existing intersections:

- Clair Road West and Laird Road (unsignalized);
- Clair Road West and Clairfields Drive West / Poppy Drive West (signalized);
- Clair Road West and Gosling Gardens (signalized); and
- Clair Road West and Gordon Street (signalized).

The proposed site access on Clair Road West was assessed in the total future analyses.

Traffic analyses have been completed for the weekday AM and PM peak hours. Three horizon years have been assessed:

- 2026, corresponding to the anticipated build-out year;
- 2031, corresponding to five years after the anticipated build-out year; and
- 2036, corresponding to ten years after the anticipated build-out year.

In addition, the following items have also been considered:

- The adequacy of sight lines at the proposed site access; and
- On-site circulation.

1.3

Proposed Development

The proposed residential development envisions the construction of 314 townhouse units and 642 apartment units in two separate 14- and 16-storey buildings.

The development will be accessed via one driveway on Clair Road West.

The site plan is shown in **Figure 3**. A copy of this plan is also included in **Appendix A**.

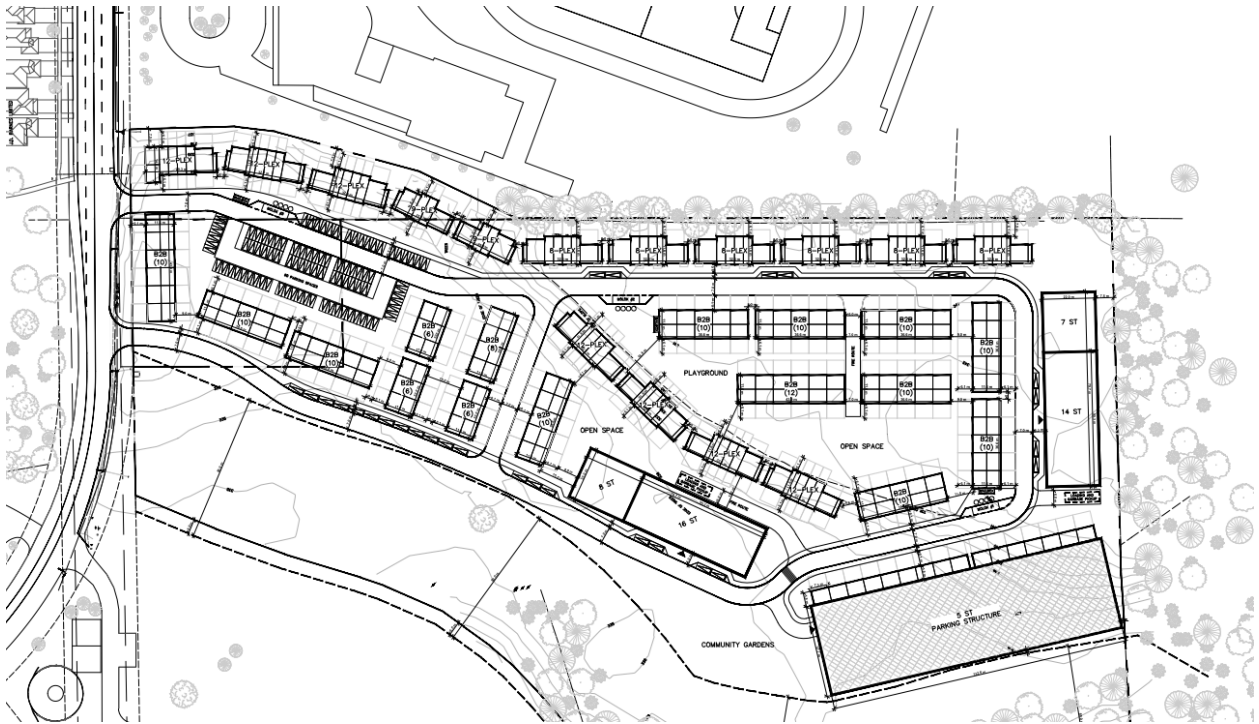


Figure 3: Site Plan

2.0

Existing (2023) Conditions

2.1

Existing Road Network

The following describes the context of the various existing roadways in the study area.

Clair Road West is an arterial road that is under the jurisdiction of the City of Guelph. It extends easterly from Crawley Road, immediately east of Highway 6, to Victoria Road South. Within the study area, it has a four-lane cross-section with auxiliary left-turn lanes at signalized intersections. There are sidewalks on both sides of the road east of the Clairfields Perimeter Trail. It has a posted speed limit of 60 km/h throughout, with the exception of the area within the curve between Laird Road and Poppy Drive, which has a posted speed limit of 50 km/h.

Clairfields Drive West is a collector road that is under the jurisdiction of the City of Guelph. It extends to the north from Clair Road West and curves to the east before terminating at Beaver Meadow Drive. It has a posted speed limit of 40 km/h within the study area and there are sidewalks on both sides of the road throughout.

Gordon Street is an arterial road that is under the jurisdiction of the City of Guelph. It begins in downtown Guelph where Norfolk Street intersects with Waterloo Avenue, extending southerly until Maltby Road West where it continues as Brock Road North. It has a four-lane cross-section within the study area. The posted speed limit is 60 km/h within the study area and there are sidewalks on both sides of the road throughout.

Gosling Gardens is a local road that is under the jurisdiction of the City of Guelph. It runs southerly from Clairfields Drive West and curves to the east before terminating at Gordon Street. There are sidewalks on both sides of the road north of Clair Road West, the sidewalk continues south of Clair Road West only on the east side of the road. It has a two-lane cross-section and posted speed limit of 40 km/h within the study area.

Laird Road is an arterial road that is under the jurisdiction of the City of Guelph. It extends from Few Street, immediately west of Highway 6, to Clair Road West. There are no sidewalks on either side of the road. Within the study area, it has a two-lane cross-section and a posted speed limit of 50 km/h.

Poppy Drive West is a local road under the jurisdiction of the City of Guelph. It runs from Clair Road West to a dead-end, approximately 180 metres south of the intersection. Another section of the road extends easterly from Gosling Gardens to Dallen Drive. Sidewalks exist on both sides

of the road. It has a two-lane cross-section and a posted speed limit of 40 km/h within the study area.

Figure 4 illustrates the existing lane configuration and traffic control at the existing study area intersections.

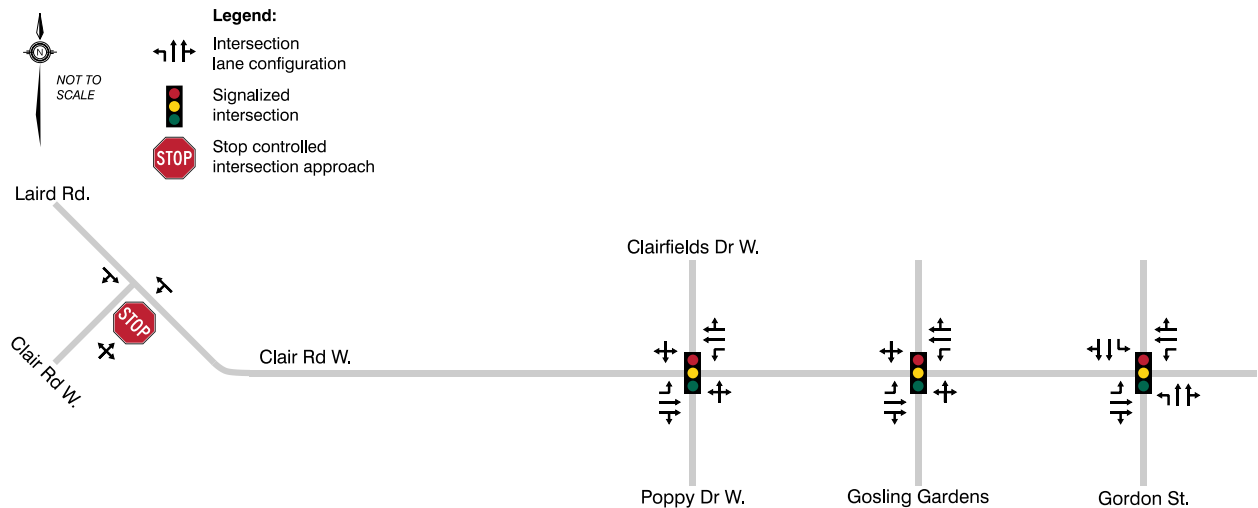


Figure 4: Existing Intersection Geometry and Traffic Control

2.2 Existing Transit Network

Transit service in the study area is operated by Guelph Transit. Three routes pass through the study area intersections:

16 Southgate extends from Dallan Drive in the east to Southgate Drive in the west, performing a loop of Hanlon Industrial Park and Clairfields Drive West. Service operates at 30-minute headways every day. The service does not operate in the early morning or in the evening on Sundays. Holiday service is on-demand only. The closest stop to the subject site is located on Clair Road West at Laird Road.

19 Hanlon Creek links Stone Mall Road to Clair Road West and Gordon Street. Service is provided at 30-minute headways every day. There is no early morning or night service on Sundays and holiday service is on-demand only. The closest stop to the subject site is located on Laird Road at Clair Road West.

At Clair Road West and Gordon Street, Route 19 becomes Route 16 and vice-versa.

99 Mainline runs from SmartCentres Guelph in the north to Clair Road West and Gordon Street in the south. Service operates at 10-minute headways on weekdays, 15-minute headways on weekends, and 30-minute headways on holidays. The closest stop to the subject site is located on Gosling Gardens at Clair Road West.

2.3 Existing (2024) Traffic Volumes

Weekday AM and PM peak hour intersection turning movement counts were collected at the study area intersections on Tuesday, February 27, 2024. The traffic volume data can be found in **Appendix B**.

Figure 5 illustrates the existing (2024) traffic volumes at the study area intersections during the weekday AM and PM peak hours, noting no adjustments were made to the collected traffic data.

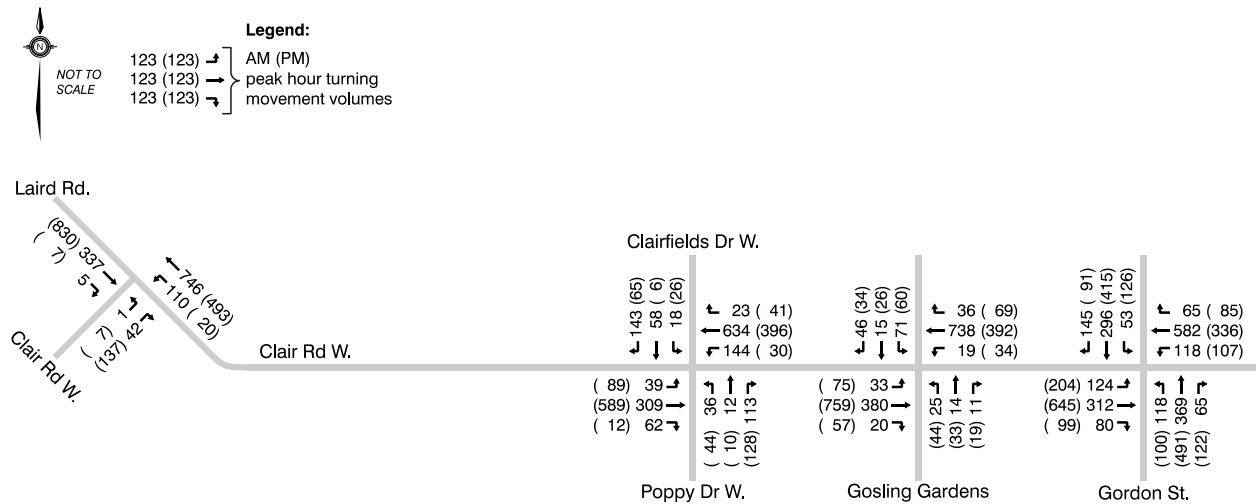


Figure 5: Existing Traffic Volumes

2.4 Existing (2024) Pedestrian and Cycling Activity

The volume of pedestrians and cyclists was recorded as part of the traffic surveys undertaken by HDSL. **Table 1** summarizes the number of pedestrian crossings at each intersection during the peak hours.

Table 1: Existing Pedestrian Activity

Intersection	AM peak hour					PM peak hour				
	North leg	South leg	West leg	East leg	Total	North leg	South leg	West leg	East leg	Total
Clair Road West and Laird Drive	–	0	1	1	2	–	0	0	0	0
Clair Road West and Clairfields Drive West / Poppy Drive West	21	13	41	7	82	25	50	67	8	150
Clair Road West and Gosling Gardens	19	8	3	8	38	16	9	11	8	44
Clair Road West and Gordon Street	24	13	3	18	58	36	23	6	17	82

The greatest level of pedestrian activity was at Clair Road West and Clairfields Drive West / Poppy Drive West. This is likely because the Bishop Macdonell Catholic High School is located in the southwest quadrant of this intersection. Approximately two pedestrian crossings per traffic signal cycle were observed. Pedestrian activity at the Clair Road West and Laird Drive intersection was negligible.

The number of cyclists observed was low. Over the full survey period, the following numbers of cyclists were observed in total at each intersection:

- 4 cyclists at Clair Road West and Laird Drive;
- 3 cyclists at Clair Road West and Clairfields Drive West;
- 3 cyclists at Clair Road West and Gosling Gardens; and
- 4 cyclists at Clair Road West and Gordon Street.

3.0

Future Background Conditions

Future background traffic volumes reflect the volume of traffic that is anticipated to be on the road network during the horizon years without the subject development in place. This is typically comprised of two components:

- The application of a growth rate to reflect general background traffic growth on the road network
- The application of any site-specific traffic volumes for any background developments that may have a notable impact on traffic volumes in the study area.

For the future background analyses, three horizon years were assessed:

- 2026 – the anticipated build-out year of the entire residential development;
- 2031 – five years beyond the anticipated build-out year; and
- 2036 – ten years beyond the anticipated build-out year.

3.1

Background Development Traffic

City of Guelph staff noted that the traffic generated by the Clair-Maltby Secondary Plan should be considered in the analyses for the 2036 horizon year.

BA Group prepared a Transportation Master Plan study in 2019 for the lands south of Clair Road and north of Maltby Road, titled the Clair-Maltby Secondary Plan. A “Preferred Community Structure” was developed for the lands including a mix of residential and commercial land uses, street and cycling network additions, and proposed trails. The traffic analysis only forecasted the PM peak hour traffic volumes.

Figure 6 illustrates the Clair-Maltby Secondary Plan traffic volumes during the PM peak hour only.

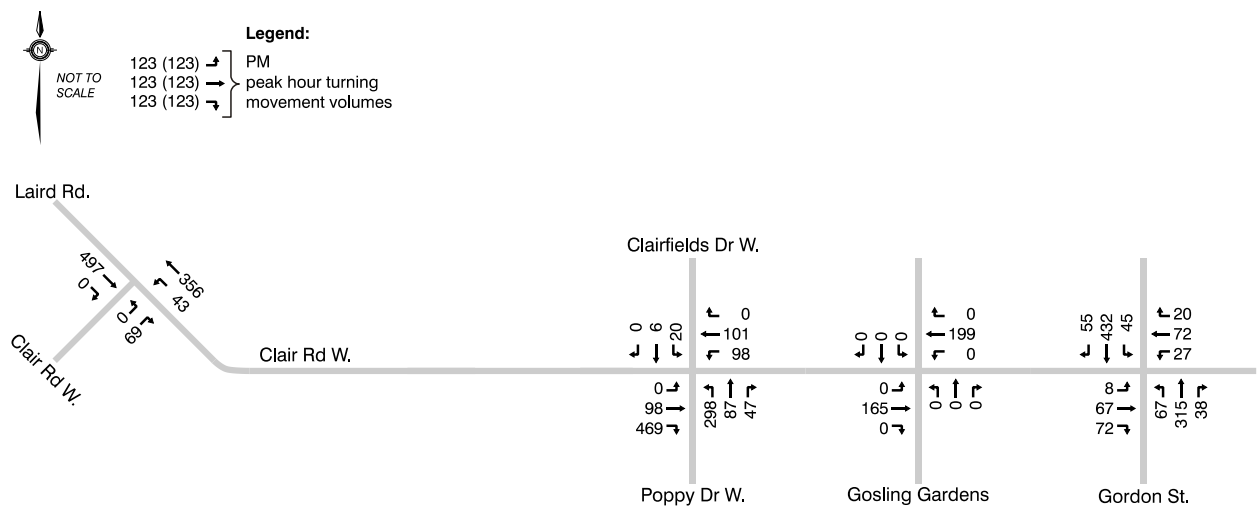


Figure 6: Clair-Maltby Secondary Plan Traffic Volumes

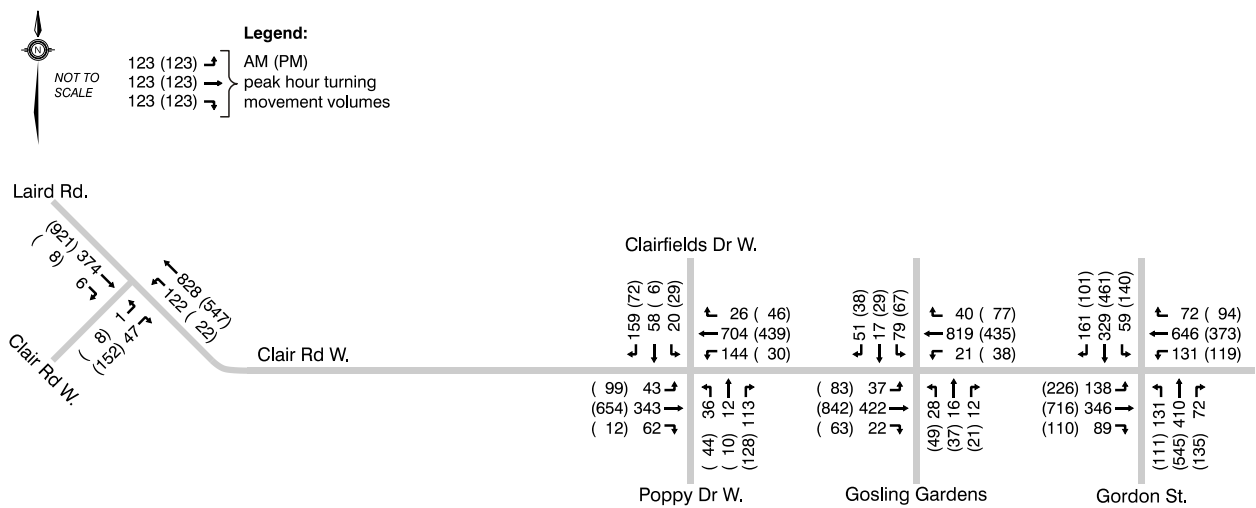
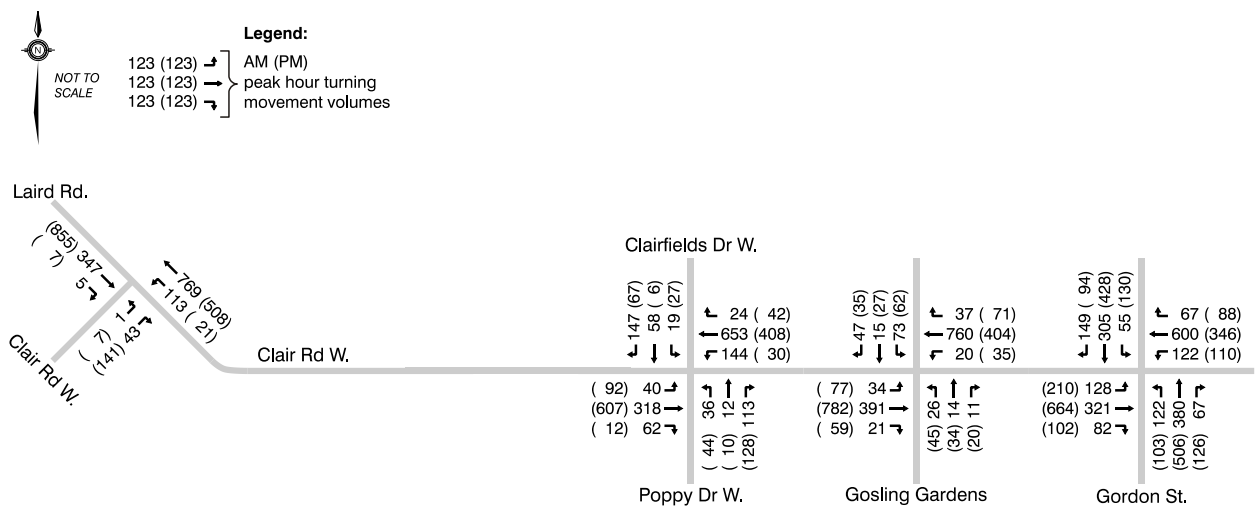
Following discussions with staff at the City of Guelph, these PM peak hour traffic volumes were forecasted out within a separate scenario in the 2036 horizon year only.

3.2 Background Growth

The future background traffic volumes were calculated by applying a background traffic growth of 1.5% rate to the existing (2024) traffic volumes. This growth rate was provided by City staff. The background growth rate was applied to all movements at the study area intersections, except for movements to/from Poppy Drive West, as this corridor does not currently extend or connect to any other public streets.

3.3 Future Background Traffic Volumes

The resulting future background traffic volumes during the 2026, 2031, and 2036 horizon years are presented in **Figure 7**, **Figure 8**, and **Figure 9**, respectively. This adds the volumes projected by the various background developments as well as the various background growth each horizon year.



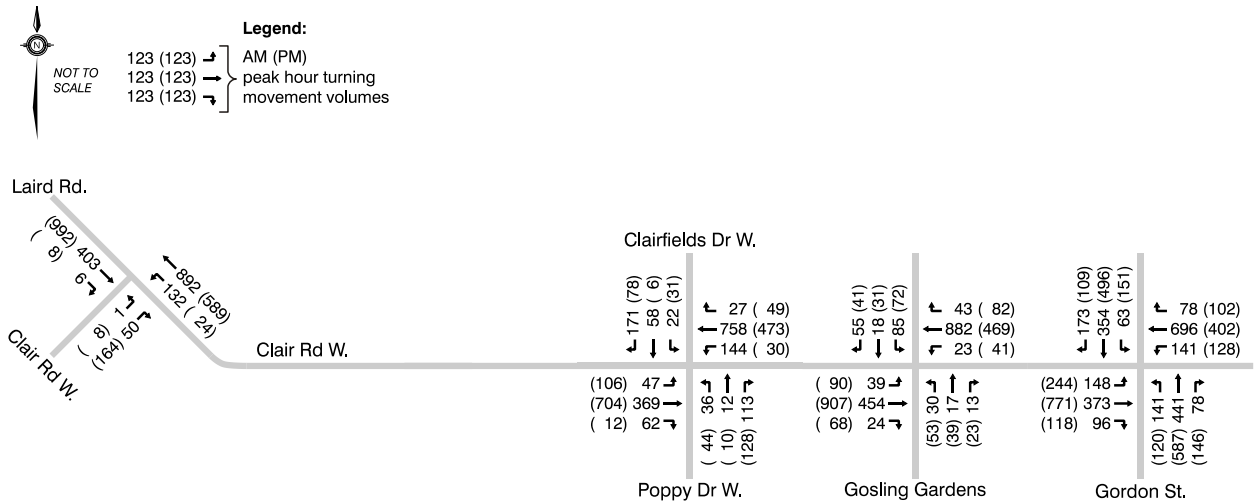


Figure 9: Future Background Traffic Volumes (2036)

The 2036 future background volumes (PM peak hour only) that include traffic generated by the Clair-Maltby Secondary Plan is shown in **Figure 10**.

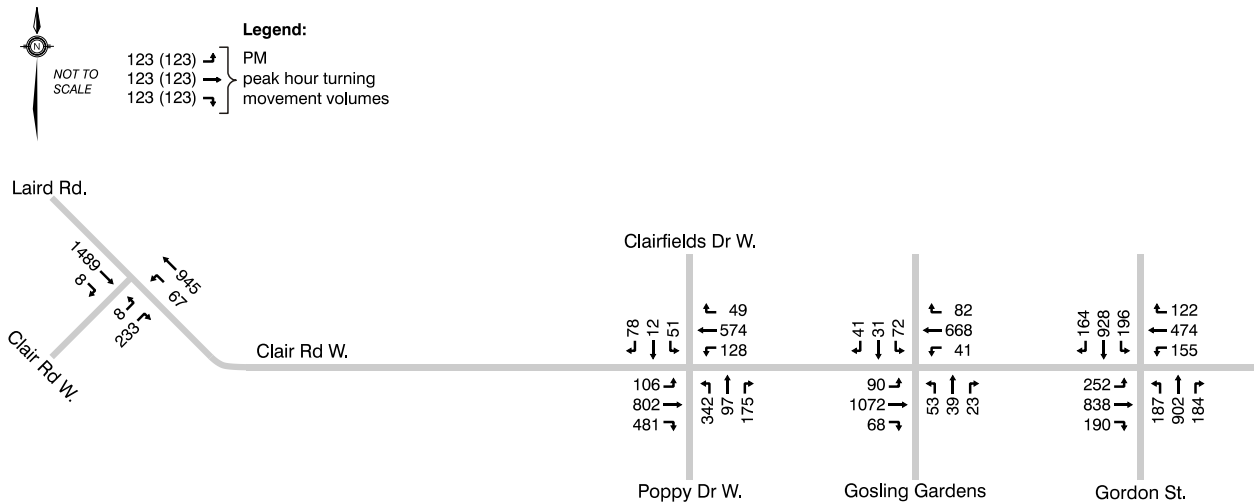


Figure 10: Future Background Traffic Volumes (2036) with Clair-Maltby Secondary Plan (PM Peak)

4.0 Total Future Conditions

4.1 Proposed Development

The proposed residential development envisions the construction of 314 townhouse units and 642 apartment units in two separate 14- and 16-storey buildings. This development is anticipated to be completed in 2026.

The development will be accessed via a single driveway to Clair Road West. As a result, all vehicles entering and exit the site will need to use this driveway.

4.2 Site Trip Generation

The number of vehicles that will be generated by the proposed residential development was estimated based on trip generation rates published within the Institute of Transportation Engineers' document *Trip Generation Manual* (11th edition – published in September 2021).

The total trips were then adjusted to reflect trips generated by non-auto modes. The ITE trip generation rates typically reflect developments in suburban environments where 5% or fewer trips are made by non-auto modes. The subject site is in a district in Guelph categorized as a "Rural / Future Development Area", and is in proximity to few transit routes. Using the City's Transportation Master Plan as a reference, a 10% modal split was used. To be conservative, the residential trips that were generated using the ITE rates were not reduced by the modal split. The 10% non-auto trips were added to the calculated vehicle trips. **Table 2** summarizes the trip generation calculations applied to the subject site.

Table 2: Site Trip Generation

	Weekday AM peak hour			Weekday PM peak hour		
	In	Out	Total	In	Out	Total
Multifamily Housing (Low-Rise) (314 dwellings) – ITE Land Use Code 220						
In/Out/Rate	24%	76%	0.40	63%	37%	0.51
Gross Vehicle Trips	30	96	126	101	59	160
Multifamily Housing (High-Rise) (642 dwellings) – ITE Land Use Code 222						
In/Out/Rate	26%	74%	0.27	62%	38%	0.32
Gross Vehicle Trips	45	128	173	127	78	205
Modal Split						
Non-auto Trips	8	25	33	25	15	40
Total Vehicle Trips	75	224	299	228	137	365
Total Person Trips	83	249	332	253	152	405

The site is projected to generate 299 new vehicle trips (75 inbound, 224 outbound) during the AM peak hour and 365 new vehicle trips (228 inbound, 137 outbound) during the PM peak hour.

It should be noted that the actual number of vehicle trips generated by this site may be lower as a number of units will be designated as affordable housing that would be directed to lower-income individuals and families. These residents may not rely on a personal vehicle for some or all trips.

4.3 Site Traffic Distribution

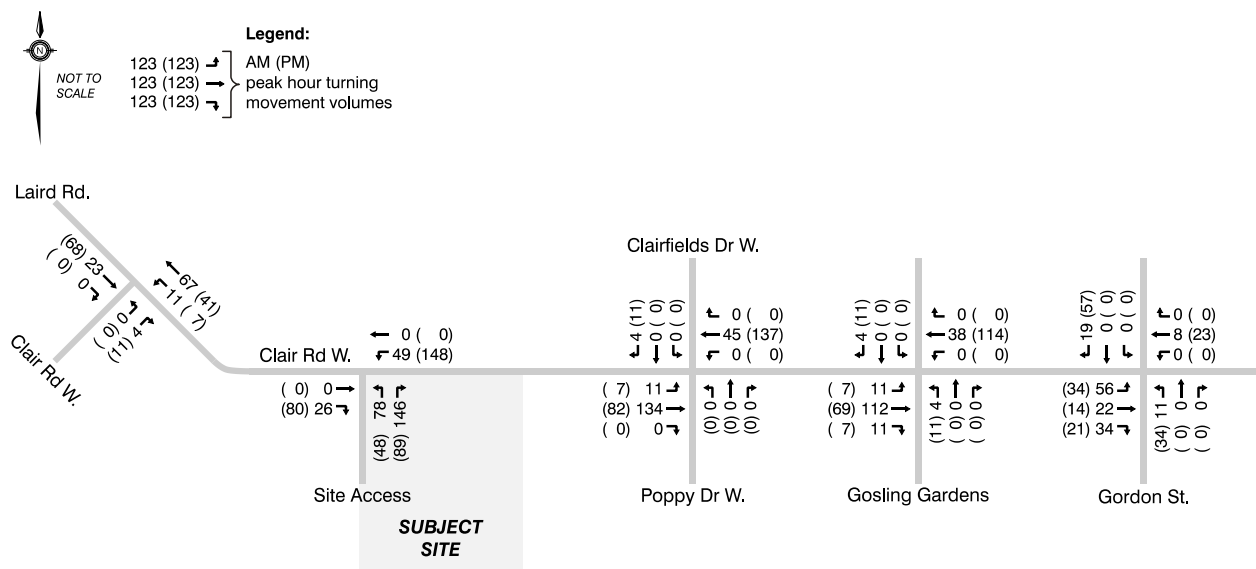
The trip distribution was based on the existing traffic patterns within the study area. The location of the development site within Guelph was also a consideration. The site trips were distributed as follows:

- 35% to/from the north (5% via Clairfields Drive; 5% via Gosling Gardens; 25% via Gordon Street);
- 10% to/from the east (all trips via Clair Road West);
- 25% to/from the south (5% via Clair Road West; 5% via Gosling Gardens; 15% via Gordon Street)
- 30% to/from the west (all trips via Laird Road).

4.4 Site Traffic Assignment

Trips generated by the site were assigned logically based on the available street network and the relative attractiveness of the various approach routes.

Figure 11 illustrates the anticipated site traffic volumes.



4.5 Total Future Traffic

Total future traffic volumes represent conditions anticipated with the proposed development in place, and were calculated by adding the site traffic volumes to the projected future background traffic volumes. **Figure 12, Figure 13, and Figure 14** illustrate the projected total future traffic volumes during the 2026, 2031 and 2036 horizon years, respectively.

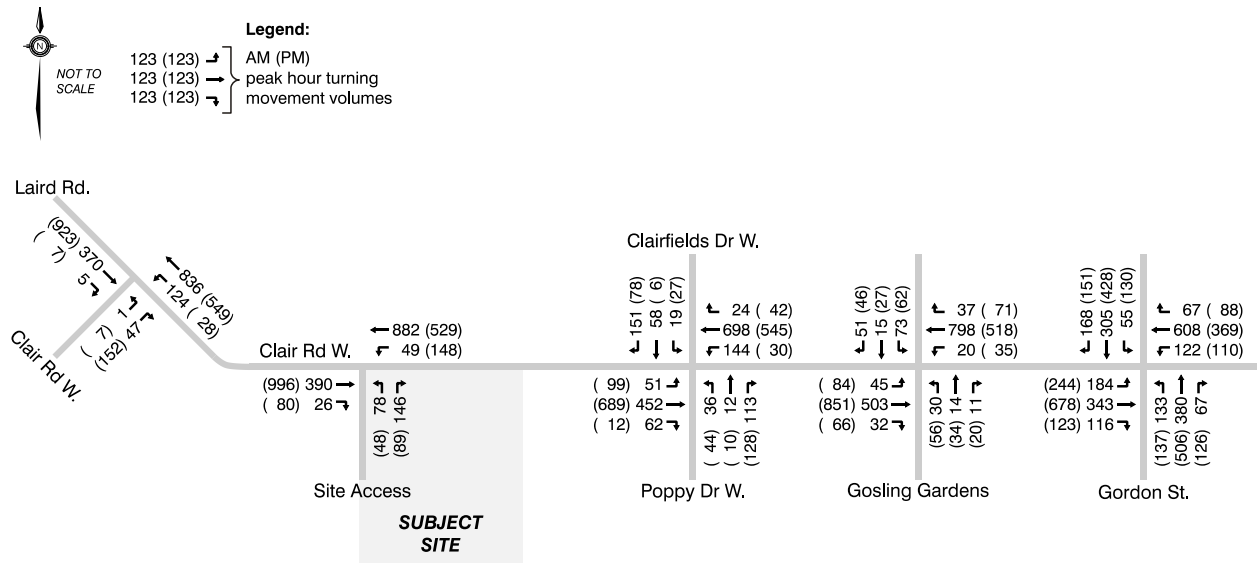


Figure 12: Total Future Traffic Volumes (2026)

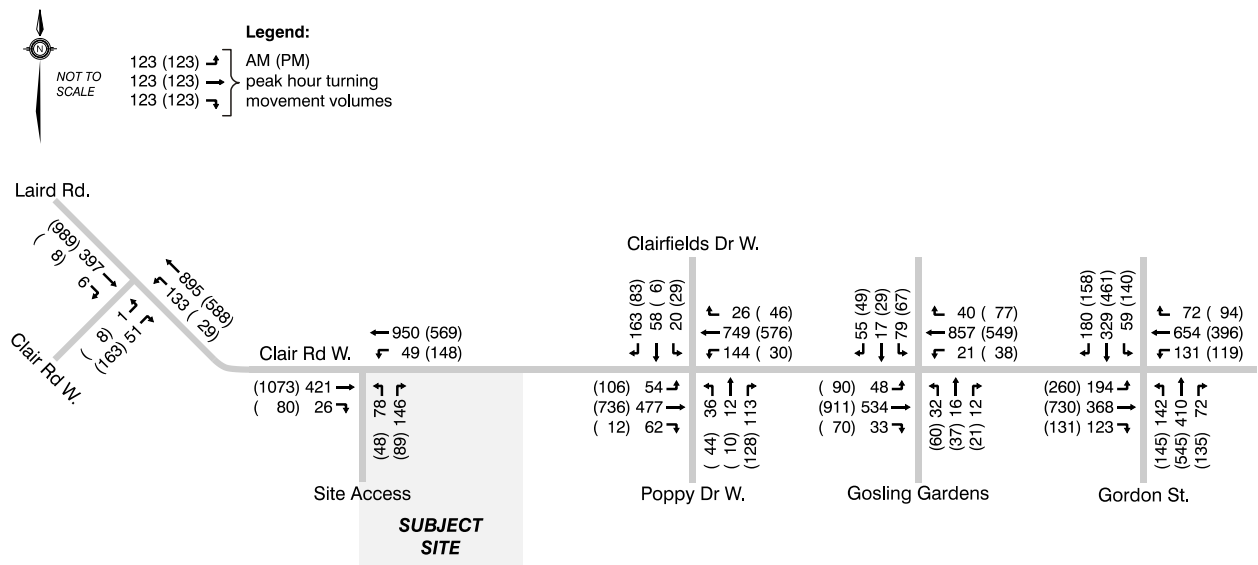


Figure 13: Total Future Traffic Volumes (2031)

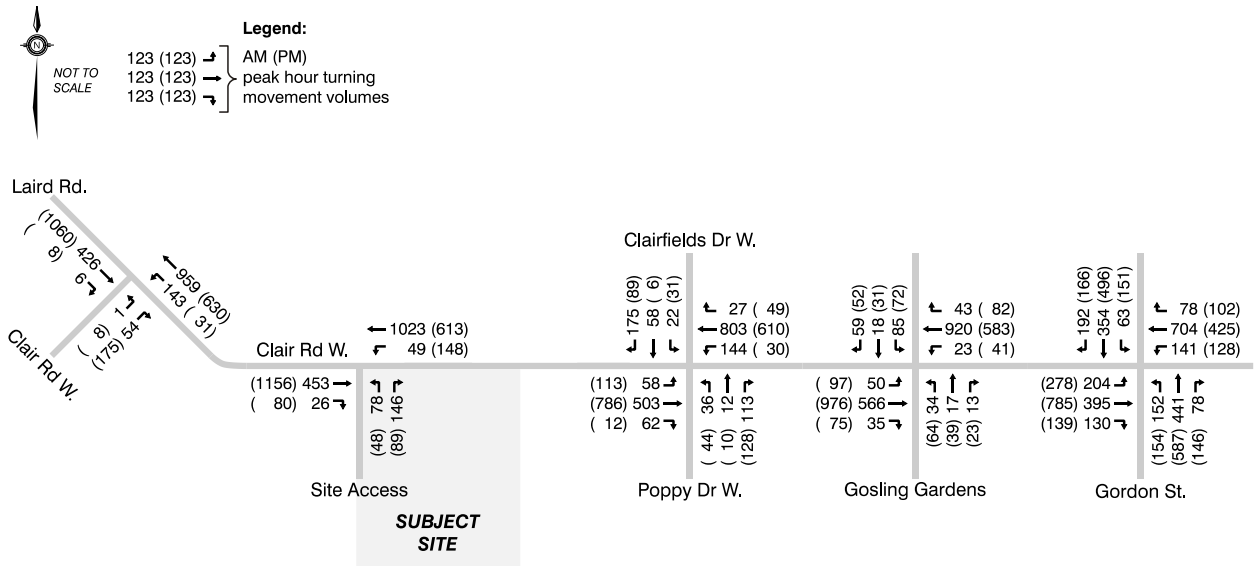


Figure 14: Total Future Traffic Volumes (2036)

The 2036 total future traffic volumes scenario with the Clair-Maltby Secondary Plan traffic volumes is presented in **Figure 15**.

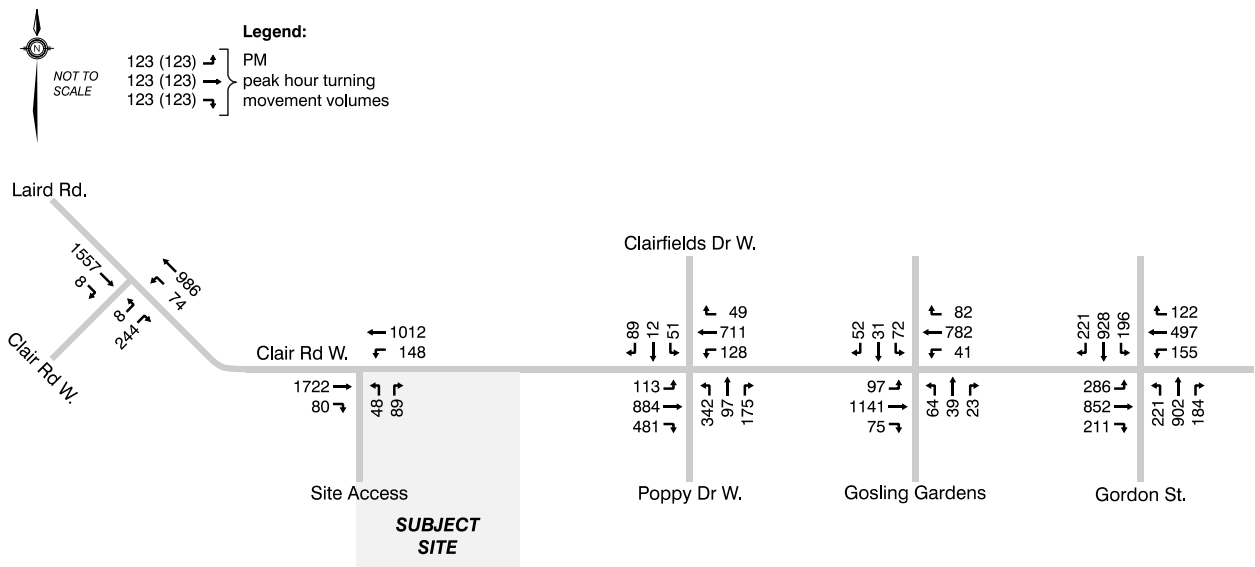


Figure 15: Total Future Traffic Volumes (2036) with Clair-Maltby Secondary Plan (PM Peak)

5.0

Intersection Operations

Intersection operational analyses were completed for each intersection using Trafficware's Synchro software (version 10). The analyses generally reflect the existing lane configurations at each intersection and current traffic signal timings obtained from the City of Guelph, found in **Appendix C**.

At signalized intersections, the volume-to-capacity (v/c) ratio, average vehicular delay, level of service and 95th percentile queue were noted for each individual movement, and the average delay and level of service were noted for the intersection as a whole. At unsignalized (stop-controlled) intersections, the v/c ratio, delay, level of service and 95th percentile queue were noted for any stop-controlled movements. Level of service definitions are provided in **Appendix D**. Synchro analysis worksheets reports are provided in **Appendix E**.

At each intersection, critical movements were identified. The City of Guelph's traffic impact study guidelines define critical movements as:

- Any through movements or shared/turning movements at a signalized intersection operating at a v/c ratio of 0.90 or greater;
- Any exclusive movements at a signalized intersection operating at a v/c ratio of 0.95 or greater;
- Any individual movements at an unsignalized intersection operating at LOS F; and
- Any individual movement where the calculated 95th percentile queue exceeds the available storage length.

5.1

Clair Road West at Laird Road

Table 3 summarizes the operations at the Clair Road West and Laird Road intersection under each traffic volume scenario.

Table 3: Intersection Operations, Clair Road West at Laird Road

Movement	AM peak hour				PM peak hour			
	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
Existing								
WB left	0.10	A	2.6	3	0.04	A	1.0	1
NB approach	0.09	B	12.1	2	0.59	D	34.6	28
Future background (2026)								
WB left	0.11	A	2.7	3	0.04	A	1.0	1
NB approach	0.09	B	12.3	2	0.63	E	38.7	31
Total future (2026)								
WB left	0.12	A	3.1	3	0.05	A	1.5	1
NB approach	0.10	B	12.8	3	0.76	F	56.0	44
Future background (2031)								
WB left	0.12	A	3.1	3	0.04	A	1.2	1
NB approach	0.10	B	12.8	3	0.77	F	57.3	45
Total future (2031)								
WB left	0.13	A	3.6	4	0.06	A	1.7	2
NB approach	0.12	B	13.4	3	0.92	F	90.5	61
Future background (2036)								
WB left	0.13	A	3.6	4	0.05	A	1.4	1
NB approach	0.12	B	13.4	3	0.93	F	92.4	62
Future background (2036) – with the Clair-Maltby Secondary Plan								
WB left					0.24	B	13.3	7
NB approach					3.45	F	Err	Err
Total future (2036)								
WB left	0.15	A	4.3	4	0.07	A	2.1	2
NB approach	0.13	B	14.1	4	1.11	F	151	83
Total future (2036) – with the Clair-Maltby Secondary Plan								
WB left					0.28	C	18.4	9
NB approach					4.19	F	Err	Err

The westbound left-turn movement currently operates at a very good level of service (LOS A) and is anticipated to continue doing so under all scenarios without the Clair-Maltby Secondary Plan traffic.

The stop-controlled northbound approach currently operates at a good level of service (LOS B) during the AM peak hour and an acceptable level of service (LOS D) during the PM peak hour. Under 2031 future background conditions, the approach is anticipated to become critical during the PM peak hour. With the addition of site traffic, it is expected to become critical by 2026 and exceeds capacity by 2036.

The addition of the Clair-Maltby Secondary Plan traffic is expected to change the level of service for the westbound left-turn movement to LOS B-C. The northbound approach is anticipated to be well over capacity with the v/c reaching 4.19 by 2036 with the subject development in place.

5.2

Clair Road West at Clairfields Drive West / Poppy Drive West

Table 4 summarizes the operations at the Clair Road West and Clairfields Drive West / Poppy Drive West intersection under each traffic volume scenario.

Table 4: Intersection Operations, Clair Road West and Clairfields Drive West / Poppy Drive West

Movement	AM peak hour				PM peak hour			
	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
Existing								
EB left	0.13	A	6.5	6	0.21	A	6.5	11
EB through	0.30	B	12.7	31	0.41	B	12.5	47
WB left	0.33	A	3.9	4	0.09	A	5.9	5
WB through	0.47	A	4.8	10	0.36	A	9.3	25
NB approach	0.66	C	22.7	22	0.59	B	19.8	26
SB approach	0.71	C	31.6	41	0.37	B	14.1	14
Overall	—	B	12.1	—	—	B	12.1	—
Future background (2026)								
EB left	0.14	A	6.6	6	0.22	A	6.5	11
EB through	0.31	B	12.8	31	0.43	B	12.6	49
WB left	0.33	A	4.0	4	0.10	A	6.0	5
WB through	0.49	A	5.0	10	0.37	A	9.5	26
NB approach	0.66	C	22.4	22	0.59	B	19.8	26
SB approach	0.73	C	33.5	43	0.38	B	14.2	14
Overall	—	B	12.4	—	—	B	12.2	—
Total future (2026)								
EB left	0.18	A	7.0	8	0.27	A	7.0	12
EB through	0.42	B	14.6	45	0.48	B	13.4	56
WB left	0.40	A	5.4	4	0.11	A	6.3	4
WB through	0.53	A	5.9	11	0.48	B	12.7	37
NB approach	0.64	C	21.2	22	0.60	C	20.2	26
SB approach	0.74	D	35.3	46	0.41	B	13.5	14
Overall	—	B	13.4	—	—	B	13.4	—
Future background (2031)								
EB left	0.15	A	7.1	7	0.25	A	6.7	12
EB through	0.34	B	13.4	34	0.46	B	13.0	53
WB left	0.35	A	4.3	4	0.10	A	5.9	5
WB through	0.54	A	6.2	11	0.40	A	9.8	28
NB approach	0.63	C	20.5	21	0.59	C	20.0	26
SB approach	0.76	D	36.5	48	0.41	B	14.4	14
Overall	—	B	13.3	—	—	B	12.4	—
Total future (2031)								
EB left	0.20	A	7.7	9	0.30	A	7.2	12
EB through	0.45	B	15.3	47	0.51	B	13.8	61
WB left	0.43	A	5.8	4	0.12	A	6.2	4
WB through	0.58	A	6.9	12	0.51	B	13.1	39
NB approach	0.61	B	19.4	21	0.60	C	20.3	26
SB approach	0.76	D	37.9	50	0.44	B	14.5	15
Overall	—	B	14.2	—	—	B	13.8	—
Future background (2036)								
EB left	0.18	A	7.7	8	0.27	A	6.9	12
EB through	0.37	B	14.3	36	0.49	B	13.5	58
WB left	0.38	A	4.7	4	0.11	A	5.8	5
WB through	0.59	A	7.3	12	0.43	B	10.4	30

NB approach	0.60	B	18.9	21	0.60	C	20.2	26
SB approach	0.79	D	39.6	54	0.44	B	14.6	15
Overall	—	B	14.3	—	—	B	12.8	—
Future background (2036) – with the Clair-Maltby Secondary Plan								
EB left					0.36	B	10.5	15
EB through					1.22	F	127	162
WB left					0.83	D	53.9	31
WB through					0.73	C	20.9	42
NB approach					2.07	F	514	238
SB approach					0.42	B	19.0	26
Overall	—		—		—	F	173	—
Total future (2036)								
EB left	0.24	A	8.3	9	0.34	A	7.6	13
EB through	0.48	B	16.2	50	0.55	B	14.3	66
WB left	0.46	A	6.4	4	0.12	A	6.0	4
WB through	0.63	A	7.9	13	0.54	B	13.6	41
NB approach	0.59	B	18.4	21	0.61	C	20.6	26
SB approach	0.80	D	40.9	56	0.48	B	18.3	19
Overall	—	B	15.2	—	—	B	14.4	—
Total future (2036) – with the Clair-Maltby Secondary Plan								
EB left					0.47	B	12.9	16
EB through					1.30	F	164	183
WB left					0.83	D	52.0	32
WB through					0.88	C	30.4	56
NB approach					2.12	F	534	240
SB approach					0.45	C	21.0	29
Overall	—		—		—	F	187	—

The intersection currently operates at a good overall level of service (LOS B) during both peak hours with all movements operating within capacity. Intersection operations are expected to remain relatively unchanged for all future scenarios without the Clair-Maltby Secondary Plan traffic in play, with the intersection projected to operate at LOS B overall during the AM and PM peak hours through to the 2036 horizon year.

With the addition of the Clair-Maltby Secondary Plan traffic the intersection is anticipated to operate at a critical overall level of service (LOS F) both with and without the subject development in place. The eastbound through movement and northbound approach are anticipated to operate over capacity by 2036.

5.3

Clair Road West at Gosling Gardens

Table 4 summarizes the operations at the Clair Road West and Gosling Gardens intersection under each traffic volume scenario.

Table 5: Intersection Operations, Clair Road West and Gosling Gardens

Movement	AM peak hour				PM peak hour			
	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
Existing								
EB left	0.08	A	2.8	2	0.12	A	2.4	5
EB through	0.21	A	5.2	42	0.39	A	4.5	21
WB left	0.03	A	3.2	2	0.08	A	3.4	4
WB through	0.41	A	5.9	36	0.23	A	6.1	27
NB approach	0.26	C	27.5	15	0.46	C	34.7	27
SB approach	0.62	D	38.3	34	0.55	D	36.9	32
Overall	—	A	9.4	—	—	A	9.1	—
Future background (2026)								
EB left	0.09	A	2.9	3	0.12	A	2.4	5
EB through	0.22	A	5.2	43	0.40	A	4.5	21
WB left	0.03	A	3.2	2	0.08	A	3.5	5
WB through	0.42	A	5.9	38	0.24	A	6.2	27
NB approach	0.26	C	27.6	16	0.47	D	35.1	28
SB approach	0.63	D	38.7	35	0.57	D	37.6	33
Overall	—	A	9.4	—	—	A	9.2	—
Total future (2026)								
EB left	0.12	A	2.4	2	0.15	A	2.3	5
EB through	0.29	A	4.4	45	0.44	A	4.3	21
WB left	0.04	A	3.4	2	0.09	A	3.6	5
WB through	0.44	A	6.3	41	0.30	A	7.2	40
NB approach	0.29	C	28.8	17	0.55	D	39.5	31
SB approach	0.64	D	38.5	35	0.61	D	37.6	35
Overall	—	A	9.1	—	—	A	9.6	—
Future background (2031)								
EB left	0.11	A	3.0	3	0.14	A	2.4	5
EB through	0.24	A	5.3	47	0.43	A	4.6	22
WB left	0.04	A	3.2	2	0.10	A	3.6	5
WB through	0.46	A	6.4	41	0.26	A	6.5	29
NB approach	0.28	C	27.8	17	0.51	D	36.8	30
SB approach	0.66	D	40.3	38	0.61	D	39.3	36
Overall	—	A	9.9	—	—	A	9.6	—
Total future (2031)								
EB left	0.15	A	2.7	2	0.17	A	2.4	5
EB through	0.31	A	4.6	49	0.47	A	4.4	22
WB left	0.04	A	3.4	2	0.11	A	3.7	4
WB through	0.50	A	7.3	44	0.32	A	7.4	42
NB approach	0.31	C	28.4	18	0.58	D	40.5	34
SB approach	0.66	D	39.5	39	0.64	D	39.3	38
Overall	—	A	9.8	—	—	A	9.9	—
Future background (2036)								
EB left	0.12	A	3.2	3	0.16	A	2.4	5
EB through	0.26	A	5.3	50	0.47	A	4.6	22
WB left	0.04	A	3.1	2	0.11	A	3.7	5
WB through	0.50	A	7.0	46	0.28	A	6.6	32

NB approach	0.29	C	27.3	18	0.53	D	37.1	32
SB approach	0.68	D	40.9	41	0.63	D	40.5	39
Overall	—	B	10.3	—	—	A	9.7	—
Future Background (2036) – with the Clair-Maltby Secondary Plan								
EB left					0.20	A	2.7	3
EB through					0.55	A	6.2	30
WB left					0.13	A	3.8	3
WB through					0.38	A	7.2	45
NB approach					0.53	D	37.1	32
SB approach					0.63	D	40.5	39
Overall	—			—	—	B	10.1	—
Total future (2036)								
EB left	0.17	A	3.0	2	0.20	A	2.5	5
EB through	0.33	A	4.7	51	0.51	A	4.5	22
WB left	0.05	A	3.3	2	0.12	A	3.8	4
WB through	0.54	A	8.0	51	0.34	A	7.6	44
NB approach	0.32	C	28.5	19	0.60	D	41.2	36
SB approach	0.68	D	40.2	42	0.66	D	40.5	41
Overall	—	B	10.2	—	—	B	10.1	—
Total future (2036) – with the Clair-Maltby Secondary Plan								
EB left					0.24	A	2.5	3
EB through					0.59	A	6.1	28
WB left					0.15	A	3.9	3
WB through					0.44	A	8.0	56
NB approach					0.60	D	41.2	36
SB approach					0.66	D	40.5	41
Overall	—			—	—	B	10.5	—

The intersection currently operates at a very good level of service (LOS A) overall during both peak hours. It is anticipated to operate at good levels of service (LOS A-B) overall through all future scenarios. All movements are expected to operate within capacity and at LOS D or better.

5.4 Clair Road West at Gordon Street

Table 4 summarizes the operations at the Clair Road West and Gordon Street intersection under each traffic volume scenario.

Table 6: Intersection Operations, Clair Road West and Gordon Street

Movement	AM peak hour				PM peak hour			
	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
Existing								
EB left	0.52	C	25.8	24	0.59	B	18.9	20
EB through	0.49	B	19.3	17	0.78	C	24.8	29
WB left	0.34	B	19.1	23	0.48	C	22.4	21
WB through	0.76	D	36.0	73	0.48	C	26.4	43
NB left	0.27	B	13.4	23	0.23	B	13.9	20
NB through	0.33	B	19.7	46	0.50	C	23.3	66
SB left	0.11	B	12.3	12	0.34	B	15.1	24
SB through	0.35	B	17.5	40	0.38	C	21.1	53
Overall	—	C	23.6	—	—	C	22.7	—
Future background (2026)								
EB left	0.55	C	26.9	26	0.62	C	20.1	22
EB through	0.49	B	18.9	17	0.80	C	25.1	29
WB left	0.35	B	19.0	24	0.50	C	23.1	22
WB through	0.77	D	35.9	75	0.49	C	26.4	45
NB left	0.28	B	13.9	24	0.24	B	14.2	20
NB through	0.35	C	20.2	48	0.52	C	23.8	69
SB left	0.12	B	12.6	12	0.36	B	15.6	25
SB through	0.37	B	18.0	42	0.40	C	21.4	55
Overall	—	C	23.7	—	—	C	23.1	—
Total future (2026)								
EB left	0.79	D	46.5	42	0.72	C	26.2	33
EB through	0.56	B	17.3	16	0.82	C	25.4	32
WB left	0.38	B	19.5	24	0.52	C	23.3	22
WB through	0.77	D	35.9	76	0.50	C	26.5	47
NB left	0.32	B	14.4	26	0.37	B	16.1	26
NB through	0.35	C	20.3	48	0.52	C	24.1	69
SB left	0.12	B	12.7	12	0.36	B	15.9	25
SB through	0.38	B	17.3	42	0.47	C	22.3	60
Overall	—	C	24.7	—	—	C	23.9	—
Future background (2031)								
EB left	0.60	C	31.9	31	0.63	B	19.6	25
EB through	0.51	B	18.3	19	0.84	C	27.2	34
WB left	0.39	B	19.1	25	0.55	C	24.2	23
WB through	0.79	D	36.1	82	0.47	C	25.2	48
NB left	0.33	B	15.0	25	0.30	B	15.4	22
NB through	0.38	C	21.4	52	0.60	C	26.1	75
SB left	0.13	B	13.2	13	0.44	B	17.9	27
SB through	0.41	B	19.1	46	0.46	C	23.1	60
Overall	—	C	24.5	—	—	C	24.4	—
Total future (2031)								
EB left	0.86	E	58.0	53	0.73	C	25.4	39
EB through	0.57	B	16.9	17	0.86	C	28.2	39
WB left	0.42	B	19.7	25	0.55	C	24.0	23
WB through	0.80	D	36.3	83	0.49	C	25.3	51

NB left	0.36	B	15.6	27	0.44	B	18.2	28
NB through	0.39	C	21.4	52	0.61	C	26.5	75
SB left	0.13	B	13.3	13	0.45	B	18.3	27
SB through	0.42	B	18.6	46	0.54	C	24.4	65
Overall	—	C	26.1	—	—	C	25.5	—
Future background (2036)								
EB left	0.68	D	38.4	39	0.69	C	23.2	33
EB through	0.53	B	17.6	20	0.87	C	29.6	46
WB left	0.42	B	19.1	27	0.60	C	26.0	25
WB through	0.81	D	36.3	89	0.49	C	25.1	53
NB left	0.38	B	16.5	27	0.37	B	16.8	23
NB through	0.43	C	22.5	56	0.66	C	28.0	82
SB left	0.15	B	13.9	14	0.53	C	20.8	29
SB through	0.45	C	20.4	50	0.54	C	25.3	65
Overall	—	C	25.3	—	—	C	26.4	—
Future background (2036) – with the Clair-Maltby Secondary Plan								
EB left					0.77	C	32.0	37
EB through					0.96	D	45.2	137
WB left					0.72	C	34.9	41
WB through					0.55	C	25.8	64
NB left					0.88	E	55.2	58
NB through					1.01	E	61.2	157
SB left					0.88	D	54.9	60
SB through					1.01	E	60.3	157
Overall	—		—		—	D	49.8	—
Total future (2036)								
EB left	0.94	E	74.6	64	0.80	C	31.3	37
EB through	0.59	B	16.6	20	0.89	C	30.7	80
WB left	0.45	B	19.9	27	0.60	C	25.8	25
WB through	0.82	D	36.5	90	0.51	C	25.3	55
NB left	0.42	B	17.4	29	0.52	C	20.7	29
NB through	0.43	C	22.5	56	0.67	C	28.3	82
SB left	0.15	B	13.9	14	0.54	C	21.4	29
SB through	0.46	B	19.9	51	0.60	C	25.8	71
Overall	—	C	27.8	—	—	C	27.5	—
Total future (2036) – with the Clair-Maltby Secondary Plan								
EB left					0.91	D	48.4	53
EB through					0.99	D	52.1	145
WB left					0.72	C	34.9	41
WB through					0.57	C	26.3	66
NB left					1.04	F	93.0	75
NB through					1.01	E	61.2	157
SB left					0.88	D	54.9	60
SB through					1.06	E	75.8	169
Overall	—		—		—	E	57.8	—

The signalized intersection currently operates at a reasonable level of service (LOS C) overall during both peak hours. With the addition of site traffic, the eastbound left-turn is anticipated to become critical during the AM peak hour with a v/c of 0.94. The overall level of service for the intersection is expected to remain unchanged.

The addition of the Clair-Maltby Secondary Plan traffic is expected to cause the eastbound through, northbound left-turn, northbound through, and southbound through movements to become critical.

5.5

Site Access to Clair Road West

Table 7 summarizes the operations at the Clair Road West site driveway under each traffic volume scenario.

Table 7: Intersection Operations, Site Access to Clair Road West

Movement	AM peak hour				PM peak hour			
	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
Total future (2026)								
WB left	0.05	A	1.3	1	0.27	A	7.1	9
NB approach	1.17	F	162	96	2.07	F	618	110
Total future (2031)								
WB left	0.05	A	1.4	1	0.29	A	8.0	10
NB approach	1.49	F	303	127	2.74	F	945	124
Total future (2036)								
WB left	0.05	A	1.6	1	0.31	A	9.3	11
NB approach	2.11	F	591	164	3.83	F	Err	Err
Total future (2036) – with the Clair-Maltby Secondary Plan								
WB left					0.54	D	30.6	24
NB approach					82.6	F	Err	Err

The westbound left-turn movement is projected to operate at good levels of service (LOS A-B) without the Clair-Maltby Secondary Plan traffic. With the addition of traffic from the Clair-Maltby Secondary Plan, this movement is expected to operate within capacity at LOS D.

The northbound stop-controlled approach is forecast to operate well over capacity and at LOS F during all periods.

6.0

Mitigation

At the two unsignalized locations along Clair Road West, left-turn lane warrant analyses were conducted using the MTO left-turn lane warrant nomographs as published in the 2020 MTO design supplement to TAC's 2017 *Geometric Design Guide for Canadian Roads*. The analyses are based on a 60 km/h design speed.

6.1

Clair Road West at Laird Road

6.1.1

Left Turn Lane Warrant

The left-turn lane warrant nomographs at this intersection are presented in **Appendix F**. A westbound left-turn lane is warranted in all of the volume scenarios. The northbound STOP-controlled approach was modified to include separate left and right-turn lanes, instead of a single-lane approach. This would allow any right-turning vehicle to not be blocked by a left-turning vehicle.

6.1.2

Traffic Signal Warrant

Traffic signal warrant analyses were prepared based on Ontario Traffic Manual (OTM) Book 12 Justification 7. These analyses were undertaken for each of the volume scenarios, shown in **Appendix G**. It was determined that based on the volumes and patterns of traffic entering and exiting the minor road, a traffic signal would not be warranted.

6.1.3

Mitigated Operations – Clair Road West and Laird Road

Two mitigation scenarios were tested for this intersection. Both scenarios were modelled with a westbound left-turn lane and the two-lane northbound approach (separate left-turn and right-turn lanes). The first scenario maintained the existing 2-lane cross-section on Clair Road West, while the second scenario assumed the road would be widened to four lanes. In all scenarios, the intersection remained unsignalized.

The results of the mitigation scenarios are presented in **Table 8**.

Table 8: Mitigated Intersection Operations, Clair Road West and Laird Road

Movement	AM peak hour				PM peak hour			
	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
Future background (2036) – 2-lane cross-section								
WB left	0.13	A	8.8	4	0.05	B	11.9	1
NB left	0.07	F	292	2	0.32	F	186	8
NB right	0.10	B	11.9	3	0.78	F	57	46
Total future (2036) – 2-lane cross-section								
WB left	0.15	A	8.9	4	0.07	B	12.6	2
NB left	0.06	F	241	1	0.24	F	130	6
NB right	0.11	B	12.2	3	0.92	F	87.6	61
Future background (2036) – 4-lane cross-section								
WB left	0.14	A	8.8	4	0.05	B	12.5	1
NB left	0.01	D	28.1	0	0.11	F	53.6	3
NB right	0.08	B	10.3	2	0.41	C	18.1	16
Total future (2036) – 4-lane cross-section								
WB left	0.15	A	9.0	4	0.08	B	13.2	2
NB left	0.02	F	60.0	0	0.16	F	82.4	4
NB right	0.08	B	10.5	2	0.46	C	20.2	19
Total future (2036) – 4-lane cross-section – with the Clair-Maltby Secondary Plan								
WB left					0.31	C	24.2	10
NB left					1.07	F	905	15
NB right					0.99	F	92.0	81

Under both mitigation scenarios, the northbound left-turn is still expected to be critical (operating at LOS F); however, it is expected to operate within capacity. It should also be noted that any vehicles attempting to make the northbound left-turn movement at this intersection could use Southgate Drive to access Laird Road at the existing traffic signal. These roads and intersections are west of the study area.

The northbound right-turn is anticipated to operate at a reasonable level of service (LOS C) should Clair Road West be widened from two to four lanes.

With the Clair-Maltby Secondary Plan traffic, the northbound left and right-turn movements are both expected to operate over capacity even with the mitigation in place.

6.2 Clair Road West at Gordon Street

To mitigate the critical eastbound left-turn during the AM peak hour in 2036 with the subject development in place, two seconds of green time was added to the eastbound left-turn phase. The results of the minor timing adjustment are presented in **Table 9**.

Table 9: Mitigated Intersection Operations, Clair Road West and Gordon Street

Movement	AM peak hour				PM peak hour			
	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
Total future (2036)								
EB left	0.80	D	50.2	59				
EB through	0.61	B	18.1	23				
WB left	0.42	B	19.0	28				
WB through	0.86	D	41.0	96				
NB left	0.44	B	17.7	28				
NB through	0.44	C	22.7	55				
SB left	0.16	B	13.8	13				
SB through	0.47	B	19.7	49				
Overall	—	C	27.5	—	—			—

All movements are expected to operate within capacity during the AM peak hour due to the proposed mitigation.

6.3 Site Access to Clair Road West

The left-turn lane warrant nomographs at the intersection are presented in **Appendix F**. A westbound left-turn lane is warranted in all of the volume scenarios. Based on the number of vehicles projected to exit the site onto Clair Road West in both the AM and PM peak hour volumes, the northbound approach was modified to include a separate left and right-turn lanes, instead of a single approach.

Traffic signal warrant analyses were prepared based on Ontario Traffic Manual (OTM) Book 12 Justification 7. They were undertaken for each of the volume scenarios, shown in **Appendix G**. It was determined that based on the minor road volumes a traffic signal would not be warranted. However, due to the critical operations at the intersection (particularly the northbound left-turn movement in terms of both delay and capacity), it is recommended that a traffic signal be considered to improve operations for any vehicles exiting the site to Clair Road West.

Two mitigation scenarios were tested at this intersection. Both scenarios analyzed the intersection as a signalized intersection with a westbound left-turn lane and separate northbound left and right-turn lanes. The first scenario was tested with a 2-lane cross-section on Clair Road West and with an added eastbound right-turn lane. The second scenario assumed Clair Road West would be widened to four lanes, with no additional eastbound right-turn lane.

The results of the mitigation scenarios are presented in **Table 10**, noting the traffic signal was forecasted to operate with a 90-second cycle length.

Table 10: Mitigated Intersection Operations, Site Access to Clair Road West

Movement	AM peak hour				PM peak hour			
	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
Total future (2036) – Signalized								
EB through	0.33	A	3.6	37	0.80	B	10.8	220
EB right	0.02	A	1.1	2	0.06	A	1.4	4
WB left	0.08	A	1.3	2	0.78	D	36.0	68
WB through	0.75	A	7.7	93	0.42	A	1.9	21
NB left	0.45	D	44.4	28	0.33	D	43.2	20
NB right	0.51	B	12.2	17	0.42	B	14.2	14
Overall	—	A	8.4	—	—	B	10.5	—
Total future (2036) – Signalized & 4-lane cross-section								
EB approach	0.19	A	2.6	16	0.45	A	3.1	45
WB left	0.08	A	1.3	1	0.55	B	11.4	47
WB through	0.40	A	1.7	15	0.22	A	0.7	6
NB left	0.45	D	44.4	28	0.33	D	43.2	20
NB right	0.51	B	12.2	17	0.42	B	14.2	14
Overall	—	A	4.7	—	—	A	4.3	—
Total future (2036) – with the Clair-Maltby Secondary Plan – Signalized & 4-lane cross-section								
EB approach					0.80	B	12.7	143
WB left					1.96	F	456	44
WB through					0.45	A	5.4	37
NB left					0.14	C	30.6	18
NB right					0.28	C	24.4	24
Overall	—			—	—	C	32.1	—

The intersection is expected to operate at good levels of service (LOS A-B overall) with the addition of signals. All movements are anticipated to operate within capacity.

With the Clair-Maltby Secondary Plan traffic, the westbound left-turn is anticipated to be critical operating at a v/c of 1.96 and LOS F. This intersection is also forecast to operate at LOS C overall in the PM peak hour.

7.0

Site Plan Review

7.1

Sightline Review

Due to the horizontal curve in Clair Road West to the west of the development parcel, it was necessary to undertake a sightline assessment to determine if sightlines will be appropriate at the proposed site driveway location.

Since the speed limit on Clair Road West is either 50 km/h or 60 km/h, a design speed of 60 km/h was used in the sightline review. An excerpt from Chapter 9 of the Transportation Association of Canada's (TAC) *Geometric Design Guide for Canadian Roads* is shown in **Table 11**.

Table 11: Required Intersection Sight Distance (Left-Out Movement)

Design speed (km/h)	Stopping sight distance (m)	Intersection sight distance for passenger cars	
		Calculated (m)	Design (m)
60	85	125.1	130

The required intersection sight triangles to the east and west of the site driveway are shown in **Figure 16** and **Figure 17**, respectively.



Figure 16: Departure Sight Triangle – Looking East of Site Access

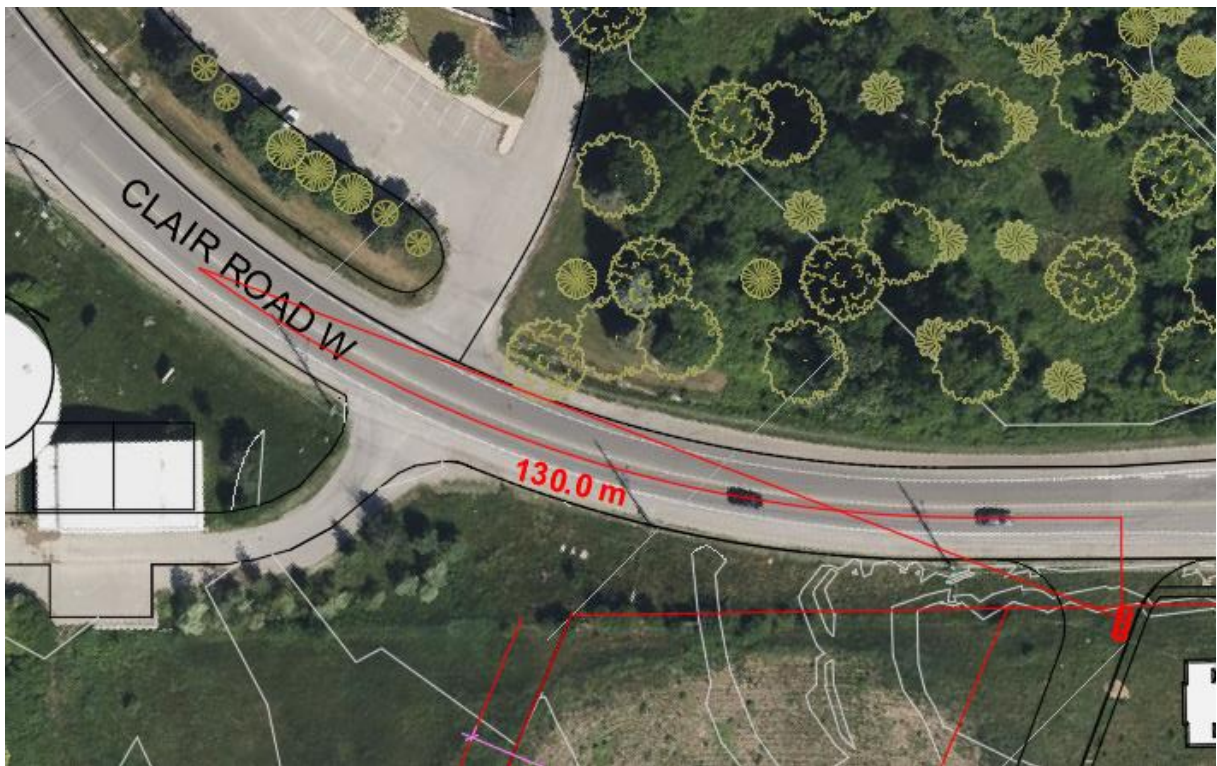


Figure 17: Departure Sight Triangle – Looking West of Site Access

The required sight distance is met in both directions at the site access for any vehicles making the left-turn movement out of the site access.

7.3 Site Circulation

Vehicle turning path requirements were assessed for two different garbage trucks and a fire truck. Vehicle paths were tested using AutoTURN software and are presented in **Appendix H**.

The garbage truck assessment for the townhouses and multi-plexes was undertaken using a Heli Durapack 5000 garbage truck template from the AutoTURN vehicle library. Garbage will be stored in underground Molok bins at three different locations throughout the site. Waste is collected from Molok bins using a standard waste collection truck that is outfitted with a hydraulic arm; the arm lifts the bin liner over the truck, and the bottom of the liner is opened to allow the waste to fall into the truck.

Garbage collection for the high-rise apartments was modeled using a 12.3-metre long front-loading garbage truck from the AutoTURN vehicle library. Each high-rise has its own loading and garbage pick-up space adjacent to the building. The garbage truck will enter the loading space in a forward motion, and then back out of the loading space when leaving. Single-unit delivery trucks are also planned to use these loading spaces; these were not modelled as the front-loading garbage truck is the governing factor.

Fire trucks were assessed using the “Smeal Aerial RM 105ft” design vehicle, taken from the AutoTURN “City – Emergency” library. There are three locations throughout the site where the trucks will have to reverse to exit internal accesses. The dead-end distances fall within acceptable limits under the Ontario Building Code (up to 90 metres).

Sufficient space exists to accommodate all truck movements.

8.0

Future Active Transportation and Transit Network

The City of Guelph cycling spine network includes Laird Road, Clair Road West, and Gordon Street. Bicycle lanes exist on these roads in accordance with the recommended cycling network in the City of Guelph's 2022 Transportation Master Plan. There are currently no planned changes for the cycling and trail networks within the study area.

The Guelph Transit Future Ready Action Plan (approved by the City in 2021) identifies minor route changes that are planned for the three transit routes in the study area (routes 16, 19, and 99). These changes mainly include extending the routes to the proposed Clair-Maltby Transit Terminal recommended in the Clair-Maltby Secondary Plan. These changes are planned to be implemented by 2031.

9.0

Summary

Dillon Consulting Limited (Dillon) has been retained by Home Opportunities to prepare a transportation impact study (TIS) to support the proposed a residential development at 280 Clair Road West in the city of Guelph, Ontario. The site is currently vacant. The development application seeks to permit the construction of 314 townhouses units as well as 642 apartment units in two separate 14- and 16-storey buildings.

The proposed development is projected to generate 299 new vehicle trips (75 inbound, 224 outbound) during the AM peak hour and 365 new vehicle trips (228 inbound, 137 outbound) during the PM peak hour. It should be noted that the actual number of vehicle trips generated by this site may be lower as a number of units will be designated as affordable housing that would be directed to lower-income individuals and families. These residents may not rely on a personal vehicle for some or all trips.

Within the study area, all intersections are found to operate acceptably today. However, with the background traffic growth and additional trips being generated by the proposed residential development, a number of movements and intersections begin to operate near or over capacity and at LOS F, noting the traffic volumes generated by the Clair-Maltby Secondary Plan will result in a significant impact to operations along the Clair Road West corridor.

From a geometric and traffic control perspective, a number of recommendations are proposed. These recommendations are based on the traffic volumes without the Clair-Maltby Secondary Plan in place.

At Clair Road West and Laird Road:

- Construct a new westbound left-turn lane with 55 metres of storage (warranted under existing conditions), queue length determined based on the 2036 traffic volumes.
- Construct separate northbound left-turn and right-turn lanes with at least 25 metres of storage on the stop control approach (recommended under future background conditions).

At Clair Road West and Gordon Avenue:

- Slightly adjust the signal timing phases to provide two additional seconds to the eastbound left-turn movement. This adjustment only needs to occur during the AM peak hour (warranted under total future conditions in 2036).

At Clair Road West and the proposed site driveway:

- Construct a new westbound left-turn lane with 75 metres of storage (warranted at site build-out)
- Construct a new eastbound right-turn lane with 25 metres of storage (recommended at site build-out)
- Introduce a traffic signal (recommended at site build-out).

In addition, it is recommended that the City of Guelph consider widening the Clair Road West and Laird Road corridor so that it can operate as a continuous four-lane roadway between Highway 6 (Hanlon Expressway) and Gordon Road.

Additional changes to traffic signal timing, laning and geometry may be required along Clair Road West if and when the traffic generated by the Clair-Maltby Secondary Plan materialize.

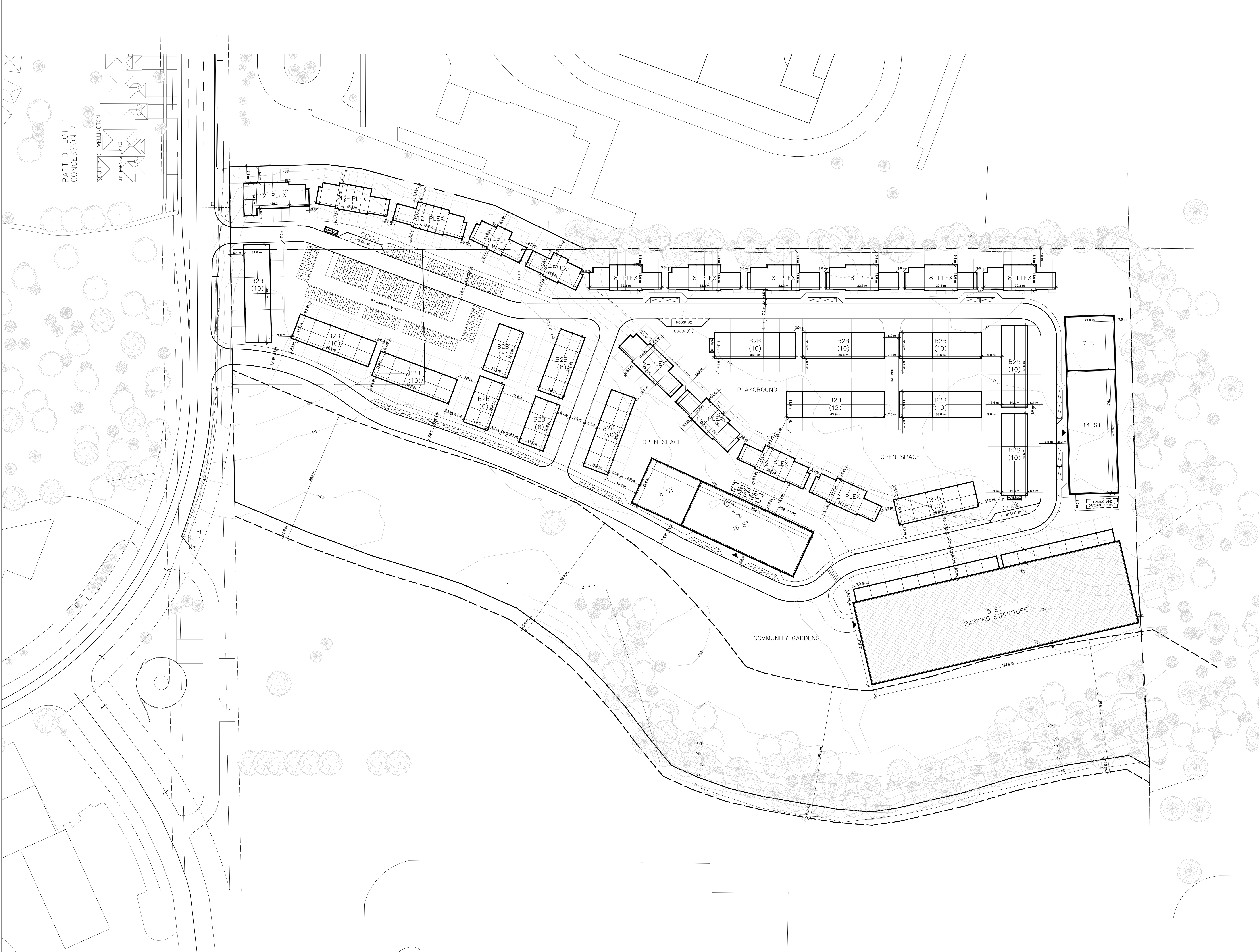
There are currently no planned changes to the cycling and trail networks within the study area. The three transit routes in the study area (routes 16, 19, and 99) are planned to have minor route changes implemented by 2031.

At the proposed site driveway, motorist sightlines are adequate to both the east and west when considering the horizontal curvature along Clair Road West.

The design of the site plan and the access/egress routes can sufficiently accommodate the maneuvering of garbage trucks, single-unit delivery trucks, and fire trucks.

Appendix A

Site Plan



The drawings are the property of Architecture unfolded. The drawing and all associated documents are an instrument of service by the Designer. The drawing and the information contained therein may not be reproduced in whole or in part without prior written permission of the Designer.

These Contract Documents are the property of the architect. The architect bears no responsibility for the interpretation of these documents by the Contractor. Upon written application the architect will provide written/graphic clarification or supplementary information regarding the intent of the Contract Documents. The architect will review Shop Drawings submitted by the Contractor for design conformance only.

Drawings are not to be scaled for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies with the Contract Documents to the architect before commencing work.

Positions of exposed or finished mechanical or electrical devices, fittings, and fixtures are indicated on architectural drawings. The locations shown on the architectural drawings given over the Mechanical and Electrical drawings. Those items not clearly located will be located as directed by the architect.

These drawings are not to be used for construction unless noted below as "Issued for Construction"

All work to be carried out in conformance with the Code and bylaws of the authorities having jurisdiction.

The Designer of these plans and specifications gives no warranty or representation to any party about the constructability of the represented by them. At construction or subcontractor must satisfy themselves when bidding and at all times that they can properly construct the work represented by these plans.

notes:

revisions: dd-mm-yy

architectural team :

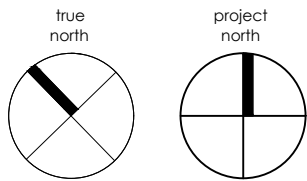
Eduardo Ortiz
Ihab Daakour

spa no. -
project:
280 Clair Rd W, Guelph, ON
XXXX

SITE PLAN

2024.10.04
1:750
23-50
ID

date:
scale:
project:
drawn by:



drawing number:
A100

Appendix B

Traffic Volume Data

Horizon Data Services Ltd

(416) 840-6619

Your Traffic Count Specialist

File Name : Clair Road West at Laird Drive

Site Code : 00000000

Start Date : 2024-02-27

Page No : 1

Groups Printed- Cars - Heavies - Transit Buses - Cyclists

	From North					Clair Road W From East					Clair Road W From South					Laird Dr From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	87	18	0	105	8	0	2	0	10	1	55	0	0	56	171
07:15 AM	0	0	0	0	0	0	136	23	0	159	6	0	1	0	7	3	54	0	0	57	223
07:30 AM	0	0	0	0	0	0	170	22	0	192	15	0	3	0	18	2	56	0	0	58	268
07:45 AM	0	0	0	0	0	0	214	38	0	252	9	0	1	0	10	0	67	0	0	67	329
Total	0	0	0	0	0	0	607	101	0	708	38	0	7	0	45	6	232	0	0	238	991
08:00 AM	0	0	0	0	0	0	161	22	0	183	10	0	0	0	10	0	80	0	0	80	273
08:15 AM	0	0	0	0	0	0	168	25	0	193	11	0	0	0	11	4	86	0	0	90	294
08:30 AM	0	0	0	0	0	0	203	25	1	229	12	0	0	0	12	1	104	0	1	106	347
08:45 AM	0	0	0	0	0	0	180	26	0	206	14	0	0	0	14	0	96	0	0	96	316
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09:00 AM	0	0	0	0	0	0	115	12	0	127	12	0	0	0	12	1	82	0	0	83	222
09:15 AM	0	0	0	0	0	0	89	9	0	98	9	0	1	0	10	3	45	0	0	48	156
09:30 AM	0	0	0	0	0	0	70	13	0	83	4	0	0	0	4	1	48	0	0	49	136
09:45 AM	0	0	0	0	0	0	74	16	0	90	12	0	1	0	13	1	64	0	0	65	168
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01:30 PM	0	0	0	0	0	0	77	14	0	91	12	0	1	0	13	0	64	0	0	64	168
01:45 PM	0	0	0	0	0	0	86	21	0	107	7	0	0	0	7	2	68	0	0	70	184
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02:15 PM	0	0	0	0	0	0	78	13	0	91	18	0	1	0	19	3	104	0	0	107	217
02:30 PM	0	0	0	0	0	0	101	19	0	120	22	0	1	0	23	2	114	0	0	116	259
02:45 PM	0	0	0	0	0	0	76	28	0	104	24	0	1	0	25	3	109	0	0	112	241
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03:15 PM	0	0	0	0	0	0	97	28	0	125	29	0	0	0	29	2	123	0	0	125	279
03:30 PM	0	0	0	0	0	0	83	36	0	119	60	0	8	0	68	4	156	0	0	160	347
03:45 PM	0	0	0	0	0	0	91	23	0	114	33	0	0	0	33	2	149	0	0	151	298
Total	0	0	0	0	0	0	387	110	0	497	156	0	11	0	167	8	531	0	1	540	1204

Horizon Data Services Ltd

(416) 840-6619

Your Traffic Count Specialist

File Name : Clair Road West at Laird Drive

Site Code : 00000000

Start Date : 2024-02-27

Page No : 2

Groups Printed- Cars - Heavies - Transit Buses - Cyclists

	From North					Clair Road W From East					Clair Road W From South					Laird Dr From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
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04:30 PM	0	0	0	0	0	0	128	4	0	132	40	0	2	0	42	3	254	0	0	257	431
04:45 PM	0	0	0	0	0	0	121	4	0	125	33	0	1	0	34	1	161	0	0	162	321
Total	0	0	0	0	0	0	531	21	0	552	157	0	5	0	162	10	726	0	1	737	1451
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Grand Total	0	0	0	0	0	0	3764	562	1	4327	665	0	38	0	703	49	3522	0	3	3574	8604
Apprch %	0	0	0	0	0	0	87	13	0	94.6	94.6	0	5.4	0	1.4	1.4	98.5	0	0.1	98.5	
Total %	0	0	0	0	0	0	43.7	6.5	0	50.3	7.7	0	0.4	0	8.2	0.6	40.9	0	0	41.5	
Cars	0	0	0	0	0	0	3605	522	1	4128	606	0	25	0	631	30	3380	0	3	3413	8172
% Cars	0	0	0	0	0	0	95.8	92.9	100	95.4	91.1	0	65.8	0	89.8	61.2	96	0	100	95.5	95
Trucks-Heavies	0	0	0	0	0	0	124	40	0	164	40	0	13	0	53	19	127	0	0	146	363
% Trucks-Heavies	0	0	0	0	0	0	3.3	7.1	0	3.8	6	0	34.2	0	7.5	38.8	3.6	0	0	4.1	4.2
Transit Buses	0	0	0	0	0	0	32	0	0	32	18	0	0	0	18	0	15	0	0	15	65
% Transit Buses	0	0	0	0	0	0	0.9	0	0	0.7	2.7	0	0	0	2.6	0	0.4	0	0	0.4	0.8
Cyclists	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	0	0	0	0	0	4
% Cyclists	0	0	0	0	0	0	0.1	0	0	0.1	0.2	0	0	0	0.1	0	0	0	0	0	0

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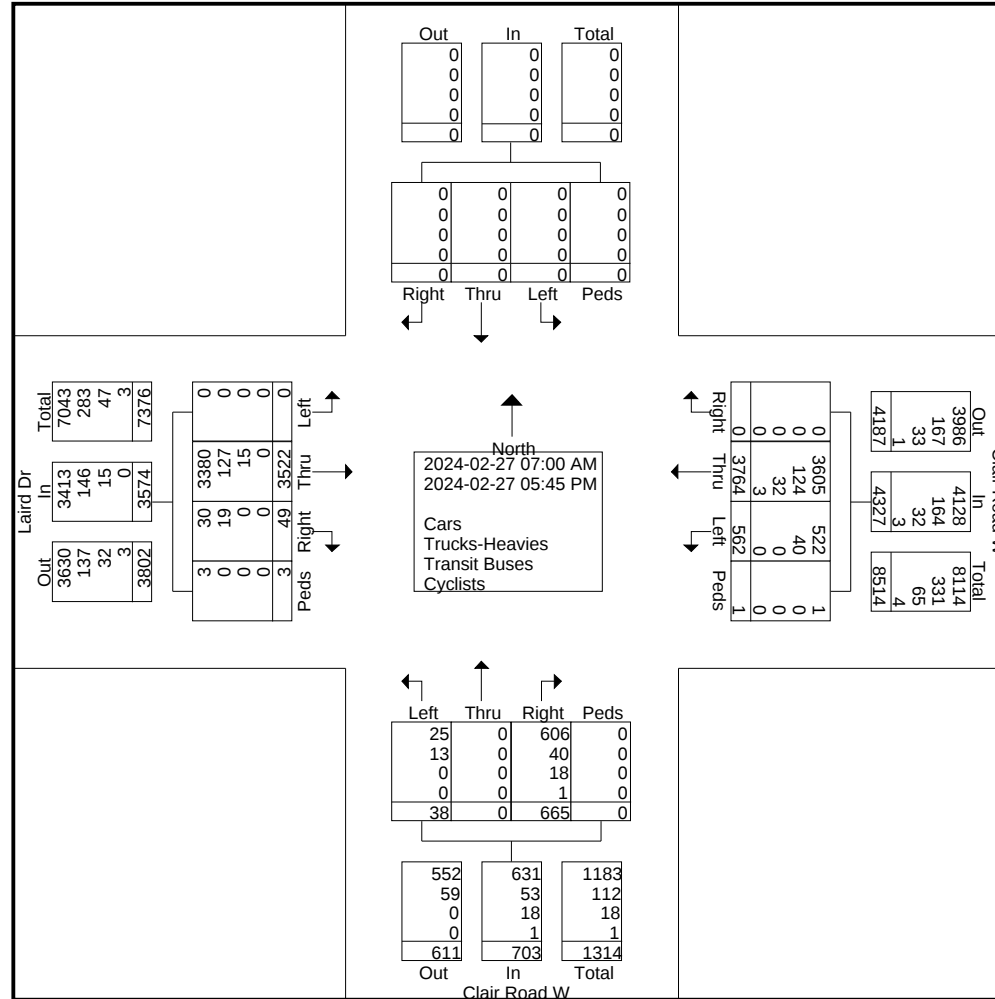
Your Traffic Count Specialist

File Name : Clair Road West at Laird Drive

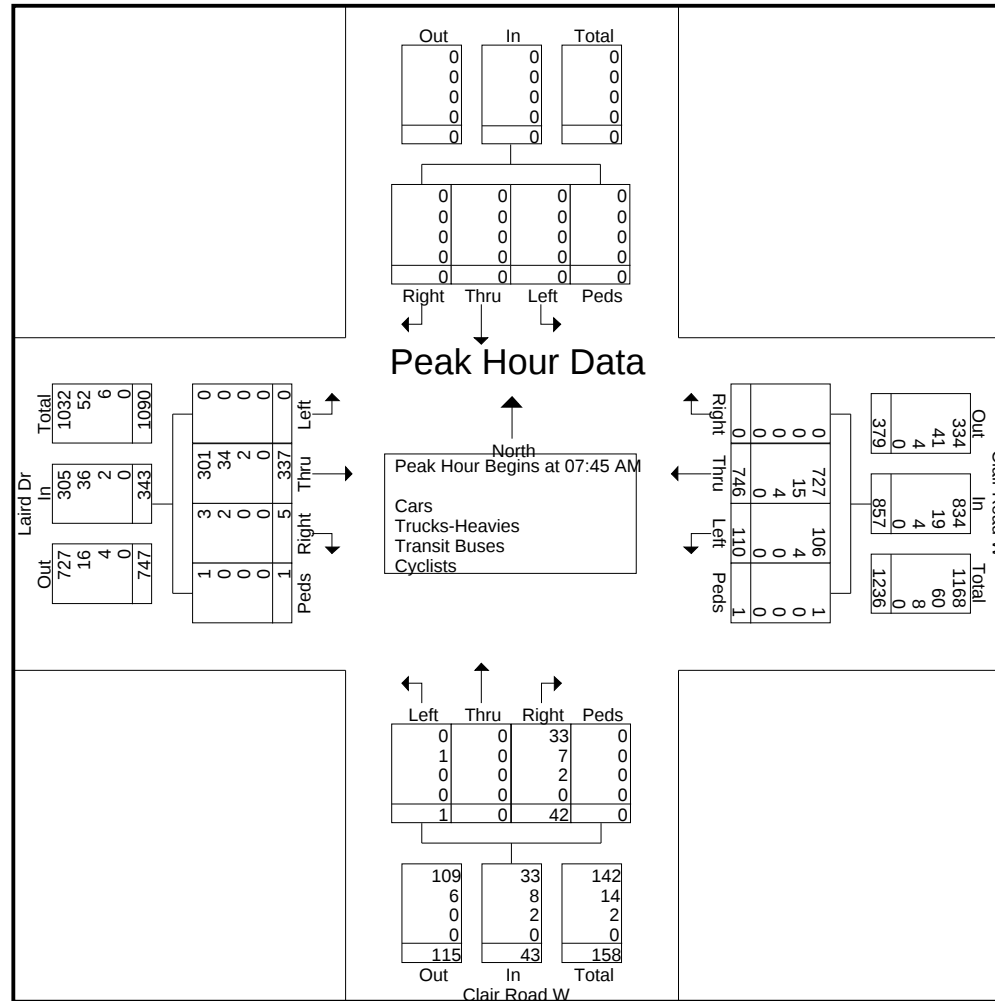
Site Code : 00000000

Start Date : 2024-02-27

Page No : 3



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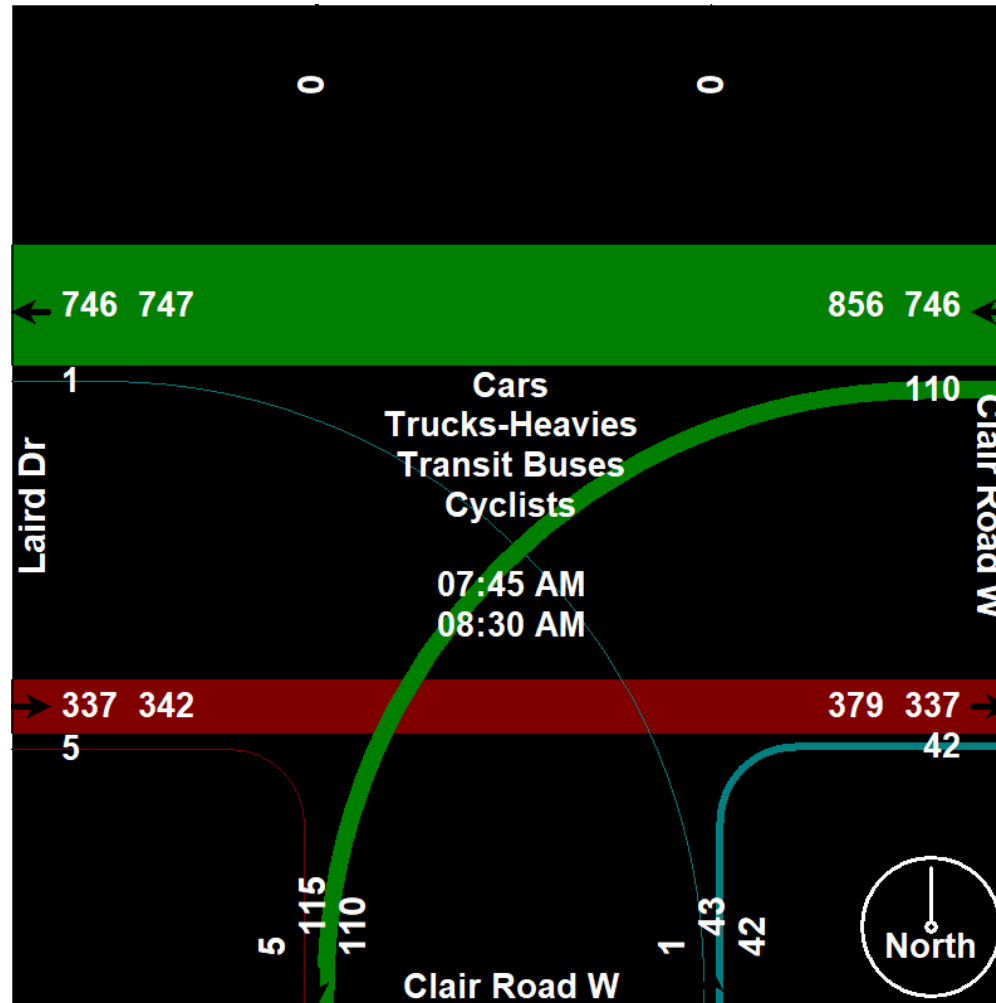
Your Traffic Count Specialist

File Name : Clair Road West at Laird Drive

Site Code : 00000000

Start Date : 2024-02-27

Page No : 6



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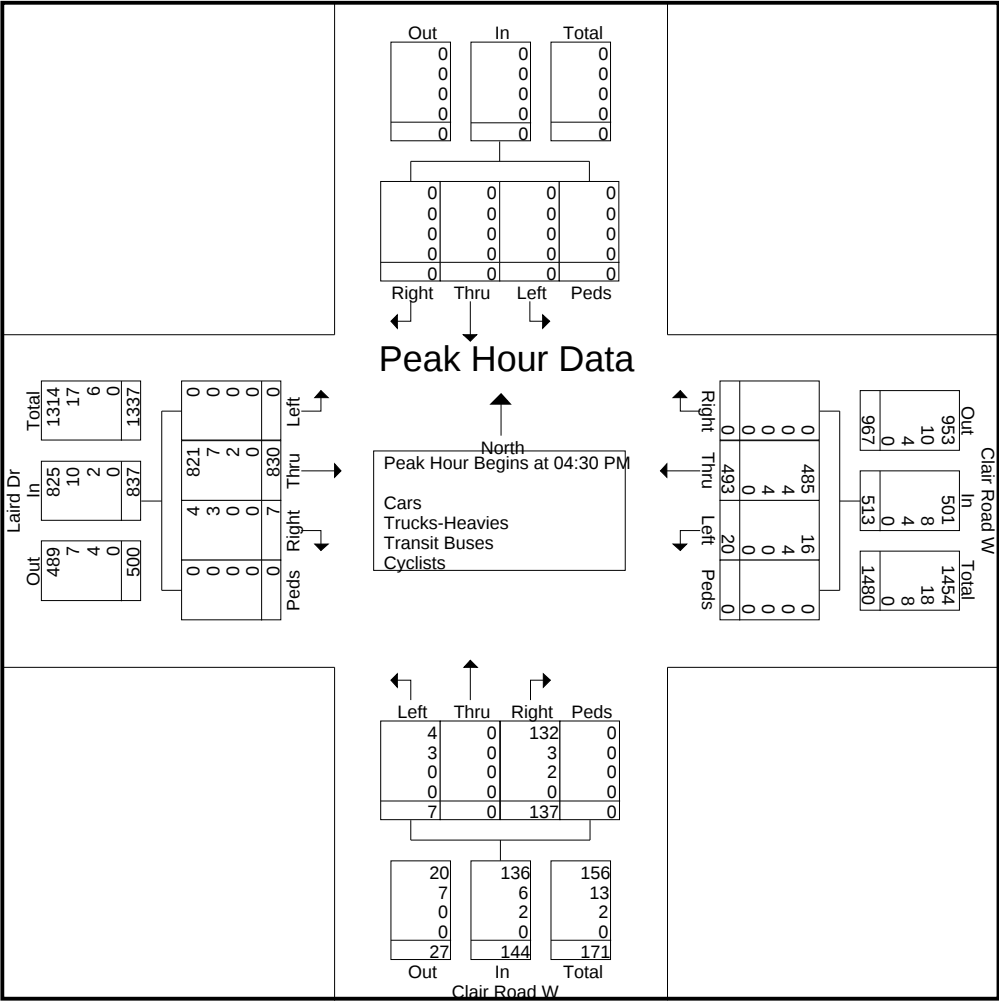
Your Traffic Count Specialist

File Name : Clair Road West at Laird Drive

Site Code : 00000000

Start Date : 2024-02-27

Page No : 8



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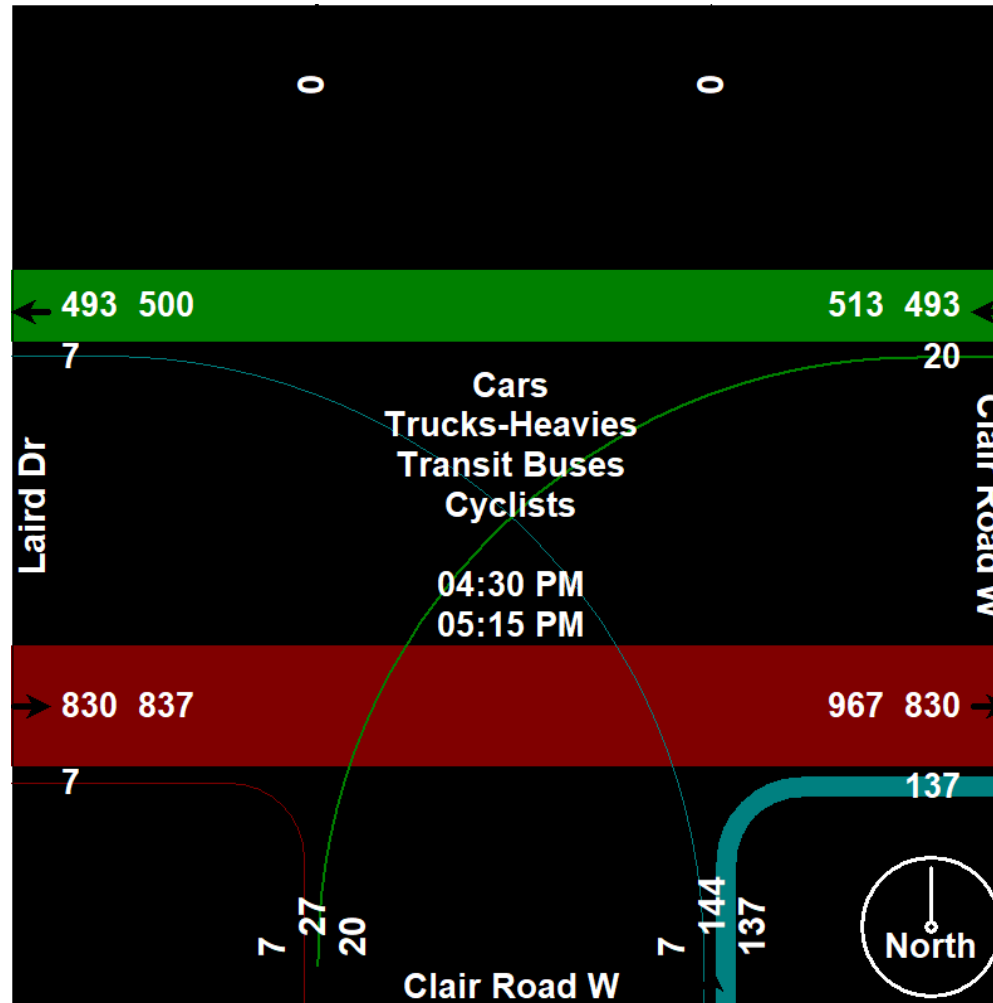
Your Traffic Count Specialist

File Name : Clair Road West at Laird Drive

Site Code : 00000000

Start Date : 2024-02-27

Page No : 9



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Your Traffic Count Specialist

File Name : Clair Road West at Clairfields Drive West

Site Code : 00000000

Start Date : 2024-02-27

Page No : 1

Groups Printed- Cars - Heavies - Transit Buses - Cyclists

	Clairfields Dr W From North					Clair Road W From East					Poppy Dr W From South					Clair Road W From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	16	0	7	0	23	0	90	2	0	92	1	0	0	0	1	1	60	4	0	65	181
07:15 AM	23	0	4	0	27	2	131	5	0	138	0	0	0	0	0	1	47	6	0	54	219
07:30 AM	30	0	2	1	33	0	160	2	0	162	0	0	0	1	1	1	64	5	0	70	266
07:45 AM	38	1	4	0	43	3	214	8	0	225	1	1	1	0	3	3	65	9	0	77	348
Total	107	1	17	1	126	5	595	17	0	617	2	1	1	1	5	6	236	24	0	266	1014
08:00 AM	35	0	5	1	41	1	145	11	0	157	4	0	3	0	7	1	75	9	2	87	292
08:15 AM	34	0	6	3	43	4	164	19	0	187	5	0	4	0	9	12	77	7	3	99	338
08:30 AM	42	19	3	3	67	7	175	47	1	230	35	4	10	3	52	23	77	10	3	113	462
08:45 AM	32	39	4	14	89	11	150	67	6	234	69	8	19	10	106	26	80	13	33	152	581
Total	143	58	18	21	240	23	634	144	7	808	113	12	36	13	174	62	309	39	41	451	1673
09:00 AM	13	7	4	2	26	2	112	12	2	128	20	1	6	5	32	6	80	7	2	95	281
09:15 AM	14	1	2	0	17	2	82	3	1	88	5	1	2	3	11	2	45	7	0	54	170
09:30 AM	11	0	6	1	18	1	71	3	0	75	6	0	5	0	11	2	46	4	0	52	156
09:45 AM	11	1	2	1	15	2	76	6	0	84	3	0	3	0	6	3	64	8	0	75	180
Total	49	9	14	4	76	7	341	24	3	375	34	2	16	8	60	13	235	26	2	276	787
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03:15 PM	16	1	3	4	24	10	108	10	0	128	17	3	7	0	27	2	129	17	2	150	329
03:30 PM	17	1	5	1	24	9	97	1	0	107	14	1	2	1	18	2	187	27	0	216	365
03:45 PM	17	0	5	0	22	11	93	2	0	106	11	1	5	0	17	2	162	24	0	188	333
Total	65	6	26	25	122	41	396	30	8	475	128	10	44	50	232	12	589	89	67	757	1586
04:00 PM	18	0	8	2	28	6	114	4	0	124	4	0	2	0	6	0	210	21	0	231	389
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04:30 PM	27	1	3	2	33	5	98	9	0	112	11	0	8	3	22	1	250	30	1	282	449
04:45 PM	17	0	3	0	20	7	107	4	2	120	6	1	0	2	9	2	173	29	0	204	353
Total	78	1	18	5	102	24	457	24	2	507	23	2	13	5	43	7	774	104	1	886	1538
05:00 PM	9	0	3	1	13	10	106	3	0	119	4	0	3	0	7	1	239	21	0	261	400
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05:45 PM	16	0	6	3	25	7	112	1	0	120	3	0	0	2	5	2	120	24	0	146	296
Total	66	2	16	6	90	37	417	8	1	463	14	1	6	4	25	7	687	106	0	800	1378

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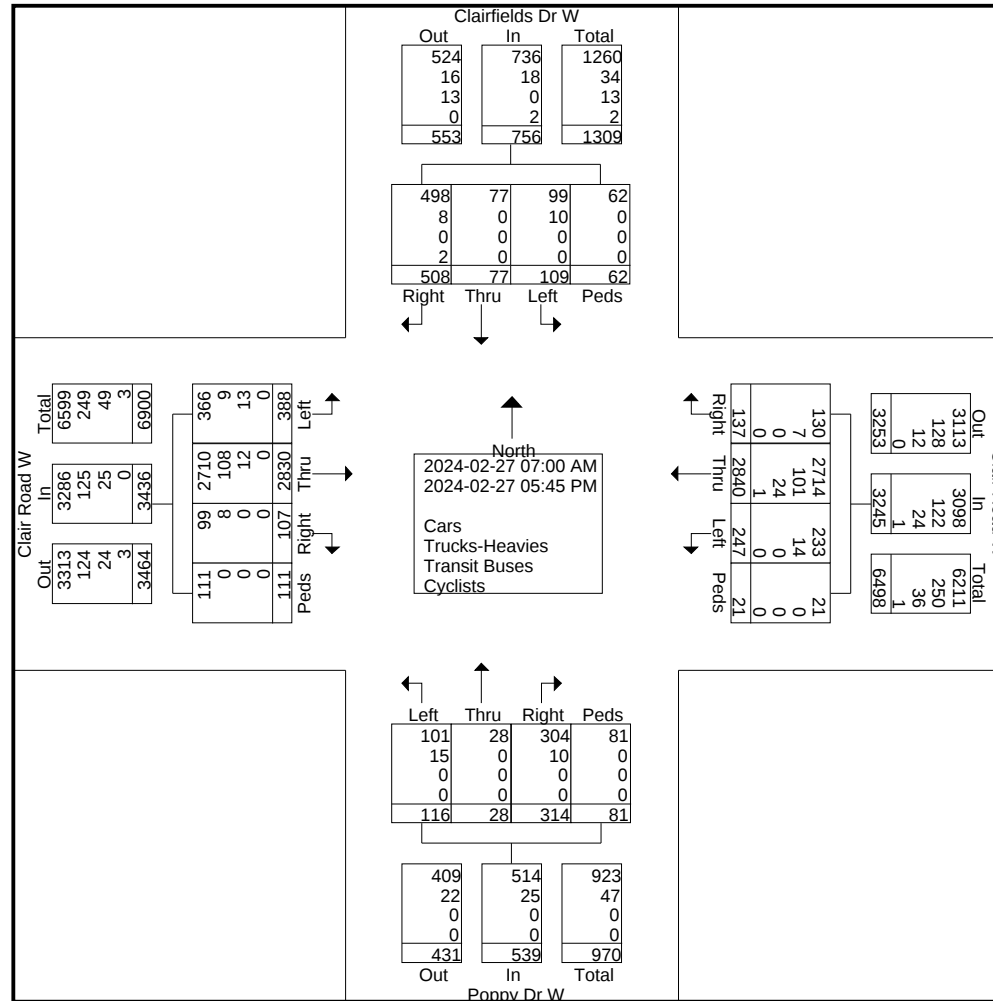
Your Traffic Count Specialist

File Name : Clair Road West at Clairfields Drive West

Site Code : 00000000

Start Date : 2024-02-27

Page No : 3



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(416) 840-6619

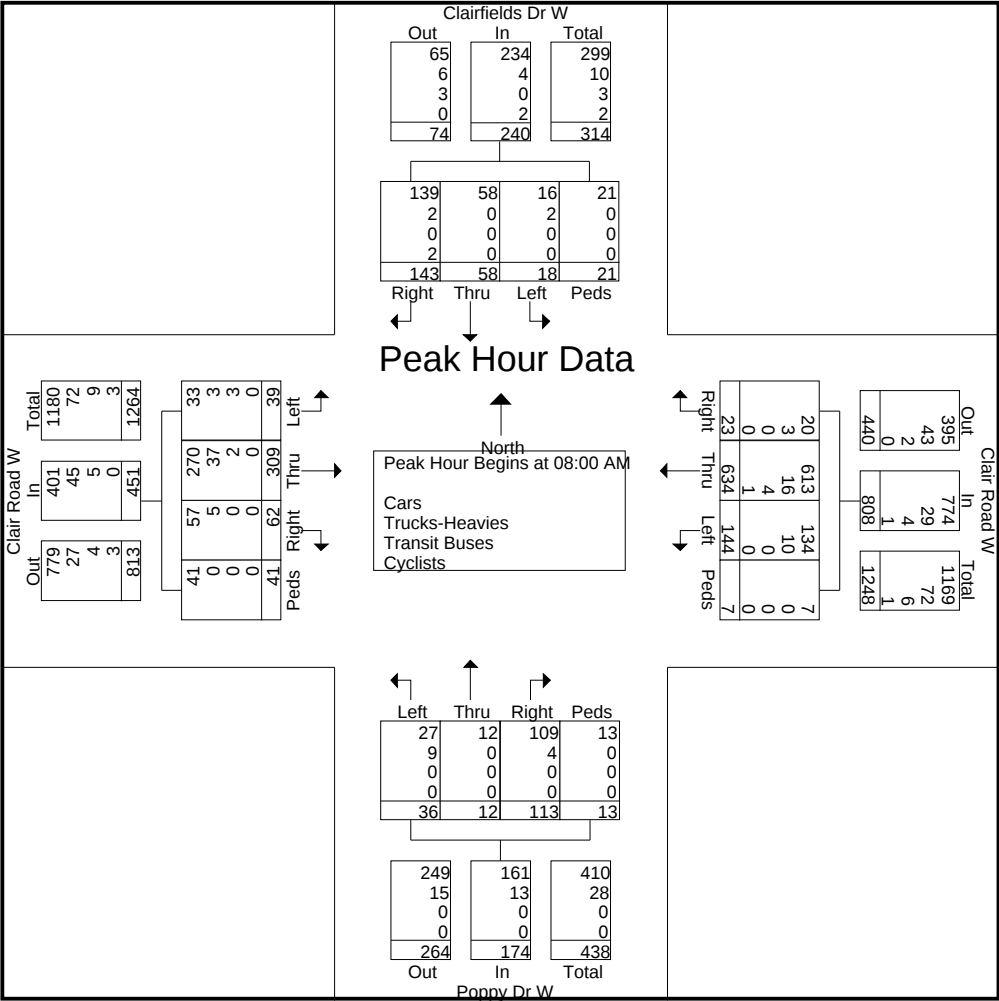
Your Traffic Count Specialist

File Name : Clair Road West at Clairfields Drive West

Site Code : 00000000

Start Date : 2024-02-27

Page No : 5



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(416) 840-6619

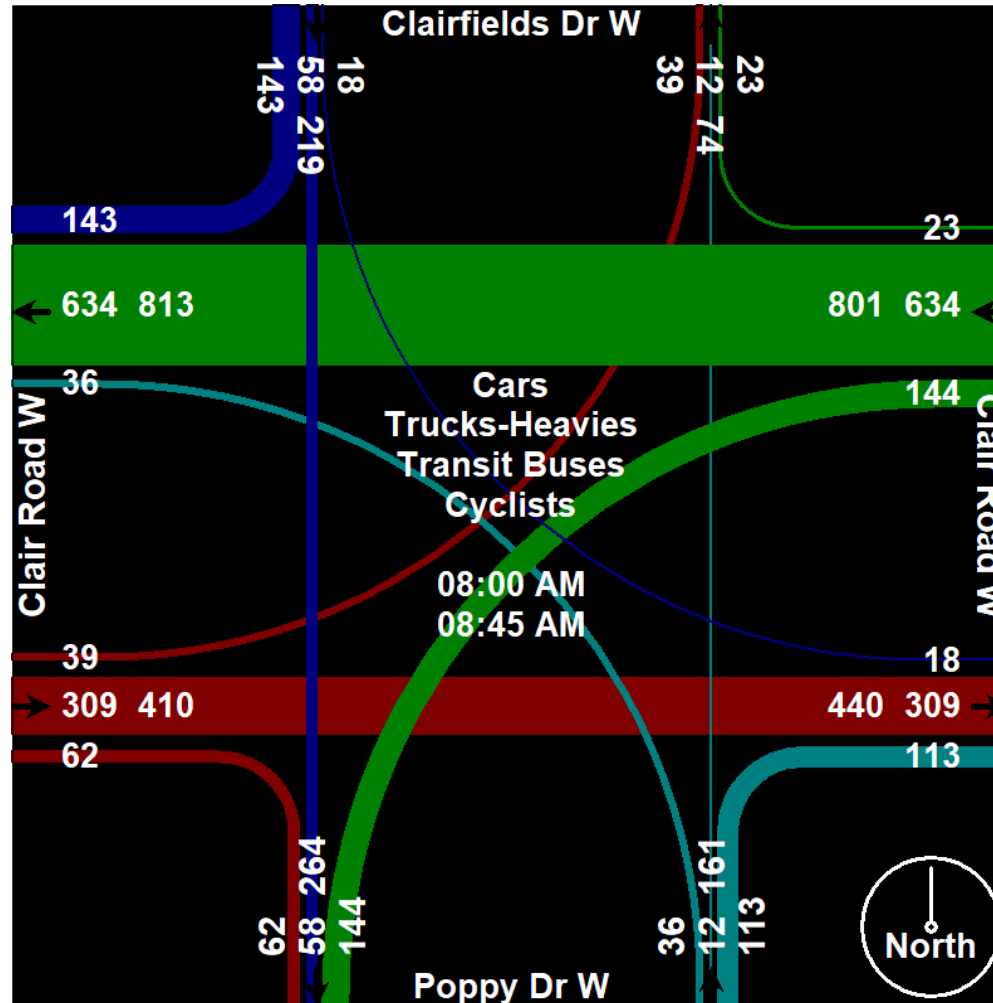
Your Traffic Count Specialist

File Name : Clair Road West at Clairfields Drive West

Site Code : 00000000

Start Date : 2024-02-27

Page No : 6



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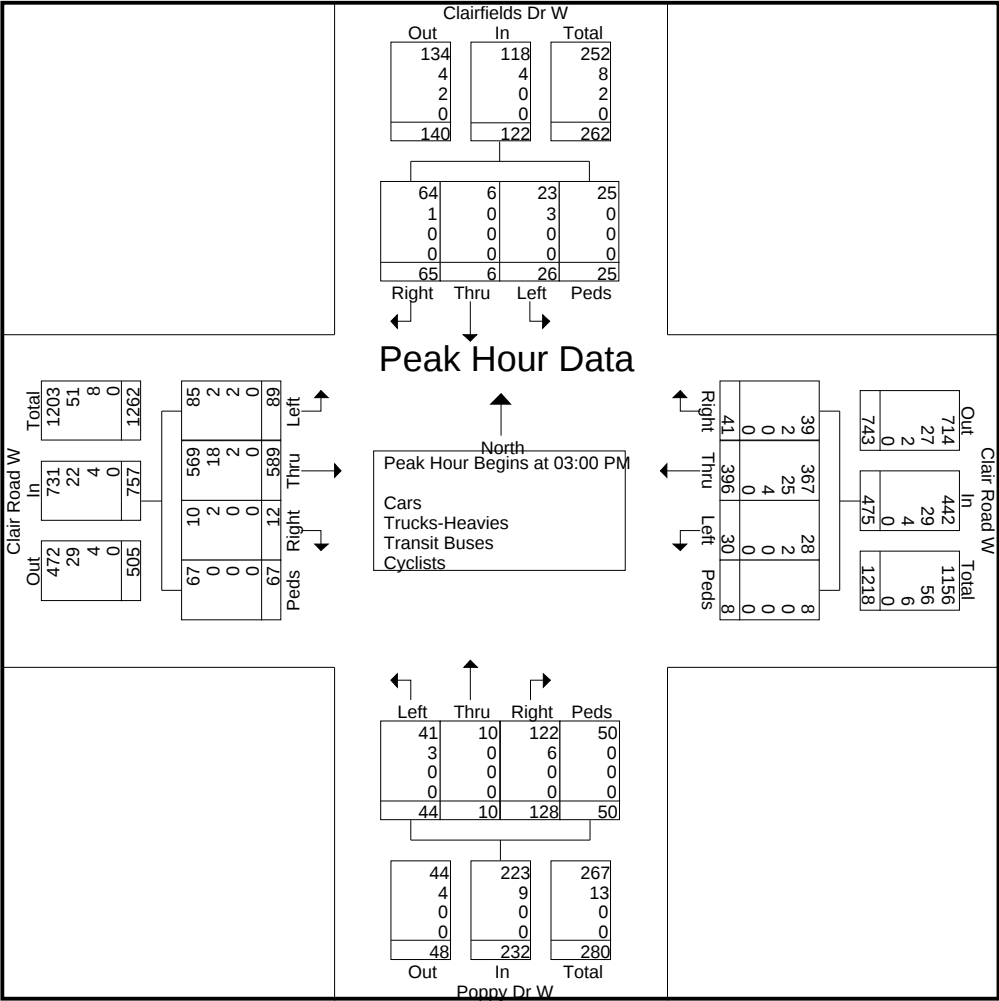
Your Traffic Count Specialist

File Name : Clair Road West at Clairfields Drive West

Site Code : 00000000

Start Date : 2024-02-27

Page No : 8



Horizon Data Services Ltd

(416) 840-6619

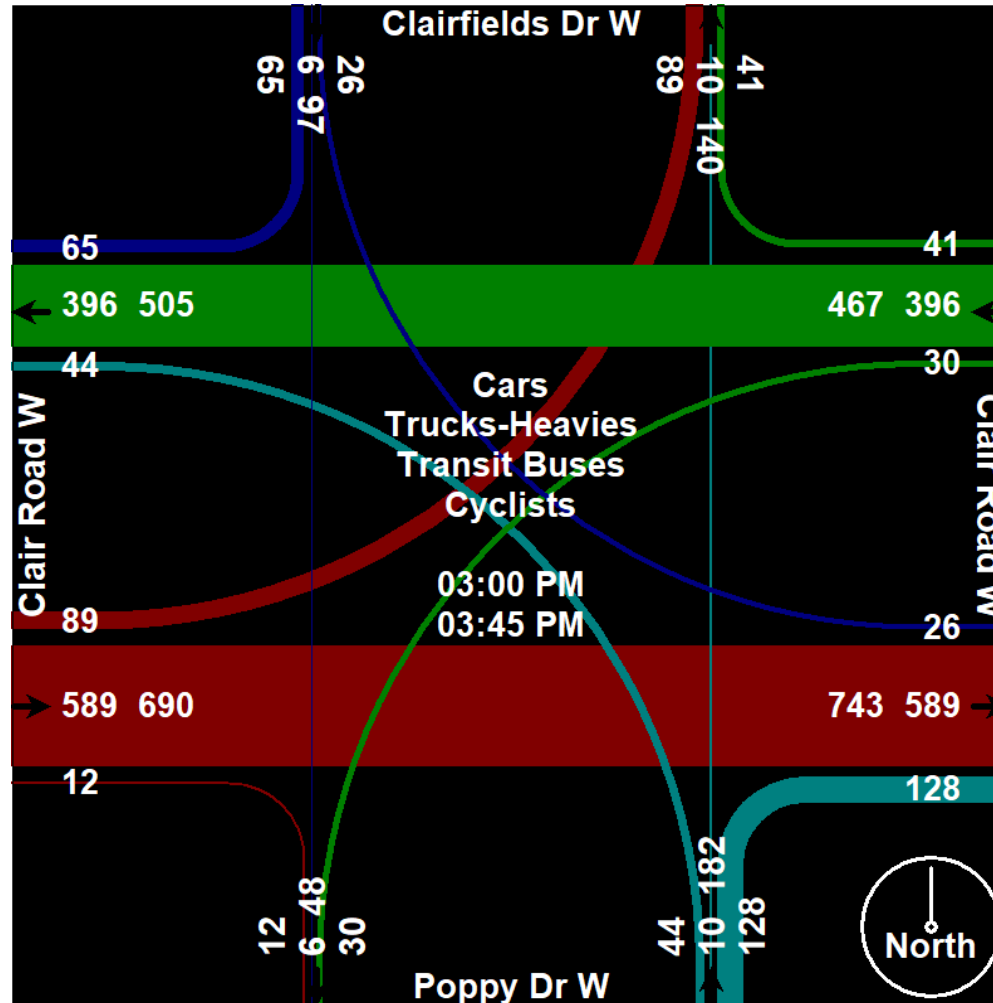
Your Traffic Count Specialist

File Name : Clair Road West at Clairfields Drive West

Site Code : 00000000

Start Date : 2024-02-27

Page No : 9



Horizon Data Services Ltd

(416) 840-6619

Your Traffic Count Specialist

File Name : Clair Road West at Goslin Gardens

Site Code : 00000000

Start Date : 2024-02-27

Page No : 1

Groups Printed- Cars - Heavies - Transit Buses - Cyclists

	Goslin Gdns From North					Clair Road W From East					Goslin Gdns From South					Clair Road W From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	4	1	14	0	19	7	88	2	0	97	2	1	2	0	5	6	63	2	0	71	192
07:15 AM	7	4	13	1	25	4	128	4	0	136	0	3	4	1	8	3	42	4	0	49	218
07:30 AM	22	6	9	1	38	8	140	2	2	152	1	2	4	0	7	5	59	4	0	68	265
07:45 AM	14	2	10	2	28	2	193	4	0	199	1	0	11	0	12	4	59	7	0	70	309
Total	47	13	46	4	110	21	549	12	2	584	4	6	21	1	32	18	223	17	0	258	984
08:00 AM	7	1	15	3	26	4	147	4	3	158	4	4	5	0	13	7	71	5	1	84	281
08:15 AM	8	6	30	6	50	7	175	5	3	190	1	3	12	0	16	3	75	10	2	90	346
08:30 AM	11	5	15	3	34	15	223	4	1	243	3	1	4	6	14	3	98	8	0	109	400
08:45 AM	20	3	11	7	41	10	193	6	1	210	3	6	4	2	15	7	136	10	0	153	419
Total	46	15	71	19	151	36	738	19	8	801	11	14	25	8	58	20	380	33	3	436	1446
09:00 AM	8	3	8	0	19	7	117	3	4	131	4	1	4	3	12	7	91	10	0	108	270
09:15 AM	5	4	11	2	22	4	76	6	2	88	1	2	8	4	15	3	48	4	4	59	184
09:30 AM	5	2	9	1	17	5	65	8	1	79	2	1	3	0	6	3	48	5	0	56	158
09:45 AM	6	2	9	2	19	8	74	8	3	93	1	3	5	3	12	5	52	5	1	63	187
Total	24	11	37	5	77	24	332	25	10	391	8	7	20	10	45	18	239	24	5	286	799
03:00 PM	15	5	16	9	45	14	102	9	2	127	7	5	14	43	69	12	182	17	0	211	452
03:15 PM	5	4	12	5	26	14	111	5	5	135	3	7	4	0	14	5	136	13	2	156	331
03:30 PM	6	6	11	0	23	14	95	7	3	119	2	3	12	0	17	12	162	28	0	202	361
03:45 PM	5	3	22	1	31	14	93	9	1	117	5	12	6	2	25	12	143	20	0	175	348
Total	31	18	61	15	125	56	401	30	11	498	17	27	36	45	125	41	623	78	2	744	1492
04:00 PM	12	5	13	3	33	22	105	6	6	139	3	10	10	2	25	24	181	13	3	221	418
04:15 PM	16	4	14	1	35	12	125	6	0	143	5	5	13	0	23	7	129	22	0	158	359
04:30 PM	10	3	20	4	37	11	92	5	1	109	6	13	7	2	28	19	225	23	4	271	445
04:45 PM	7	4	13	3	27	17	97	11	2	127	6	5	14	1	26	11	155	19	1	186	366
Total	45	16	60	11	132	62	419	28	9	518	20	33	44	5	102	61	690	77	8	836	1588
05:00 PM	5	9	17	8	39	22	104	8	4	138	2	10	10	2	24	17	212	20	4	253	454
05:15 PM	12	10	10	1	33	19	99	10	1	129	5	5	13	4	27	10	167	13	2	192	381
05:30 PM	5	6	20	2	33	18	86	8	4	116	5	9	11	3	28	17	133	13	0	163	340
05:45 PM	10	3	7	2	22	13	94	5	6	118	7	6	12	2	27	7	96	12	0	115	282
Total	32	28	54	13	127	72	383	31	15	501	19	30	46	11	106	51	608	58	6	723	1457

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Your Traffic Count Specialist

File Name : Clair Road West at Goslin Gardens

Site Code : 00000000

Start Date : 2024-02-27

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Groups Printed- Cars - Heavies - Transit Buses - Cyclists

	Goslin Gdns From North					Clair Road W From East					Goslin Gdns From South					Clair Road W From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Grand Total	225	101	329	67	722	271	2822	145	55	3293	79	117	192	80	468	209	2763	287	24	3283	7766
Apprch %	31.2	14	45.6	9.3		8.2	85.7	4.4	1.7		16.9	25	41	17.1		6.4	84.2	8.7	0.7		
Total %	2.9	1.3	4.2	0.9	9.3	3.5	36.3	1.9	0.7	42.4	1	1.5	2.5	1	6	2.7	35.6	3.7	0.3	42.3	
Cars	225	94	323	67	709	217	2678	143	55	3093	76	110	184	80	450	192	2637	284	24	3137	7389
% Cars	100	93.1	98.2	100	98.2	80.1	94.9	98.6	100	93.9	96.2	94	95.8	100	96.2	91.9	95.4	99	100	95.6	95.1
Trucks-Heavies	0	6	6	0	12	7	120	2	0	129	3	5	8	0	16	5	126	3	0	134	291
% Trucks-Heavies	0	5.9	1.8	0	1.7	2.6	4.3	1.4	0	3.9	3.8	4.3	4.2	0	3.4	2.4	4.6	1	0	4.1	3.7
Transit Buses	0	0	0	0	0	47	24	0	0	71	0	0	0	0	0	12	0	0	0	12	83
% Transit Buses	0	0	0	0	0	17.3	0.9	0	0	2.2	0	0	0	0	0	5.7	0	0	0	0.4	1.1
Cyclists	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
% Cyclists	0	1	0	0	0.1	0	0	0	0	0	0	1.7	0	0	0.4	0	0	0	0	0	0

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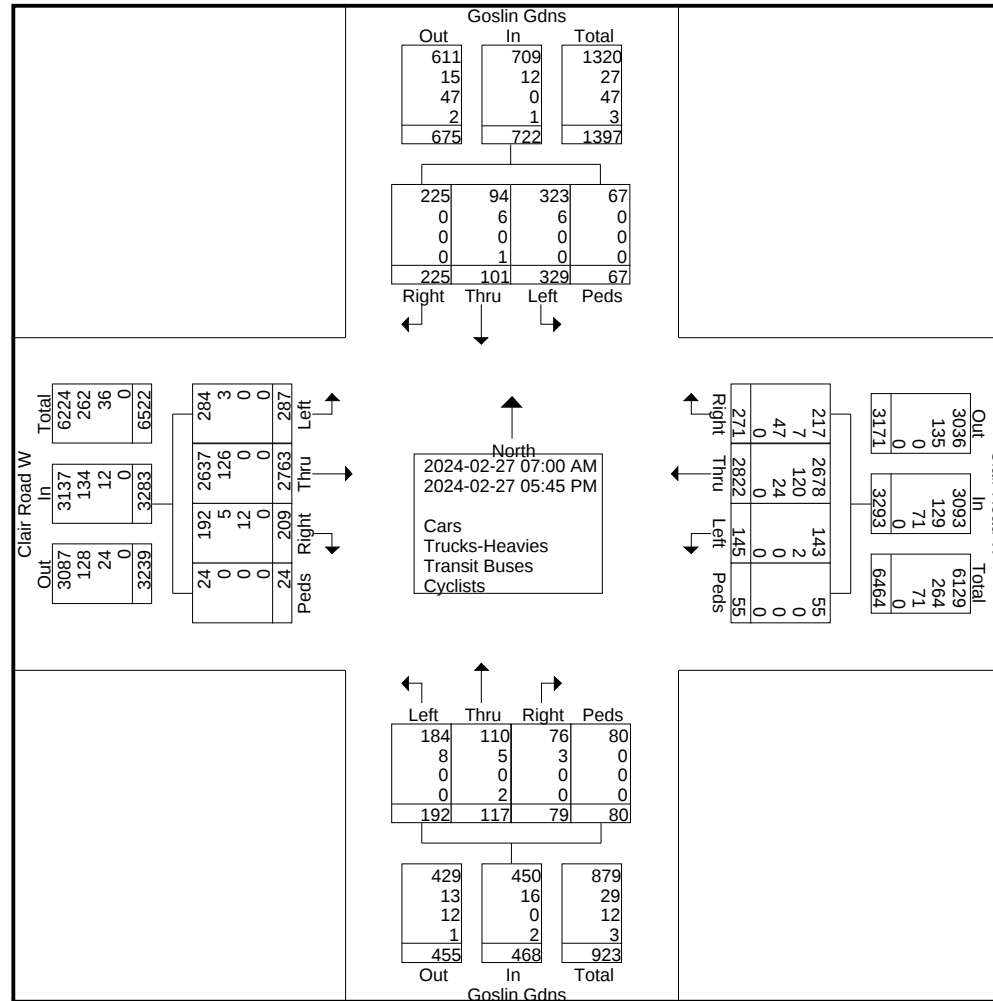
Your Traffic Count Specialist

File Name : Clair Road West at Goslin Gardens

Site Code : 00000000

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Your Traffic Count Specialist

File Name : Clair Road West at Goslin Gardens

Site Code : 00000000

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	Goslin Gdns From North					Clair Road W From East					Goslin Gdns From South					Clair Road W From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	7	1	15	3	26	4	147	4	3	158	4	4	5	0	13	7	71	5	1	84	281
08:15 AM	8	6	30	6	50	7	175	5	3	190	1	3	12	0	16	3	75	10	2	90	346
08:30 AM	11	5	15	3	34	15	223	4	1	243	3	1	4	6	14	3	98	8	0	109	400
08:45 AM	20	3	11	7	41	10	193	6	1	210	3	6	4	2	15	7	136	10	0	153	419
Total Volume	46	15	71	19	151	36	738	19	8	801	11	14	25	8	58	20	380	33	3	436	1446
% App. Total	30.5	9.9	47	12.6		4.5	92.1	2.4	1		19	24.1	43.1	13.8		4.6	87.2	7.6	0.7		
PHF	.575	.625	.592	.679	.755	.600	.827	.792	.667	.824	.688	.583	.521	.333	.906	.714	.699	.825	.375	.712	.863
Cars	46	13	69	19	147	25	707	19	8	759	11	9	24	8	52	16	342	32	3	393	1351
% Cars	100	86.7	97.2	100	97.4	69.4	95.8	100	100	94.8	100	64.3	96.0	100	89.7	80.0	90.0	97.0	100	90.1	93.4
Trucks-Heavies	0	1	2	0	3	3	27	0	0	30	0	3	1	0	4	2	38	1	0	41	78
% Trucks-Heavies	0	6.7	2.8	0	2.0	8.3	3.7	0	0	3.7	0	21.4	4.0	0	6.9	10.0	10.0	3.0	0	9.4	5.4
Transit Buses	0	0	0	0	0	8	4	0	0	12	0	0	0	0	0	2	0	0	0	2	14
% Transit Buses	0	0	0	0	0	22.2	0.5	0	0	1.5	0	0	0	0	0	10.0	0	0	0	0.5	1.0
Cyclists	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
% Cyclists	0	6.7	0	0	0.7	0	0	0	0	0	0	14.3	0	0	3.4	0	0	0	0	0	0.2

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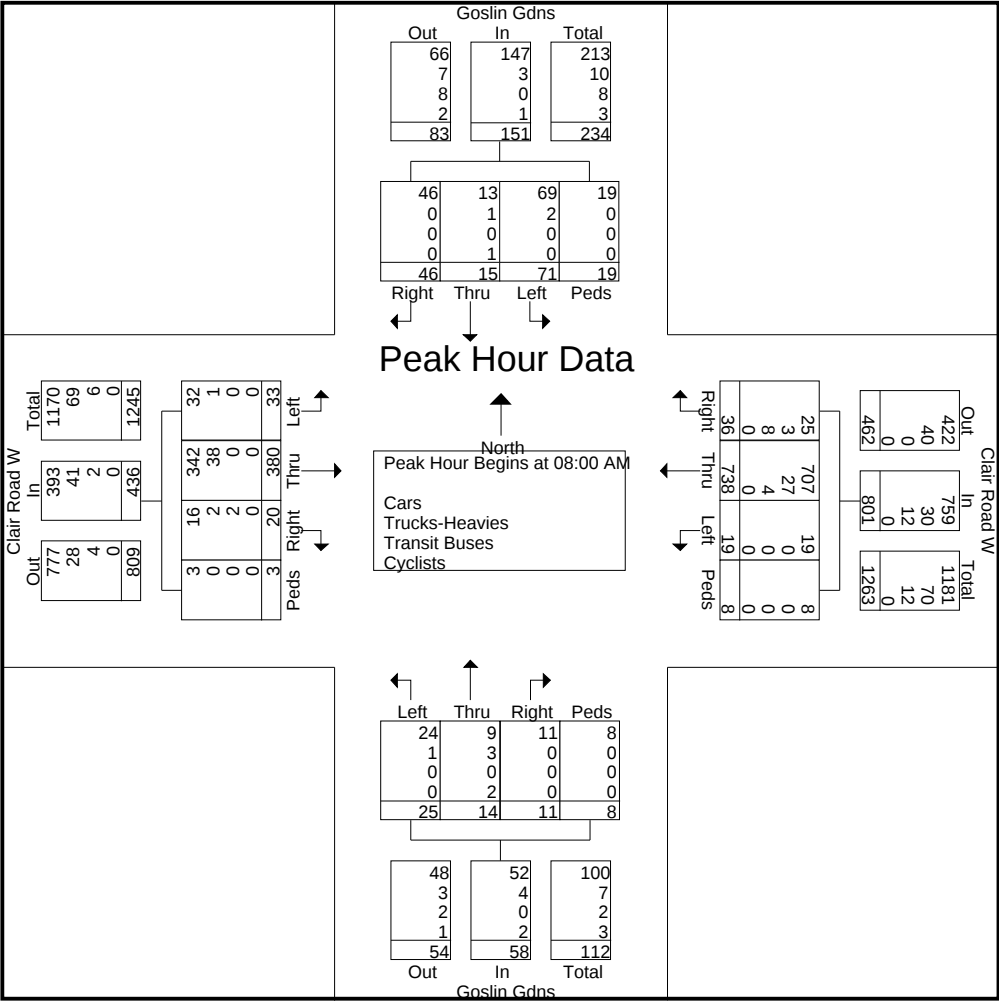
Your Traffic Count Specialist

File Name : Clair Road West at Goslin Gardens

Site Code : 00000000

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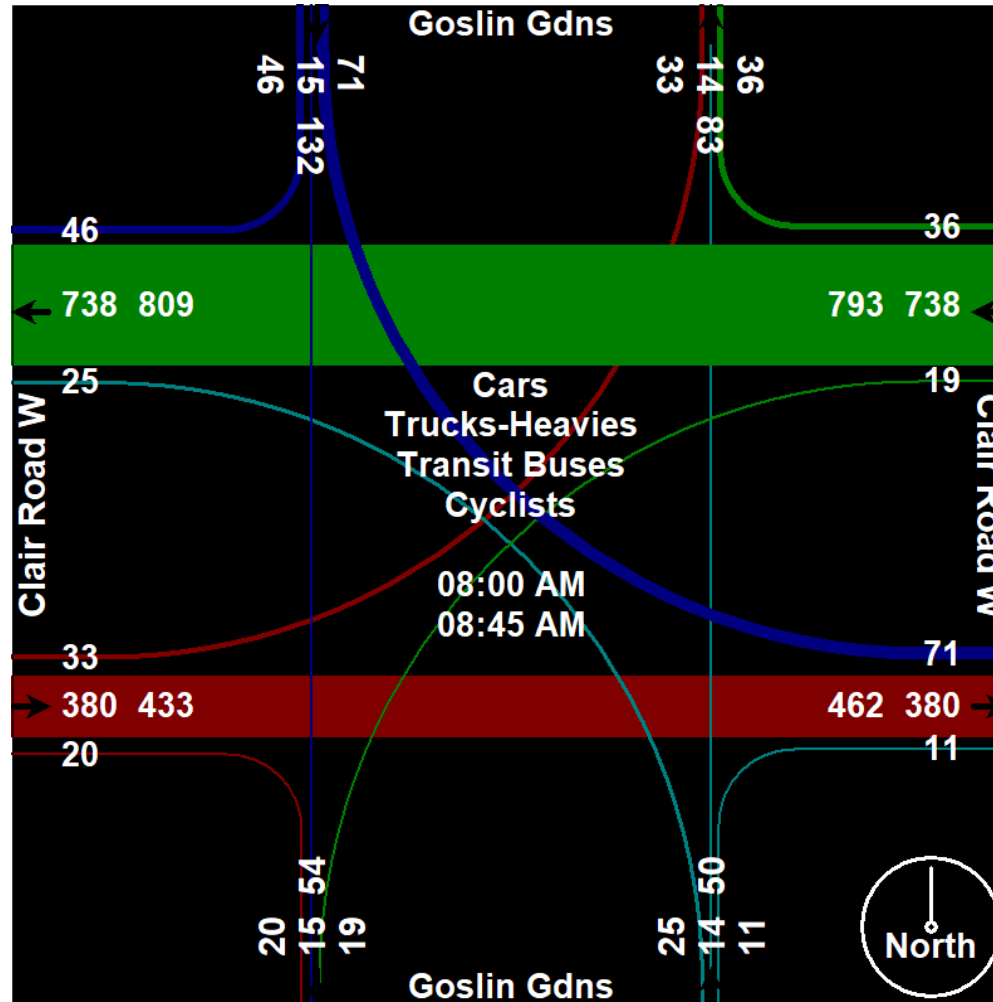
Your Traffic Count Specialist

File Name : Clair Road West at Goslin Gardens

Site Code : 00000000

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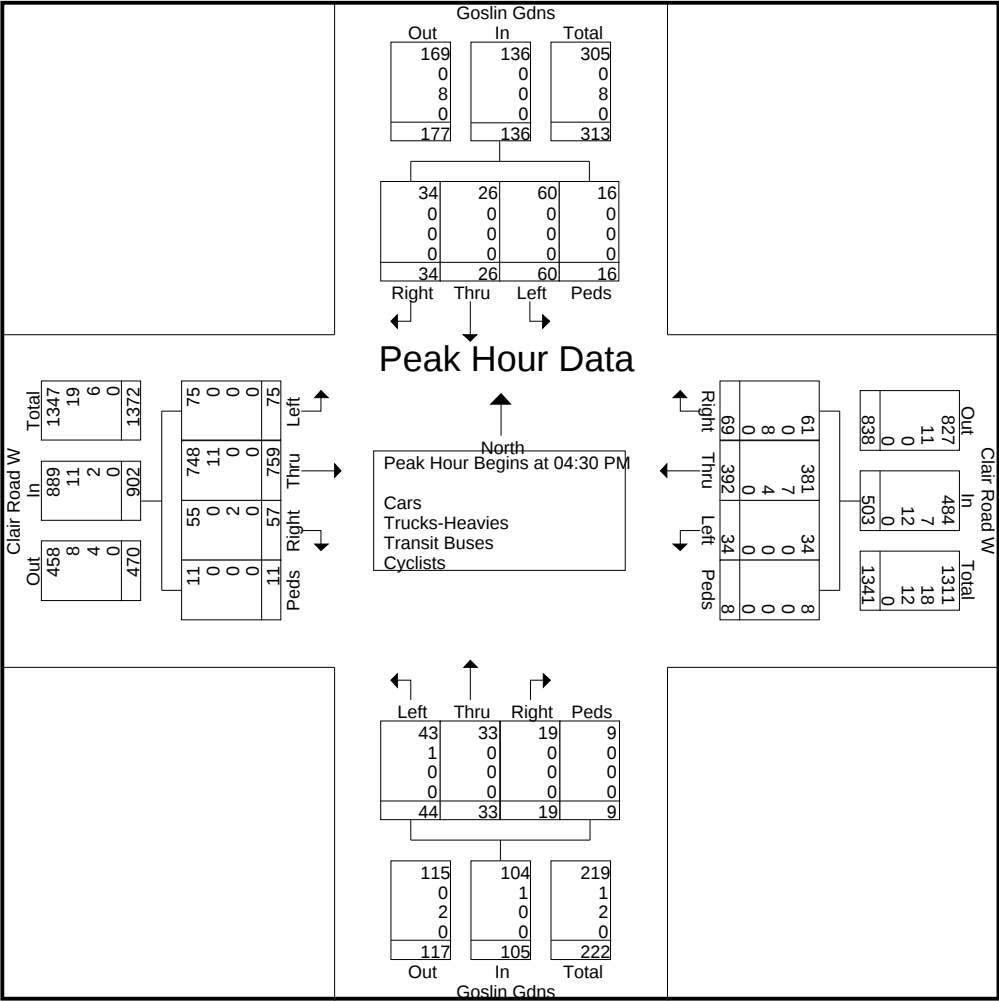
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File Name : Clair Road West at Goslin Gardens

Site Code : 00000000

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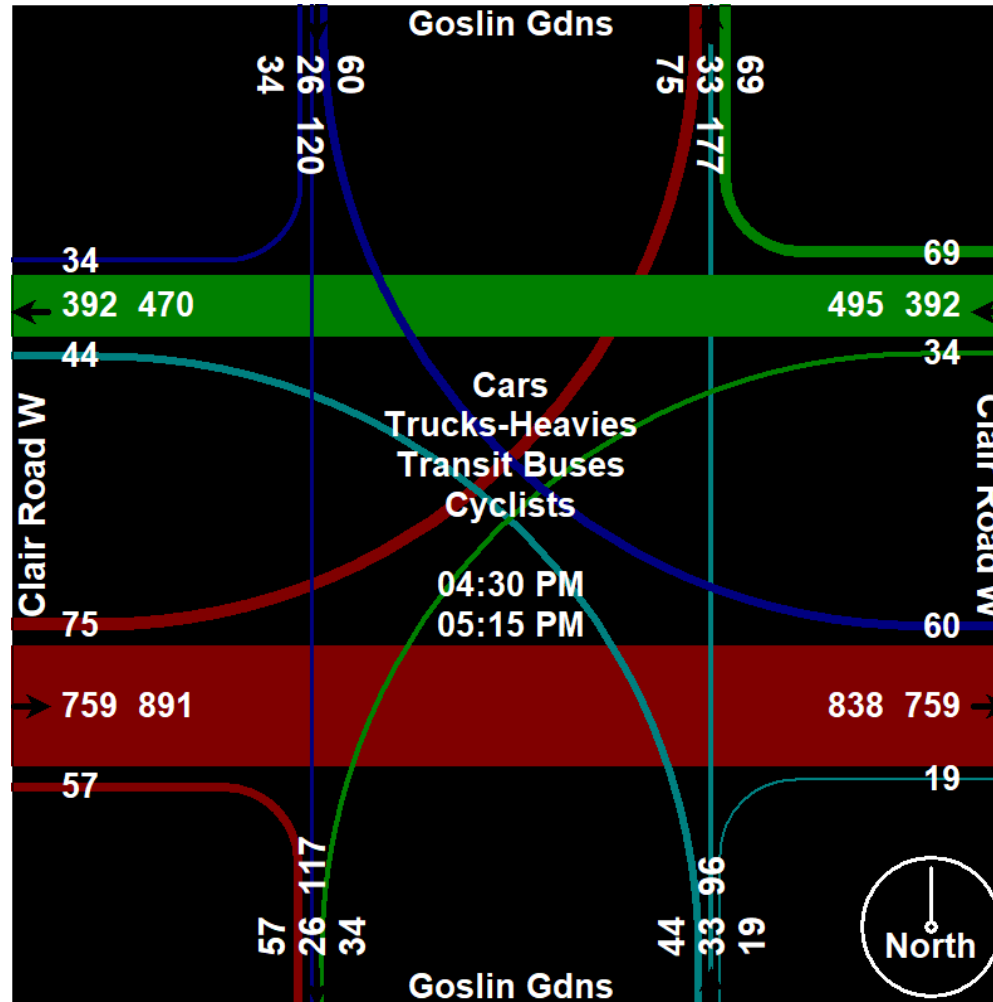
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File Name : Clair Road West at Goslin Gardens

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Your Traffic Count Specialist

File Name : Clair Road West at Gordon Street

Site Code : 00000000

Start Date : 2024-02-27

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Groups Printed- Cars - Heavies - Transit Buses - Cyclists																						
	Gordon St From North					Clair Road E From East					Gordon St From South					Clair Road W From West						
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total	
07:00 AM	29	76	6	2	113	3	64	43	2	112	8	34	15	0	57	19	35	24	0	78	360	
07:15 AM	30	96	8	1	135	5	82	29	1	117	7	46	16	1	70	21	35	15	0	71	393	
07:30 AM	26	100	9	1	136	5	117	48	0	170	12	52	34	1	99	14	44	15	0	73	478	
07:45 AM	42	90	19	1	152	10	138	34	0	182	12	100	32	1	145	23	40	24	0	87	566	
Total	127	362	42	5	536	23	401	154	3	581	39	232	97	3	371	77	154	78	0	309	1797	
08:00 AM	32	74	13	8	127	14	115	29	7	165	16	100	18	2	136	26	53	27	1	107	535	
08:15 AM	37	89	9	6	141	17	140	24	3	184	15	83	31	3	132	14	76	23	1	114	571	
08:30 AM	37	62	14	6	119	18	174	32	5	229	18	95	36	4	153	24	79	33	1	137	638	
08:45 AM	39	71	17	4	131	16	153	33	3	205	16	91	33	4	144	16	104	41	0	161	641	
Total	145	296	53	24	518	65	582	118	18	783	65	369	118	13	565	80	312	124	3	519	2385	
09:00 AM	28	63	20	4	115	15	77	32	3	127	20	62	20	2	104	24	45	37	1	107	453	
09:15 AM	32	85	14	4	135	13	50	33	5	101	12	79	19	3	113	17	36	26	0	79	428	
09:30 AM	19	74	20	4	117	14	52	16	7	89	17	72	18	2	109	13	36	30	2	81	396	
09:45 AM	24	69	14	2	109	10	59	32	6	107	14	76	14	6	110	14	42	30	0	86	412	
Total	103	291	68	14	476	52	238	113	21	424	63	289	71	13	436	68	159	123	3	353	1689	
03:00 PM	26	75	31	17	149	18	82	24	7	131	18	96	29	23	166	23	110	58	2	193	639	
03:15 PM	21	80	23	9	133	26	108	37	9	180	27	102	31	6	166	26	109	51	0	186	665	
03:30 PM	22	108	42	5	177	22	93	29	4	148	22	109	27	2	160	21	156	42	0	219	704	
03:45 PM	24	92	30	3	149	22	88	43	2	155	29	115	20	3	167	27	127	50	3	207	678	
Total	93	355	126	34	608	88	371	133	22	614	96	422	107	34	659	97	502	201	5	805	2686	
04:00 PM	28	91	32	9	160	17	95	28	6	146	23	115	33	4	175	23	153	49	0	225	706	
04:15 PM	22	102	29	6	159	21	90	37	4	152	28	111	38	8	185	20	108	42	3	173	669	
04:30 PM	14	111	26	16	167	19	66	33	5	123	39	114	26	3	182	35	189	53	3	280	752	
04:45 PM	30	102	34	4	170	27	86	28	4	145	28	134	26	8	196	22	124	51	3	200	711	
Total	94	406	121	35	656	84	337	126	19	566	118	474	123	23	738	100	574	195	9	878	2838	
05:00 PM	27	113	39	9	188	14	94	21	5	134	25	131	24	4	184	27	178	57	0	262	768	
05:15 PM	20	89	27	7	143	25	90	25	3	143	30	112	24	8	174	15	154	43	0	212	672	
05:30 PM	19	92	36	6	153	16	87	34	7	144	25	124	26	10	185	17	123	34	1	175	657	
05:45 PM	13	85	35	11	144	19	69	23	6	117	36	111	26	7	180	24	107	31	3	165	606	
Total	79	379	137	33	628	74	340	103	21	538	116	478	100	29	723	83	562	165	4	814	2703	

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Your Traffic Count Specialist

File Name : Clair Road West at Gordon Street

Site Code : 00000000

Start Date : 2024-02-27

Page No : 2

Groups Printed- Cars - Heavies - Transit Buses - Cyclists

	Gordon St From North					Clair Road E From East					Gordon St From South					Clair Road W From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Grand Total	641	2089	547	145	3422	386	2269	747	104	3506	497	2264	616	115	3492	505	2263	886	24	3678	14098
Apprch %	18.7	61	16	4.2		11	64.7	21.3	3		14.2	64.8	17.6	3.3		13.7	61.5	24.1	0.7		
Total %	4.5	14.8	3.9	1	24.3	2.7	16.1	5.3	0.7	24.9	3.5	16.1	4.4	0.8	24.8	3.6	16.1	6.3	0.2	26.1	
Cars	580	2030	529	145	3284	380	2191	708	104	3383	447	2199	554	115	3315	469	2183	865	24	3541	13523
% Cars	90.5	97.2	96.7	100	96	98.4	96.6	94.8	100	96.5	89.9	97.1	89.9	100	94.9	92.9	96.5	97.6	100	96.3	95.9
Trucks-Heavies	13	34	6	0	53	5	78	39	0	122	50	37	37	0	124	36	80	21	0	137	436
% Trucks-Heavies	2	1.6	1.1	0	1.5	1.3	3.4	5.2	0	3.5	10.1	1.6	6	0	3.6	7.1	3.5	2.4	0	3.7	3.1
Transit Buses	47	24	12	0	83	1	0	0	0	1	0	26	25	0	51	0	0	0	0	0	135
% Transit Buses	7.3	1.1	2.2	0	2.4	0.3	0	0	0	0	0	1.1	4.1	0	1.5	0	0	0	0	0	1
Cyclists	1	1	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
% Cyclists	0.2	0	0	0	0.1	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0

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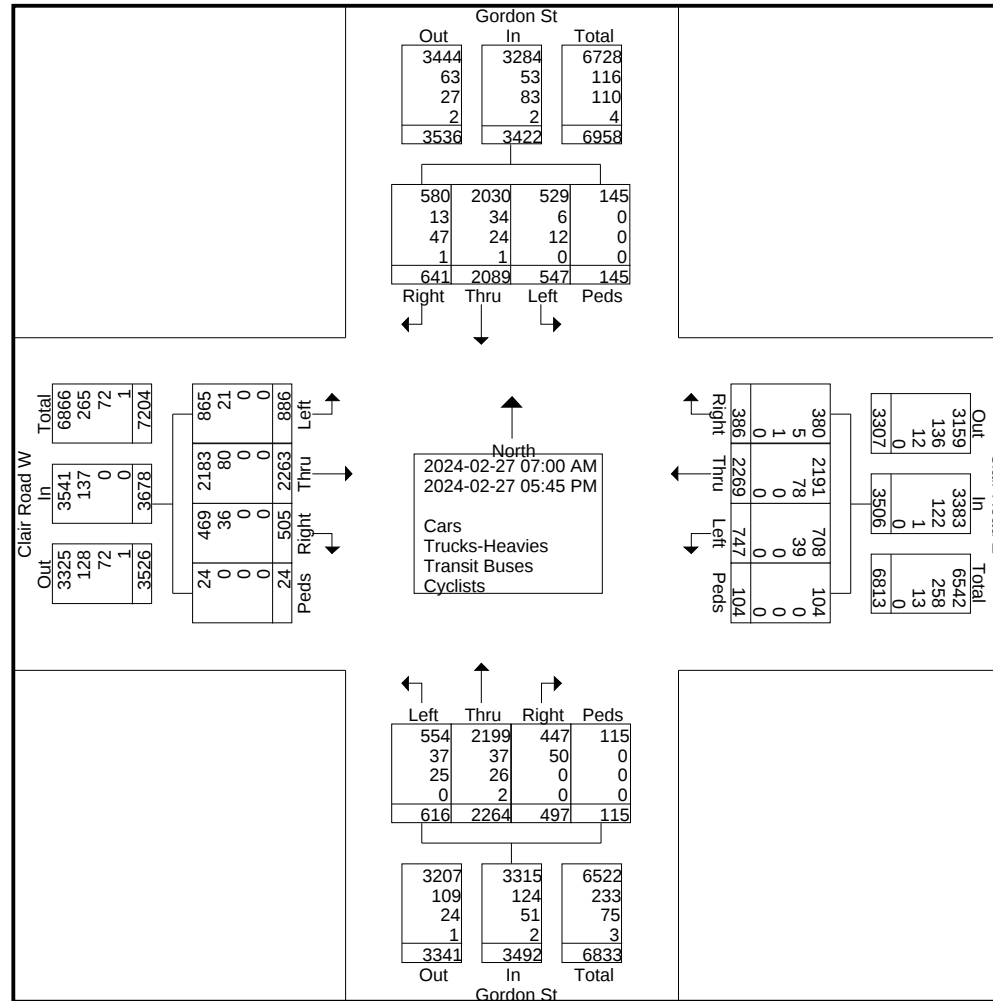
Your Traffic Count Specialist

File Name : Clair Road West at Gordon Street

Site Code : 00000000

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Your Traffic Count Specialist

File Name : Clair Road West at Gordon Street

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	Gordon St From North					Clair Road E From East					Gordon St From South					Clair Road W From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	32	74	13	8	127	14	115	29	7	165	16	100	18	2	136	26	53	27	1	107	535
08:15 AM	37	89	9	6	141	17	140	24	3	184	15	83	31	3	132	14	76	23	1	114	571
08:30 AM	37	62	14	6	119	18	174	32	5	229	18	95	36	4	153	24	79	33	1	137	638
08:45 AM	39	71	17	4	131	16	153	33	3	205	16	91	33	4	144	16	104	41	0	161	641
Total Volume	145	296	53	24	518	65	582	118	18	783	65	369	118	13	565	80	312	124	3	519	2385
% App. Total	28	57.1	10.2	4.6		8.3	74.3	15.1	2.3		11.5	65.3	20.9	2.3		15.4	60.1	23.9	0.6		
PHF	.929	.831	.779	.750	.918	.903	.836	.894	.643	.855	.903	.923	.819	.813	.923	.769	.750	.756	.750	.806	.930
Cars	132	288	50	24	494	64	565	112	18	759	55	354	106	13	528	70	284	121	3	478	2259
% Cars	91.0	97.3	94.3	100	95.4	98.5	97.1	94.9	100	96.9	84.6	95.9	89.8	100	93.5	87.5	91.0	97.6	100	92.1	94.7
Trucks-Heavies	4	3	1	0	8	1	17	6	0	24	10	10	8	0	28	10	28	3	0	41	101
% Trucks-Heavies	2.8	1.0	1.9	0	1.5	1.5	2.9	5.1	0	3.1	15.4	2.7	6.8	0	5.0	12.5	9.0	2.4	0	7.9	4.2
Transit Buses	9	4	2	0	15	0	0	0	0	0	0	4	4	0	8	0	0	0	0	0	23
% Transit Buses	6.2	1.4	3.8	0	2.9	0	0	0	0	0	0	1.1	3.4	0	1.4	0	0	0	0	0	1.0
Cyclists	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
% Cyclists	0	0.3	0	0	0.2	0	0	0	0	0	0	0.3	0	0	0.2	0	0	0	0	0	0.1

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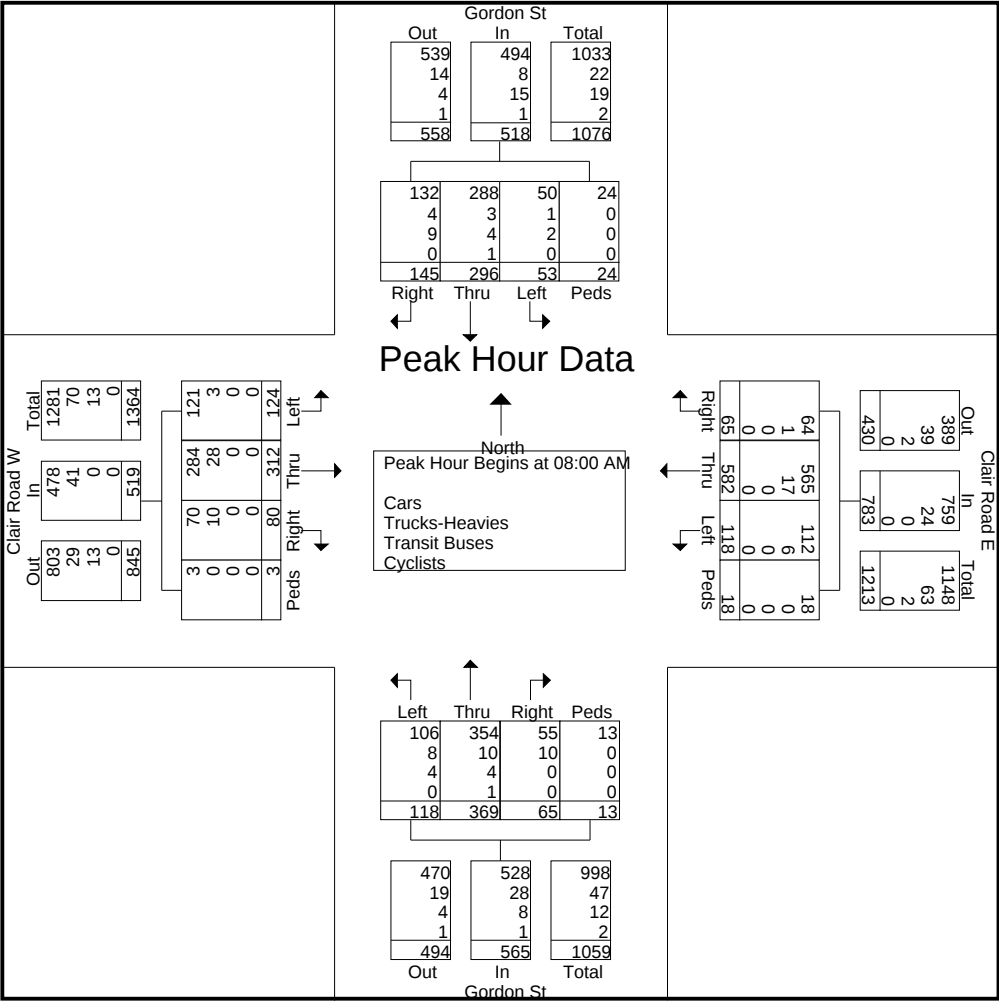
Your Traffic Count Specialist

File Name : Clair Road West at Gordon Street

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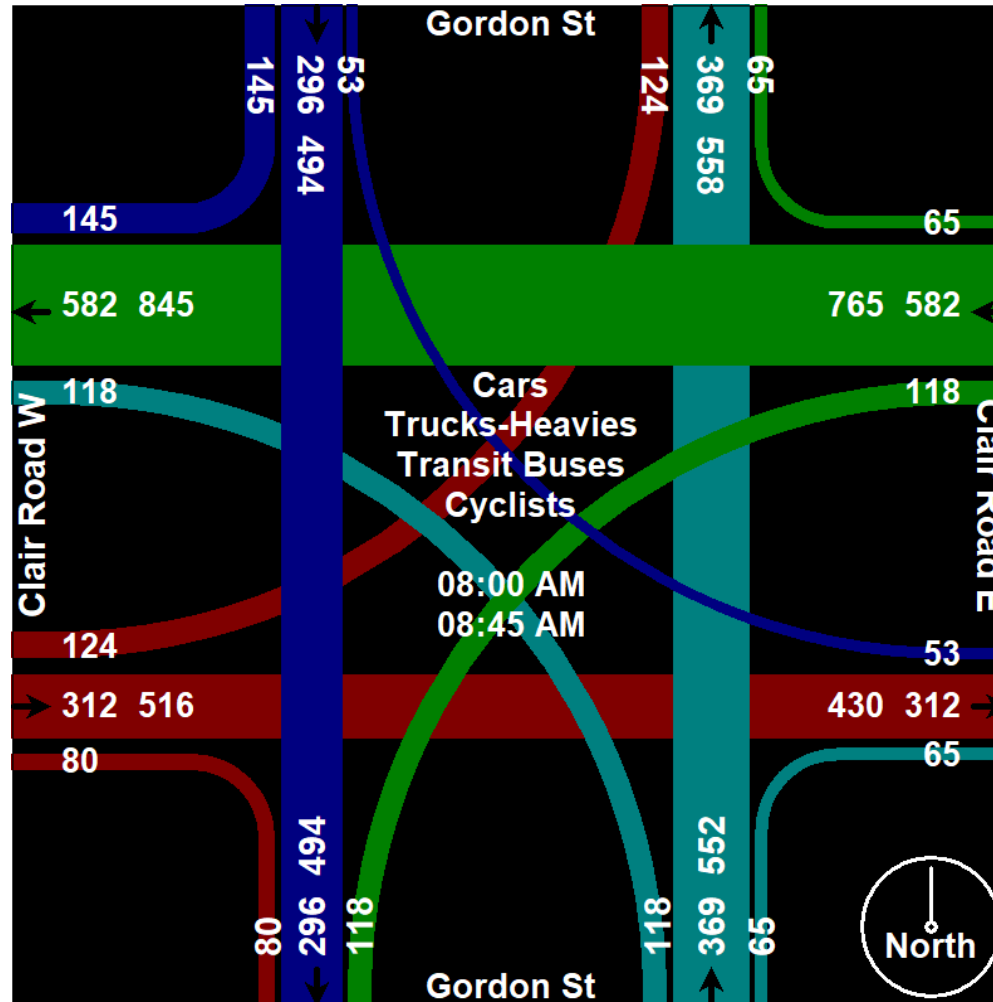
Your Traffic Count Specialist

File Name : Clair Road West at Gordon Street

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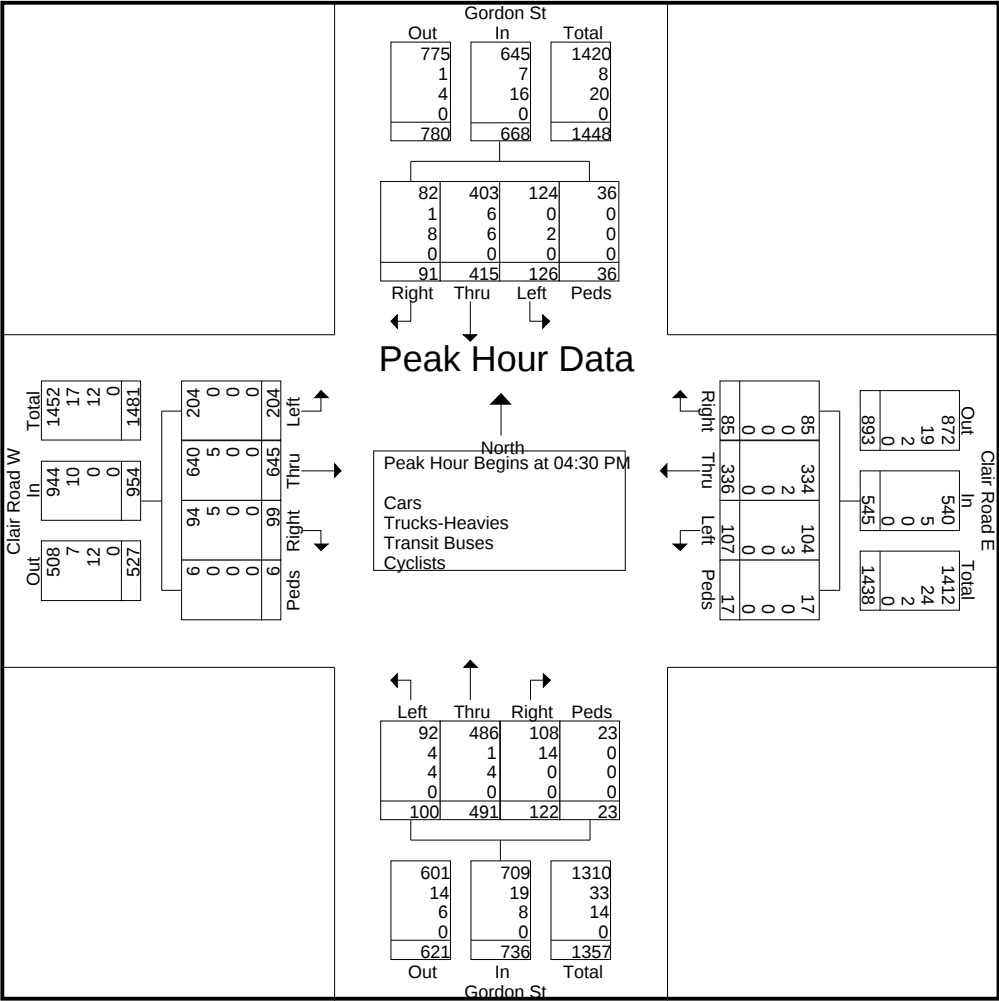
Your Traffic Count Specialist

File Name : Clair Road West at Gordon Street

Site Code : 00000000

Start Date : 2024-02-27

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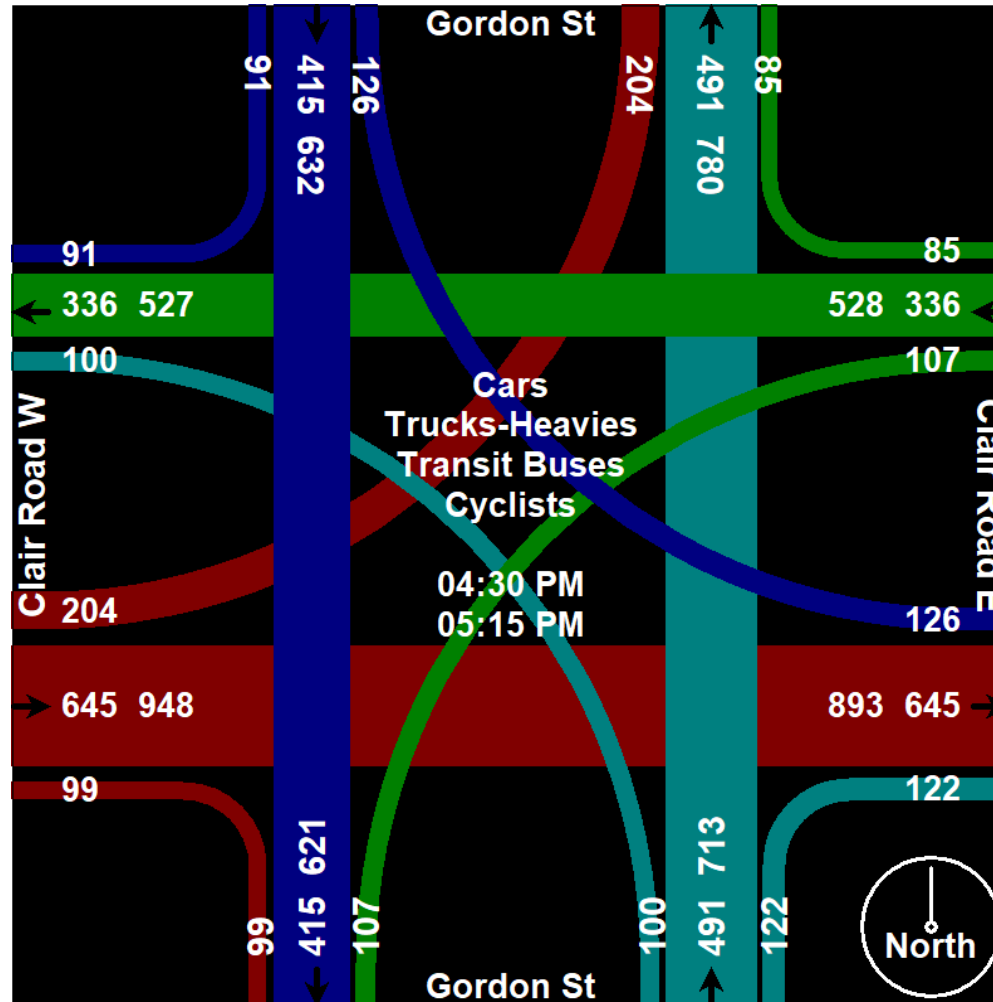
Your Traffic Count Specialist

File Name : Clair Road West at Gordon Street

Site Code : 00000000

Start Date : 2024-02-27

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Appendix C

Signal Timing Plans

CITY OF GUELPH

Traffic Signal Timing Parameters

Database Date		Field			Prepared Date:		Mar. 5, 2024		
Database Rev		Field			Completed By:		I.T.		
Timing Card / Field rev		Field			Checked By:				
Location:		Clair Road @ Clairfields Drive					TIME PERIOD		
Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)		Amber (sec.)	All Red (sec.)	(sec.) (Green+Amber+All Red)		
			WALK	FDWALK			AM MAX	OFF MAX	PM MAX
1	WBLT - Clair Rd. P+P	7.0			3.0		10.0	10.0	10.0
2	EB - Clair Rd.	10.0	16.0	16.0	4.0	2.0	47.0	47.0	47.0
3	not in use								
4	NB - Clairfields Dr.	7.0	8.0	14.0	4.0	2.0	33.0	33.0	33.0
5	EBLT - Clair Rd. P+P	7.0			3.0		10.0	10.0	10.0
6	WB - Clair Rd.	10.0	16.0	16.0	4.0	2.0	47.0	47.0	47.0
7	not in use								
8	SB - Clairfields Dr.	7.0	8.0	14.0	4.0	2.0	33.0	33.0	33.0
System Control		Yes							
Local Control		No							
Semi-Actuated Mode		Yes							
Note: P+P = Protected Permissive Phase									
Prot. = Fully Protected Phase									
		TIME (M-F)		PEAK		CYCLE LENGTH (sec.)		OFFSET (sec.)	
		7:00 - 9:00		AM		90		89	
		9:00 - 14:30		OFF		90		78	
		14:30 - 21:00		PM		90		63	

CITY OF GUELPH

Traffic Signal Timing Parameters

Database Date						Prepared Date:		Tuesday, March 5, 2024	
Database Rev						Completed By:		I.T.	
Timing Card / Field rev		From Controller				Checked By:			
Location:		Clair Road at Gosling Garden					TIME PERIOD (sec.) (Green+Amber+All Red)		
Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)		Amber (sec.)	All Red (sec.)			
			WALK	FDWALK					
1	WBLT P+P	5.0			3.0		10.0	10.0	10.0
2	EB Clair Rd.	10.0	29.0	15.0	4.0	2.0	50.0	50.0	50.0
3	Not in use								
4	NB Gosling Garden	7.0	8.0	18.0	4.0	2.0	30.0	30.0	30.0
5	EBLT P+P	5.0			3.0		10.0	10.0	10.0
6	WB Clair Rd.	10.0	29.0	15.0	4.0	2.0	50.0	50.0	50.0
7	Not in use								
8	SB Gosling Garden	7.0	8.0	18.0	4.0	2.0	30.0	30.0	30.0
System Control		Yes							
Local Control		No							
Semi-Actuated Mode		Yes							
Note: P+P = Protected Permissive Phase Prot. = Fully Protected Phase				TIME (M-F)		PEAK	CYCLE LENGTH (sec.)		OFFSET (sec.)
				07:00-09:00		AM	90		45
				9:00 - 15:00		OFF	90		32
				15:00 - 21:00		PM	90		5

CITY OF GUELPH

Traffic Signal Timing Parameters

Database Date						Prepared Date:		Friday, March 1, 2024	
Database Rev						Completed By:		I.T.	
Timing Card / Field rev		From Controller				Checked By:			
Location:		Gordon Street at Clair Road					TIME PERIOD (sec.) (Green+Amber+All Red)		
Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)		Amber (sec.)	All Red (sec.)			
			WALK	FDWALK					
1	SBLT P+P	7.0			3.0		10.0	10.0	10.0
2	NB Gordong St.	10.0	10.0	19.0	4.0	2.0	35.0	35.0	35.0
3	EBLT P+P	7.0			3.0		10.0	10.0	10.0
4	WB Clair Rd.	10.0	7.0	19.0	4.0	2.0	35.0	35.0	35.0
5	NBLT P+P	7.0			3.0		10.0	10.0	10.0
6	SB Gordon St.	10.0	10.0	19.0	4.0	2.0	35.0	35.0	35.0
7	WBLT P+P	7.0			3.0		10.0	10.0	10.0
8	EB Clair Rd.	10.0	7.0	19.0	4.0	2.0	35.0	35.0	35.0
System Control		Yes							
Local Control		No							
Semi-Actuated Mode		Yes							
Note: P+P = Protected Permissive Phase Prot. = Fully Protected Phase				TIME (M-F)		PEAK	CYCLE LENGTH (sec.)		OFFSET (sec.)
				07:00-09:00		AM	90		80
				9:00 - 15:00		OFF	90		70
				15:00 - 21:00		PM	90		45

Appendix D

Level of Service Definitions

Highway Capacity Manual 2010

Signalized intersection level of service (LOS) is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. Table 1 summarizes the LOS criteria for signalized intersections, as described in the *Highway Capacity Manual 2010* (Transportation Research Board, 2010).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)	General Description
A	≤10	Free Flow
B	>10 – 20	Stable Flow (slight delays)
C	>20 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F ¹	>80	Forced flow (congested and queues fail to clear)

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

1. If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0 LOS F is assigned to the individual lane group. LOS for overall approach or intersection is determined solely by the control delay.

Unsignalized intersection LOS criteria can be further reduced into three intersection types: all-way stop, two-way stop, and roundabout control. All-way stop and roundabout control intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major-street through vehicles are assumed to experience zero delay, a weighted average of all movements results in very low overall average delay, and this calculated low delay could mask deficiencies of minor movements. Table 2 shows LOS criteria for unsignalized intersections.

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	0 – 10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F ¹	>50

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

1. If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned an individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by control delay.

Appendix E

Synchro Analysis Worksheets

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

AM Peak Hour
Existing Volumes

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	↰	
Traffic Volume (veh/h)	337	5	110	746	1	42
Future Volume (Veh/h)	337	5	110	746	1	42
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	374	6	122	829	1	47
Pedestrians	1			1		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			380		1451	378
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			380		1451	378
tC, single (s)			4.1		7.4	6.4
tC, 2 stage (s)						
tF (s)			2.2		4.4	3.5
p0 queue free %			90		99	93
cM capacity (veh/h)			1168		79	636
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	380	951	48			
Volume Left	0	122	1			
Volume Right	6	0	47			
cSH	1700	1168	555			
Volume to Capacity	0.22	0.10	0.09			
Queue Length 95th (m)	0.0	2.8	2.3			
Control Delay (s)	0.0	2.6	12.1			
Lane LOS		A	B			
Approach Delay (s)	0.0	2.6	12.1			
Approach LOS			B			
Intersection Summary						
Average Delay		2.2				
Intersection Capacity Utilization		77.0%	ICU Level of Service	D		
Analysis Period (min)		15				

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

AM Peak Hour
Existing Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	309	62	144	634	23	36	12	113	18	58	143
Future Volume (vph)	39	309	62	144	634	23	36	12	113	18	58	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	3.6	3.6	4.8	3.6
Storage Length (m)	55.0		0.0	55.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	0.91	0.91	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.99	1.00			0.98			0.96	
Frt		0.975			0.995			0.905			0.912	
Flt Protected	0.950			0.950	0.999			0.989			0.996	
Satd. Flow (prot)	1671	3141	0	1535	3318	0	0	1753	0	0	1847	0
Flt Permitted	0.294			0.422	0.942			0.655			0.947	
Satd. Flow (perm)	513	3141	0	676	3128	0	0	1154	0	0	1756	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34			5			134			94	
Link Speed (k/h)		50			60			40			40	
Link Distance (m)		243.7			569.7			177.5			178.2	
Travel Time (s)		17.5			34.2			16.0			16.0	
Confl. Peds. (#/hr)	21		13	13		21	41		7	7		41
Confl. Bikes (#/hr)						1						2
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles (%)	8%	12%	8%	7%	3%	13%	25%	0%	4%	11%	0%	1%
Adj. Flow (vph)	54	429	86	200	881	32	50	17	157	25	81	199
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	54	515	0	180	933	0	0	224	0	0	305	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	38.0		10.0	38.0		28.0	28.0		28.0	28.0	
Total Split (s)	10.0	47.0		10.0	47.0		33.0	33.0		33.0	33.0	
Total Split (%)	11.1%	52.2%		11.1%	52.2%		36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	7.0	41.0		7.0	41.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		16.0			16.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		16.0			16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		13			21		7	7		41	41	
Act Efect Green (s)	58.2	48.2		62.1	56.8			18.1			18.1	

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

AM Peak Hour
Existing Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.65	0.54		0.69	0.63			0.20			0.20	
v/c Ratio	0.13	0.30		0.33	0.47			0.66			0.71	
Control Delay	6.5	12.7		3.9	4.8			22.7			31.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.5	12.7		3.9	4.8			22.7			31.6	
LOS	A	B		A	A			C			C	
Approach Delay		12.1			4.6			22.7			31.6	
Approach LOS		B			A			C			C	
Queue Length 50th (m)	3.1	26.6		10.6	32.0			13.5			33.7	
Queue Length 95th (m)	6.0	30.5		4.0	10.0			22.2			41.3	
Internal Link Dist (m)		219.7			545.7			153.5			154.2	
Turn Bay Length (m)	55.0			55.0								
Base Capacity (vph)	422	1698		549	1987			440			592	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.13	0.30		0.33	0.47			0.51			0.52	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 89 (99%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 12.1

Intersection LOS: B

Intersection Capacity Utilization 87.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 120: Clair Road W. & Clairfields Drive W.



Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

AM Peak Hour

Existing Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	380	20	19	738	36	25	14	11	71	15	46
Future Volume (vph)	33	380	20	19	738	36	25	14	11	71	15	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99			0.99	
Frt		0.993			0.993			0.970			0.953	
Flt Protected	0.950			0.950				0.976			0.974	
Satd. Flow (prot)	1752	3254	0	1805	3434	0	0	1661	0	0	1713	0
Flt Permitted	0.278			0.485				0.792			0.799	
Satd. Flow (perm)	510	3254	0	918	3434	0	0	1346	0	0	1399	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			8			13			29	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		569.7			231.6			156.8			134.6	
Travel Time (s)		34.2			13.9			11.3			9.7	
Confl. Peds. (#/hr)	19		8	8		19	3		8	8		3
Confl. Bikes (#/hr)									2			1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	3%	10%	10%	0%	4%	8%	4%	21%	0%	3%	7%	0%
Adj. Flow (vph)	38	442	23	22	858	42	29	16	13	83	17	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	465	0	22	900	0	0	58	0	0	153	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	8.0	50.0		8.0	50.0		32.0	32.0		32.0	32.0	
Total Split (s)	10.0	50.0		10.0	50.0		30.0	30.0		30.0	30.0	
Total Split (%)	11.1%	55.6%		11.1%	55.6%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	44.0		7.0	44.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		29.0			29.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		15.0			15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		8			19		8	8		3	3	
Act Effect Green (s)	65.7	60.0		64.8	58.1			14.3			14.3	
Actuated g/C Ratio	0.73	0.67		0.72	0.65			0.16			0.16	

Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

AM Peak Hour
Existing Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.08	0.21		0.03	0.41			0.26			0.62	
Control Delay	2.8	5.2		3.2	5.9			27.5			38.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	2.8	5.2		3.2	5.9			27.5			38.3	
LOS	A	A		A	A			C			D	
Approach Delay		5.0			5.8			27.5			38.3	
Approach LOS		A			A			C			D	
Queue Length 50th (m)	0.5	4.2		0.7	23.2			7.3			21.4	
Queue Length 95th (m)	m2.4	41.5		m2.0	36.3			15.2			34.1	
Internal Link Dist (m)		545.7			207.6			132.8			110.6	
Turn Bay Length (m)	50.0			40.0								
Base Capacity (vph)	469	2172		735	2219			368			394	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.08	0.21		0.03	0.41			0.16			0.39	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 9.4

Intersection LOS: A

Intersection Capacity Utilization 57.6%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 130: Gosling Gardens & Clair Road W.



Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

AM Peak Hour
Existing Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	312	80	118	582	65	118	369	65	53	296	145
Future Volume (vph)	124	312	80	118	582	65	118	369	65	53	296	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	25.0		0.0	45.0		0.0	145.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		0.99	1.00		1.00	1.00		0.99	0.99	
Frt		0.969			0.985			0.978			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3169	0	1719	3443	0	1687	3355	0	1770	3360	0
Flt Permitted	0.211			0.440			0.415			0.489		
Satd. Flow (perm)	390	3169	0	790	3443	0	736	3355	0	903	3360	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			14			23			98	
Link Speed (k/h)		60			60			70			60	
Link Distance (m)		231.6			273.3			321.8			235.6	
Travel Time (s)		13.9			16.4			16.5			14.1	
Confl. Peds. (#/hr)	24		13	13		24	3		18	18		3
Confl. Bikes (#/hr)									1			1
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
Heavy Vehicles (%)	2%	9%	13%	5%	3%	2%	7%	3%	15%	2%	1%	3%
Adj. Flow (vph)	131	328	84	124	613	68	124	388	68	56	312	153
Shared Lane Traffic (%)												
Lane Group Flow (vph)	131	412	0	124	681	0	124	456	0	56	465	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	32.0		10.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (%)	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	
Maximum Green (s)	7.0	29.0		7.0	29.0		7.0	29.0		7.0	29.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		13			24			18			3	
Act Effect Green (s)	33.0	23.0		33.0	23.0		46.5	36.8		44.0	33.8	
Actuated g/C Ratio	0.37	0.26		0.37	0.26		0.52	0.41		0.49	0.38	

Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

AM Peak Hour
Existing Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.52	0.49		0.34	0.76		0.27	0.33		0.11	0.35	
Control Delay	25.8	19.3		19.1	36.0		13.4	19.7		12.3	17.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.8	19.3		19.1	36.0		13.4	19.7		12.3	17.5	
LOS	C	B		B	D		B	B		B	B	
Approach Delay		20.8			33.4			18.4			17.0	
Approach LOS		C			C			B			B	
Queue Length 50th (m)	10.2	26.3		14.3	59.4		10.7	28.4		4.6	24.4	
Queue Length 95th (m)	24.2	17.2		23.3	72.6		22.9	46.0		12.0	40.4	
Internal Link Dist (m)		207.6			249.3			297.8			211.6	
Turn Bay Length (m)	100.0			25.0			45.0			145.0		
Base Capacity (vph)	250	1046		362	1118		466	1384		510	1323	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.52	0.39		0.34	0.61		0.27	0.33		0.11	0.35	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 80 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 23.6

Intersection LOS: C

Intersection Capacity Utilization 74.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 140: Gordon Street & Clair Road W.

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	35 s	10 s	35 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
10 s	35 s	10 s	35 s

HCM Unsignalized Intersection Capacity Analysis

210: Site Access & Clair Road W.

AM Peak Hour
Existing Volumes

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	↰	
Traffic Volume (veh/h)	379	0	0	856	0	0
Future Volume (Veh/h)	379	0	0	856	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	412	0	0	930	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)				299		
pX, platoon unblocked					0.78	
vC, conflicting volume			412		1342	412
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			412		1299	412
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1147		140	640
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	412	930	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1147	1700			
Volume to Capacity	0.24	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			48.4%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

PM Peak Hour
Existing Volumes

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶			↷	↶	↷
Traffic Volume (veh/h)	830	7	20	493	7	137
Future Volume (Veh/h)	830	7	20	493	7	137
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	954	8	23	567	8	157
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				962	1571	958
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				962	1571	958
tC, single (s)				4.3	6.8	6.2
tC, 2 stage (s)						
tF (s)				2.4	3.9	3.3
p0 queue free %				96	92	50
cM capacity (veh/h)				648	94	312
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	962	590	165			
Volume Left	0	23	8			
Volume Right	8	0	157			
cSH	1700	648	281			
Volume to Capacity	0.57	0.04	0.59			
Queue Length 95th (m)	0.0	0.9	27.6			
Control Delay (s)	0.0	1.0	34.6			
Lane LOS		A	D			
Approach Delay (s)	0.0	1.0	34.6			
Approach LOS			D			
Intersection Summary						
Average Delay				3.7		
Intersection Capacity Utilization	59.6%			ICU Level of Service	B	
Analysis Period (min)	15					

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

PM Peak Hour

Existing Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	589	12	30	396	41	44	10	128	26	6	65
Future Volume (vph)	89	589	12	30	396	41	44	10	128	26	6	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	3.6	3.6	4.8	3.6
Storage Length (m)	55.0		0.0	55.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	0.91	0.91	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.98	0.99			0.97			0.94	
Frt		0.997			0.986			0.905			0.909	
Flt Protected	0.950			0.950				0.988			0.987	
Satd. Flow (prot)	1770	3479	0	1535	3203	0	0	1802	0	0	1732	0
Flt Permitted	0.406			0.312	0.952			0.874			0.793	
Satd. Flow (perm)	745	3479	0	495	3049	0	0	1570	0	0	1390	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			16			135			92	
Link Speed (k/h)		50			60			40			40	
Link Distance (m)		243.7			569.7			177.5			178.2	
Travel Time (s)		17.5			34.2			16.0			16.0	
Confl. Peds. (#/hr)	25		50	50		25	67		8	8		67
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles (%)	2%	3%	17%	7%	6%	5%	7%	0%	5%	12%	0%	2%
Adj. Flow (vph)	125	830	17	42	558	58	62	14	180	37	8	92
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	125	847	0	38	620	0	0	256	0	0	137	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	38.0		10.0	38.0		28.0	28.0		28.0	28.0	
Total Split (s)	10.0	47.0		10.0	47.0		33.0	33.0		33.0	33.0	
Total Split (%)	11.1%	52.2%		11.1%	52.2%		36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	7.0	41.0		7.0	41.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		16.0			16.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		16.0			16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		50			25		8	8		67	67	
Act Effect Green (s)	60.8	53.0		58.4	50.8			19.0			19.0	
Actuated g/C Ratio	0.68	0.59		0.65	0.56			0.21			0.21	

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

PM Peak Hour
Existing Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.21	0.41		0.09	0.36			0.59			0.37	
Control Delay	6.5	12.5		5.9	9.3			19.8			14.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.5	12.5		5.9	9.3			19.8			14.1	
LOS	A	B		A	A			B			B	
Approach Delay		11.7			9.1			19.8			14.1	
Approach LOS		B			A			B			B	
Queue Length 50th (m)	7.5	49.6		2.6	23.9			18.1			6.4	
Queue Length 95th (m)	10.6	47.3		5.3	25.1			25.9			13.6	
Internal Link Dist (m)		219.7			545.7			153.5			154.2	
Turn Bay Length (m)	55.0			55.0								
Base Capacity (vph)	590	2049		401	1731			565			481	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.21	0.41		0.09	0.36			0.45			0.28	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 63 (70%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 12.1

Intersection LOS: B

Intersection Capacity Utilization 85.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 120: Clair Road W. & Clairfields Drive W.



Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

PM Peak Hour

Existing Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	759	57	34	392	69	44	33	19	60	26	34
Future Volume (vph)	75	759	57	34	392	69	44	33	19	60	26	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		1.00	0.99			0.99			0.99	
Fr't		0.989			0.978			0.973			0.962	
Flt Protected	0.950			0.950				0.978			0.976	
Satd. Flow (prot)	1805	3530	0	1805	3453	0	0	1784	0	0	1772	0
Flt Permitted	0.453			0.295				0.793			0.810	
Satd. Flow (perm)	854	3530	0	559	3453	0	0	1441	0	0	1466	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			31			14			21	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		569.7			231.6			156.8			134.6	
Travel Time (s)		34.2			13.9			11.3			9.7	
Confl. Peds. (#/hr)	16		9	9		16	11		8	8		11
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	2%	0%	0%	0%	0%	0%
Adj. Flow (vph)	82	834	63	37	431	76	48	36	21	66	29	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	897	0	37	507	0	0	105	0	0	132	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	8.0	50.0		8.0	50.0		32.0	32.0		32.0	32.0	
Total Split (s)	10.0	50.0		10.0	50.0		30.0	30.0		30.0	30.0	
Total Split (%)	11.1%	55.6%		11.1%	55.6%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	44.0		7.0	44.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		29.0			29.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		15.0			15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		9			16		8	8		11	11	
Act Effct Green (s)	65.9	58.8		64.7	56.7			13.6			13.6	
Actuated g/C Ratio	0.73	0.65		0.72	0.63			0.15			0.15	
v/c Ratio	0.12	0.39		0.08	0.23			0.46			0.55	

Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

PM Peak Hour
Existing Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	2.4	4.5		3.4	6.1			34.7			36.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	2.4	4.5		3.4	6.1			34.7			36.9	
LOS	A	A		A	A			C			D	
Approach Delay		4.4			5.9			34.7			36.9	
Approach LOS		A			A			C			D	
Queue Length 50th (m)	1.6	13.8		1.0	14.8			15.5			19.1	
Queue Length 95th (m)	5.0	21.2		4.4	26.6			27.0			32.2	
Internal Link Dist (m)		545.7			207.6			132.8			110.6	
Turn Bay Length (m)	50.0			40.0								
Base Capacity (vph)	700	2310		502	2187			394			406	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.12	0.39		0.07	0.23			0.27			0.33	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 5 (6%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 9.1

Intersection LOS: A

Intersection Capacity Utilization 67.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 130: Gosling Gardens & Clair Road W.



Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

PM Peak Hour
Existing Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	645	99	107	336	85	100	491	122	126	415	91
Future Volume (vph)	204	645	99	107	336	85	100	491	122	126	415	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	25.0		0.0	45.0		0.0	145.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	1.00		0.99	0.99		1.00	0.99		0.99	1.00	
Frt		0.980			0.970			0.970			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3468	0	1752	3440	0	1736	3408	0	1805	3467	0
Flt Permitted	0.395			0.183			0.419			0.302		
Satd. Flow (perm)	736	3468	0	335	3440	0	764	3408	0	571	3467	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			36			36			31	
Link Speed (k/h)		60			60			70			60	
Link Distance (m)		231.6			273.3			321.8			235.6	
Travel Time (s)		13.9			16.4			16.5			14.1	
Confl. Peds. (#/hr)	36		23	23		36	6		17	17		6
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
Heavy Vehicles (%)	0%	1%	5%	3%	1%	0%	4%	0%	11%	0%	1%	1%
Adj. Flow (vph)	215	679	104	113	354	89	105	517	128	133	437	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	215	783	0	113	443	0	105	645	0	133	533	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	32.0		10.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (%)	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	
Maximum Green (s)	7.0	29.0		7.0	29.0		7.0	29.0		7.0	29.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		23			36			17			6	
Act Effct Green (s)	34.2	25.6		33.6	23.6		44.2	33.6		45.2	35.9	
Actuated g/C Ratio	0.38	0.28		0.37	0.26		0.49	0.37		0.50	0.40	
v/c Ratio	0.59	0.78		0.48	0.48		0.23	0.50		0.34	0.38	

Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

PM Peak Hour
Existing Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	18.9	24.8		22.4	26.4		13.9	23.3		15.1	21.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	18.9	24.8		22.4	26.4		13.9	23.3		15.1	21.1	
LOS	B	C		C	C		B	C		B	C	
Approach Delay		23.6			25.6			22.0			19.9	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	12.3	37.0		12.1	31.3		9.7	47.1		12.4	36.7	
Queue Length 95th (m)	19.5	28.6		21.3	43.3		20.1	65.8		24.3	53.2	
Internal Link Dist (m)		207.6			249.3			297.8			211.6	
Turn Bay Length (m)	100.0			25.0			45.0			145.0		
Base Capacity (vph)	363	1131		235	1132		456	1295		393	1400	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.59	0.69		0.48	0.39		0.23	0.50		0.34	0.38	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 22.7

Intersection LOS: C

Intersection Capacity Utilization 78.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 140: Gordon Street & Clair Road W.

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	35 s	10 s	35 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
10 s	35 s	10 s	35 s

HCM Unsignalized Intersection Capacity Analysis

210: Site Access & Clair Road W.

PM Peak Hour
Existing Volumes

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	967	0	0	513	0	0
Future Volume (Veh/h)	967	0	0	513	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1051	0	0	558	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)				299		
pX, platoon unblocked					0.89	
vC, conflicting volume			1051		1609	1051
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1051		1623	1051
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			662		100	276
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1051	558	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	662	1700			
Volume to Capacity	0.62	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay		0.0				
Intersection Capacity Utilization		54.2%	ICU Level of Service	A		
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

AM Peak Hour
2026 Future Background Volumes

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↘	
Traffic Volume (veh/h)	347	5	113	769	1	43
Future Volume (Veh/h)	347	5	113	769	1	43
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	386	6	126	854	1	48
Pedestrians	1			1		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			392		1496	390
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			392		1496	390
tC, single (s)			4.1		7.4	6.4
tC, 2 stage (s)						
tF (s)			2.2		4.4	3.5
p0 queue free %			89		99	92
cM capacity (veh/h)			1156		73	626
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	392	980	49			
Volume Left	0	126	1			
Volume Right	6	0	48			
cSH	1700	1156	543			
Volume to Capacity	0.23	0.11	0.09			
Queue Length 95th (m)	0.0	2.9	2.4			
Control Delay (s)	0.0	2.7	12.3			
Lane LOS		A	B			
Approach Delay (s)	0.0	2.7	12.3			
Approach LOS			B			
Intersection Summary						
Average Delay		2.3				
Intersection Capacity Utilization		78.9%	ICU Level of Service	D		
Analysis Period (min)		15				

Lanes, Volumes, Timings

120: Clair Road W. & Clairfields Drive W.

AM Peak Hour

2026 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	318	62	144	653	24	36	12	113	19	58	147
Future Volume (vph)	40	318	62	144	653	24	36	12	113	19	58	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	3.6	3.6	4.8	3.6
Storage Length (m)	55.0		0.0	55.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	0.91	0.91	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.99	1.00			0.98			0.96	
Frt		0.976			0.995			0.905			0.911	
Flt Protected	0.950			0.950	0.999			0.989			0.996	
Satd. Flow (prot)	1671	3145	0	1535	3318	0	0	1753	0	0	1844	0
Flt Permitted	0.286			0.415	0.942			0.660			0.948	
Satd. Flow (perm)	499	3145	0	665	3128	0	0	1163	0	0	1755	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33			5			134			87	
Link Speed (k/h)		50			60			40			40	
Link Distance (m)		243.7			569.7			177.5			178.2	
Travel Time (s)		17.5			34.2			16.0			16.0	
Confl. Peds. (#/hr)	21		13	13		21	41		7	7		41
Confl. Bikes (#/hr)						1						2
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles (%)	8%	12%	8%	7%	3%	13%	25%	0%	4%	11%	0%	1%
Adj. Flow (vph)	56	442	86	200	907	33	50	17	157	26	81	204
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	56	528	0	180	960	0	0	224	0	0	311	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	38.0		10.0	38.0		28.0	28.0		28.0	28.0	
Total Split (s)	10.0	47.0		10.0	47.0		33.0	33.0		33.0	33.0	
Total Split (%)	11.1%	52.2%		11.1%	52.2%		36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	7.0	41.0		7.0	41.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		16.0			16.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		16.0			16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		13			21		7	7		41	41	
Act Efect Green (s)	58.0	47.9		61.6	56.3			18.5			18.5	

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

AM Peak Hour
2026 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.64	0.53		0.68	0.63			0.21			0.21	
v/c Ratio	0.14	0.31		0.33	0.49			0.65			0.72	
Control Delay	6.7	12.9		4.0	5.0			21.9			33.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.7	12.9		4.0	5.0			21.9			33.0	
LOS	A	B		A	A			C			C	
Approach Delay		12.3			4.9			21.9			33.0	
Approach LOS		B			A			C			C	
Queue Length 50th (m)	3.2	27.6		9.5	33.2			13.5			36.1	
Queue Length 95th (m)	6.3	31.3		4.0	10.3			21.8			43.1	
Internal Link Dist (m)		219.7			545.7			153.5			154.2	
Turn Bay Length (m)	55.0			55.0								
Base Capacity (vph)	413	1689		538	1968			442			587	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.14	0.31		0.33	0.49			0.51			0.53	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 89 (99%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 12.4

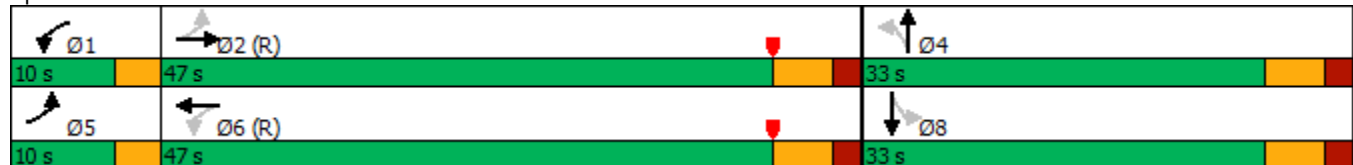
Intersection LOS: B

Intersection Capacity Utilization 87.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 120: Clair Road W. & Clairfields Drive W.



Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

AM Peak Hour
2026 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	391	21	20	760	37	26	14	11	73	15	47
Future Volume (vph)	34	391	21	20	760	37	26	14	11	73	15	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99			0.99	
Frnt		0.992			0.993			0.970			0.953	
Flt Protected	0.950			0.950				0.975			0.974	
Satd. Flow (prot)	1752	3251	0	1805	3434	0	0	1660	0	0	1713	0
Flt Permitted	0.267			0.478				0.784			0.799	
Satd. Flow (perm)	490	3251	0	904	3434	0	0	1333	0	0	1399	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			8			13			29	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		569.7			231.6			156.8			134.6	
Travel Time (s)		34.2			13.9			11.3			9.7	
Confl. Peds. (#/hr)	19		8	8		19	3		8	8		3
Confl. Bikes (#/hr)									2			1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	3%	10%	10%	0%	4%	8%	4%	21%	0%	3%	7%	0%
Adj. Flow (vph)	40	455	24	23	884	43	30	16	13	85	17	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	479	0	23	927	0	0	59	0	0	157	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	8.0	50.0		8.0	50.0		32.0	32.0		32.0	32.0	
Total Split (s)	10.0	50.0		10.0	50.0		30.0	30.0		30.0	30.0	
Total Split (%)	11.1%	55.6%		11.1%	55.6%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	44.0		7.0	44.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		29.0			29.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		15.0			15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		8			19		8	8		3	3	
Act Effect Green (s)	65.5	59.8		64.5	57.9			14.4			14.4	
Actuated g/C Ratio	0.73	0.66		0.72	0.64			0.16			0.16	

Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

AM Peak Hour
2026 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.09	0.22		0.03	0.42			0.26				0.63
Control Delay	2.9	5.2		3.2	5.9			27.6				38.7
Queue Delay	0.0	0.0		0.0	0.0			0.0				0.0
Total Delay	2.9	5.2		3.2	5.9			27.6				38.7
LOS	A	A		A	A			C				D
Approach Delay		5.0			5.9			27.6				38.7
Approach LOS		A			A			C				D
Queue Length 50th (m)	0.5	4.3		0.6	24.2			7.5				22.1
Queue Length 95th (m)	m2.5	42.7		m2.0	37.7			15.5				34.8
Internal Link Dist (m)		545.7			207.6			132.8				110.6
Turn Bay Length (m)	50.0			40.0								
Base Capacity (vph)	455	2164		723	2211			365				394
Starvation Cap Reductn	0	0		0	0			0				0
Spillback Cap Reductn	0	0		0	0			0				0
Storage Cap Reductn	0	0		0	0			0				0
Reduced v/c Ratio	0.09	0.22		0.03	0.42			0.16				0.40

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 9.4

Intersection LOS: A

Intersection Capacity Utilization 57.7%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 130: Gosling Gardens & Clair Road W.



Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

AM Peak Hour
2026 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	321	82	122	600	67	122	380	67	55	305	149
Future Volume (vph)	128	321	82	122	600	67	122	380	67	55	305	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	25.0		0.0	45.0		0.0	145.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		0.99	1.00		1.00	1.00		0.99	0.99	
Frt		0.970			0.985			0.977			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3173	0	1719	3443	0	1687	3350	0	1770	3360	0
Flt Permitted	0.202			0.432			0.404			0.478		
Satd. Flow (perm)	373	3173	0	776	3443	0	716	3350	0	883	3360	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			14			24			98	
Link Speed (k/h)		60			60			70			60	
Link Distance (m)		231.6			273.3			321.8			235.6	
Travel Time (s)		13.9			16.4			16.5			14.1	
Confl. Peds. (#/hr)	24		13	13		24	3		18	18		3
Confl. Bikes (#/hr)									1			1
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
Heavy Vehicles (%)	2%	9%	13%	5%	3%	2%	7%	3%	15%	2%	1%	3%
Adj. Flow (vph)	135	338	86	128	632	71	128	400	71	58	321	157
Shared Lane Traffic (%)												
Lane Group Flow (vph)	135	424	0	128	703	0	128	471	0	58	478	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	32.0		10.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (%)	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	
Maximum Green (s)	7.0	29.0		7.0	29.0		7.0	29.0		7.0	29.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		13			24			18			3	
Act Effect Green (s)	33.6	23.6		33.6	23.6		46.0	36.3		43.4	33.3	
Actuated g/C Ratio	0.37	0.26		0.37	0.26		0.51	0.40		0.48	0.37	

Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

AM Peak Hour
2026 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.55	0.49		0.35	0.77		0.28	0.35		0.12	0.37	
Control Delay	26.9	18.9		19.0	35.9		13.9	20.2		12.6	18.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.9	18.9		19.0	35.9		13.9	20.2		12.6	18.0	
LOS	C	B		B	D		B	C		B	B	
Approach Delay		20.9			33.3			18.8			17.5	
Approach LOS		C			C			B			B	
Queue Length 50th (m)	10.1	26.6		14.4	60.5		11.4	30.3		5.0	26.2	
Queue Length 95th (m)	25.8	17.4		23.7	74.8		23.8	47.5		12.3	41.7	
Internal Link Dist (m)		207.6			249.3			297.8			211.6	
Turn Bay Length (m)	100.0			25.0			45.0			145.0		
Base Capacity (vph)	247	1047		363	1118		453	1363		496	1303	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.55	0.40		0.35	0.63		0.28	0.35		0.12	0.37	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 80 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 23.7

Intersection LOS: C

Intersection Capacity Utilization 75.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 140: Gordon Street & Clair Road W.

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	35 s	10 s	35 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
10 s	35 s	10 s	35 s

HCM Unsignalized Intersection Capacity Analysis

210: Site Access & Clair Road W.

AM Peak Hour
2026 Future Background Volumes

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	390	0	0	882	0	0
Future Volume (Veh/h)	390	0	0	882	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	424	0	0	959	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)				299		
pX, platoon unblocked					0.77	
vC, conflicting volume			424		1383	424
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			424		1348	424
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1135		128	630
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	424	959	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1135	1700			
Volume to Capacity	0.25	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			49.8%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

PM Peak Hour

2026 Future Background Volumes

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↱	↘↙	
Traffic Volume (veh/h)	855	7	21	508	7	141
Future Volume (Veh/h)	855	7	21	508	7	141
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	983	8	24	584	8	162
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			991		1619	987
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			991		1619	987
tC, single (s)			4.3		6.8	6.2
tC, 2 stage (s)						
tF (s)			2.4		3.9	3.3
p0 queue free %			96		91	46
cM capacity (veh/h)			631		87	300
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	991	608	170			
Volume Left	0	24	8			
Volume Right	8	0	162			
cSH	1700	631	269			
Volume to Capacity	0.58	0.04	0.63			
Queue Length 95th (m)	0.0	0.9	31.2			
Control Delay (s)	0.0	1.0	38.7			
Lane LOS		A	E			
Approach Delay (s)	0.0	1.0	38.7			
Approach LOS			E			
Intersection Summary						
Average Delay		4.1				
Intersection Capacity Utilization		61.2%		ICU Level of Service		B
Analysis Period (min)		15				

Lanes, Volumes, Timings

120: Clair Road W. & Clairfields Drive W.

PM Peak Hour

2026 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	607	12	30	408	42	44	10	128	27	6	67
Future Volume (vph)	92	607	12	30	408	42	44	10	128	27	6	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	3.6	3.6	4.8	3.6
Storage Length (m)	55.0		0.0	55.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	0.91	0.91	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.98	0.99			0.97			0.94	
Frt		0.997			0.986			0.905			0.909	
Flt Protected	0.950			0.950				0.988			0.987	
Satd. Flow (prot)	1770	3479	0	1535	3203	0	0	1802	0	0	1732	0
Flt Permitted	0.399			0.301	0.952			0.871			0.789	
Satd. Flow (perm)	732	3479	0	478	3049	0	0	1564	0	0	1383	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			16			135			94	
Link Speed (k/h)		50			60			40			40	
Link Distance (m)		243.7			569.7			177.5			178.2	
Travel Time (s)		17.5			34.2			16.0			16.0	
Confl. Peds. (#/hr)	25		50	50		25	67		8	8		67
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles (%)	2%	3%	17%	7%	6%	5%	7%	0%	5%	12%	0%	2%
Adj. Flow (vph)	130	855	17	42	575	59	62	14	180	38	8	94
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	130	872	0	38	638	0	0	256	0	0	140	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	38.0		10.0	38.0		28.0	28.0		28.0	28.0	
Total Split (s)	10.0	47.0		10.0	47.0		33.0	33.0		33.0	33.0	
Total Split (%)	11.1%	52.2%		11.1%	52.2%		36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	7.0	41.0		7.0	41.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		16.0			16.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		16.0			16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		50			25		8	8		67	67	
Act Effect Green (s)	60.9	53.0		58.3	50.7			19.0			19.0	
Actuated g/C Ratio	0.68	0.59		0.65	0.56			0.21			0.21	

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

PM Peak Hour
2026 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.22	0.43		0.10	0.37			0.59			0.38	
Control Delay	6.5	12.6		6.0	9.5			19.8			14.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.5	12.6		6.0	9.5			19.8			14.2	
LOS	A	B		A	A			B			B	
Approach Delay		11.8			9.3			19.8			14.2	
Approach LOS		B			A			B			B	
Queue Length 50th (m)	7.8	51.5		2.6	24.6			18.1			6.6	
Queue Length 95th (m)	11.0	48.7		5.1	25.9			25.9			13.7	
Internal Link Dist (m)		219.7			545.7			153.5			154.2	
Turn Bay Length (m)	55.0			55.0								
Base Capacity (vph)	583	2049		391	1729			563			480	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.22	0.43		0.10	0.37			0.45			0.29	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 63 (70%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 12.2

Intersection LOS: B

Intersection Capacity Utilization 85.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 120: Clair Road W. & Clairfields Drive W.



Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

PM Peak Hour
2026 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	782	59	35	404	71	45	34	20	62	27	35
Future Volume (vph)	77	782	59	35	404	71	45	34	20	62	27	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		1.00	0.99			0.99			0.99	
Fr't		0.989			0.978			0.972			0.962	
Flt Protected	0.950			0.950				0.978			0.976	
Satd. Flow (prot)	1805	3530	0	1805	3453	0	0	1783	0	0	1772	0
Flt Permitted	0.446			0.284				0.789			0.806	
Satd. Flow (perm)	841	3530	0	538	3453	0	0	1432	0	0	1459	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			31			14			21	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		569.7			231.6			156.8			134.6	
Travel Time (s)		34.2			13.9			11.3			9.7	
Confl. Peds. (#/hr)	16		9	9		16	11		8	8		11
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	2%	0%	0%	0%	0%	0%
Adj. Flow (vph)	85	859	65	38	444	78	49	37	22	68	30	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	924	0	38	522	0	0	108	0	0	136	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	8.0	50.0		8.0	50.0		32.0	32.0		32.0	32.0	
Total Split (s)	10.0	50.0		10.0	50.0		30.0	30.0		30.0	30.0	
Total Split (%)	11.1%	55.6%		11.1%	55.6%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	44.0		7.0	44.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		29.0			29.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		15.0			15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		9			16		8	8		11	11	
Act Effct Green (s)	65.8	58.7		64.5	56.6			13.7			13.7	
Actuated g/C Ratio	0.73	0.65		0.72	0.63			0.15			0.15	
v/c Ratio	0.12	0.40		0.08	0.24			0.47			0.57	

Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

PM Peak Hour
2026 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	2.4	4.5		3.5	6.2			35.1			37.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	2.4	4.5		3.5	6.2			35.1			37.6	
LOS	A	A		A	A			D			D	
Approach Delay		4.4			6.0			35.1			37.6	
Approach LOS		A			A			D			D	
Queue Length 50th (m)	1.7	14.1		1.0	15.2			16.0			19.9	
Queue Length 95th (m)	5.0	21.4		4.5	27.4			27.6			32.9	
Internal Link Dist (m)		545.7			207.6			132.8			110.6	
Turn Bay Length (m)	50.0			40.0								
Base Capacity (vph)	691	2305		488	2182			392			404	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.12	0.40		0.08	0.24			0.28			0.34	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 5 (6%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 9.2

Intersection LOS: A

Intersection Capacity Utilization 67.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 130: Gosling Gardens & Clair Road W.



Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

PM Peak Hour
2026 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	664	102	110	346	88	103	506	126	130	428	94
Future Volume (vph)	210	664	102	110	346	88	103	506	126	130	428	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	25.0		0.0	45.0		0.0	145.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	1.00		0.99	0.99		1.00	0.99		0.99	1.00	
Frt		0.980			0.969			0.970			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3468	0	1752	3436	0	1736	3408	0	1805	3467	0
Flt Permitted	0.385			0.172			0.406			0.288		
Satd. Flow (perm)	718	3468	0	315	3436	0	740	3408	0	544	3467	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			37			36			31	
Link Speed (k/h)		60			60			70			60	
Link Distance (m)		231.6			273.3			321.8			235.6	
Travel Time (s)		13.9			16.4			16.5			14.1	
Confl. Peds. (#/hr)	36		23	23		36	6		17	17		6
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
Heavy Vehicles (%)	0%	1%	5%	3%	1%	0%	4%	0%	11%	0%	1%	1%
Adj. Flow (vph)	221	699	107	116	364	93	108	533	133	137	451	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	806	0	116	457	0	108	666	0	137	550	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	32.0		10.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (%)	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	
Maximum Green (s)	7.0	29.0		7.0	29.0		7.0	29.0		7.0	29.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		23			36			17			6	
Act Effct Green (s)	34.5	25.9		33.9	23.9		43.8	33.4		45.0	35.6	
Actuated g/C Ratio	0.38	0.29		0.38	0.27		0.49	0.37		0.50	0.40	
v/c Ratio	0.62	0.80		0.50	0.49		0.24	0.52		0.36	0.40	

Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

PM Peak Hour
2026 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	20.1	25.1		23.1	26.4		14.2	23.8		15.6	21.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.1	25.1		23.1	26.4		14.2	23.8		15.6	21.4	
LOS	C	C		C	C		B	C		B	C	
Approach Delay		24.1			25.7			22.5			20.3	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	12.6	38.1		12.4	32.5		10.0	49.4		12.9	38.3	
Queue Length 95th (m)	22.0	29.3		21.7	44.5		20.4	68.5		25.0	55.2	
Internal Link Dist (m)		207.6			249.3			297.8			211.6	
Turn Bay Length (m)	100.0			25.0			45.0			145.0		
Base Capacity (vph)	359	1131		230	1132		442	1285		379	1391	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.62	0.71		0.50	0.40		0.24	0.52		0.36	0.40	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 23.1

Intersection LOS: C

Intersection Capacity Utilization 78.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 140: Gordon Street & Clair Road W.

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	35 s	10 s	35 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
10 s	35 s	10 s	35 s

HCM Unsignalized Intersection Capacity Analysis

210: Site Access & Clair Road W.

PM Peak Hour
2026 Future Background Volumes

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	996	0	0	529	0	0
Future Volume (Veh/h)	996	0	0	529	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1083	0	0	575	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)				299		
pX, platoon unblocked					0.88	
vC, conflicting volume				1083	1658	1083
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				1083	1680	1083
tC, single (s)				4.1	6.4	6.2
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				100	100	100
cM capacity (veh/h)				644	91	264
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1083	575	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	644	1700			
Volume to Capacity	0.64	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS				A		
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS				A		
Intersection Summary						
Average Delay				0.0		
Intersection Capacity Utilization				55.8%	ICU Level of Service	B
Analysis Period (min)				15		

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

AM Peak Hour
2026 Total Future Volumes

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (veh/h)	370	5	124	836	1	47
Future Volume (Veh/h)	370	5	124	836	1	47
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	411	6	138	929	1	52
Pedestrians	1			1		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			417		1620	415
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			417		1620	415
tC, single (s)			4.1		7.4	6.4
tC, 2 stage (s)						
tF (s)			2.2		4.4	3.5
p0 queue free %			88		98	91
cM capacity (veh/h)			1131		59	606
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	417	1067	53			
Volume Left	0	138	1			
Volume Right	6	0	52			
cSH	1700	1131	516			
Volume to Capacity	0.25	0.12	0.10			
Queue Length 95th (m)	0.0	3.3	2.7			
Control Delay (s)	0.0	3.1	12.8			
Lane LOS		A	B			
Approach Delay (s)	0.0	3.1	12.8			
Approach LOS			B			
Intersection Summary						
Average Delay		2.6				
Intersection Capacity Utilization		84.3%	ICU Level of Service	E		
Analysis Period (min)		15				

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

AM Peak Hour
2026 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	452	62	144	698	24	36	12	113	19	58	151
Future Volume (vph)	51	452	62	144	698	24	36	12	113	19	58	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	3.6	3.6	4.8	3.6
Storage Length (m)	55.0		0.0	55.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	0.91	0.91	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.98			0.96	
Frt		0.982			0.995			0.905			0.911	
Flt Protected	0.950			0.950	0.999			0.989			0.996	
Satd. Flow (prot)	1671	3164	0	1535	3319	0	0	1753	0	0	1844	0
Flt Permitted	0.268			0.321	0.938			0.663			0.951	
Satd. Flow (perm)	468	3164	0	516	3116	0	0	1169	0	0	1760	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			5			134			74	
Link Speed (k/h)		50			60			40			40	
Link Distance (m)		243.7			569.7			177.5			178.2	
Travel Time (s)		17.5			34.2			16.0			16.0	
Confl. Peds. (#/hr)	21		13	13		21	41		7	7		41
Confl. Bikes (#/hr)						1						2
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles (%)	8%	12%	8%	7%	3%	13%	25%	0%	4%	11%	0%	1%
Adj. Flow (vph)	71	628	86	200	969	33	50	17	157	26	81	210
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	71	714	0	180	1022	0	0	224	0	0	317	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	38.0		10.0	38.0		28.0	28.0		28.0	28.0	
Total Split (s)	10.0	47.0		10.0	47.0		33.0	33.0		33.0	33.0	
Total Split (%)	11.1%	52.2%		11.1%	52.2%		36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	7.0	41.0		7.0	41.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		16.0			16.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		16.0			16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		13			21		7	7		41	41	
Act Efft Green (s)	57.8	47.6		60.9	55.6			18.9			18.9	

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

AM Peak Hour
2026 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.64	0.53		0.68	0.62			0.21			0.21	
v/c Ratio	0.18	0.42		0.40	0.53			0.64			0.74	
Control Delay	7.0	14.6		5.4	5.9			21.2			35.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.0	14.6		5.4	5.9			21.2			35.3	
LOS	A	B		A	A			C			D	
Approach Delay		13.9			5.8			21.2			35.3	
Approach LOS		B			A			C			D	
Queue Length 50th (m)	4.1	41.7		8.7	37.3			13.5			39.7	
Queue Length 95th (m)	7.7	44.7		4.1	11.4			21.6			45.9	
Internal Link Dist (m)		219.7			545.7			153.5			154.2	
Turn Bay Length (m)	55.0			55.0								
Base Capacity (vph)	396	1683		445	1938			444			579	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.18	0.42		0.40	0.53			0.50			0.55	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 89 (99%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 13.4

Intersection LOS: B

Intersection Capacity Utilization 87.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 120: Clair Road W. & Clairfields Drive W.



Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

AM Peak Hour
2026 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	503	32	20	798	37	30	14	11	73	15	51
Future Volume (vph)	45	503	32	20	798	37	30	14	11	73	15	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99			0.99	
Frt		0.991			0.993			0.973			0.951	
Flt Protected	0.950			0.950				0.973			0.974	
Satd. Flow (prot)	1752	3247	0	1805	3435	0	0	1667	0	0	1710	0
Flt Permitted	0.251			0.416				0.753			0.800	
Satd. Flow (perm)	461	3247	0	788	3435	0	0	1288	0	0	1399	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			7			13			32	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		569.7			231.6			156.8			134.6	
Travel Time (s)		34.2			13.9			11.3			9.7	
Confl. Peds. (#/hr)	19		8	8		19	3		8	8		3
Confl. Bikes (#/hr)									2			1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	3%	10%	10%	0%	4%	8%	4%	21%	0%	3%	7%	0%
Adj. Flow (vph)	52	585	37	23	928	43	35	16	13	85	17	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	622	0	23	971	0	0	64	0	0	161	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	8.0	50.0		8.0	50.0		32.0	32.0		32.0	32.0	
Total Split (s)	10.0	50.0		10.0	50.0		30.0	30.0		30.0	30.0	
Total Split (%)	11.1%	55.6%		11.1%	55.6%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	44.0		7.0	44.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		29.0			29.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		15.0			15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		8			19		8	8		3	3	
Act Effect Green (s)	65.5	59.8		64.4	57.8			14.5			14.5	
Actuated g/C Ratio	0.73	0.66		0.72	0.64			0.16			0.16	

Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

AM Peak Hour
2026 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.12	0.29		0.04	0.44			0.29				0.64
Control Delay	2.4	4.4		3.4	6.3			28.8				38.5
Queue Delay	0.0	0.0		0.0	0.0			0.0				0.0
Total Delay	2.4	4.4		3.4	6.3			28.8				38.5
LOS	A	A		A	A			C				D
Approach Delay		4.3			6.3			28.8				38.5
Approach LOS		A			A			C				D
Queue Length 50th (m)	0.5	4.1		0.6	27.0			8.3				22.3
Queue Length 95th (m)	m2.3	45.0		m2.1	41.3			16.5				35.3
Internal Link Dist (m)		545.7			207.6			132.8				110.6
Turn Bay Length (m)	50.0			40.0								
Base Capacity (vph)	436	2160		648	2207			353				396
Starvation Cap Reductn	0	0		0	0			0				0
Spillback Cap Reductn	0	0		0	0			0				0
Storage Cap Reductn	0	0		0	0			0				0
Reduced v/c Ratio	0.12	0.29		0.04	0.44			0.18				0.41

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 9.1

Intersection LOS: A

Intersection Capacity Utilization 58.3%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 130: Gosling Gardens & Clair Road W.



Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

AM Peak Hour
2026 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	184	343	116	122	608	67	133	380	67	55	305	168
Future Volume (vph)	184	343	116	122	608	67	133	380	67	55	305	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	25.0		0.0	45.0		0.0	145.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		0.99	1.00		1.00	1.00		0.99	0.99	
Frt		0.962			0.985			0.977			0.947	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3137	0	1719	3443	0	1687	3350	0	1770	3343	0
Flt Permitted	0.199			0.379			0.387			0.479		
Satd. Flow (perm)	368	3137	0	681	3443	0	686	3350	0	885	3343	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		55			14			24			123	
Link Speed (k/h)		60			60			70			60	
Link Distance (m)		231.6			273.3			321.8			235.6	
Travel Time (s)		13.9			16.4			16.5			14.1	
Confl. Peds. (#/hr)	24		13	13		24	3		18	18		3
Confl. Bikes (#/hr)									1			1
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
Heavy Vehicles (%)	2%	9%	13%	5%	3%	2%	7%	3%	15%	2%	1%	3%
Adj. Flow (vph)	194	361	122	128	640	71	140	400	71	58	321	177
Shared Lane Traffic (%)												
Lane Group Flow (vph)	194	483	0	128	711	0	140	471	0	58	498	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	32.0		10.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (%)	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	
Maximum Green (s)	7.0	29.0		7.0	29.0		7.0	29.0		7.0	29.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		13			24			18			3	
Act Effect Green (s)	33.8	23.8		33.8	23.8		45.9	36.1		43.1	33.0	
Actuated g/C Ratio	0.38	0.26		0.38	0.26		0.51	0.40		0.48	0.37	

Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

AM Peak Hour
2026 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.79	0.56		0.38	0.77		0.32	0.35		0.12	0.38	
Control Delay	46.5	17.3		19.5	35.9		14.4	20.3		12.7	17.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	46.5	17.3		19.5	35.9		14.4	20.3		12.7	17.3	
LOS	D	B		B	D		B	C		B	B	
Approach Delay		25.7			33.4			18.9			16.9	
Approach LOS		C			C			B			B	
Queue Length 50th (m)	13.8	23.1		14.4	61.2		12.7	30.4		5.0	26.1	
Queue Length 95th (m)	#42.4	15.9		23.7	75.6		25.8	47.5		12.3	41.7	
Internal Link Dist (m)		207.6			249.3			297.8			211.6	
Turn Bay Length (m)	100.0			25.0			45.0			145.0		
Base Capacity (vph)	247	1048		336	1118		441	1358		494	1303	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.79	0.46		0.38	0.64		0.32	0.35		0.12	0.38	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 80 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 24.7

Intersection LOS: C

Intersection Capacity Utilization 78.9%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 140: Gordon Street & Clair Road W.

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	35 s	10 s	35 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
10 s	35 s	10 s	35 s

HCM Unsignalized Intersection Capacity Analysis

210: Site Access & Clair Road W.

AM Peak Hour
2026 Total Future Volumes

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	390	26	49	882	78	146
Future Volume (Veh/h)	390	26	49	882	78	146
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	424	28	53	959	85	159
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)				299		
pX, platoon unblocked					0.74	
vC, conflicting volume			452		1503	438
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			452		1504	438
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		9	74
cM capacity (veh/h)			1109		94	619
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	452	1012	244			
Volume Left	0	53	85			
Volume Right	28	0	159			
cSH	1700	1109	209			
Volume to Capacity	0.27	0.05	1.17			
Queue Length 95th (m)	0.0	1.2	95.8			
Control Delay (s)	0.0	1.3	161.5			
Lane LOS		A	F			
Approach Delay (s)	0.0	1.3	161.5			
Approach LOS			F			
Intersection Summary						
Average Delay			23.8			
Intersection Capacity Utilization			94.5%	ICU Level of Service		F
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

PM Peak Hour
2026 Total Future Volumes

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↱	↘↗	
Traffic Volume (veh/h)	923	7	28	549	7	152
Future Volume (Veh/h)	923	7	28	549	7	152
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	1061	8	32	631	8	175
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			1069		1760	1065
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1069		1760	1065
tC, single (s)			4.3		6.8	6.2
tC, 2 stage (s)						
tF (s)			2.4		3.9	3.3
p0 queue free %			95		88	35
cM capacity (veh/h)			588		69	270
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1069	663	183			
Volume Left	0	32	8			
Volume Right	8	0	175			
cSH	1700	588	240			
Volume to Capacity	0.63	0.05	0.76			
Queue Length 95th (m)	0.0	1.4	43.6			
Control Delay (s)	0.0	1.5	56.0			
Lane LOS		A	F			
Approach Delay (s)	0.0	1.5	56.0			
Approach LOS			F			
Intersection Summary						
Average Delay		5.9				
Intersection Capacity Utilization		68.2%	ICU Level of Service	C		
Analysis Period (min)		15				

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

PM Peak Hour
2026 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	689	12	30	545	42	44	10	128	27	6	78
Future Volume (vph)	99	689	12	30	545	42	44	10	128	27	6	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	3.6	3.6	4.8	3.6
Storage Length (m)	55.0		0.0	55.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	0.91	0.91	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.97			0.93	
Frt		0.997			0.989			0.905			0.905	
Flt Protected	0.950			0.950				0.988			0.988	
Satd. Flow (prot)	1770	3481	0	1535	3216	0	0	1802	0	0	1725	0
Flt Permitted	0.327			0.255	0.952			0.855			0.806	
Satd. Flow (perm)	602	3481	0	406	3061	0	0	1537	0	0	1405	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			12			135			110	
Link Speed (k/h)		50			60			40			40	
Link Distance (m)		243.7			569.7			177.5			178.2	
Travel Time (s)		17.5			34.2			16.0			16.0	
Confl. Peds. (#/hr)	25		50	50		25	67		8	8		67
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles (%)	2%	3%	17%	7%	6%	5%	7%	0%	5%	12%	0%	2%
Adj. Flow (vph)	139	970	17	42	768	59	62	14	180	38	8	110
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	139	987	0	38	831	0	0	256	0	0	156	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	38.0		10.0	38.0		28.0	28.0		28.0	28.0	
Total Split (s)	10.0	47.0		10.0	47.0		33.0	33.0		33.0	33.0	
Total Split (%)	11.1%	52.2%		11.1%	52.2%		36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	7.0	41.0		7.0	41.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		16.0			16.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		16.0			16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		50			25		8	8		67	67	
Act Effect Green (s)	61.0	53.0		58.2	50.6			19.0			19.0	
Actuated g/C Ratio	0.68	0.59		0.65	0.56			0.21			0.21	

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

PM Peak Hour
2026 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.27	0.48		0.11	0.48			0.60			0.41	
Control Delay	7.0	13.4		6.3	12.7			20.2			13.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.0	13.4		6.3	12.7			20.2			13.5	
LOS	A	B		A	B			C			B	
Approach Delay		12.6			12.4			20.2			13.5	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	8.4	61.1		3.0	37.7			18.1			6.6	
Queue Length 95th (m)	11.6	56.4		4.2	37.3			26.0			13.8	
Internal Link Dist (m)		219.7			545.7			153.5			154.2	
Turn Bay Length (m)	55.0			55.0								
Base Capacity (vph)	509	2050		350	1729			555			498	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.27	0.48		0.11	0.48			0.46			0.31	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 63 (70%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 13.4

Intersection LOS: B

Intersection Capacity Utilization 86.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 120: Clair Road W. & Clairfields Drive W.



Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

PM Peak Hour
2026 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	851	66	35	518	71	56	34	20	62	27	46
Future Volume (vph)	84	851	66	35	518	71	56	34	20	62	27	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		1.00	1.00			0.99			0.99	
Frt		0.989			0.982			0.975			0.954	
Flt Protected	0.950			0.950				0.975			0.978	
Satd. Flow (prot)	1805	3530	0	1805	3469	0	0	1781	0	0	1759	0
Flt Permitted	0.380			0.253				0.747			0.807	
Satd. Flow (perm)	717	3530	0	480	3469	0	0	1359	0	0	1447	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			23			12			28	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		569.7			231.6			156.8			134.6	
Travel Time (s)		34.2			13.9			11.3			9.7	
Confl. Peds. (#/hr)	16		9	9		16	11		8	8		11
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	2%	0%	0%	0%	0%	0%
Adj. Flow (vph)	92	935	73	38	569	78	62	37	22	68	30	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	1008	0	38	647	0	0	121	0	0	149	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	8.0	50.0		8.0	50.0		32.0	32.0		32.0	32.0	
Total Split (s)	10.0	50.0		10.0	50.0		30.0	30.0		30.0	30.0	
Total Split (%)	11.1%	55.6%		11.1%	55.6%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	44.0		7.0	44.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		29.0			29.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		15.0			15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		9			16		8	8		11	11	
Act Effct Green (s)	65.6	58.5		64.3	56.3			13.9			13.9	
Actuated g/C Ratio	0.73	0.65		0.71	0.63			0.15			0.15	
v/c Ratio	0.15	0.44		0.09	0.30			0.55			0.61	

Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

PM Peak Hour
2026 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	2.3	4.3		3.6	7.2			39.5			37.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	2.3	4.3		3.6	7.2			39.5			37.6	
LOS	A	A		A	A			D			D	
Approach Delay		4.1			7.0			39.5			37.6	
Approach LOS		A			A			D			D	
Queue Length 50th (m)	1.6	14.1		1.2	22.8			18.7			20.9	
Queue Length 95th (m)	4.8	21.1		4.6	39.8			31.4			35.0	
Internal Link Dist (m)		545.7			207.6			132.8			110.6	
Turn Bay Length (m)	50.0			40.0								
Base Capacity (vph)	608	2297		449	2180			371			406	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.15	0.44		0.08	0.30			0.33			0.37	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 5 (6%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 9.6

Intersection LOS: A

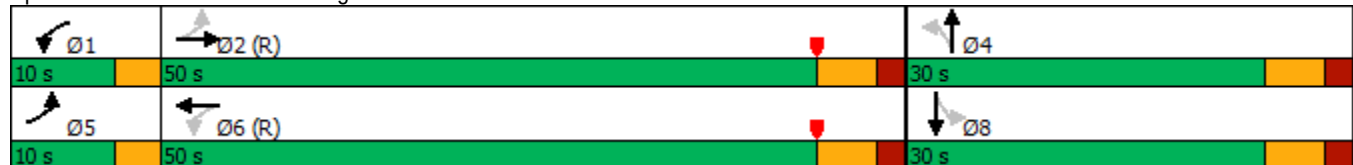
Intersection Capacity Utilization 68.0%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 130: Gosling Gardens & Clair Road W.



Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

PM Peak Hour
2026 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	244	678	123	110	369	88	137	506	126	130	428	151
Future Volume (vph)	244	678	123	110	369	88	137	506	126	130	428	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	25.0		0.0	45.0		0.0	145.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.99		0.99	0.99		1.00	0.99		0.99	1.00	
Fr't		0.977			0.971			0.970			0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3452	0	1752	3445	0	1736	3408	0	1805	3419	0
Flt Permitted	0.369			0.159			0.336			0.300		
Satd. Flow (perm)	689	3452	0	292	3445	0	613	3408	0	567	3419	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			34			36			58	
Link Speed (k/h)		60			60			70			60	
Link Distance (m)		231.6			273.3			321.8			235.6	
Travel Time (s)		13.9			16.4			16.5			14.1	
Confl. Peds. (#/hr)	36		23	23		36	6		17	17		6
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
Heavy Vehicles (%)	0%	1%	5%	3%	1%	0%	4%	0%	11%	0%	1%	1%
Adj. Flow (vph)	257	714	129	116	388	93	144	533	133	137	451	159
Shared Lane Traffic (%)												
Lane Group Flow (vph)	257	843	0	116	481	0	144	666	0	137	610	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	32.0		10.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (%)	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	
Maximum Green (s)	7.0	29.0		7.0	29.0		7.0	29.0		7.0	29.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		23			36			17			6	
Act Effct Green (s)	35.1	26.5		34.5	24.5		43.5	32.9		43.5	32.9	
Actuated g/C Ratio	0.39	0.29		0.38	0.27		0.48	0.37		0.48	0.37	
v/c Ratio	0.72	0.82		0.52	0.50		0.37	0.52		0.36	0.47	

Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

PM Peak Hour
2026 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	26.2	25.4		23.3	26.5		16.1	24.1		15.9	22.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.2	25.4		23.3	26.5		16.1	24.1		15.9	22.3	
LOS	C	C		C	C		B	C		B	C	
Approach Delay		25.6			25.9			22.7			21.2	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	14.0	37.0		12.1	34.2		14.0	50.1		13.2	42.6	
Queue Length 95th (m)	32.7	32.3		21.7	47.4		26.3	68.5		25.0	59.6	
Internal Link Dist (m)		207.6			249.3			297.8			211.6	
Turn Bay Length (m)	100.0			25.0			45.0			145.0		
Base Capacity (vph)	355	1128		225	1133		391	1270		377	1286	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.72	0.75		0.52	0.42		0.37	0.52		0.36	0.47	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 23.9

Intersection LOS: C

Intersection Capacity Utilization 81.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 140: Gordon Street & Clair Road W.

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	35 s	10 s	35 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
10 s	35 s	10 s	35 s

HCM Unsignalized Intersection Capacity Analysis 210: Site Access & Clair Road W.

PM Peak Hour
2026 Total Future Volumes

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	996	80	148	529	48	89
Future Volume (Veh/h)	996	80	148	529	48	89
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1083	87	161	575	52	97
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)				299		
pX, platoon unblocked					0.80	
vC, conflicting volume				1170	2024	1126
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				1170	2152	1126
tC, single (s)				4.1	6.4	6.2
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				73	0	61
cM capacity (veh/h)				597	31	249
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1170	736	149			
Volume Left	0	161	52			
Volume Right	87	0	97			
cSH	1700	597	72			
Volume to Capacity	0.69	0.27	2.07			
Queue Length 95th (m)	0.0	8.7	109.6			
Control Delay (s)	0.0	7.1	618.1			
Lane LOS		A	F			
Approach Delay (s)	0.0	7.1	618.1			
Approach LOS			F			
Intersection Summary						
Average Delay				47.4		
Intersection Capacity Utilization				111.4%	ICU Level of Service	H
Analysis Period (min)				15		

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

AM Peak Hour
2031 Future Background Volumes

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	↰	
Traffic Volume (veh/h)	374	6	122	828	1	47
Future Volume (Veh/h)	374	6	122	828	1	47
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	416	7	136	920	1	52
Pedestrians	1			1		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			423		1612	420
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			423		1612	420
tC, single (s)			4.1		7.4	6.4
tC, 2 stage (s)						
tF (s)			2.2		4.4	3.5
p0 queue free %			88		98	91
cM capacity (veh/h)			1126		60	602
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	423	1056	53			
Volume Left	0	136	1			
Volume Right	7	0	52			
cSH	1700	1126	514			
Volume to Capacity	0.25	0.12	0.10			
Queue Length 95th (m)	0.0	3.3	2.7			
Control Delay (s)	0.0	3.1	12.8			
Lane LOS		A	B			
Approach Delay (s)	0.0	3.1	12.8			
Approach LOS			B			
Intersection Summary						
Average Delay		2.6				
Intersection Capacity Utilization		84.0%		ICU Level of Service		E
Analysis Period (min)		15				

Lanes, Volumes, Timings

120: Clair Road W. & Clairfields Drive W.

AM Peak Hour

2031 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	343	62	144	704	26	36	12	113	20	58	159
Future Volume (vph)	43	343	62	144	704	26	36	12	113	20	58	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	3.6	3.6	4.8	3.6
Storage Length (m)	55.0		0.0	55.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	0.91	0.91	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.99	1.00			0.98			0.96	
Frt		0.977			0.995			0.905			0.910	
Flt Protected	0.950			0.950	0.999			0.989			0.996	
Satd. Flow (prot)	1671	3148	0	1535	3318	0	0	1753	0	0	1840	0
Flt Permitted	0.265			0.397	0.942			0.665			0.950	
Satd. Flow (perm)	463	3148	0	636	3128	0	0	1172	0	0	1754	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30			5			134			72	
Link Speed (k/h)		50			60			40			40	
Link Distance (m)		243.7			569.7			177.5			178.2	
Travel Time (s)		17.5			34.2			16.0			16.0	
Confl. Peds. (#/hr)	21		13	13		21	41		7	7		41
Confl. Bikes (#/hr)						1						2
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles (%)	8%	12%	8%	7%	3%	13%	25%	0%	4%	11%	0%	1%
Adj. Flow (vph)	60	476	86	200	978	36	50	17	157	28	81	221
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	60	562	0	180	1034	0	0	224	0	0	330	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	38.0		10.0	38.0		28.0	28.0		28.0	28.0	
Total Split (s)	10.0	47.0		10.0	47.0		33.0	33.0		33.0	33.0	
Total Split (%)	11.1%	52.2%		11.1%	52.2%		36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	7.0	41.0		7.0	41.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		16.0			16.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		16.0			16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		13			21		7	7		41	41	
Act Efect Green (s)	57.4	47.3		60.2	54.9			19.5			19.5	

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

AM Peak Hour
2031 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.64	0.53		0.67	0.61			0.22			0.22	
v/c Ratio	0.15	0.34		0.35	0.54			0.63			0.76	
Control Delay	7.1	13.4		4.3	6.2			20.5			36.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.1	13.4		4.3	6.2			20.5			36.5	
LOS	A	B		A	A			C			D	
Approach Delay		12.8			5.9			20.5			36.5	
Approach LOS		B			A			C			D	
Queue Length 50th (m)	3.5	30.1		7.2	36.7			13.5			42.6	
Queue Length 95th (m)	7.1	33.8		4.0	11.2			21.1			48.0	
Internal Link Dist (m)		219.7			545.7			153.5			154.2	
Turn Bay Length (m)	55.0			55.0								
Base Capacity (vph)	390	1667		508	1921			445			576	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.15	0.34		0.35	0.54			0.50			0.57	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 89 (99%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 13.3

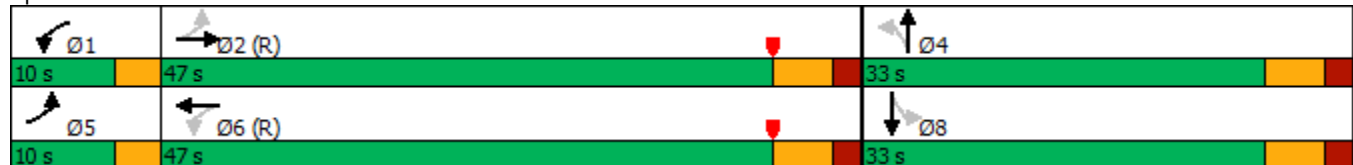
Intersection LOS: B

Intersection Capacity Utilization 87.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 120: Clair Road W. & Clairfields Drive W.



Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

AM Peak Hour
2031 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	422	22	21	819	40	28	16	12	79	17	51
Future Volume (vph)	37	422	22	21	819	40	28	16	12	79	17	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99			0.99	
Frnt		0.992			0.993			0.971			0.953	
Flt Protected	0.950			0.950				0.976			0.974	
Satd. Flow (prot)	1752	3251	0	1805	3434	0	0	1659	0	0	1712	0
Flt Permitted	0.240			0.461				0.776			0.796	
Satd. Flow (perm)	441	3251	0	872	3434	0	0	1317	0	0	1394	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			8			14			29	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		569.7			231.6			156.8			134.6	
Travel Time (s)		34.2			13.9			11.3			9.7	
Confl. Peds. (#/hr)	19		8	8		19	3		8	8		3
Confl. Bikes (#/hr)									2			1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	3%	10%	10%	0%	4%	8%	4%	21%	0%	3%	7%	0%
Adj. Flow (vph)	43	491	26	24	952	47	33	19	14	92	20	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	517	0	24	999	0	0	66	0	0	171	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	8.0	50.0		8.0	50.0		32.0	32.0		32.0	32.0	
Total Split (s)	10.0	50.0		10.0	50.0		30.0	30.0		30.0	30.0	
Total Split (%)	11.1%	55.6%		11.1%	55.6%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	44.0		7.0	44.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		29.0			29.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		15.0			15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		8			19		8	8		3	3	
Act Effect Green (s)	64.8	59.1		63.9	57.2			15.1			15.1	
Actuated g/C Ratio	0.72	0.66		0.71	0.64			0.17			0.17	

Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

AM Peak Hour
2031 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.11	0.24		0.04	0.46			0.28				0.66
Control Delay	3.0	5.3		3.2	6.4			27.8				40.3
Queue Delay	0.0	0.0		0.0	0.0			0.0				0.0
Total Delay	3.0	5.3		3.2	6.4			27.8				40.3
LOS	A	A		A	A			C				D
Approach Delay		5.1			6.3			27.8				40.3
Approach LOS		A			A			C				D
Queue Length 50th (m)	0.6	4.6		0.6	27.1			8.4				24.5
Queue Length 95th (m)	m2.5	46.5		m2.0	40.5			17.0				38.2
Internal Link Dist (m)		545.7			207.6			132.8				110.6
Turn Bay Length (m)	50.0			40.0								
Base Capacity (vph)	420	2139		696	2184			361				393
Starvation Cap Reductn	0	0		0	0			0				0
Spillback Cap Reductn	0	0		0	0			0				0
Storage Cap Reductn	0	0		0	0			0				0
Reduced v/c Ratio	0.10	0.24		0.03	0.46			0.18				0.44

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 9.9

Intersection LOS: A

Intersection Capacity Utilization 58.6%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 130: Gosling Gardens & Clair Road W.



Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

AM Peak Hour
2031 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	346	89	131	646	72	131	410	72	59	329	161
Future Volume (vph)	138	346	89	131	646	72	131	410	72	59	329	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	25.0		0.0	45.0		0.0	145.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		0.99	1.00		1.00	1.00		0.99	0.99	
Frt		0.969			0.985			0.978			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3169	0	1719	3443	0	1687	3354	0	1770	3360	0
Flt Permitted	0.180			0.407			0.376			0.444		
Satd. Flow (perm)	333	3169	0	732	3443	0	667	3354	0	821	3360	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			14			23			98	
Link Speed (k/h)		60			60			70			60	
Link Distance (m)		231.6			273.3			321.8			235.6	
Travel Time (s)		13.9			16.4			16.5			14.1	
Confl. Peds. (#/hr)	24		13	13		24	3		18	18		3
Confl. Bikes (#/hr)									1			1
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
Heavy Vehicles (%)	2%	9%	13%	5%	3%	2%	7%	3%	15%	2%	1%	3%
Adj. Flow (vph)	145	364	94	138	680	76	138	432	76	62	346	169
Shared Lane Traffic (%)												
Lane Group Flow (vph)	145	458	0	138	756	0	138	508	0	62	515	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	32.0		10.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (%)	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	
Maximum Green (s)	7.0	29.0		7.0	29.0		7.0	29.0		7.0	29.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		13			24			18			3	
Act Effect Green (s)	34.7	24.7		34.7	24.7		44.7	35.1		42.6	32.4	
Actuated g/C Ratio	0.39	0.27		0.39	0.27		0.50	0.39		0.47	0.36	

Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

AM Peak Hour
2031 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.60	0.51		0.39	0.79		0.33	0.38		0.13	0.41	
Control Delay	31.9	18.3		19.1	36.1		15.0	21.4		13.2	19.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	31.9	18.3		19.1	36.1		15.0	21.4		13.2	19.1	
LOS	C	B		B	D		B	C		B	B	
Approach Delay		21.6			33.5			20.0			18.5	
Approach LOS		C			C			B			B	
Queue Length 50th (m)	10.5	29.0		15.2	65.0		12.8	34.2		5.5	30.1	
Queue Length 95th (m)	30.8	18.6		25.3	81.6		25.4	51.6		13.1	45.7	
Internal Link Dist (m)		207.6			249.3			297.8			211.6	
Turn Bay Length (m)	100.0			25.0			45.0			145.0		
Base Capacity (vph)	240	1046		358	1118		421	1323		464	1271	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.60	0.44		0.39	0.68		0.33	0.38		0.13	0.41	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 80 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 24.5

Intersection LOS: C

Intersection Capacity Utilization 76.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 140: Gordon Street & Clair Road W.

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	35 s	10 s	35 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
10 s	35 s	10 s	35 s

HCM Unsignalized Intersection Capacity Analysis 210: Site Access & Clair Road W.

AM Peak Hour
2031 Future Background Volumes

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	421	0	0	950	0	0
Future Volume (Veh/h)	421	0	0	950	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	458	0	0	1033	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)				299		
pX, platoon unblocked					0.72	
vC, conflicting volume			458		1491	458
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			458		1488	458
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1103		99	603
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	458	1033	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1103	1700			
Volume to Capacity	0.27	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			53.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

PM Peak Hour
2031 Future Background Volumes

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↱	↘↙	
Traffic Volume (veh/h)	921	8	22	547	8	152
Future Volume (Veh/h)	921	8	22	547	8	152
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	1059	9	25	629	9	175
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			1068		1742	1064
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1068		1742	1064
tC, single (s)			4.3		6.8	6.2
tC, 2 stage (s)						
tF (s)			2.4		3.9	3.3
p0 queue free %			96		88	35
cM capacity (veh/h)			589		72	271
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1068	654	184			
Volume Left	0	25	9			
Volume Right	9	0	175			
cSH	1700	589	239			
Volume to Capacity	0.63	0.04	0.77			
Queue Length 95th (m)	0.0	1.1	44.5			
Control Delay (s)	0.0	1.2	57.3			
Lane LOS		A	F			
Approach Delay (s)	0.0	1.2	57.3			
Approach LOS			F			
Intersection Summary						
Average Delay		5.9				
Intersection Capacity Utilization		65.5%	ICU Level of Service	C		
Analysis Period (min)		15				

Lanes, Volumes, Timings

120: Clair Road W. & Clairfields Drive W.

PM Peak Hour

2031 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	654	12	30	439	46	44	10	128	29	6	72
Future Volume (vph)	99	654	12	30	439	46	44	10	128	29	6	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	3.6	3.6	4.8	3.6
Storage Length (m)	55.0		0.0	55.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	0.91	0.91	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.98	0.99			0.97			0.94	
Frt		0.997			0.986			0.905			0.909	
Flt Protected	0.950			0.950				0.988			0.987	
Satd. Flow (prot)	1770	3480	0	1535	3203	0	0	1802	0	0	1731	0
Flt Permitted	0.379			0.274	0.952			0.862			0.779	
Satd. Flow (perm)	696	3480	0	436	3049	0	0	1549	0	0	1364	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			17			135			101	
Link Speed (k/h)		50			60			40			40	
Link Distance (m)		243.7			569.7			177.5			178.2	
Travel Time (s)		17.5			34.2			16.0			16.0	
Confl. Peds. (#/hr)	25		50	50		25	67		8	8		67
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles (%)	2%	3%	17%	7%	6%	5%	7%	0%	5%	12%	0%	2%
Adj. Flow (vph)	139	921	17	42	618	65	62	14	180	41	8	101
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	139	938	0	38	687	0	0	256	0	0	150	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	38.0		10.0	38.0		28.0	28.0		28.0	28.0	
Total Split (s)	10.0	47.0		10.0	47.0		33.0	33.0		33.0	33.0	
Total Split (%)	11.1%	52.2%		11.1%	52.2%		36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	7.0	41.0		7.0	41.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		16.0			16.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		16.0			16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		50			25		8	8		67	67	
Act Effect Green (s)	61.0	53.0		58.2	50.6			19.0			19.0	
Actuated g/C Ratio	0.68	0.59		0.65	0.56			0.21			0.21	

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

PM Peak Hour
2031 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.25	0.46		0.10	0.40			0.59			0.41	
Control Delay	6.7	13.0		5.9	9.8			20.0			14.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.7	13.0		5.9	9.8			20.0			14.4	
LOS	A	B		A	A			C			B	
Approach Delay		12.2			9.6			20.0			14.4	
Approach LOS		B			A			C			B	
Queue Length 50th (m)	8.4	56.8		2.7	26.9			18.1			7.0	
Queue Length 95th (m)	11.6	53.2		4.8	27.5			26.0			14.2	
Internal Link Dist (m)		219.7			545.7			153.5			154.2	
Turn Bay Length (m)	55.0			55.0								
Base Capacity (vph)	565	2050		367	1725			559			479	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.25	0.46		0.10	0.40			0.46			0.31	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 63 (70%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 12.4

Intersection LOS: B

Intersection Capacity Utilization 86.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 120: Clair Road W. & Clairfields Drive W.



Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

PM Peak Hour
2031 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	842	63	38	435	77	49	37	21	67	29	38
Future Volume (vph)	83	842	63	38	435	77	49	37	21	67	29	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		1.00	0.99			0.99			0.99	
Frt		0.990			0.977			0.974			0.962	
Flt Protected	0.950			0.950				0.978			0.976	
Satd. Flow (prot)	1805	3534	0	1805	3449	0	0	1786	0	0	1772	0
Flt Permitted	0.423			0.257				0.776			0.793	
Satd. Flow (perm)	798	3534	0	487	3449	0	0	1412	0	0	1435	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			32			13			22	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		569.7			231.6			156.8			134.6	
Travel Time (s)		34.2			13.9			11.3			9.7	
Confl. Peds. (#/hr)	16		9	9		16	11		8	8		11
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	2%	0%	0%	0%	0%	0%
Adj. Flow (vph)	91	925	69	42	478	85	54	41	23	74	32	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	994	0	42	563	0	0	118	0	0	148	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	8.0	50.0		8.0	50.0		32.0	32.0		32.0	32.0	
Total Split (s)	10.0	50.0		10.0	50.0		30.0	30.0		30.0	30.0	
Total Split (%)	11.1%	55.6%		11.1%	55.6%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	44.0		7.0	44.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		29.0			29.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		15.0			15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		9			16		8	8		11	11	
Act Effct Green (s)	65.4	58.2		64.1	56.1			14.1			14.1	
Actuated g/C Ratio	0.73	0.65		0.71	0.62			0.16			0.16	
v/c Ratio	0.14	0.43		0.10	0.26			0.51			0.61	

Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

PM Peak Hour
2031 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	2.4	4.6		3.6	6.5			36.8			39.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	2.4	4.6		3.6	6.5			36.8			39.3	
LOS	A	A		A	A			D			D	
Approach Delay		4.4			6.3			36.8			39.3	
Approach LOS		A			A			D			D	
Queue Length 50th (m)	1.7	14.6		1.3	16.4			17.9			21.8	
Queue Length 95th (m)	5.0	21.8		m4.7	29.3			30.3			36.1	
Internal Link Dist (m)		545.7			207.6			132.8			110.6	
Turn Bay Length (m)	50.0			40.0								
Base Capacity (vph)	658	2289		452	2161			386			398	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.14	0.43		0.09	0.26			0.31			0.37	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 5 (6%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 9.6

Intersection LOS: A

Intersection Capacity Utilization 68.3%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 130: Gosling Gardens & Clair Road W.



Lanes, Volumes, Timings

140: Gordon Street & Clair Road W.

PM Peak Hour

2031 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	226	716	110	119	373	94	111	545	135	140	461	101
Future Volume (vph)	226	716	110	119	373	94	111	545	135	140	461	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	25.0		0.0	45.0		0.0	145.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	1.00		0.99	0.99		1.00	0.99		1.00	1.00	
Frt		0.980			0.970			0.970			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3468	0	1752	3440	0	1736	3408	0	1805	3467	0
Flt Permitted	0.389			0.151			0.366			0.250		
Satd. Flow (perm)	726	3468	0	277	3440	0	667	3408	0	473	3467	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			37			36			31	
Link Speed (k/h)		60			60			70			60	
Link Distance (m)		231.6			273.3			321.8			235.6	
Travel Time (s)		13.9			16.4			16.5			14.1	
Confl. Peds. (#/hr)	36		23	23		36	6		17	17		6
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
Heavy Vehicles (%)	0%	1%	5%	3%	1%	0%	4%	0%	11%	0%	1%	1%
Adj. Flow (vph)	238	754	116	125	393	99	117	574	142	147	485	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	238	870	0	125	492	0	117	716	0	147	591	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	32.0		10.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (%)	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	
Maximum Green (s)	7.0	29.0		7.0	29.0		7.0	29.0		7.0	29.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		23			36			17			6	
Act Effct Green (s)	36.5	26.5		36.5	26.5		41.3	31.0		42.2	33.1	
Actuated g/C Ratio	0.41	0.29		0.41	0.29		0.46	0.34		0.47	0.37	
v/c Ratio	0.63	0.84		0.55	0.47		0.30	0.60		0.44	0.46	

Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

PM Peak Hour
2031 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	19.6	27.2		24.2	25.2		15.4	26.1		17.9	23.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.6	27.2		24.2	25.2		15.4	26.1		17.9	23.1	
LOS	B	C		C	C		B	C		B	C	
Approach Delay		25.5			25.0			24.6			22.1	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	12.8	39.5		12.9	34.6		11.4	55.1		14.5	43.1	
Queue Length 95th (m)	25.4	33.7		23.1	48.4		21.9	74.6		26.6	59.7	
Internal Link Dist (m)		207.6			249.3			297.8			211.6	
Turn Bay Length (m)	100.0			25.0			45.0			145.0		
Base Capacity (vph)	378	1131		227	1133		394	1196		332	1295	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.63	0.77		0.55	0.43		0.30	0.60		0.44	0.46	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 24.4

Intersection LOS: C

Intersection Capacity Utilization 80.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 140: Gordon Street & Clair Road W.

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	35 s	10 s	35 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
10 s	35 s	10 s	35 s

HCM Unsignalized Intersection Capacity Analysis

210: Site Access & Clair Road W.

PM Peak Hour
2031 Future Background Volumes

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1073	0	0	569	0	0
Future Volume (Veh/h)	1073	0	0	569	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1166	0	0	618	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)				299		
pX, platoon unblocked					0.86	
vC, conflicting volume			1166		1784	1166
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1166		1830	1166
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			599		72	236
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1166	618	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	599	1700			
Volume to Capacity	0.69	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			59.8%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

AM Peak Hour
2031 Total Future Volumes

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	↰	
Traffic Volume (veh/h)	397	6	133	895	1	51
Future Volume (Veh/h)	397	6	133	895	1	51
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	441	7	148	994	1	57
Pedestrians	1			1		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			448		1736	446
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			448		1736	446
tC, single (s)			4.1		7.4	6.4
tC, 2 stage (s)						
tF (s)			2.2		4.4	3.5
p0 queue free %			87		98	90
cM capacity (veh/h)			1102		48	582
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	448	1142	58			
Volume Left	0	148	1			
Volume Right	7	0	57			
cSH	1700	1102	489			
Volume to Capacity	0.26	0.13	0.12			
Queue Length 95th (m)	0.0	3.7	3.2			
Control Delay (s)	0.0	3.6	13.4			
Lane LOS		A	B			
Approach Delay (s)	0.0	3.6	13.4			
Approach LOS			B			
Intersection Summary						
Average Delay		3.0				
Intersection Capacity Utilization		89.4%	ICU Level of Service	E		
Analysis Period (min)		15				

Lanes, Volumes, Timings

120: Clair Road W. & Clairfields Drive W.

AM Peak Hour

2031 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	477	62	144	749	26	36	12	113	20	58	163
Future Volume (vph)	54	477	62	144	749	26	36	12	113	20	58	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	3.6	3.6	4.8	3.6
Storage Length (m)	55.0		0.0	55.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	0.91	0.91	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.98			0.96	
Frt		0.983			0.995			0.905			0.909	
Flt Protected	0.950			0.950	0.999			0.989			0.996	
Satd. Flow (prot)	1671	3168	0	1535	3319	0	0	1753	0	0	1838	0
Flt Permitted	0.248			0.302	0.938			0.675			0.953	
Satd. Flow (perm)	434	3168	0	485	3116	0	0	1190	0	0	1758	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			5			134			60	
Link Speed (k/h)		50			60			40			40	
Link Distance (m)		243.7			569.7			177.5			178.2	
Travel Time (s)		17.5			34.2			16.0			16.0	
Confl. Peds. (#/hr)	21		13	13		21	41		7	7		41
Confl. Bikes (#/hr)						1						2
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles (%)	8%	12%	8%	7%	3%	13%	25%	0%	4%	11%	0%	1%
Adj. Flow (vph)	75	663	86	200	1040	36	50	17	157	28	81	226
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	75	749	0	180	1096	0	0	224	0	0	335	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	38.0		10.0	38.0		28.0	28.0		28.0	28.0	
Total Split (s)	10.0	47.0		10.0	47.0		33.0	33.0		33.0	33.0	
Total Split (%)	11.1%	52.2%		11.1%	52.2%		36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	7.0	41.0		7.0	41.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		16.0			16.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		16.0			16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		13			21		7	7		41	41	
Act Effct Green (s)	56.8	46.8		59.6	54.3			20.1			20.1	

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

AM Peak Hour
2031 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.63	0.52		0.66	0.60			0.22			0.22	
v/c Ratio	0.20	0.45		0.43	0.58			0.61			0.76	
Control Delay	7.7	15.3		5.8	6.9			19.4			37.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.7	15.3		5.8	6.9			19.4			37.9	
LOS	A	B		A	A			B			D	
Approach Delay		14.7			6.8			19.4			37.9	
Approach LOS		B			A			B			D	
Queue Length 50th (m)	4.4	44.5		6.2	41.2			13.4			45.8	
Queue Length 95th (m)	8.6	47.4		4.2	12.3			20.7			50.4	
Internal Link Dist (m)		219.7			545.7			153.5			154.2	
Turn Bay Length (m)	55.0			55.0								
Base Capacity (vph)	370	1656		416	1894			450			569	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.20	0.45		0.43	0.58			0.50			0.59	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 89 (99%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 14.2

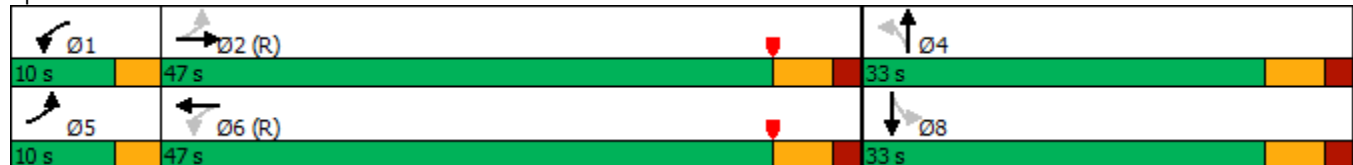
Intersection LOS: B

Intersection Capacity Utilization 87.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 120: Clair Road W. & Clairfields Drive W.



Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

AM Peak Hour
2031 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	534	33	21	857	40	32	16	12	79	17	55
Future Volume (vph)	48	534	33	21	857	40	32	16	12	79	17	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99			0.99	
Frt		0.991			0.993			0.973			0.951	
Flt Protected	0.950			0.950				0.974			0.975	
Satd. Flow (prot)	1752	3247	0	1805	3435	0	0	1663	0	0	1711	0
Flt Permitted	0.216			0.401				0.751			0.813	
Satd. Flow (perm)	397	3247	0	760	3435	0	0	1281	0	0	1421	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			7			14			31	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		569.7			231.6			156.8			134.6	
Travel Time (s)		34.2			13.9			11.3			9.7	
Confl. Peds. (#/hr)	19		8	8		19	3		8	8		3
Confl. Bikes (#/hr)									2			1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	3%	10%	10%	0%	4%	8%	4%	21%	0%	3%	7%	0%
Adj. Flow (vph)	56	621	38	24	997	47	37	19	14	92	20	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	659	0	24	1044	0	0	70	0	0	176	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	8.0	50.0		8.0	50.0		32.0	32.0		32.0	32.0	
Total Split (s)	10.0	50.0		10.0	50.0		30.0	30.0		30.0	30.0	
Total Split (%)	11.1%	55.6%		11.1%	55.6%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	44.0		7.0	44.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		29.0			29.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		15.0			15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		8			19		8	8		3	3	
Act Effect Green (s)	64.7	59.0		63.0	55.2			15.3			15.3	
Actuated g/C Ratio	0.72	0.66		0.70	0.61			0.17			0.17	

Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

AM Peak Hour
2031 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.15	0.31		0.04	0.50			0.31				0.66
Control Delay	2.7	4.6		3.4	7.3			28.4				39.5
Queue Delay	0.0	0.0		0.0	0.0			0.0				0.0
Total Delay	2.7	4.6		3.4	7.3			28.4				39.5
LOS	A	A		A	A			C				D
Approach Delay		4.4			7.2			28.4				39.5
Approach LOS		A			A			C				D
Queue Length 50th (m)	0.5	4.5		0.6	30.3			9.0				25.0
Queue Length 95th (m)	m2.4	49.0		m2.1	44.4			17.8				38.9
Internal Link Dist (m)		545.7			207.6			132.8				110.6
Turn Bay Length (m)	50.0			40.0								
Base Capacity (vph)	391	2131		620	2109			351				401
Starvation Cap Reductn	0	0		0	0			0				0
Spillback Cap Reductn	0	0		0	0			0				0
Storage Cap Reductn	0	0		0	0			0				0
Reduced v/c Ratio	0.14	0.31		0.04	0.50			0.20				0.44

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 9.8

Intersection LOS: A

Intersection Capacity Utilization 61.6%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 130: Gosling Gardens & Clair Road W.



Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

AM Peak Hour
2031 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	368	123	131	654	72	142	410	72	59	329	180
Future Volume (vph)	194	368	123	131	654	72	142	410	72	59	329	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	25.0		0.0	45.0		0.0	145.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		0.99	1.00		1.00	1.00		0.99	0.99	
Frt		0.962			0.985			0.978			0.947	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3137	0	1719	3443	0	1687	3354	0	1770	3343	0
Flt Permitted	0.176			0.357			0.360			0.445		
Satd. Flow (perm)	326	3137	0	642	3443	0	638	3354	0	823	3343	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			14			23			120	
Link Speed (k/h)		60			60			70			60	
Link Distance (m)		231.6			273.3			321.8			235.6	
Travel Time (s)		13.9			16.4			16.5			14.1	
Confl. Peds. (#/hr)	24		13	13		24	3		18	18		3
Confl. Bikes (#/hr)									1			1
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
Heavy Vehicles (%)	2%	9%	13%	5%	3%	2%	7%	3%	15%	2%	1%	3%
Adj. Flow (vph)	204	387	129	138	688	76	149	432	76	62	346	189
Shared Lane Traffic (%)												
Lane Group Flow (vph)	204	516	0	138	764	0	149	508	0	62	535	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	32.0		10.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (%)	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	
Maximum Green (s)	7.0	29.0		7.0	29.0		7.0	29.0		7.0	29.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		13			24			18			3	
Act Effect Green (s)	34.8	24.8		34.8	24.8		44.7	35.0		42.3	32.1	
Actuated g/C Ratio	0.39	0.28		0.39	0.28		0.50	0.39		0.47	0.36	

Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

AM Peak Hour
2031 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.86	0.57		0.42	0.80		0.36	0.39		0.13	0.42	
Control Delay	58.0	16.9		19.7	36.3		15.6	21.4		13.3	18.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	58.0	16.9		19.7	36.3		15.6	21.4		13.3	18.6	
LOS	E	B		B	D		B	C		B	B	
Approach Delay		28.6			33.7			20.1			18.1	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	17.3	25.4		15.1	65.7		14.0	34.3		5.5	30.4	
Queue Length 95th (m)	#53.3	17.2		25.3	82.6		27.1	51.6		13.1	45.9	
Internal Link Dist (m)		207.6			249.3			297.8			211.6	
Turn Bay Length (m)	100.0			25.0			45.0			145.0		
Base Capacity (vph)	238	1046		331	1118		411	1319		462	1271	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.86	0.49		0.42	0.68		0.36	0.39		0.13	0.42	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 80 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 26.1

Intersection LOS: C

Intersection Capacity Utilization 80.6%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 140: Gordon Street & Clair Road W.

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	35 s	10 s	35 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
10 s	35 s	10 s	35 s

HCM Unsignalized Intersection Capacity Analysis

210: Site Access & Clair Road W.

AM Peak Hour
2031 Total Future Volumes

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	421	26	49	950	78	146
Future Volume (Veh/h)	421	26	49	950	78	146
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	458	28	53	1033	85	159
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)				299		
pX, platoon unblocked				0.68		
vC, conflicting volume	486			1611 472		
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	486			1662 472		
tC, single (s)	4.1			6.4 6.2		
tC, 2 stage (s)						
tF (s)	2.2			3.5 3.3		
p0 queue free %	95			0 73		
cM capacity (veh/h)	1077			69 592		
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	486	1086	244			
Volume Left	0	53	85			
Volume Right	28	0	159			
cSH	1700	1077	163			
Volume to Capacity	0.29	0.05	1.49			
Queue Length 95th (m)	0.0	1.2	126.8			
Control Delay (s)	0.0	1.4	302.8			
Lane LOS		A	F			
Approach Delay (s)	0.0	1.4	302.8			
Approach LOS			F			
Intersection Summary						
Average Delay	41.5					
Intersection Capacity Utilization	99.7%			ICU Level of Service		F
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

PM Peak Hour
2031 Total Future Volumes

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	989	8	29	588	8	163
Future Volume (Veh/h)	989	8	29	588	8	163
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	1137	9	33	676	9	187
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			1146		1884	1142
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1146		1884	1142
tC, single (s)			4.3		6.8	6.2
tC, 2 stage (s)						
tF (s)			2.4		3.9	3.3
p0 queue free %			94		84	23
cM capacity (veh/h)			549		57	244
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1146	709	196			
Volume Left	0	33	9			
Volume Right	9	0	187			
cSH	1700	549	212			
Volume to Capacity	0.67	0.06	0.92			
Queue Length 95th (m)	0.0	1.5	61.0			
Control Delay (s)	0.0	1.7	90.5			
Lane LOS		A	F			
Approach Delay (s)	0.0	1.7	90.5			
Approach LOS			F			
Intersection Summary						
Average Delay		9.2				
Intersection Capacity Utilization		71.8%		ICU Level of Service		C
Analysis Period (min)		15				

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

PM Peak Hour
2031 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	736	12	30	576	46	44	10	128	29	6	83
Future Volume (vph)	106	736	12	30	576	46	44	10	128	29	6	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	3.6	3.6	4.8	3.6
Storage Length (m)	55.0		0.0	55.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	0.91	0.91	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.97			0.93	
Frt		0.998			0.989			0.905			0.905	
Flt Protected	0.950			0.950				0.988			0.988	
Satd. Flow (prot)	1770	3485	0	1535	3216	0	0	1802	0	0	1724	0
Flt Permitted	0.311			0.231	0.952			0.845			0.795	
Satd. Flow (perm)	573	3485	0	369	3061	0	0	1519	0	0	1386	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			12			135			112	
Link Speed (k/h)		50			60			40			40	
Link Distance (m)		243.7			569.7			177.5			178.2	
Travel Time (s)		17.5			34.2			16.0			16.0	
Confl. Peds. (#/hr)	25		50	50		25	67		8	8		67
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles (%)	2%	3%	17%	7%	6%	5%	7%	0%	5%	12%	0%	2%
Adj. Flow (vph)	149	1037	17	42	811	65	62	14	180	41	8	117
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	149	1054	0	38	880	0	0	256	0	0	166	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	38.0		10.0	38.0		28.0	28.0		28.0	28.0	
Total Split (s)	10.0	47.0		10.0	47.0		33.0	33.0		33.0	33.0	
Total Split (%)	11.1%	52.2%		11.1%	52.2%		36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	7.0	41.0		7.0	41.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		16.0			16.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		16.0			16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		50			25		8	8		67	67	
Act Effect Green (s)	61.2	53.0		58.0	50.4			19.0			19.0	
Actuated g/C Ratio	0.68	0.59		0.64	0.56			0.21			0.21	

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

PM Peak Hour
2031 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.30	0.51		0.12	0.51			0.60			0.44	
Control Delay	7.2	13.8		6.2	13.1			20.3			14.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.2	13.8		6.2	13.1			20.3			14.5	
LOS	A	B		A	B			C			B	
Approach Delay		13.0			12.8			20.3			14.5	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	9.1	67.0		3.0	40.3			18.1			7.8	
Queue Length 95th (m)	12.3	61.2		4.0	39.0			26.1			15.0	
Internal Link Dist (m)		219.7			545.7			153.5			154.2	
Turn Bay Length (m)	55.0			55.0								
Base Capacity (vph)	495	2053		328	1724			550			494	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.30	0.51		0.12	0.51			0.47			0.34	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 63 (70%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 13.8

Intersection LOS: B

Intersection Capacity Utilization 86.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 120: Clair Road W. & Clairfields Drive W.



Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

PM Peak Hour
2031 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	911	70	38	549	77	60	37	21	67	29	49
Future Volume (vph)	90	911	70	38	549	77	60	37	21	67	29	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		1.00	1.00			0.99			0.99	
Frt		0.989			0.981			0.976			0.954	
Flt Protected	0.950			0.950				0.975			0.977	
Satd. Flow (prot)	1805	3530	0	1805	3465	0	0	1783	0	0	1757	0
Flt Permitted	0.360			0.228				0.738			0.795	
Satd. Flow (perm)	680	3530	0	432	3465	0	0	1344	0	0	1425	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			24			12			28	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		569.7			231.6			156.8			134.6	
Travel Time (s)		34.2			13.9			11.3			9.7	
Confl. Peds. (#/hr)	16		9	9		16	11		8	8		11
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	2%	0%	0%	0%	0%	0%
Adj. Flow (vph)	99	1001	77	42	603	85	66	41	23	74	32	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	99	1078	0	42	688	0	0	130	0	0	160	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	8.0	50.0		8.0	50.0		32.0	32.0		32.0	32.0	
Total Split (s)	10.0	50.0		10.0	50.0		30.0	30.0		30.0	30.0	
Total Split (%)	11.1%	55.6%		11.1%	55.6%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	44.0		7.0	44.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		29.0			29.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		15.0			15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		9			16		8	8		11	11	
Act Effct Green (s)	65.2	57.9		63.7	55.7			14.4			14.4	
Actuated g/C Ratio	0.72	0.64		0.71	0.62			0.16			0.16	
v/c Ratio	0.17	0.47		0.11	0.32			0.58			0.64	

Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

PM Peak Hour
2031 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	2.4	4.4		3.7	7.4			40.5			39.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	2.4	4.4		3.7	7.4			40.5			39.3	
LOS	A	A		A	A			D			D	
Approach Delay		4.2			7.2			40.5			39.3	
Approach LOS		A			A			D			D	
Queue Length 50th (m)	1.7	14.7		1.4	26.3			20.3			22.9	
Queue Length 95th (m)	4.8	21.5		m4.4	41.7			33.7			38.0	
Internal Link Dist (m)		545.7			207.6			132.8			110.6	
Turn Bay Length (m)	50.0			40.0								
Base Capacity (vph)	581	2275		415	2154			367			400	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.17	0.47		0.10	0.32			0.35			0.40	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 5 (6%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 9.9

Intersection LOS: A

Intersection Capacity Utilization 68.8%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 130: Gosling Gardens & Clair Road W.



Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

PM Peak Hour
2031 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	730	131	119	396	94	145	545	135	140	461	158
Future Volume (vph)	260	730	131	119	396	94	145	545	135	140	461	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	25.0		0.0	45.0		0.0	145.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.99		1.00	0.99		1.00	0.99		1.00	1.00	
Frt		0.977			0.971			0.970			0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3452	0	1752	3445	0	1736	3408	0	1805	3423	0
Flt Permitted	0.373			0.148			0.298			0.260		
Satd. Flow (perm)	697	3452	0	272	3445	0	543	3408	0	492	3423	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			34			36			55	
Link Speed (k/h)		60			60			70			60	
Link Distance (m)		231.6			273.3			321.8			235.6	
Travel Time (s)		13.9			16.4			16.5			14.1	
Confl. Peds. (#/hr)	36		23	23		36	6		17	17		6
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
Heavy Vehicles (%)	0%	1%	5%	3%	1%	0%	4%	0%	11%	0%	1%	1%
Adj. Flow (vph)	274	768	138	125	417	99	153	574	142	147	485	166
Shared Lane Traffic (%)												
Lane Group Flow (vph)	274	906	0	125	516	0	153	716	0	147	651	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	32.0		10.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (%)	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	
Maximum Green (s)	7.0	29.0		7.0	29.0		7.0	29.0		7.0	29.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		23			36			17			6	
Act Effct Green (s)	37.1	27.1		37.1	27.1		41.0	30.6		40.8	30.5	
Actuated g/C Ratio	0.41	0.30		0.41	0.30		0.46	0.34		0.45	0.34	
v/c Ratio	0.73	0.86		0.55	0.49		0.44	0.61		0.45	0.54	

Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

PM Peak Hour
2031 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	25.4	28.2		24.0	25.3		18.2	26.5		18.3	24.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.4	28.2		24.0	25.3		18.2	26.5		18.3	24.4	
LOS	C	C		C	C		B	C		B	C	
Approach Delay		27.5			25.1			25.0			23.3	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	14.0	38.4		12.6	36.3		15.6	55.1		14.9	46.8	
Queue Length 95th (m)	#38.6	39.4		23.1	51.2		27.8	74.6		26.6	64.6	
Internal Link Dist (m)		207.6			249.3			297.8			211.6	
Turn Bay Length (m)	100.0			25.0			45.0			145.0		
Base Capacity (vph)	373	1128		227	1133		344	1182		329	1197	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.73	0.80		0.55	0.46		0.44	0.61		0.45	0.54	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 25.5

Intersection LOS: C

Intersection Capacity Utilization 82.8%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 140: Gordon Street & Clair Road W.

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	35 s	10 s	35 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
10 s	35 s	10 s	35 s

HCM Unsignalized Intersection Capacity Analysis

210: Site Access & Clair Road W.

PM Peak Hour
2031 Total Future Volumes

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1073	80	148	569	48	89
Future Volume (Veh/h)	1073	80	148	569	48	89
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1166	87	161	618	52	97
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)				299		
pX, platoon unblocked				0.78		
vC, conflicting volume				1253	2150	1210
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				1253	2330	1210
tC, single (s)				4.1	6.4	6.2
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				71	0	56
cM capacity (veh/h)				555	23	223
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1253	779	149			
Volume Left	0	161	52			
Volume Right	87	0	97			
cSH	1700	555	54			
Volume to Capacity	0.74	0.29	2.74			
Queue Length 95th (m)	0.0	9.6	123.5			
Control Delay (s)	0.0	8.0	945.4			
Lane LOS		A	F			
Approach Delay (s)	0.0	8.0	945.4			
Approach LOS			F			
Intersection Summary						
Average Delay				67.4		
Intersection Capacity Utilization				117.6%	ICU Level of Service	H
Analysis Period (min)				15		

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

AM Peak Hour
2036 Future Background Volumes

											
Movement	EBT	EBR	WBL	WBT	NBL	NBR					
Lane Configurations											
Traffic Volume (veh/h)	403	6	132	892	1	50					
Future Volume (Veh/h)	403	6	132	892	1	50					
Sign Control	Free			Free	Stop						
Grade	0%			0%	0%						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90					
Hourly flow rate (vph)	448	7	147	991	1	56					
Pedestrians	1			1							
Lane Width (m)	3.6			3.6							
Walking Speed (m/s)	1.2			1.2							
Percent Blockage	0			0							
Right turn flare (veh)											
Median type	None			None							
Median storage veh											
Upstream signal (m)											
pX, platoon unblocked											
vC, conflicting volume			455	1738		452					
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol			455	1738		452					
tC, single (s)			4.1	7.4		6.4					
tC, 2 stage (s)											
tF (s)			2.2	4.4		3.5					
p0 queue free %			87	98		90					
cM capacity (veh/h)			1095	48		577					
Direction, Lane #	EB 1	WB 1	NB 1								
Volume Total	455	1138	57								
Volume Left	0	147	1								
Volume Right	7	0	56								
cSH	1700	1095	483								
Volume to Capacity	0.27	0.13	0.12								
Queue Length 95th (m)	0.0	3.7	3.2								
Control Delay (s)	0.0	3.6	13.4								
Lane LOS	A		B								
Approach Delay (s)	0.0	3.6	13.4								
Approach LOS	B										
Intersection Summary											
Average Delay	2.9										
Intersection Capacity Utilization	89.5%			ICU Level of Service	E						
Analysis Period (min)	15										

Lanes, Volumes, Timings

120: Clair Road W. & Clairfields Drive W.

AM Peak Hour

2036 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	369	62	144	758	27	36	12	113	22	58	171
Future Volume (vph)	47	369	62	144	758	27	36	12	113	22	58	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	3.6	3.6	4.8	3.6
Storage Length (m)	55.0		0.0	55.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	0.91	0.91	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.99	1.00			0.98			0.96	
Frt		0.978			0.995			0.905			0.908	
Flt Protected	0.950			0.950	0.999			0.989			0.996	
Satd. Flow (prot)	1671	3151	0	1535	3318	0	0	1753	0	0	1834	0
Flt Permitted	0.244			0.374	0.942			0.673			0.949	
Satd. Flow (perm)	427	3151	0	600	3128	0	0	1187	0	0	1747	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			5			134			58	
Link Speed (k/h)		50			60			40			40	
Link Distance (m)		243.7			569.7			177.5			178.2	
Travel Time (s)		17.5			34.2			16.0			16.0	
Confl. Peds. (#/hr)	21		13	13		21	41		7	7		41
Confl. Bikes (#/hr)						1						2
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles (%)	8%	12%	8%	7%	3%	13%	25%	0%	4%	11%	0%	1%
Adj. Flow (vph)	65	513	86	200	1053	38	50	17	157	31	81	238
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	65	599	0	180	1111	0	0	224	0	0	350	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	38.0		10.0	38.0		28.0	28.0		28.0	28.0	
Total Split (s)	10.0	47.0		10.0	47.0		33.0	33.0		33.0	33.0	
Total Split (%)	11.1%	52.2%		11.1%	52.2%		36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	7.0	41.0		7.0	41.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		16.0			16.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		16.0			16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		13			21		7	7		41	41	
Act Efect Green (s)	56.2	46.2		59.1	53.8			20.6			20.6	

Lanes, Volumes, Timings

120: Clair Road W. & Clairfields Drive W.

AM Peak Hour

2036 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.62	0.51		0.66	0.60			0.23			0.23	
v/c Ratio	0.18	0.37		0.38	0.59			0.60			0.79	
Control Delay	7.7	14.3		4.7	7.3			18.9			39.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.7	14.3		4.7	7.3			18.9			39.6	
LOS	A	B		A	A			B			D	
Approach Delay		13.6			6.9			18.9			39.6	
Approach LOS		B			A			B			D	
Queue Length 50th (m)	3.8	32.8		5.2	41.3			13.4			49.4	
Queue Length 95th (m)	7.6	36.4		4.0	11.8			20.7			53.6	
Internal Link Dist (m)		219.7			545.7			153.5			154.2	
Turn Bay Length (m)	55.0			55.0								
Base Capacity (vph)	363	1632		478	1881			449			564	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.18	0.37		0.38	0.59			0.50			0.62	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 89 (99%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 14.3

Intersection LOS: B

Intersection Capacity Utilization 87.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 120: Clair Road W. & Clairfields Drive W.



Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

AM Peak Hour
2036 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	454	24	23	882	43	30	17	13	85	18	55
Future Volume (vph)	39	454	24	23	882	43	30	17	13	85	18	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99			0.99	
Fr't		0.992			0.993			0.971			0.953	
Flt Protected	0.950			0.950				0.976			0.974	
Satd. Flow (prot)	1752	3251	0	1805	3434	0	0	1659	0	0	1713	0
Flt Permitted	0.213			0.444				0.769			0.806	
Satd. Flow (perm)	391	3251	0	841	3434	0	0	1306	0	0	1411	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			8			15			29	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		569.7			231.6			156.8			134.6	
Travel Time (s)		34.2			13.9			11.3			9.7	
Confl. Peds. (#/hr)	19		8	8		19	3		8	8		3
Confl. Bikes (#/hr)									2			1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	3%	10%	10%	0%	4%	8%	4%	21%	0%	3%	7%	0%
Adj. Flow (vph)	45	528	28	27	1026	50	35	20	15	99	21	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	556	0	27	1076	0	0	70	0	0	184	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	8.0	50.0		8.0	50.0		32.0	32.0		32.0	32.0	
Total Split (s)	10.0	50.0		10.0	50.0		30.0	30.0		30.0	30.0	
Total Split (%)	11.1%	55.6%		11.1%	55.6%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	44.0		7.0	44.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		29.0			29.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		15.0			15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		8			19		8	8		3	3	
Act Effect Green (s)	64.2	58.5		63.3	56.5			15.8			15.8	
Actuated g/C Ratio	0.71	0.65		0.70	0.63			0.18			0.18	

Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

AM Peak Hour
2036 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.12	0.26		0.04	0.50			0.29			0.68	
Control Delay	3.2	5.3		3.1	7.0			27.3			40.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	3.2	5.3		3.1	7.0			27.3			40.9	
LOS	A	A		A	A			C			D	
Approach Delay		5.1			6.9			27.3			40.9	
Approach LOS		A			A			C			D	
Queue Length 50th (m)	0.6	5.0		0.7	31.3			8.8			26.7	
Queue Length 95th (m)	m2.5	50.3		m2.0	46.0			17.6			41.3	
Internal Link Dist (m)		545.7			207.6			132.8			110.6	
Turn Bay Length (m)	50.0			40.0								
Base Capacity (vph)	385	2114		670	2159			359			397	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.12	0.26		0.04	0.50			0.19			0.46	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 10.3

Intersection LOS: B

Intersection Capacity Utilization 59.3%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 130: Gosling Gardens & Clair Road W.



Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

AM Peak Hour
2036 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	373	96	141	696	78	141	441	78	63	354	173
Future Volume (vph)	148	373	96	141	696	78	141	441	78	63	354	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	25.0		0.0	45.0		0.0	145.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		0.99	1.00		1.00	1.00		0.99	0.99	
Frt		0.969			0.985			0.977			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3169	0	1719	3443	0	1687	3351	0	1770	3360	0
Flt Permitted	0.157			0.384			0.346			0.409		
Satd. Flow (perm)	291	3169	0	691	3443	0	614	3351	0	756	3360	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			14			24			98	
Link Speed (k/h)		60			60			70			60	
Link Distance (m)		231.6			273.3			321.8			235.6	
Travel Time (s)		13.9			16.4			16.5			14.1	
Confl. Peds. (#/hr)	24		13	13		24	3		18	18		3
Confl. Bikes (#/hr)									1			1
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
Heavy Vehicles (%)	2%	9%	13%	5%	3%	2%	7%	3%	15%	2%	1%	3%
Adj. Flow (vph)	156	393	101	148	733	82	148	464	82	66	373	182
Shared Lane Traffic (%)												
Lane Group Flow (vph)	156	494	0	148	815	0	148	546	0	66	555	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	32.0		10.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (%)	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	
Maximum Green (s)	7.0	29.0		7.0	29.0		7.0	29.0		7.0	29.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		13			24			18			3	
Act Effect Green (s)	35.9	25.9		35.9	25.9		43.4	34.0		41.4	31.4	
Actuated g/C Ratio	0.40	0.29		0.40	0.29		0.48	0.38		0.46	0.35	

Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

AM Peak Hour
2036 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.68	0.53		0.42	0.81		0.38	0.43		0.15	0.45	
Control Delay	38.4	17.6		19.1	36.3		16.5	22.5		13.9	20.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	38.4	17.6		19.1	36.3		16.5	22.5		13.9	20.4	
LOS	D	B		B	D		B	C		B	C	
Approach Delay		22.6			33.7			21.2			19.7	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	10.9	31.4		15.9	70.1		14.4	38.4		6.1	34.4	
Queue Length 95th (m)	#39.3	19.9		27.1	89.4		27.1	55.7		13.8	50.0	
Internal Link Dist (m)		207.6			249.3			297.8			211.6	
Turn Bay Length (m)	100.0			25.0			45.0			145.0		
Base Capacity (vph)	231	1046		355	1118		388	1282		427	1234	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.68	0.47		0.42	0.73		0.38	0.43		0.15	0.45	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 80 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 25.3

Intersection LOS: C

Intersection Capacity Utilization 78.8%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 140: Gordon Street & Clair Road W.

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	35 s	10 s	35 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
10 s	35 s	10 s	35 s

HCM Unsignalized Intersection Capacity Analysis 210: Site Access & Clair Road W.

AM Peak Hour
2036 Future Background Volumes

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	453	0	0	1023	0	0
Future Volume (Veh/h)	453	0	0	1023	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	492	0	0	1112	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)				299		
pX, platoon unblocked					0.67	
vC, conflicting volume				492	1604	492
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				492	1656	492
tC, single (s)				4.1	6.4	6.2
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				100	100	100
cM capacity (veh/h)				1071	72	577
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	492	1112	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1071	1700			
Volume to Capacity	0.29	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			57.2%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

PM Peak Hour
2036 Future Background Volumes

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	992	8	24	589	8	164
Future Volume (Veh/h)	992	8	24	589	8	164
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	1140	9	28	677	9	189
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			1149		1878	1144
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1149		1878	1144
tC, single (s)			4.3		6.8	6.2
tC, 2 stage (s)						
tF (s)			2.4		3.9	3.3
p0 queue free %			95		85	22
cM capacity (veh/h)			547		58	243
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1149	705	198			
Volume Left	0	28	9			
Volume Right	9	0	189			
cSH	1700	547	212			
Volume to Capacity	0.68	0.05	0.93			
Queue Length 95th (m)	0.0	1.3	62.1			
Control Delay (s)	0.0	1.4	92.4			
Lane LOS		A	F			
Approach Delay (s)	0.0	1.4	92.4			
Approach LOS			F			
Intersection Summary						
Average Delay		9.4				
Intersection Capacity Utilization		69.9%		ICU Level of Service		C
Analysis Period (min)		15				

Lanes, Volumes, Timings

120: Clair Road W. & Clairfields Drive W.

PM Peak Hour

2036 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	704	12	30	473	49	44	10	128	31	6	78
Future Volume (vph)	106	704	12	30	473	49	44	10	128	31	6	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	3.6	3.6	4.8	3.6
Storage Length (m)	55.0		0.0	55.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	0.91	0.91	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	0.99			0.97			0.94	
Frt		0.997			0.986			0.905			0.908	
Flt Protected	0.950			0.950				0.988			0.987	
Satd. Flow (prot)	1770	3481	0	1535	3203	0	0	1802	0	0	1729	0
Flt Permitted	0.359			0.247	0.952			0.850			0.772	
Satd. Flow (perm)	660	3481	0	394	3049	0	0	1528	0	0	1350	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			16			135			110	
Link Speed (k/h)		50			60			40			40	
Link Distance (m)		243.7			569.7			177.5			178.2	
Travel Time (s)		17.5			34.2			16.0			16.0	
Confl. Peds. (#/hr)	25		50	50		25	67		8	8		67
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles (%)	2%	3%	17%	7%	6%	5%	7%	0%	5%	12%	0%	2%
Adj. Flow (vph)	149	992	17	42	666	69	62	14	180	44	8	110
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	149	1009	0	38	739	0	0	256	0	0	162	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	38.0		10.0	38.0		28.0	28.0		28.0	28.0	
Total Split (s)	10.0	47.0		10.0	47.0		33.0	33.0		33.0	33.0	
Total Split (%)	11.1%	52.2%		11.1%	52.2%		36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	7.0	41.0		7.0	41.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		16.0			16.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		16.0			16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		50			25		8	8		67	67	
Act Effect Green (s)	61.2	53.0		58.0	50.4			19.0			19.0	
Actuated g/C Ratio	0.68	0.59		0.64	0.56			0.21			0.21	

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

PM Peak Hour
2036 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.27	0.49		0.11	0.43			0.60			0.44	
Control Delay	6.9	13.5		5.8	10.4			20.2			14.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.9	13.5		5.8	10.4			20.2			14.6	
LOS	A	B		A	B			C			B	
Approach Delay		12.7			10.2			20.2			14.6	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	9.1	63.1		2.8	29.8			18.1			7.5	
Queue Length 95th (m)	12.3	58.1		4.6	29.6			26.1			14.7	
Internal Link Dist (m)		219.7			545.7			153.5			154.2	
Turn Bay Length (m)	55.0			55.0								
Base Capacity (vph)	547	2050		342	1719			552			482	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.27	0.49		0.11	0.43			0.46			0.34	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 63 (70%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 12.8

Intersection LOS: B

Intersection Capacity Utilization 86.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 120: Clair Road W. & Clairfields Drive W.



Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

PM Peak Hour
2036 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	907	68	41	469	82	53	39	23	72	31	41
Future Volume (vph)	90	907	68	41	469	82	53	39	23	72	31	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		1.00	0.99			0.99			0.99	
Frt		0.990			0.978			0.973			0.962	
Flt Protected	0.950			0.950				0.978			0.976	
Satd. Flow (prot)	1805	3534	0	1805	3453	0	0	1784	0	0	1772	0
Flt Permitted	0.400			0.229				0.767			0.783	
Satd. Flow (perm)	755	3534	0	434	3453	0	0	1394	0	0	1417	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			31			14			22	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		569.7			231.6			156.8			134.6	
Travel Time (s)		34.2			13.9			11.3			9.7	
Confl. Peds. (#/hr)	16		9	9		16	11		8	8		11
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	2%	0%	0%	0%	0%	0%
Adj. Flow (vph)	99	997	75	45	515	90	58	43	25	79	34	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	99	1072	0	45	605	0	0	126	0	0	158	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	8.0	50.0		8.0	50.0		32.0	32.0		32.0	32.0	
Total Split (s)	10.0	50.0		10.0	50.0		30.0	30.0		30.0	30.0	
Total Split (%)	11.1%	55.6%		11.1%	55.6%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	44.0		7.0	44.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		29.0			29.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		15.0			15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		9			16		8	8		11	11	
Act Effct Green (s)	64.9	57.7		63.5	55.5			14.6			14.6	
Actuated g/C Ratio	0.72	0.64		0.71	0.62			0.16			0.16	
v/c Ratio	0.16	0.47		0.11	0.28			0.53			0.63	

Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

PM Peak Hour
2036 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	2.4	4.6		3.7	6.6			37.1			40.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	2.4	4.6		3.7	6.6			37.1			40.5	
LOS	A	A		A	A			D			D	
Approach Delay		4.4			6.4			37.1			40.5	
Approach LOS		A			A			D			D	
Queue Length 50th (m)	1.8	15.2		1.5	19.3			19.0			23.5	
Queue Length 95th (m)	5.1	22.3		4.6	31.5			32.2			38.5	
Internal Link Dist (m)		545.7			207.6			132.8			110.6	
Turn Bay Length (m)	50.0			40.0								
Base Capacity (vph)	627	2269		415	2139			382			394	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.16	0.47		0.11	0.28			0.33			0.40	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 5 (6%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 9.7

Intersection LOS: A

Intersection Capacity Utilization 69.2%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 130: Gosling Gardens & Clair Road W.



Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

PM Peak Hour
2036 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	244	771	118	128	402	102	120	587	146	151	496	109
Future Volume (vph)	244	771	118	128	402	102	120	587	146	151	496	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	25.0		0.0	45.0		0.0	145.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Frt		0.980			0.970			0.970			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3468	0	1752	3440	0	1736	3408	0	1805	3467	0
Flt Permitted	0.365			0.145			0.307			0.222		
Satd. Flow (perm)	682	3468	0	266	3440	0	560	3408	0	420	3467	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			37			36			31	
Link Speed (k/h)		60			60			70			60	
Link Distance (m)		231.6			273.3			321.8			235.6	
Travel Time (s)		13.9			16.4			16.5			14.1	
Confl. Peds. (#/hr)	36		23	23		36	6		17	17		6
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
Heavy Vehicles (%)	0%	1%	5%	3%	1%	0%	4%	0%	11%	0%	1%	1%
Adj. Flow (vph)	257	812	124	135	423	107	126	618	154	159	522	115
Shared Lane Traffic (%)												
Lane Group Flow (vph)	257	936	0	135	530	0	126	772	0	159	637	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	32.0		10.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (%)	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	
Maximum Green (s)	7.0	29.0		7.0	29.0		7.0	29.0		7.0	29.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		23			36			17			6	
Act Effct Green (s)	37.5	27.5		37.5	27.5		40.4	30.2		40.7	30.3	
Actuated g/C Ratio	0.42	0.31		0.42	0.31		0.45	0.34		0.45	0.34	
v/c Ratio	0.69	0.87		0.60	0.49		0.37	0.66		0.53	0.54	

Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

PM Peak Hour
2036 Future Background Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	23.2	29.6		26.0	25.1		16.8	28.0		20.8	25.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	23.2	29.6		26.0	25.1		16.8	28.0		20.8	25.3	
LOS	C	C		C	C		B	C		C	C	
Approach Delay		28.2			25.3			26.4			24.4	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	13.4	41.0		13.7	37.2		12.7	60.9		16.3	47.5	
Queue Length 95th (m)	32.7	45.8		24.8	52.5		23.4	81.8		28.5	65.1	
Internal Link Dist (m)		207.6			249.3			297.8			211.6	
Turn Bay Length (m)	100.0			25.0			45.0			145.0		
Base Capacity (vph)	370	1131		226	1133		345	1167		302	1189	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.69	0.83		0.60	0.47		0.37	0.66		0.53	0.54	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 26.4

Intersection LOS: C

Intersection Capacity Utilization 82.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 140: Gordon Street & Clair Road W.

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	35 s	10 s	35 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
10 s	35 s	10 s	35 s

HCM Unsignalized Intersection Capacity Analysis

210: Site Access & Clair Road W.

PM Peak Hour
2036 Future Background Volumes

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1156	0	0	613	0	0
Future Volume (Veh/h)	1156	0	0	613	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1257	0	0	666	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)				299		
pX, platoon unblocked					0.84	
vC, conflicting volume			1257		1923	1257
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1257		2004	1257
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			553		55	209
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1257	666	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	553	1700			
Volume to Capacity	0.74	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay		0.0				
Intersection Capacity Utilization		64.2%		ICU Level of Service		C
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

AM Peak Hour
2036 Total Future Volumes

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↱	↘↙	
Traffic Volume (veh/h)	426	6	143	959	1	54
Future Volume (Veh/h)	426	6	143	959	1	54
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	473	7	159	1066	1	60
Pedestrians	1			1		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			480		1862	478
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			480		1862	478
tC, single (s)			4.1		7.4	6.4
tC, 2 stage (s)						
tF (s)			2.2		4.4	3.5
p0 queue free %			85		97	89
cM capacity (veh/h)			1072		38	558
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	480	1225	61			
Volume Left	0	159	1			
Volume Right	7	0	60			
cSH	1700	1072	457			
Volume to Capacity	0.28	0.15	0.13			
Queue Length 95th (m)	0.0	4.2	3.7			
Control Delay (s)	0.0	4.3	14.1			
Lane LOS		A	B			
Approach Delay (s)	0.0	4.3	14.1			
Approach LOS			B			
Intersection Summary						
Average Delay		3.4				
Intersection Capacity Utilization		95.0%	ICU Level of Service	F		
Analysis Period (min)		15				

Lanes, Volumes, Timings

120: Clair Road W. & Clairfields Drive W.

AM Peak Hour

2036 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	503	62	144	803	27	36	12	113	22	58	175
Future Volume (vph)	58	503	62	144	803	27	36	12	113	22	58	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	3.6	3.6	4.8	3.6
Storage Length (m)	55.0		0.0	55.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	0.91	0.91	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.98			0.96	
Frt		0.984			0.995			0.905			0.908	
Flt Protected	0.950			0.950	0.999			0.989			0.996	
Satd. Flow (prot)	1671	3171	0	1535	3319	0	0	1753	0	0	1834	0
Flt Permitted	0.220			0.285	0.938			0.678			0.952	
Satd. Flow (perm)	385	3171	0	458	3116	0	0	1196	0	0	1752	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			5			134			49	
Link Speed (k/h)		50			60			40			40	
Link Distance (m)		243.7			569.7			177.5			178.2	
Travel Time (s)		17.5			34.2			16.0			16.0	
Confl. Peds. (#/hr)	21		13	13		21	41		7	7		41
Confl. Bikes (#/hr)						1						2
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles (%)	8%	12%	8%	7%	3%	13%	25%	0%	4%	11%	0%	1%
Adj. Flow (vph)	81	699	86	200	1115	38	50	17	157	31	81	243
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	81	785	0	180	1173	0	0	224	0	0	355	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	38.0		10.0	38.0		28.0	28.0		28.0	28.0	
Total Split (s)	10.0	47.0		10.0	47.0		33.0	33.0		33.0	33.0	
Total Split (%)	11.1%	52.2%		11.1%	52.2%		36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	7.0	41.0		7.0	41.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		16.0			16.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		16.0			16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		13			21		7	7		41	41	
Act Efft Green (s)	56.0	46.0		58.6	53.2			21.0			21.0	

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

AM Peak Hour
2036 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.62	0.51		0.65	0.59			0.23			0.23	
v/c Ratio	0.24	0.48		0.46	0.63			0.59			0.80	
Control Delay	8.3	16.2		6.4	7.9			18.4			40.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	8.3	16.2		6.4	7.9			18.4			40.9	
LOS	A	B		A	A			B			D	
Approach Delay		15.4			7.7			18.4			40.9	
Approach LOS		B			A			B			D	
Queue Length 50th (m)	4.7	47.5		4.5	45.6			13.4			52.0	
Queue Length 95th (m)	9.1	50.1		4.2	13.3			20.7			56.2	
Internal Link Dist (m)		219.7			545.7			153.5			154.2	
Turn Bay Length (m)	55.0			55.0								
Base Capacity (vph)	339	1628		394	1856			452			559	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.24	0.48		0.46	0.63			0.50			0.64	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 89 (99%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 15.2

Intersection LOS: B

Intersection Capacity Utilization 87.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 120: Clair Road W. & Clairfields Drive W.



Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

AM Peak Hour
2036 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	566	35	23	920	43	34	17	13	85	18	59
Future Volume (vph)	50	566	35	23	920	43	34	17	13	85	18	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99			0.99	
Fr't		0.991			0.993			0.973			0.951	
Flt Protected	0.950			0.950				0.974			0.974	
Satd. Flow (prot)	1752	3247	0	1805	3435	0	0	1664	0	0	1710	0
Flt Permitted	0.190			0.386				0.740			0.819	
Satd. Flow (perm)	349	3247	0	731	3435	0	0	1263	0	0	1432	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			7			14			31	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		569.7			231.6			156.8			134.6	
Travel Time (s)		34.2			13.9			11.3			9.7	
Confl. Peds. (#/hr)	19		8	8		19	3		8	8		3
Confl. Bikes (#/hr)									2			1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	3%	10%	10%	0%	4%	8%	4%	21%	0%	3%	7%	0%
Adj. Flow (vph)	58	658	41	27	1070	50	40	20	15	99	21	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	699	0	27	1120	0	0	75	0	0	189	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	8.0	50.0		8.0	50.0		32.0	32.0		32.0	32.0	
Total Split (s)	10.0	50.0		10.0	50.0		30.0	30.0		30.0	30.0	
Total Split (%)	11.1%	55.6%		11.1%	55.6%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	44.0		7.0	44.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		29.0			29.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		15.0			15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		8			19		8	8		3	3	
Act Effect Green (s)	64.1	58.3		62.3	54.5			15.9			15.9	
Actuated g/C Ratio	0.71	0.65		0.69	0.61			0.18			0.18	

Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

AM Peak Hour
2036 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.17	0.33		0.05	0.54			0.32				0.68
Control Delay	3.0	4.7		3.3	8.0			28.5				40.2
Queue Delay	0.0	0.0		0.0	0.0			0.0				0.0
Total Delay	3.0	4.7		3.3	8.0			28.5				40.2
LOS	A	A		A	A			C				D
Approach Delay		4.5			7.9			28.5				40.2
Approach LOS		A			A			C				D
Queue Length 50th (m)	0.6	4.7		0.7	34.7			9.7				27.2
Queue Length 95th (m)	m2.4	51.4		m2.0	50.6			19.1				41.9
Internal Link Dist (m)		545.7			207.6			132.8				110.6
Turn Bay Length (m)	50.0			40.0								
Base Capacity (vph)	357	2106		595	2082			347				404
Starvation Cap Reductn	0	0		0	0			0				0
Spillback Cap Reductn	0	0		0	0			0				0
Storage Cap Reductn	0	0		0	0			0				0
Reduced v/c Ratio	0.16	0.33		0.05	0.54			0.22				0.47

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 10.2

Intersection LOS: B

Intersection Capacity Utilization 64.0%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 130: Gosling Gardens & Clair Road W.



Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

AM Peak Hour
2036 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	395	130	141	704	78	152	441	78	63	354	192
Future Volume (vph)	204	395	130	141	704	78	152	441	78	63	354	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	25.0		0.0	45.0		0.0	145.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		0.99	1.00		1.00	1.00		0.99	0.99	
Frt		0.963			0.985			0.977			0.947	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3141	0	1719	3443	0	1687	3351	0	1770	3343	0
Flt Permitted	0.154			0.336			0.332			0.410		
Satd. Flow (perm)	285	3141	0	605	3443	0	589	3351	0	758	3343	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			14			24			118	
Link Speed (k/h)		60			60			70			60	
Link Distance (m)		231.6			273.3			321.8			235.6	
Travel Time (s)		13.9			16.4			16.5			14.1	
Confl. Peds. (#/hr)	24		13	13		24	3		18	18		3
Confl. Bikes (#/hr)									1			1
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
Heavy Vehicles (%)	2%	9%	13%	5%	3%	2%	7%	3%	15%	2%	1%	3%
Adj. Flow (vph)	215	416	137	148	741	82	160	464	82	66	373	202
Shared Lane Traffic (%)												
Lane Group Flow (vph)	215	553	0	148	823	0	160	546	0	66	575	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	32.0		10.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (%)	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	
Maximum Green (s)	7.0	29.0		7.0	29.0		7.0	29.0		7.0	29.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		13			24			18			3	
Act Effect Green (s)	36.0	26.0		36.0	26.0		43.3	33.9		41.3	31.2	
Actuated g/C Ratio	0.40	0.29		0.40	0.29		0.48	0.38		0.46	0.35	

Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

AM Peak Hour
2036 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.94	0.59		0.45	0.82		0.42	0.43		0.15	0.46	
Control Delay	74.6	16.6		19.9	36.5		17.4	22.5		13.9	19.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	74.6	16.6		19.9	36.5		17.4	22.5		13.9	19.9	
LOS	E	B		B	D		B	C		B	B	
Approach Delay		32.8			34.0			21.4			19.3	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	21.2	27.5		15.9	70.7		15.8	38.6		6.1	34.5	
Queue Length 95th (m)	#63.9	19.9		27.1	90.4		29.1	55.7		13.8	50.5	
Internal Link Dist (m)		207.6			249.3			297.8			211.6	
Turn Bay Length (m)	100.0			25.0			45.0			145.0		
Base Capacity (vph)	229	1048		328	1118		377	1278		427	1237	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.94	0.53		0.45	0.74		0.42	0.43		0.15	0.46	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 80 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 27.8

Intersection LOS: C

Intersection Capacity Utilization 82.7%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 140: Gordon Street & Clair Road W.

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	35 s	10 s	35 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
10 s	35 s	10 s	35 s

HCM Unsignalized Intersection Capacity Analysis

210: Site Access & Clair Road W.

AM Peak Hour
2036 Total Future Volumes

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↱	↘↙	
Traffic Volume (veh/h)	453	26	49	1023	78	146
Future Volume (Veh/h)	453	26	49	1023	78	146
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	492	28	53	1112	85	159
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)				299		
pX, platoon unblocked					0.61	
vC, conflicting volume			520		1724	506
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			520		1866	506
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		0	72
cM capacity (veh/h)			1046		46	566
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	520	1165	244			
Volume Left	0	53	85			
Volume Right	28	0	159			
cSH	1700	1046	115			
Volume to Capacity	0.31	0.05	2.11			
Queue Length 95th (m)	0.0	1.3	164.2			
Control Delay (s)	0.0	1.6	590.7			
Lane LOS		A	F			
Approach Delay (s)	0.0	1.6	590.7			
Approach LOS			F			
Intersection Summary						
Average Delay		75.7				
Intersection Capacity Utilization		105.3%		ICU Level of Service		G
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

PM Peak Hour

2036 Total Future Volumes

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	↰	
Traffic Volume (veh/h)	1060	8	31	630	8	175
Future Volume (Veh/h)	1060	8	31	630	8	175
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	1218	9	36	724	9	201
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			1227		2018	1222
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1227		2018	1222
tC, single (s)			4.3		6.8	6.2
tC, 2 stage (s)						
tF (s)			2.4		3.9	3.3
p0 queue free %			93		80	8
cM capacity (veh/h)			510		46	219
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1227	760	210			
Volume Left	0	36	9			
Volume Right	9	0	201			
cSH	1700	510	188			
Volume to Capacity	0.72	0.07	1.11			
Queue Length 95th (m)	0.0	1.8	82.6			
Control Delay (s)	0.0	2.1	151.1			
Lane LOS		A	F			
Approach Delay (s)	0.0	2.1	151.1			
Approach LOS			F			
Intersection Summary						
Average Delay		15.2				
Intersection Capacity Utilization		76.3%		ICU Level of Service		D
Analysis Period (min)		15				

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

PM Peak Hour
2036 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	786	12	30	610	49	44	10	128	31	6	89
Future Volume (vph)	113	786	12	30	610	49	44	10	128	31	6	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	3.6	3.6	4.8	3.6
Storage Length (m)	55.0		0.0	55.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	0.91	0.91	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00			0.97			0.93	
Frt		0.998			0.989			0.905			0.905	
Flt Protected	0.950			0.950				0.988			0.988	
Satd. Flow (prot)	1770	3486	0	1535	3215	0	0	1802	0	0	1724	0
Flt Permitted	0.289			0.207	0.952			0.833			0.787	
Satd. Flow (perm)	533	3486	0	331	3061	0	0	1498	0	0	1371	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			12			135			98	
Link Speed (k/h)		50			60			40			40	
Link Distance (m)		243.7			569.7			177.5			178.2	
Travel Time (s)		17.5			34.2			16.0			16.0	
Confl. Peds. (#/hr)	25		50	50		25	67		8	8		67
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles (%)	2%	3%	17%	7%	6%	5%	7%	0%	5%	12%	0%	2%
Adj. Flow (vph)	159	1107	17	42	859	69	62	14	180	44	8	125
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	159	1124	0	38	932	0	0	256	0	0	177	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	38.0		10.0	38.0		28.0	28.0		28.0	28.0	
Total Split (s)	10.0	47.0		10.0	47.0		33.0	33.0		33.0	33.0	
Total Split (%)	11.1%	52.2%		11.1%	52.2%		36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	7.0	41.0		7.0	41.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		16.0			16.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		16.0			16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		50			25		8	8		67	67	
Act Effect Green (s)	61.3	53.0		57.9	50.3			19.0			19.0	
Actuated g/C Ratio	0.68	0.59		0.64	0.56			0.21			0.21	

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

PM Peak Hour
2036 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.34	0.55		0.12	0.54			0.61			0.48	
Control Delay	7.6	14.3		6.0	13.6			20.6			18.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.6	14.3		6.0	13.6			20.6			18.3	
LOS	A	B		A	B			C			B	
Approach Delay		13.5			13.4			20.6			18.3	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	9.7	73.7		3.1	42.8			18.1			11.6	
Queue Length 95th (m)	12.9	66.4		4.0	41.0			26.2			19.2	
Internal Link Dist (m)		219.7			545.7			153.5			154.2	
Turn Bay Length (m)	55.0			55.0								
Base Capacity (vph)	474	2053		306	1719			543			479	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.34	0.55		0.12	0.54			0.47			0.37	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 63 (70%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 14.4

Intersection LOS: B

Intersection Capacity Utilization 86.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 120: Clair Road W. & Clairfields Drive W.



Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

PM Peak Hour
2036 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	976	75	41	583	82	64	39	23	72	31	52
Future Volume (vph)	97	976	75	41	583	82	64	39	23	72	31	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		1.00	1.00			0.99			0.99	
Frt		0.989			0.982			0.976			0.955	
Flt Protected	0.950			0.950				0.975			0.977	
Satd. Flow (prot)	1805	3530	0	1805	3468	0	0	1783	0	0	1759	0
Flt Permitted	0.338			0.203				0.730			0.786	
Satd. Flow (perm)	639	3530	0	385	3468	0	0	1330	0	0	1411	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			24			12			28	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		569.7			231.6			156.8			134.6	
Travel Time (s)		34.2			13.9			11.3			9.7	
Confl. Peds. (#/hr)	16		9	9		16	11		8	8		11
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	2%	0%	0%	0%	0%	0%
Adj. Flow (vph)	107	1073	82	45	641	90	70	43	25	79	34	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	1155	0	45	731	0	0	138	0	0	170	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	8.0	50.0		8.0	50.0		32.0	32.0		32.0	32.0	
Total Split (s)	10.0	50.0		10.0	50.0		30.0	30.0		30.0	30.0	
Total Split (%)	11.1%	55.6%		11.1%	55.6%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	44.0		7.0	44.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		29.0			29.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		15.0			15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		9			16		8	8		11	11	
Act Effct Green (s)	64.7	57.4		63.1	55.1			14.9			14.9	
Actuated g/C Ratio	0.72	0.64		0.70	0.61			0.17			0.17	
v/c Ratio	0.20	0.51		0.12	0.34			0.60			0.66	

Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

PM Peak Hour
2036 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	2.5	4.5		3.8	7.6			41.2			40.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	2.5	4.5		3.8	7.6			41.2			40.5	
LOS	A	A		A	A			D			D	
Approach Delay		4.4			7.3			41.2			40.5	
Approach LOS		A			A			D			D	
Queue Length 50th (m)	1.9	15.6		1.5	28.7			21.6			24.6	
Queue Length 95th (m)	5.0	22.3		4.1	44.0			35.7			40.5	
Internal Link Dist (m)		545.7			207.6			132.8			110.6	
Turn Bay Length (m)	50.0			40.0								
Base Capacity (vph)	552	2254		383	2132			363			396	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.19	0.51		0.12	0.34			0.38			0.43	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 5 (6%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 10.1

Intersection LOS: B

Intersection Capacity Utilization 69.7%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 130: Gosling Gardens & Clair Road W.



Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

PM Peak Hour
2036 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	278	785	139	128	425	102	154	587	146	151	496	166
Future Volume (vph)	278	785	139	128	425	102	154	587	146	151	496	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	25.0		0.0	45.0		0.0	145.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.99		1.00	0.99		1.00	0.99		1.00	1.00	
Frt		0.977			0.971			0.970			0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3453	0	1752	3445	0	1736	3408	0	1805	3423	0
Flt Permitted	0.350			0.143			0.265			0.221		
Satd. Flow (perm)	655	3453	0	263	3445	0	483	3408	0	418	3423	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			34			36			54	
Link Speed (k/h)		60			60			70			60	
Link Distance (m)		231.6			273.3			321.8			235.6	
Travel Time (s)		13.9			16.4			16.5			14.1	
Confl. Peds. (#/hr)	36		23	23		36	6		17	17		6
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
Heavy Vehicles (%)	0%	1%	5%	3%	1%	0%	4%	0%	11%	0%	1%	1%
Adj. Flow (vph)	293	826	146	135	447	107	162	618	154	159	522	175
Shared Lane Traffic (%)												
Lane Group Flow (vph)	293	972	0	135	554	0	162	772	0	159	697	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	32.0		10.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (%)	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	
Maximum Green (s)	7.0	29.0		7.0	29.0		7.0	29.0		7.0	29.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		23			36			17			6	
Act Effct Green (s)	38.0	28.0		38.0	28.0		40.0	29.8		40.0	29.8	
Actuated g/C Ratio	0.42	0.31		0.42	0.31		0.44	0.33		0.44	0.33	
v/c Ratio	0.80	0.89		0.60	0.51		0.52	0.67		0.54	0.60	

Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

PM Peak Hour
2036 Total Future Volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	31.3	30.7		25.8	25.3		20.7	28.3		21.4	25.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	31.3	30.7		25.8	25.3		20.7	28.3		21.4	25.8	
LOS	C	C		C	C		C	C		C	C	
Approach Delay		30.9			25.4			26.9			25.0	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	14.9	41.5		13.7	39.5		16.7	60.9		16.3	51.4	
Queue Length 95th (m)	#36.9	#80.3		#24.8	55.4		29.2	81.8		28.5	70.5	
Internal Link Dist (m)		207.6			249.3			297.8			211.6	
Turn Bay Length (m)	100.0			25.0			45.0			145.0		
Base Capacity (vph)	366	1128		226	1133		313	1153		295	1170	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.80	0.86		0.60	0.49		0.52	0.67		0.54	0.60	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 27.5

Intersection LOS: C

Intersection Capacity Utilization 84.6%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 140: Gordon Street & Clair Road W.

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	35 s	10 s	35 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
10 s	35 s	10 s	35 s

HCM Unsignalized Intersection Capacity Analysis

210: Site Access & Clair Road W.

PM Peak Hour
2036 Total Future Volumes

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1156	80	148	613	48	89
Future Volume (Veh/h)	1156	80	148	613	48	89
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1257	87	161	666	52	97
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)				299		
pX, platoon unblocked					0.76	
vC, conflicting volume			1344		2288	1300
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1344		2539	1300
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			69		0	51
cM capacity (veh/h)			513		16	197
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1344	827	149			
Volume Left	0	161	52			
Volume Right	87	0	97			
cSH	1700	513	39			
Volume to Capacity	0.79	0.31	3.83			
Queue Length 95th (m)	0.0	10.7	Err			
Control Delay (s)	0.0	9.3	Err			
Lane LOS		A	F			
Approach Delay (s)	0.0	9.3	Err			
Approach LOS			F			
Intersection Summary						
Average Delay		645.5				
Intersection Capacity Utilization		124.3%		ICU Level of Service		H
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

PM Peak Hour

2036 Future Background Volumes with CM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	↰	
Traffic Volume (veh/h)	1489	8	67	945	8	233
Future Volume (Veh/h)	1489	8	67	945	8	233
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	1711	9	77	1086	9	268
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				1720	2956	1716
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				1720	2956	1716
tC, single (s)				4.3	6.8	6.2
tC, 2 stage (s)						
tF (s)				2.4	3.9	3.3
p0 queue free %				76	0	0
cM capacity (veh/h)				325	9	111
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1720	1163	277			
Volume Left	0	77	9			
Volume Right	9	0	268			
cSH	1700	325	80			
Volume to Capacity	1.01	0.24	3.45			
Queue Length 95th (m)	0.0	7.3	Err			
Control Delay (s)	0.0	13.3	Err			
Lane LOS	B		F			
Approach Delay (s)	0.0	13.3	Err			
Approach LOS				F		
Intersection Summary						
Average Delay			881.4			
Intersection Capacity Utilization			126.3%		ICU Level of Service	
Analysis Period (min)			15		H	

Lanes, Volumes, Timings

120: Clair Road W. & Clairfields Drive W.

PM Peak Hour

2036 Future Background Volumes with CM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	802	481	128	574	49	342	97	175	51	12	78
Future Volume (vph)	106	802	481	128	574	49	342	97	175	51	12	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	3.6	3.6	4.8	3.6
Storage Length (m)	55.0		0.0	55.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	0.91	0.91	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.97			1.00			0.96			0.95	
Frt		0.944			0.988			0.962			0.925	
Flt Protected	0.950			0.950	0.999			0.973			0.982	
Satd. Flow (prot)	1770	3043	0	1535	3208	0	0	1902	0	0	1760	0
Flt Permitted	0.306			0.098	0.738			0.706			0.791	
Satd. Flow (perm)	564	3043	0	158	2370	0	0	1338	0	0	1418	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		182			13			23			71	
Link Speed (k/h)		50			60			40			40	
Link Distance (m)		243.7			569.7			177.5			178.2	
Travel Time (s)		17.5			34.2			16.0			16.0	
Confl. Peds. (#/hr)	25		50	50		25	67		8	8		67
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles (%)	2%	3%	17%	7%	6%	5%	7%	0%	5%	12%	0%	2%
Adj. Flow (vph)	149	1130	677	180	808	69	482	137	246	72	17	110
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	149	1807	0	162	895	0	0	865	0	0	199	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	38.0		10.0	38.0		28.0	28.0		28.0	28.0	
Total Split (s)	10.0	47.0		10.0	47.0		33.0	33.0		33.0	33.0	
Total Split (%)	11.1%	52.2%		11.1%	52.2%		36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	7.0	41.0		7.0	41.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		16.0			16.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		16.0			16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		50			25		8	8		67	67	
Act Effect Green (s)	51.0	41.0		51.0	45.0			27.0			27.0	
Actuated g/C Ratio	0.57	0.46		0.57	0.50			0.30			0.30	

Lanes, Volumes, Timings

120: Clair Road W. & Clairfields Drive W.

PM Peak Hour

2036 Future Background Volumes with CM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.36	1.22		0.83	0.73			2.07				0.42
Control Delay	10.5	127.3		53.9	20.9			513.5				19.0
Queue Delay	0.0	0.0		0.0	0.0			0.0				0.0
Total Delay	10.5	127.3		53.9	20.9			513.5				19.0
LOS	B	F		D	C			F				B
Approach Delay		118.4			26.0			513.5				19.0
Approach LOS		F			C			F				B
Queue Length 50th (m)	10.9	~205.3		17.9	43.9			~251.7				17.8
Queue Length 95th (m)	14.7	#162.0		#30.8	41.9			#238.4				25.7
Internal Link Dist (m)		219.7			545.7			153.5				154.2
Turn Bay Length (m)	55.0			55.0								
Base Capacity (vph)	413	1485		196	1228			417				475
Starvation Cap Reductn	0	0		0	0			0				0
Spillback Cap Reductn	0	0		0	0			0				0
Storage Cap Reductn	0	0		0	0			0				0
Reduced v/c Ratio	0.36	1.22		0.83	0.73			2.07				0.42

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 63 (70%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 2.07

Intersection Signal Delay: 173.4

Intersection LOS: F

Intersection Capacity Utilization 122.4%

ICU Level of Service H

Analysis Period (min) 15

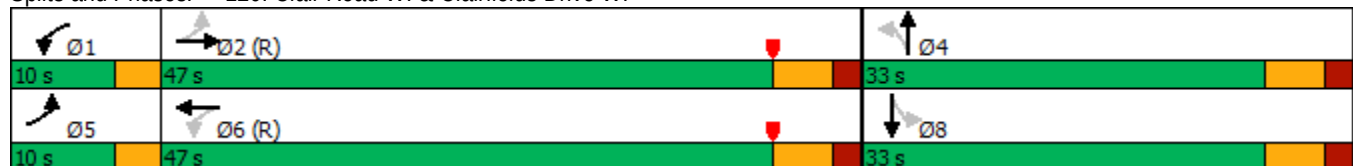
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 120: Clair Road W. & Clairfields Drive W.



Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

PM Peak Hour
2036 Future Background Volumes with CM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	1072	68	41	668	82	53	39	23	72	31	41
Future Volume (vph)	90	1072	68	41	668	82	53	39	23	72	31	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99			0.99	
Fr't		0.991			0.984			0.973			0.962	
Flt Protected	0.950			0.950				0.978			0.976	
Satd. Flow (prot)	1805	3538	0	1805	3476	0	0	1784	0	0	1772	0
Flt Permitted	0.300			0.175				0.767			0.783	
Satd. Flow (perm)	567	3538	0	332	3476	0	0	1394	0	0	1417	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			20			14			22	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		569.7			231.6			156.8			134.6	
Travel Time (s)		34.2			13.9			11.3			9.7	
Confl. Peds. (#/hr)	16		9	9		16	11		8	8		11
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	2%	0%	0%	0%	0%	0%
Adj. Flow (vph)	99	1178	75	45	734	90	58	43	25	79	34	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	99	1253	0	45	824	0	0	126	0	0	158	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	8.0	50.0		8.0	50.0		32.0	32.0		32.0	32.0	
Total Split (s)	10.0	50.0		10.0	50.0		30.0	30.0		30.0	30.0	
Total Split (%)	11.1%	55.6%		11.1%	55.6%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	44.0		7.0	44.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		29.0			29.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		15.0			15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		9			16		8	8		11	11	
Act Effct Green (s)	64.9	57.7		63.5	55.5			14.6			14.6	
Actuated g/C Ratio	0.72	0.64		0.71	0.62			0.16			0.16	
v/c Ratio	0.20	0.55		0.13	0.38			0.53			0.63	

Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

PM Peak Hour
2036 Future Background Volumes with CM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	2.7	6.2		3.8	7.2			37.1			40.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	2.7	6.2		3.8	7.2			37.1			40.5	
LOS	A	A		A	A			D			D	
Approach Delay		6.0			7.0			37.1			40.5	
Approach LOS		A			A			D			D	
Queue Length 50th (m)	2.5	36.5		1.5	27.0			19.0			23.5	
Queue Length 95th (m)	m3.4	m30.0		m3.2	m45.1			32.2			38.5	
Internal Link Dist (m)		545.7			207.6			132.8			110.6	
Turn Bay Length (m)	50.0			40.0								
Base Capacity (vph)	507	2270		350	2149			382			394	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.20	0.55		0.13	0.38			0.33			0.40	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 5 (6%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 10.1
 Intersection Capacity Utilization 69.2%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 130: Gosling Gardens & Clair Road W.

 Ø1	 Ø2 (R)	 Ø4
10 s	50 s	30 s
 Ø5	 Ø6 (R)	 Ø8
10 s	50 s	30 s

Lanes, Volumes, Timings

140: Gordon Street & Clair Road W.

PM Peak Hour

2036 Future Background Volumes with CM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	252	838	190	155	474	122	187	902	184	196	928	164
Future Volume (vph)	252	838	190	155	474	122	187	902	184	196	928	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	25.0		0.0	45.0		0.0	145.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Frt		0.972			0.969			0.975			0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3426	0	1752	3436	0	1736	3439	0	1805	3483	0
Flt Permitted	0.304			0.138			0.138			0.138		
Satd. Flow (perm)	570	3426	0	254	3436	0	252	3439	0	262	3483	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			37			28			24	
Link Speed (k/h)		60			60			70			60	
Link Distance (m)		231.6			273.3			321.8			235.6	
Travel Time (s)		13.9			16.4			16.5			14.1	
Confl. Peds. (#/hr)	36		23	23		36	6		17	17		6
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
Heavy Vehicles (%)	0%	1%	5%	3%	1%	0%	4%	0%	11%	0%	1%	1%
Adj. Flow (vph)	265	882	200	163	499	128	197	949	194	206	977	173
Shared Lane Traffic (%)												
Lane Group Flow (vph)	265	1082	0	163	627	0	197	1143	0	206	1150	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	32.0		10.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (%)	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	
Maximum Green (s)	7.0	29.0		7.0	29.0		7.0	29.0		7.0	29.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		23			36			17			6	
Act Effct Green (s)	39.0	29.0		39.0	29.0		39.0	29.0		39.0	29.0	
Actuated g/C Ratio	0.43	0.32		0.43	0.32		0.43	0.32		0.43	0.32	
v/c Ratio	0.77	0.96		0.72	0.55		0.88	1.01		0.88	1.01	

Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

PM Peak Hour
2036 Future Background Volumes with CM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	32.0	45.2		34.9	25.8		55.2	61.2		54.9	60.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	32.0	45.2		34.9	25.8		55.2	61.2		54.9	60.3	
LOS	C	D		C	C		E	E		D	E	
Approach Delay		42.6			27.7			60.4			59.5	
Approach LOS		D			C			E			E	
Queue Length 50th (m)	18.7	86.6		16.8	46.1		20.8	~109.7		21.7	~109.7	
Queue Length 95th (m)	#37.3	#136.9		#40.7	63.5		#58.0	#156.5		#59.9	#157.0	
Internal Link Dist (m)		207.6			249.3			297.8			211.6	
Turn Bay Length (m)	100.0			25.0			45.0			145.0		
Base Capacity (vph)	343	1125		226	1132		224	1127		233	1138	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.77	0.96		0.72	0.55		0.88	1.01		0.88	1.01	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 49.8

Intersection LOS: D

Intersection Capacity Utilization 96.8%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 140: Gordon Street & Clair Road W.

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	35 s	10 s	35 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
10 s	35 s	10 s	35 s

HCM Unsignalized Intersection Capacity Analysis

210: Site Access & Clair Road W.

PM Peak Hour
2036 Future Background Volumes with CM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↱	↘↗	
Traffic Volume (veh/h)	1722	0	0	1012	0	0
Future Volume (Veh/h)	1722	0	0	1012	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1872	0	0	1100	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)				299		
pX, platoon unblocked					0.76	
vC, conflicting volume			1872		2972	1872
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1872		3435	1872
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			321		6	90
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1872	1100	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	321	1700			
Volume to Capacity	1.10	0.00	4.94			
Queue Length 95th (m)	0.0	0.0	Err			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			94.0%	ICU Level of Service		F
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

PM Peak Hour

2036 Total Future Volumes with CM (Mitigation 2)

	→	↘	↙	←	↖	↗	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↘		↙	↑↑	↙	↗	
Traffic Volume (veh/h)	1557	8	74	986	8	244	
Future Volume (Veh/h)	1557	8	74	986	8	244	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	
Hourly flow rate (vph)	1790	9	85	1133	9	280	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None		None				
Median storage veh)							
Upstream signal (m)			142				
pX, platoon unblocked					0.87		
vC, conflicting volume			1799		2531		900
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			1799		2459		900
tC, single (s)			4.5		7.7		6.9
tC, 2 stage (s)							
tF (s)			2.4		3.9		3.3
p0 queue free %			69		0		1
cM capacity (veh/h)			272		8		282
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	1193	606	85	566	566	9	280
Volume Left	0	0	85	0	0	9	0
Volume Right	0	9	0	0	0	0	280
cSH	1700	1700	272	1700	1700	8	282
Volume to Capacity	0.70	0.36	0.31	0.33	0.33	1.07	0.99
Queue Length 95th (m)	0.0	0.0	10.3	0.0	0.0	15.0	81.1
Control Delay (s)	0.0	0.0	24.2	0.0	0.0	904.7	92.0
Lane LOS			C				F
Approach Delay (s)	0.0		1.7		117.3		
Approach LOS					F		
Intersection Summary							
Average Delay			10.9				
Intersection Capacity Utilization			65.1%		ICU Level of Service		C
Analysis Period (min)			15				

Lanes, Volumes, Timings
210: Site Access & Clair Road W.

PM Peak Hour
2036 Total Future Volumes with CM (Mitigation 2)

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	1722	80	148	1012	48	89
Future Volume (vph)	1722	80	148	1012	48	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	50.0		30.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.0		30.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.993					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3514	0	1770	3539	1770	1583
Flt Permitted			0.064		0.950	
Satd. Flow (perm)	3514	0	119	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	12					28
Link Speed (k/h)	50			50	30	
Link Distance (m)	141.8			55.7	183.4	
Travel Time (s)	10.2			4.0	22.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1872	87	161	1100	52	97
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1959	0	161	1100	52	97
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Detector Phase	4		8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	67.0		67.0	67.0	23.0	23.0
Total Split (%)	74.4%		74.4%	74.4%	25.6%	25.6%
Maximum Green (s)	62.5		62.5	62.5	18.5	18.5
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	C-Max	C-Max
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	62.5		62.5	62.5	18.5	18.5
Actuated g/C Ratio	0.69		0.69	0.69	0.21	0.21
v/c Ratio	0.80		1.96	0.45	0.14	0.28
Control Delay	12.7		456.1	5.4	30.6	24.4
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	12.7		456.1	5.4	30.6	24.4

Lanes, Volumes, Timings
210: Site Access & Clair Road W.

PM Peak Hour
2036 Total Future Volumes with CM (Mitigation 2)

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	B		F	A	C	C
Approach Delay	12.7			62.9	26.6	
Approach LOS	B			E	C	
Queue Length 50th (m)	110.6		~46.7	39.7	7.8	10.5
Queue Length 95th (m)	143.1		m#43.9	m37.0	17.8	24.3
Internal Link Dist (m)	117.8			31.7	159.4	
Turn Bay Length (m)			50.0		30.0	
Base Capacity (vph)	2443		82	2457	363	347
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.80		1.96	0.45	0.14	0.28

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.96

Intersection Signal Delay: 32.1

Intersection LOS: C

Intersection Capacity Utilization 73.8%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 210: Site Access & Clair Road W.



HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

AM Peak Hour

2036 Future Background Volumes (Mitigation 1)

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↘	↗	↘	↗
Traffic Volume (veh/h)	403	6	132	892	1	50
Future Volume (Veh/h)	403	6	132	892	1	50
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	448	7	147	991	1	56
Pedestrians	1			1		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)				142		
pX, platoon unblocked					0.45	
vC, conflicting volume			455		1738	452
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			455		2024	452
tC, single (s)			4.1		7.4	6.4
tC, 2 stage (s)						
tF (s)			2.2		4.4	3.5
p0 queue free %			87		93	90
cM capacity (veh/h)			1095		14	577
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	
Volume Total	455	147	991	1	56	
Volume Left	0	147	0	1	0	
Volume Right	7	0	0	0	56	
cSH	1700	1095	1700	14	577	
Volume to Capacity	0.27	0.13	0.58	0.07	0.10	
Queue Length 95th (m)	0.0	3.7	0.0	1.7	2.6	
Control Delay (s)	0.0	8.8	0.0	291.8	11.9	
Lane LOS		A		F	B	
Approach Delay (s)	0.0	1.1		16.8		
Approach LOS				C		
Intersection Summary						
Average Delay	1.4					
Intersection Capacity Utilization	57.3%			ICU Level of Service		B
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

PM Peak Hour

2036 Future Background Volumes (Mitigation 1)

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↘	↗	↘	↗
Traffic Volume (veh/h)	992	8	24	589	8	164
Future Volume (Veh/h)	992	8	24	589	8	164
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	1140	9	28	677	9	189
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)				142		
pX, platoon unblocked					0.65	
vC, conflicting volume			1149		1878	1144
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1149		2077	1144
tC, single (s)			4.3		6.8	6.2
tC, 2 stage (s)						
tF (s)			2.4		3.9	3.3
p0 queue free %			95		68	22
cM capacity (veh/h)			547		28	243
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	
Volume Total	1149	28	677	9	189	
Volume Left	0	28	0	9	0	
Volume Right	9	0	0	0	189	
cSH	1700	547	1700	28	243	
Volume to Capacity	0.68	0.05	0.40	0.32	0.78	
Queue Length 95th (m)	0.0	1.3	0.0	8.0	45.5	
Control Delay (s)	0.0	11.9	0.0	185.5	57.4	
Lane LOS		B		F	F	
Approach Delay (s)	0.0	0.5		63.3		
Approach LOS				F		
Intersection Summary						
Average Delay			6.3			
Intersection Capacity Utilization			69.5%	ICU Level of Service		C
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

AM Peak Hour
2036 Total Future Volumes (Mitigation 1)

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	426	6	143	959	1	54
Future Volume (Veh/h)	426	6	143	959	1	54
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	473	7	159	1066	1	60
Pedestrians	1				1	
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	142					
pX, platoon unblocked					0.62	
vC, conflicting volume			480		1862	478
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			480		2087	478
tC, single (s)			4.1		7.4	6.4
tC, 2 stage (s)						
tF (s)			2.2		4.4	3.5
p0 queue free %			85		94	89
cM capacity (veh/h)			1072		16	558
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	
Volume Total	480	159	1066	1	60	
Volume Left	0	159	0	1	0	
Volume Right	7	0	0	0	60	
cSH	1700	1072	1700	16	558	
Volume to Capacity	0.28	0.15	0.63	0.06	0.11	
Queue Length 95th (m)	0.0	4.2	0.0	1.4	2.9	
Control Delay (s)	0.0	8.9	0.0	240.9	12.2	
Lane LOS		A		F	B	
Approach Delay (s)	0.0	1.2		16.0		
Approach LOS				C		
Intersection Summary						
Average Delay	1.4					
Intersection Capacity Utilization	60.8%			ICU Level of Service		B
Analysis Period (min)	15					

Lanes, Volumes, Timings

AM Peak Hour

140: Gordon Street & Clair Road W.

2036 Total Future Volumes (Mitigation 1)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	395	130	141	704	78	152	441	78	63	354	192
Future Volume (vph)	204	395	130	141	704	78	152	441	78	63	354	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	25.0		0.0	45.0		0.0	145.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		0.99	1.00		1.00	1.00		0.99	0.99	
Frt		0.963			0.985			0.977			0.947	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3141	0	1719	3443	0	1687	3351	0	1770	3343	0
Flt Permitted	0.159			0.335			0.336			0.401		
Satd. Flow (perm)	294	3141	0	603	3443	0	596	3351	0	742	3343	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		50			13			24			120	
Link Speed (k/h)		60			60			70			60	
Link Distance (m)		231.6			273.3			321.8			235.6	
Travel Time (s)		13.9			16.4			16.5			14.1	
Confl. Peds. (#/hr)	24		13	13		24	3		18	18		3
Confl. Bikes (#/hr)									1			1
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
Heavy Vehicles (%)	2%	9%	13%	5%	3%	2%	7%	3%	15%	2%	1%	3%
Adj. Flow (vph)	215	416	137	148	741	82	160	464	82	66	373	202
Shared Lane Traffic (%)												
Lane Group Flow (vph)	215	553	0	148	823	0	160	546	0	66	575	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	32.0		10.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	12.0	32.0		12.0	32.0		10.0	36.0		10.0	36.0	
Total Split (%)	13.3%	35.6%		13.3%	35.6%		11.1%	40.0%		11.1%	40.0%	
Maximum Green (s)	9.0	26.0		9.0	26.0		7.0	30.0		7.0	30.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		13			24			18			3	
Act Effect Green (s)	37.1	25.1		36.3	24.7		42.1	33.3		41.1	31.1	
Actuated g/C Ratio	0.41	0.28		0.40	0.27		0.47	0.37		0.46	0.35	

Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

AM Peak Hour
2036 Total Future Volumes (Mitigation 1)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.80	0.61		0.42	0.86		0.44	0.44		0.16	0.47	
Control Delay	50.2	18.1		19.0	41.0		17.7	22.7		13.8	19.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	50.2	18.1		19.0	41.0		17.7	22.7		13.8	19.7	
LOS	D	B		B	D		B	C		B	B	
Approach Delay		27.1			37.7			21.6			19.1	
Approach LOS		C			D			C			B	
Queue Length 50th (m)	18.7	34.1		15.5	72.0		16.1	39.2		6.3	33.7	
Queue Length 95th (m)	#58.7	22.7		27.7	#96.2		28.4	54.7		13.4	49.4	
Internal Link Dist (m)		207.6			249.3			297.8			211.6	
Turn Bay Length (m)	100.0			25.0			45.0			145.0		
Base Capacity (vph)	268	942		357	1003		366	1255		418	1232	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.80	0.59		0.41	0.82		0.44	0.44		0.16	0.47	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 80 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 27.5

Intersection LOS: C

Intersection Capacity Utilization 82.7%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 140: Gordon Street & Clair Road W.

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	36 s	12 s	32 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
10 s	36 s	12 s	32 s

Lanes, Volumes, Timings
210: Site Access & Clair Road W.

AM Peak Hour
2036 Total Future Volumes (Mitigation 1)

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	453	26	49	1023	78	146
Future Volume (vph)	453	26	49	1023	78	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		25.0	50.0		0.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			30.0		30.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted			0.467		0.950	
Satd. Flow (perm)	1863	1583	870	1863	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		28				159
Link Speed (k/h)	50			50	30	
Link Distance (m)	141.8			55.7	183.4	
Travel Time (s)	10.2			4.0	22.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	492	28	53	1112	85	159
Shared Lane Traffic (%)						
Lane Group Flow (vph)	492	28	53	1112	85	159
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	67.5	67.5	67.5	67.5	22.5	22.5
Total Split (%)	75.0%	75.0%	75.0%	75.0%	25.0%	25.0%
Maximum Green (s)	63.0	63.0	63.0	63.0	18.0	18.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	71.3	71.3	71.3	71.3	9.7	9.7
Actuated g/C Ratio	0.79	0.79	0.79	0.79	0.11	0.11
v/c Ratio	0.33	0.02	0.08	0.75	0.45	0.51
Control Delay	3.6	1.1	1.3	7.7	44.4	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.6	1.1	1.3	7.7	44.4	12.2

Lanes, Volumes, Timings
210: Site Access & Clair Road W.

AM Peak Hour
2036 Total Future Volumes (Mitigation 1)

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A	A	A	A	D	B
Approach Delay	3.5			7.4	23.4	
Approach LOS	A			A	C	
Queue Length 50th (m)	19.0	0.0	0.6	31.2	14.7	0.0
Queue Length 95th (m)	36.5	1.8	1.5	93.3	28.2	17.1
Internal Link Dist (m)	117.8			31.7	159.4	
Turn Bay Length (m)		25.0	50.0			
Base Capacity (vph)	1476	1260	689	1476	354	443
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.02	0.08	0.75	0.24	0.36

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 42 (47%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 8.4

Intersection LOS: A

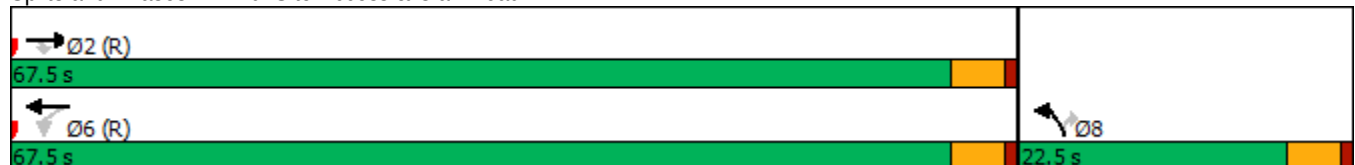
Intersection Capacity Utilization 65.7%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 210: Site Access & Clair Road W.



HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

PM Peak Hour

2036 Total Future Volumes (Mitigation 1)

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↘	↗	↘	↗
Traffic Volume (veh/h)	1060	8	31	630	8	175
Future Volume (Veh/h)	1060	8	31	630	8	175
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	1218	9	36	724	9	201
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)				142		
pX, platoon unblocked					0.89	
vC, conflicting volume			1227		2018	1222
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1227		2080	1222
tC, single (s)			4.3		6.8	6.2
tC, 2 stage (s)						
tF (s)			2.4		3.9	3.3
p0 queue free %			93		76	8
cM capacity (veh/h)			510		37	219
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	
Volume Total	1227	36	724	9	201	
Volume Left	0	36	0	9	0	
Volume Right	9	0	0	0	201	
cSH	1700	510	1700	37	219	
Volume to Capacity	0.72	0.07	0.43	0.24	0.92	
Queue Length 95th (m)	0.0	1.8	0.0	6.2	61.1	
Control Delay (s)	0.0	12.6	0.0	129.6	87.6	
Lane LOS		B		F	F	
Approach Delay (s)	0.0	0.6		89.4		
Approach LOS				F		
Intersection Summary						
Average Delay			8.8			
Intersection Capacity Utilization			73.8%	ICU Level of Service		D
Analysis Period (min)			15			

Lanes, Volumes, Timings

PM Peak Hour

140: Gordon Street & Clair Road W.

2036 Total Future Volumes (Mitigation 1)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	278	785	139	128	425	102	154	587	146	151	496	166
Future Volume (vph)	278	785	139	128	425	102	154	587	146	151	496	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	25.0		0.0	45.0		0.0	145.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.99		1.00	0.99		1.00	0.99		1.00	1.00	
Frt		0.977			0.971			0.970			0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3453	0	1752	3445	0	1736	3408	0	1805	3423	0
Flt Permitted	0.350			0.143			0.265			0.221		
Satd. Flow (perm)	655	3453	0	263	3445	0	483	3408	0	418	3423	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			34			36			54	
Link Speed (k/h)		60			60			70			60	
Link Distance (m)		231.6			273.3			321.8			235.6	
Travel Time (s)		13.9			16.4			16.5			14.1	
Confl. Peds. (#/hr)	36		23	23		36	6		17	17		6
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
Heavy Vehicles (%)	0%	1%	5%	3%	1%	0%	4%	0%	11%	0%	1%	1%
Adj. Flow (vph)	293	826	146	135	447	107	162	618	154	159	522	175
Shared Lane Traffic (%)												
Lane Group Flow (vph)	293	972	0	135	554	0	162	772	0	159	697	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	32.0		10.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (%)	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	
Maximum Green (s)	7.0	29.0		7.0	29.0		7.0	29.0		7.0	29.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		23			36			17			6	
Act Effct Green (s)	38.0	28.0		38.0	28.0		40.0	29.8		40.0	29.8	
Actuated g/C Ratio	0.42	0.31		0.42	0.31		0.44	0.33		0.44	0.33	
v/c Ratio	0.80	0.89		0.60	0.51		0.52	0.67		0.54	0.60	

Lanes, Volumes, Timings

140: Gordon Street & Clair Road W.

PM Peak Hour

2036 Total Future Volumes (Mitigation 1)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	32.1	33.5		25.8	25.3		20.7	28.3		21.4	25.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	32.1	33.5		25.8	25.3		20.7	28.3		21.4	25.8	
LOS	C	C		C	C		C	C		C	C	
Approach Delay		33.2			25.4			26.9			25.0	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	18.2	64.6		13.7	39.5		16.7	60.9		16.3	51.4	
Queue Length 95th (m)	#36.9	#80.3		#24.8	55.4		29.2	81.8		28.5	70.5	
Internal Link Dist (m)		207.6			249.3			297.8			211.6	
Turn Bay Length (m)	100.0			25.0			45.0			145.0		
Base Capacity (vph)	366	1128		226	1133		313	1153		295	1170	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.80	0.86		0.60	0.49		0.52	0.67		0.54	0.60	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 28.3

Intersection LOS: C

Intersection Capacity Utilization 84.6%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 140: Gordon Street & Clair Road W.

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	35 s	10 s	35 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
10 s	35 s	10 s	35 s

Lanes, Volumes, Timings
210: Site Access & Clair Road W.

PM Peak Hour
2036 Total Future Volumes (Mitigation 1)

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	1156	80	148	613	48	89
Future Volume (vph)	1156	80	148	613	48	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		25.0	50.0		0.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			30.0		30.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted			0.132		0.950	
Satd. Flow (perm)	1863	1583	246	1863	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		38				97
Link Speed (k/h)	50			50	30	
Link Distance (m)	141.8			55.7	183.4	
Travel Time (s)	10.2			4.0	22.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1257	87	161	666	52	97
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1257	87	161	666	52	97
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	67.5	67.5	67.5	67.5	22.5	22.5
Total Split (%)	75.0%	75.0%	75.0%	75.0%	25.0%	25.0%
Maximum Green (s)	63.0	63.0	63.0	63.0	18.0	18.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	75.8	75.8	75.8	75.8	8.1	8.1
Actuated g/C Ratio	0.84	0.84	0.84	0.84	0.09	0.09
v/c Ratio	0.80	0.06	0.78	0.42	0.33	0.42
Control Delay	10.8	1.4	36.0	1.9	43.2	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.8	1.4	36.0	1.9	43.2	14.2

Lanes, Volumes, Timings
210: Site Access & Clair Road W.

PM Peak Hour
2036 Total Future Volumes (Mitigation 1)

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	B	A	D	A	D	B
Approach Delay	10.1			8.5	24.3	
Approach LOS	B			A	C	
Queue Length 50th (m)	94.8	1.3	12.5	11.6	9.1	0.0
Queue Length 95th (m)	#219.8	4.3	#67.5	20.8	19.8	14.1
Internal Link Dist (m)	117.8			31.7	159.4	
Turn Bay Length (m)		25.0	50.0			
Base Capacity (vph)	1569	1339	207	1569	354	394
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.06	0.78	0.42	0.15	0.25

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 24 (27%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 10.5

Intersection LOS: B

Intersection Capacity Utilization 84.5%

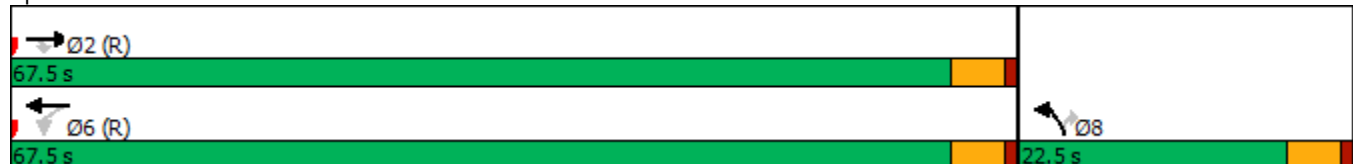
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 210: Site Access & Clair Road W.



HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

AM Peak Hour

2036 Future Background Volumes (Mitigation 2)

	→	↘	↙	←	↖	↗	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↘		↙	↑↑	↙	↗	
Traffic Volume (veh/h)	403	6	132	892	1	50	
Future Volume (Veh/h)	403	6	132	892	1	50	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Hourly flow rate (vph)	448	7	147	991	1	56	
Pedestrians	1			1			
Lane Width (m)	3.6			3.6			
Walking Speed (m/s)	1.2			1.2			
Percent Blockage	0			0			
Right turn flare (veh)							
Median type	None			None			
Median storage veh							
Upstream signal (m)				142			
pX, platoon unblocked					0.74		
vC, conflicting volume			455		1242	228	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			455		639	228	
tC, single (s)			4.2		8.8	7.2	
tC, 2 stage (s)							
tF (s)			2.2		4.5	3.5	
p0 queue free %			86		99	92	
cM capacity (veh/h)			1088		157	729	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	299	156	147	496	496	1	56
Volume Left	0	0	147	0	0	1	0
Volume Right	0	7	0	0	0	0	56
cSH	1700	1700	1088	1700	1700	157	729
Volume to Capacity	0.18	0.09	0.14	0.29	0.29	0.01	0.08
Queue Length 95th (m)	0.0	0.0	3.7	0.0	0.0	0.2	2.0
Control Delay (s)	0.0	0.0	8.8	0.0	0.0	28.1	10.3
Lane LOS			A			D	B
Approach Delay (s)	0.0		1.1			10.7	
Approach LOS						B	
Intersection Summary							
Average Delay			1.2				
Intersection Capacity Utilization			35.0%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

PM Peak Hour

2036 Future Background Volumes (Mitigation 2)

	→	↘	↙	←	↖	↗	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑		↘	↑↑	↘	↗	
Traffic Volume (veh/h)	992	8	24	589	8	164	
Future Volume (Veh/h)	992	8	24	589	8	164	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	
Hourly flow rate (vph)	1140	9	28	677	9	189	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (m)				142			
pX, platoon unblocked					0.89		
vC, conflicting volume			1149		1539	574	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			1149		1350	574	
tC, single (s)			4.5		7.7	6.9	
tC, 2 stage (s)							
tF (s)			2.4		3.9	3.3	
p0 queue free %			95		89	59	
cM capacity (veh/h)			511		83	461	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	760	389	28	338	338	9	189
Volume Left	0	0	28	0	0	9	0
Volume Right	0	9	0	0	0	0	189
cSH	1700	1700	511	1700	1700	83	461
Volume to Capacity	0.45	0.23	0.05	0.20	0.20	0.11	0.41
Queue Length 95th (m)	0.0	0.0	1.4	0.0	0.0	2.8	15.7
Control Delay (s)	0.0	0.0	12.5	0.0	0.0	53.6	18.1
Lane LOS			B			F	C
Approach Delay (s)	0.0		0.5			19.7	
Approach LOS						C	
Intersection Summary							
Average Delay			2.1				
Intersection Capacity Utilization			44.5%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

AM Peak Hour

2036 Total Future Volumes (Mitigation 2)

	→	↘	↙	←	↖	↗	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↘		↙	↑↑	↙	↗	
Traffic Volume (veh/h)	426	6	143	959	1	54	
Future Volume (Veh/h)	426	6	143	959	1	54	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Hourly flow rate (vph)	473	7	159	1066	1	60	
Pedestrians	1			1			
Lane Width (m)	3.6			3.6			
Walking Speed (m/s)	1.2			1.2			
Percent Blockage	0			0			
Right turn flare (veh)							
Median type	None			None			
Median storage veh							
Upstream signal (m)				142			
pX, platoon unblocked					0.92		
vC, conflicting volume			480		1328	241	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			480		1183	241	
tC, single (s)			4.2		8.8	7.2	
tC, 2 stage (s)							
tF (s)			2.2		4.5	3.5	
p0 queue free %			85		98	92	
cM capacity (veh/h)			1065		67	715	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	315	165	159	533	533	1	60
Volume Left	0	0	159	0	0	1	0
Volume Right	0	7	0	0	0	0	60
cSH	1700	1700	1065	1700	1700	67	715
Volume to Capacity	0.19	0.10	0.15	0.31	0.31	0.02	0.08
Queue Length 95th (m)	0.0	0.0	4.2	0.0	0.0	0.4	2.2
Control Delay (s)	0.0	0.0	9.0	0.0	0.0	60.0	10.5
Lane LOS			A			F	B
Approach Delay (s)	0.0		1.2			11.3	
Approach LOS						B	
Intersection Summary							
Average Delay			1.2				
Intersection Capacity Utilization			36.8%	ICU Level of Service		A	
Analysis Period (min)			15				

Lanes, Volumes, Timings
210: Site Access & Clair Road W.

AM Peak Hour
2036 Total Future Volumes (Mitigation 2)

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	453	26	49	1023	78	146
Future Volume (vph)	453	26	49	1023	78	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	50.0		30.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.0		30.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.992					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3511	0	1770	3539	1770	1583
Flt Permitted			0.460		0.950	
Satd. Flow (perm)	3511	0	857	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	13					159
Link Speed (k/h)	50			50	30	
Link Distance (m)	141.8			55.7	183.4	
Travel Time (s)	10.2			4.0	22.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	492	28	53	1112	85	159
Shared Lane Traffic (%)						
Lane Group Flow (vph)	520	0	53	1112	85	159
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	62.0		62.0	62.0	28.0	28.0
Total Split (%)	68.9%		68.9%	68.9%	31.1%	31.1%
Maximum Green (s)	57.5		57.5	57.5	23.5	23.5
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	71.3		71.3	71.3	9.7	9.7
Actuated g/C Ratio	0.79		0.79	0.79	0.11	0.11
v/c Ratio	0.19		0.08	0.40	0.45	0.51
Control Delay	2.6		1.3	1.7	44.4	12.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	2.6		1.3	1.7	44.4	12.2

Lanes, Volumes, Timings
210: Site Access & Clair Road W.

AM Peak Hour
2036 Total Future Volumes (Mitigation 2)

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A		A	A	D	B
Approach Delay	2.6			1.7	23.4	
Approach LOS	A			A	C	
Queue Length 50th (m)	8.7		0.8	12.5	14.7	0.0
Queue Length 95th (m)	15.8		11.4	14.5	28.2	17.1
Internal Link Dist (m)	117.8			31.7	159.4	
Turn Bay Length (m)			50.0		30.0	
Base Capacity (vph)	2785		679	2805	462	530
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.19		0.08	0.40	0.18	0.30

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 49 (54%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 4.7

Intersection LOS: A

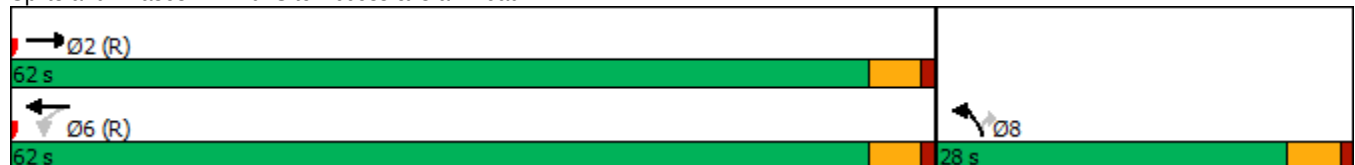
Intersection Capacity Utilization 40.1%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 210: Site Access & Clair Road W.



HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

PM Peak Hour

2036 Total Future Volumes with CM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↱	↘↙	
Traffic Volume (veh/h)	1557	8	74	986	8	244
Future Volume (Veh/h)	1557	8	74	986	8	244
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	1790	9	85	1133	9	280
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			1799		3098	1794
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1799		3098	1794
tC, single (s)			4.3		6.8	6.2
tC, 2 stage (s)						
tF (s)			2.4		3.9	3.3
p0 queue free %			72		0	0
cM capacity (veh/h)			302		6	100
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1799	1218	289			
Volume Left	0	85	9			
Volume Right	9	0	280			
cSH	1700	302	69			
Volume to Capacity	1.06	0.28	4.19			
Queue Length 95th (m)	0.0	9.0	Err			
Control Delay (s)	0.0	18.4	Err			
Lane LOS		C	F			
Approach Delay (s)	0.0	18.4	Err			
Approach LOS			F			
Intersection Summary						
Average Delay			880.9			
Intersection Capacity Utilization			135.0%	ICU Level of Service	H	
Analysis Period (min)			15			

Lanes, Volumes, Timings

PM Peak Hour

120: Clair Road W. & Clairfields Drive W.

2036 Total Future Volumes with CM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	884	481	128	711	49	342	97	175	51	12	89
Future Volume (vph)	113	884	481	128	711	49	342	97	175	51	12	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	3.6	3.6	4.8	3.6
Storage Length (m)	55.0		0.0	55.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	0.91	0.91	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.97			1.00			0.96			0.95	
Frt		0.947			0.990			0.962			0.921	
Flt Protected	0.950			0.950	0.999			0.973			0.983	
Satd. Flow (prot)	1770	3068	0	1535	3217	0	0	1902	0	0	1753	0
Flt Permitted	0.220			0.098	0.738			0.690			0.803	
Satd. Flow (perm)	407	3068	0	158	2376	0	0	1309	0	0	1432	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		148			10			23			65	
Link Speed (k/h)		50			60			40			40	
Link Distance (m)		243.7			569.7			177.5			178.2	
Travel Time (s)		17.5			34.2			16.0			16.0	
Confl. Peds. (#/hr)	25		50	50		25	67		8	8		67
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles (%)	2%	3%	17%	7%	6%	5%	7%	0%	5%	12%	0%	2%
Adj. Flow (vph)	159	1245	677	180	1001	69	482	137	246	72	17	125
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	159	1922	0	162	1088	0	0	865	0	0	214	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	38.0		10.0	38.0		28.0	28.0		28.0	28.0	
Total Split (s)	10.0	47.0		10.0	47.0		33.0	33.0		33.0	33.0	
Total Split (%)	11.1%	52.2%		11.1%	52.2%		36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	7.0	41.0		7.0	41.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		16.0			16.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		16.0			16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		50			25		8	8		67	67	
Act Effect Green (s)	51.0	41.0		51.0	45.0			27.0			27.0	
Actuated g/C Ratio	0.57	0.46		0.57	0.50			0.30			0.30	

Lanes, Volumes, Timings
120: Clair Road W. & Clairfields Drive W.

PM Peak Hour
2036 Total Future Volumes with CM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.47	1.30		0.83	0.88			2.12				0.45
Control Delay	12.9	163.9		52.0	30.4			533.8				21.0
Queue Delay	0.0	0.0		0.0	0.0			0.0				0.0
Total Delay	12.9	163.9		52.0	30.4			533.8				21.0
LOS	B	F		D	C			F				C
Approach Delay		152.4			33.2			533.8				21.0
Approach LOS		F			C			F				C
Queue Length 50th (m)	11.6	~231.6		17.8	73.4			~253.4				21.2
Queue Length 95th (m)	15.5	#183.4		#31.6	56.3			#240.1				29.1
Internal Link Dist (m)		219.7			545.7			153.5				154.2
Turn Bay Length (m)	55.0			55.0								
Base Capacity (vph)	336	1478		196	1230			408				475
Starvation Cap Reductn	0	0		0	0			0				0
Spillback Cap Reductn	0	0		0	0			0				0
Storage Cap Reductn	0	0		0	0			0				0
Reduced v/c Ratio	0.47	1.30		0.83	0.88			2.12				0.45

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 63 (70%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 2.12

Intersection Signal Delay: 187.1

Intersection LOS: F

Intersection Capacity Utilization 124.5%

ICU Level of Service H

Analysis Period (min) 15

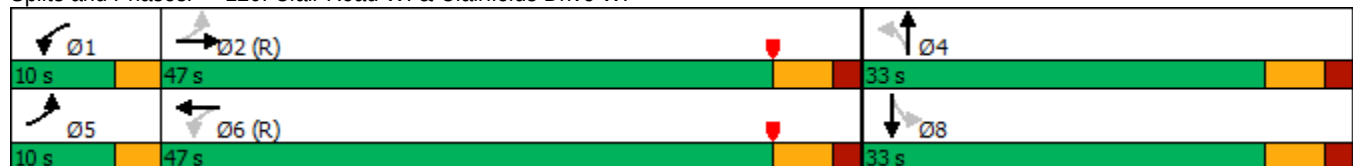
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 120: Clair Road W. & Clairfields Drive W.



Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

PM Peak Hour
2036 Total Future Volumes with CM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	1141	75	41	782	82	64	39	23	72	31	52
Future Volume (vph)	97	1141	75	41	782	82	64	39	23	72	31	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99			0.99	
Fr't		0.991			0.986			0.976			0.955	
Flt Protected	0.950			0.950				0.975			0.977	
Satd. Flow (prot)	1805	3538	0	1805	3484	0	0	1783	0	0	1759	0
Flt Permitted	0.251			0.152				0.730			0.786	
Satd. Flow (perm)	475	3538	0	288	3484	0	0	1330	0	0	1411	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			17			12			28	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		569.7			231.6			156.8			134.6	
Travel Time (s)		34.2			13.9			11.3			9.7	
Confl. Peds. (#/hr)	16		9	9		16	11		8	8		11
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	2%	0%	0%	0%	0%	0%
Adj. Flow (vph)	107	1254	82	45	859	90	70	43	25	79	34	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	1336	0	45	949	0	0	138	0	0	170	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	8.0	50.0		8.0	50.0		32.0	32.0		32.0	32.0	
Total Split (s)	10.0	50.0		10.0	50.0		30.0	30.0		30.0	30.0	
Total Split (%)	11.1%	55.6%		11.1%	55.6%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	44.0		7.0	44.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	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	
Total Lost Time (s)	3.0	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		29.0			29.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		15.0			15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		9			16		8	8		11	11	
Act Effct Green (s)	64.7	57.4		63.1	55.1			14.9			14.9	
Actuated g/C Ratio	0.72	0.64		0.70	0.61			0.17			0.17	
v/c Ratio	0.24	0.59		0.15	0.44			0.60			0.66	

Lanes, Volumes, Timings
130: Gosling Gardens & Clair Road W.

PM Peak Hour
2036 Total Future Volumes with CM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	2.5	6.1		3.9	8.0			41.2			40.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	2.5	6.1		3.9	8.0			41.2			40.5	
LOS	A	A		A	A			D			D	
Approach Delay		5.8			7.8			41.2			40.5	
Approach LOS		A			A			D			D	
Queue Length 50th (m)	2.6	36.4		1.4	35.1			21.6			24.6	
Queue Length 95th (m)	m3.2	m28.0		m3.0	m55.7			35.7			40.5	
Internal Link Dist (m)		545.7			207.6			132.8			110.6	
Turn Bay Length (m)	50.0			40.0								
Base Capacity (vph)	447	2259		321	2139			363			396	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.24	0.59		0.14	0.44			0.38			0.43	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 5 (6%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 10.5
 Intersection LOS: B
 Intersection Capacity Utilization 69.7%
 ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 130: Gosling Gardens & Clair Road W.



Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

PM Peak Hour
2036 Total Future Volumes with CM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	286	852	211	155	497	122	221	902	184	196	928	221
Future Volume (vph)	286	852	211	155	497	122	221	902	184	196	928	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	25.0		0.0	45.0		0.0	145.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Frt		0.970			0.971			0.975			0.971	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3416	0	1752	3444	0	1736	3439	0	1805	3459	0
Flt Permitted	0.288			0.138			0.138			0.138		
Satd. Flow (perm)	540	3416	0	254	3444	0	252	3439	0	262	3459	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			35			28			34	
Link Speed (k/h)		60			60			70			60	
Link Distance (m)		231.6			273.3			321.8			235.6	
Travel Time (s)		13.9			16.4			16.5			14.1	
Confl. Peds. (#/hr)	36		23	23		36	6		17	17		6
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
Heavy Vehicles (%)	0%	1%	5%	3%	1%	0%	4%	0%	11%	0%	1%	1%
Adj. Flow (vph)	301	897	222	163	523	128	233	949	194	206	977	233
Shared Lane Traffic (%)												
Lane Group Flow (vph)	301	1119	0	163	651	0	233	1143	0	206	1210	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	32.0		10.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (%)	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	
Maximum Green (s)	7.0	29.0		7.0	29.0		7.0	29.0		7.0	29.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		23			36			17			6	
Act Effct Green (s)	39.0	29.0		39.0	29.0		39.0	29.0		39.0	29.0	
Actuated g/C Ratio	0.43	0.32		0.43	0.32		0.43	0.32		0.43	0.32	
v/c Ratio	0.91	0.99		0.72	0.57		1.04	1.01		0.88	1.06	

Lanes, Volumes, Timings
140: Gordon Street & Clair Road W.

PM Peak Hour
2036 Total Future Volumes with CM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	48.4	52.1		34.9	26.3		93.0	61.2		54.9	75.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	48.4	52.1		34.9	26.3		93.0	61.2		54.9	75.8	
LOS	D	D		C	C		F	E		D	E	
Approach Delay		51.3			28.0			66.6			72.7	
Approach LOS		D			C			E			E	
Queue Length 50th (m)	21.4	90.3		16.8	48.5		~28.2	~109.7		21.7	~127.0	
Queue Length 95th (m)	#53.4	#145.0		#40.7	66.3		#75.3	#156.5		#59.9	#169.2	
Internal Link Dist (m)		207.6			249.3			297.8			211.6	
Turn Bay Length (m)	100.0			25.0			45.0			145.0		
Base Capacity (vph)	332	1125		226	1133		224	1127		233	1137	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.91	0.99		0.72	0.57		1.04	1.01		0.88	1.06	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 57.8

Intersection LOS: E

Intersection Capacity Utilization 101.0%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 140: Gordon Street & Clair Road W.

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	35 s	10 s	35 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
10 s	35 s	10 s	35 s

HCM Unsignalized Intersection Capacity Analysis

210: Site Access & Clair Road W.

PM Peak Hour
2036 Total Future Volumes with CM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1722	80	148	1012	48	89
Future Volume (Veh/h)	1722	80	148	1012	48	89
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1872	87	161	1100	52	97
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)				299		
pX, platoon unblocked					0.66	
vC, conflicting volume			1959		3338	1916
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1959		4273	1916
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			46		0	0
cM capacity (veh/h)			297		1	84
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1959	1261	149			
Volume Left	0	161	52			
Volume Right	87	0	97			
cSH	1700	297	2			
Volume to Capacity	1.15	0.54	81.64			
Queue Length 95th (m)	0.0	24.1	Err			
Control Delay (s)	0.0	30.6	Err			
Lane LOS		D	F			
Approach Delay (s)	0.0	30.6	Err			
Approach LOS			F			
Intersection Summary						
Average Delay		453.7				
Intersection Capacity Utilization		175.1%		ICU Level of Service		H
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

110: Clair Road W. & Laird Road

PM Peak Hour

2036 Total Future Volumes (Mitigation 2)

	→	↘	↙	←	↖	↗	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑		↘	↑↑	↘	↗	
Traffic Volume (veh/h)	1060	8	31	630	8	175	
Future Volume (Veh/h)	1060	8	31	630	8	175	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	
Hourly flow rate (vph)	1218	9	36	724	9	201	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (m)				142			
pX, platoon unblocked					0.98		
vC, conflicting volume			1227		1656	614	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			1227		1632	614	
tC, single (s)			4.5		7.7	6.9	
tC, 2 stage (s)							
tF (s)			2.4		3.9	3.3	
p0 queue free %			92		84	54	
cM capacity (veh/h)			474		55	435	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	812	415	36	362	362	9	201
Volume Left	0	0	36	0	0	9	0
Volume Right	0	9	0	0	0	0	201
cSH	1700	1700	474	1700	1700	55	435
Volume to Capacity	0.48	0.24	0.08	0.21	0.21	0.16	0.46
Queue Length 95th (m)	0.0	0.0	2.0	0.0	0.0	4.3	19.1
Control Delay (s)	0.0	0.0	13.2	0.0	0.0	82.4	20.2
Lane LOS			B			F	C
Approach Delay (s)	0.0		0.6			22.8	
Approach LOS						C	
Intersection Summary							
Average Delay			2.4				
Intersection Capacity Utilization			47.1%		ICU Level of Service		A
Analysis Period (min)			15				

Lanes, Volumes, Timings
210: Site Access & Clair Road W.

PM Peak Hour
2036 Total Future Volumes (Mitigation 2)

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	1156	80	148	613	48	89
Future Volume (vph)	1156	80	148	613	48	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	50.0		30.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.0		30.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.990					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3504	0	1770	3539	1770	1583
Flt Permitted			0.187		0.950	
Satd. Flow (perm)	3504	0	348	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	19					97
Link Speed (k/h)	50			50	30	
Link Distance (m)	141.8			55.7	183.4	
Travel Time (s)	10.2			4.0	22.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1257	87	161	666	52	97
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1344	0	161	666	52	97
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	67.5		67.5	67.5	22.5	22.5
Total Split (%)	75.0%		75.0%	75.0%	25.0%	25.0%
Maximum Green (s)	63.0		63.0	63.0	18.0	18.0
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	75.8		75.8	75.8	8.1	8.1
Actuated g/C Ratio	0.84		0.84	0.84	0.09	0.09
v/c Ratio	0.45		0.55	0.22	0.33	0.42
Control Delay	3.1		11.4	0.7	43.2	14.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	3.1		11.4	0.7	43.2	14.2

Lanes, Volumes, Timings
210: Site Access & Clair Road W.

PM Peak Hour
2036 Total Future Volumes (Mitigation 2)

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A		B	A	D	B
Approach Delay	3.1			2.8	24.3	
Approach LOS	A			A	C	
Queue Length 50th (m)	27.5		4.3	1.4	9.1	0.0
Queue Length 95th (m)	44.6		46.9	5.5	19.8	14.1
Internal Link Dist (m)	117.8			31.7	159.4	
Turn Bay Length (m)			50.0		30.0	
Base Capacity (vph)	2955		293	2981	354	394
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.45		0.55	0.22	0.15	0.25

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 41.8 (46%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 4.3

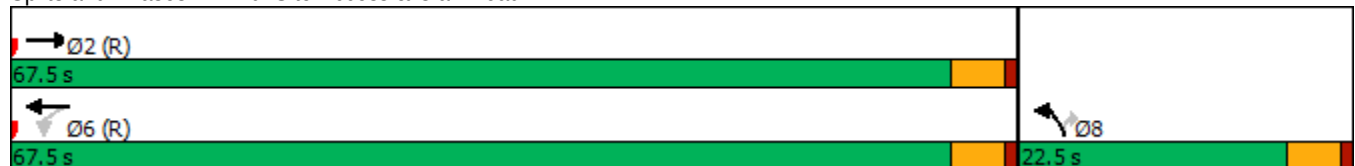
Intersection LOS: A

Intersection Capacity Utilization 58.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 210: Site Access & Clair Road W.



Appendix F

Left-turn Lane Warrant Nomographs

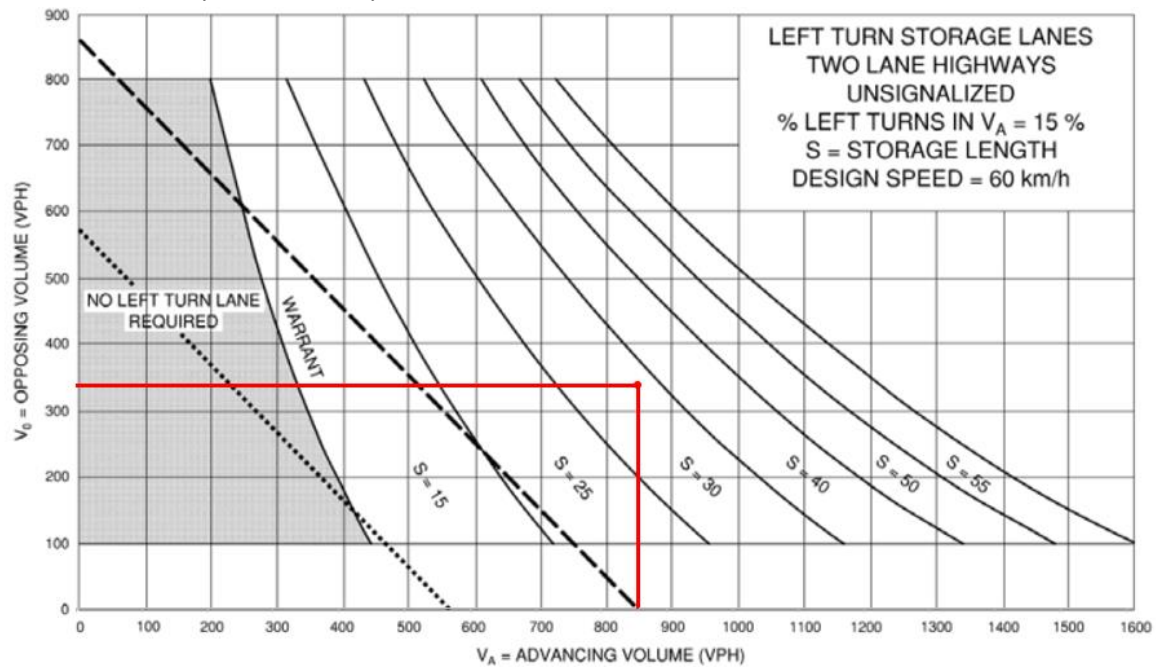
Left-turn Lane Warrant Nomographs

Note: The more conservative peak hour was chosen for each scenario.

Clair Road West and Laird Road

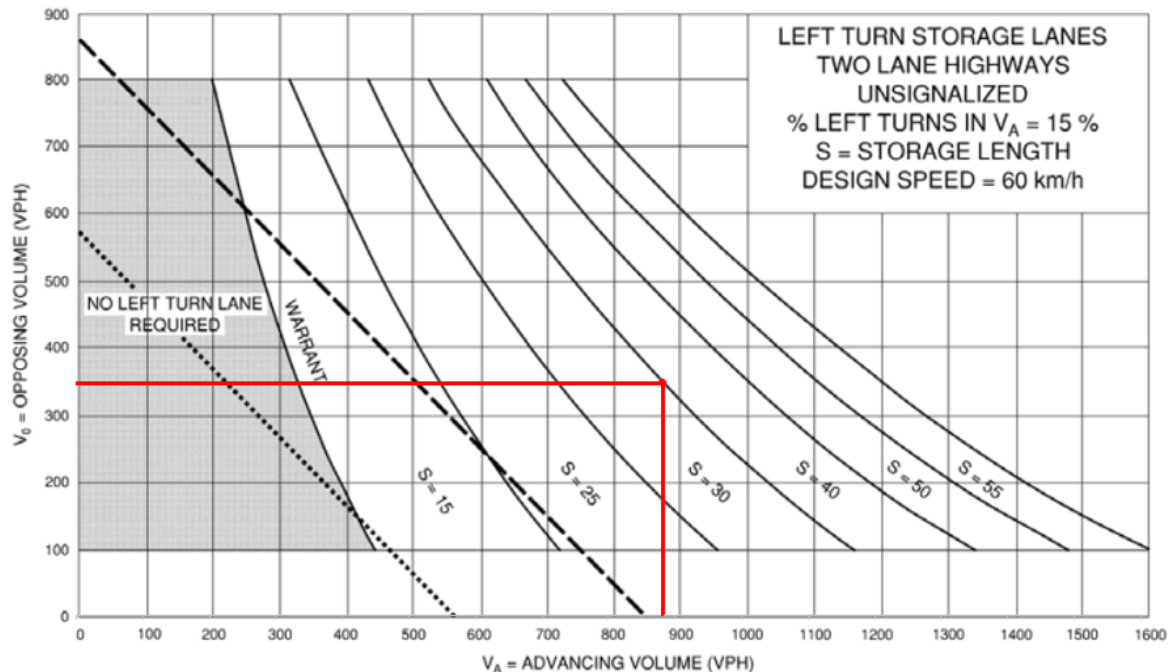
Existing (AM)

- $V_a = 856 \text{ vph}$, $V_o = 342 \text{ vph}$, $LT\% = 13\%$



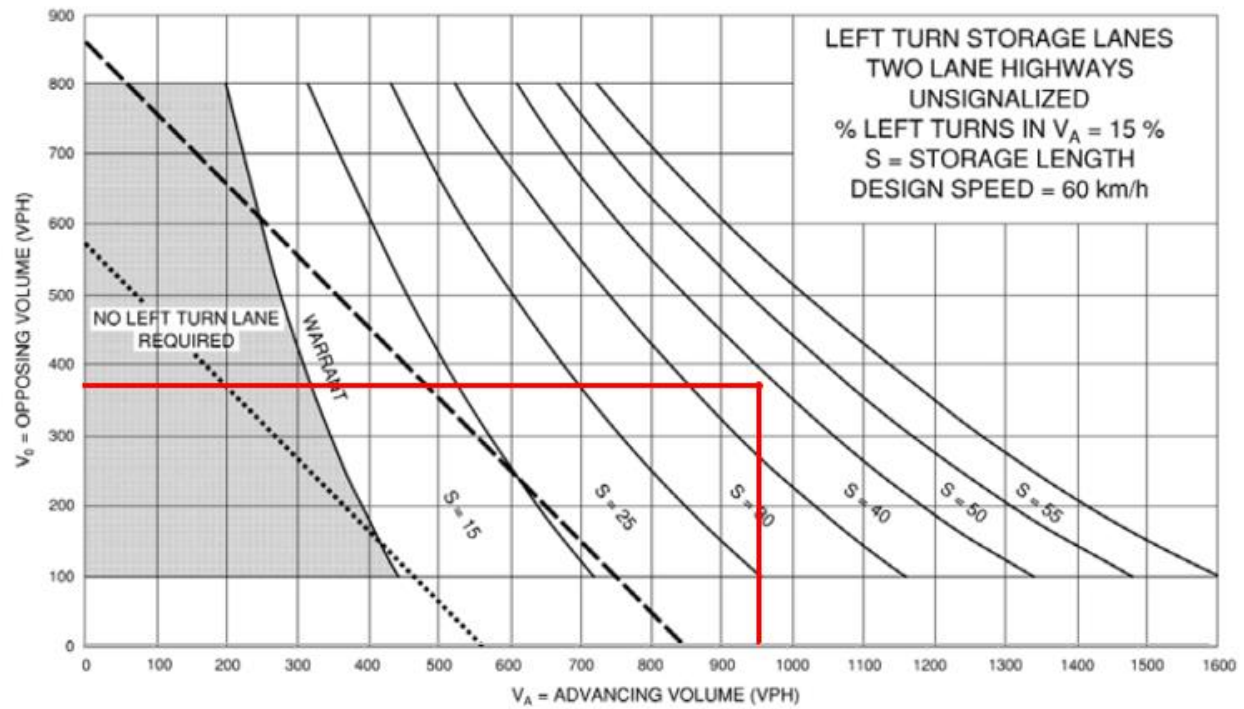
Future Background 2026 (AM)

- $V_a = 882 \text{ vph}$, $V_o = 352 \text{ vph}$, $LT\% = 13\%$



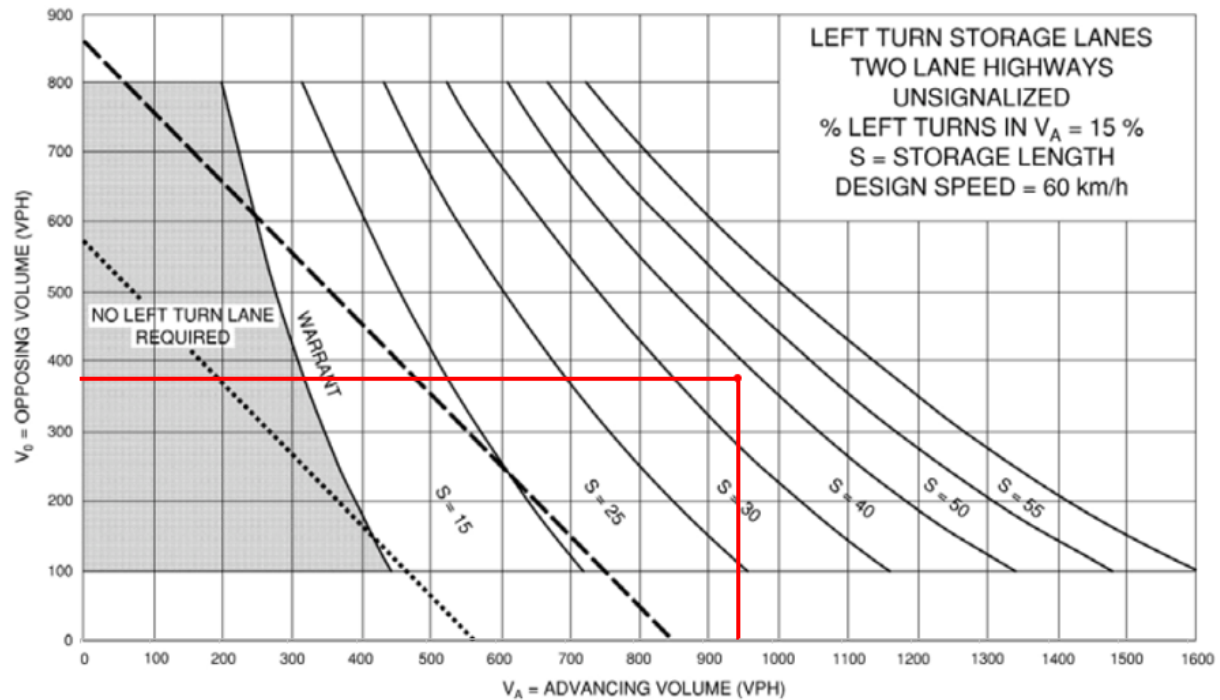
Total Future 2026 (AM)

- $V_a = 960 \text{ vph}$, $V_o = 375 \text{ vph}$, $LT\% = 13\%$



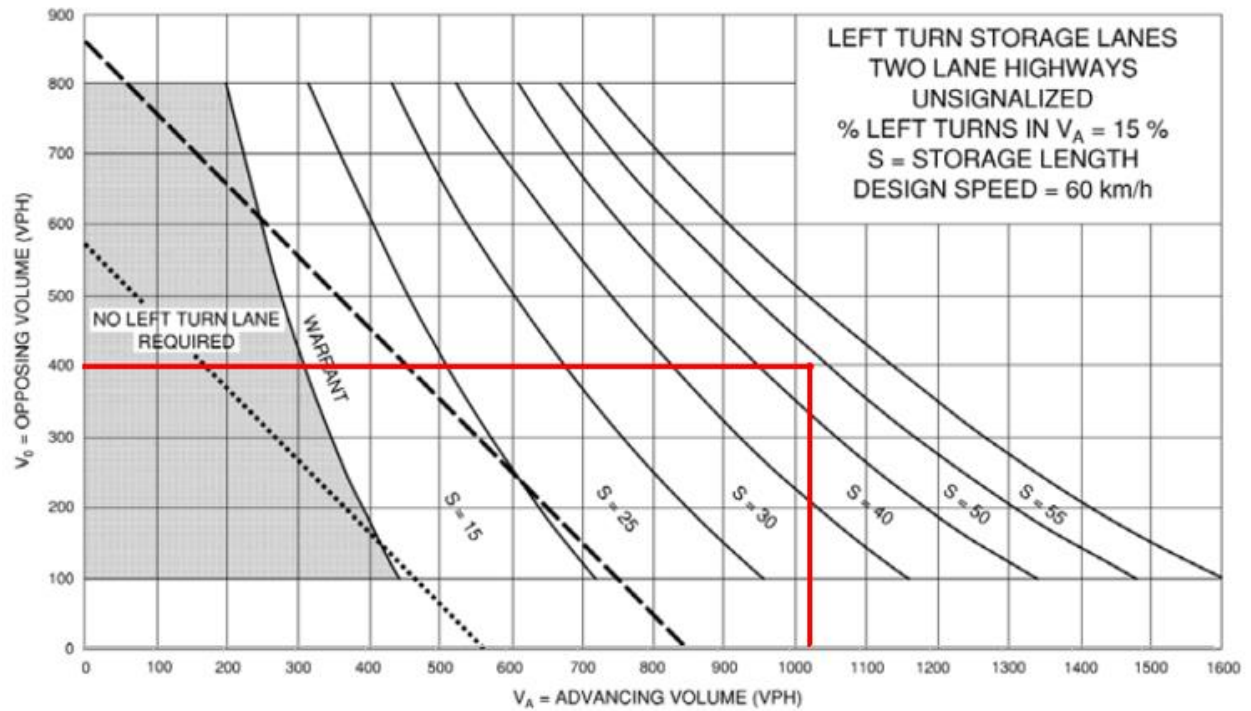
Future Background 2031 (AM)

- $V_a = 950 \text{ vph}$, $V_o = 380 \text{ vph}$, $LT\% = 13\%$



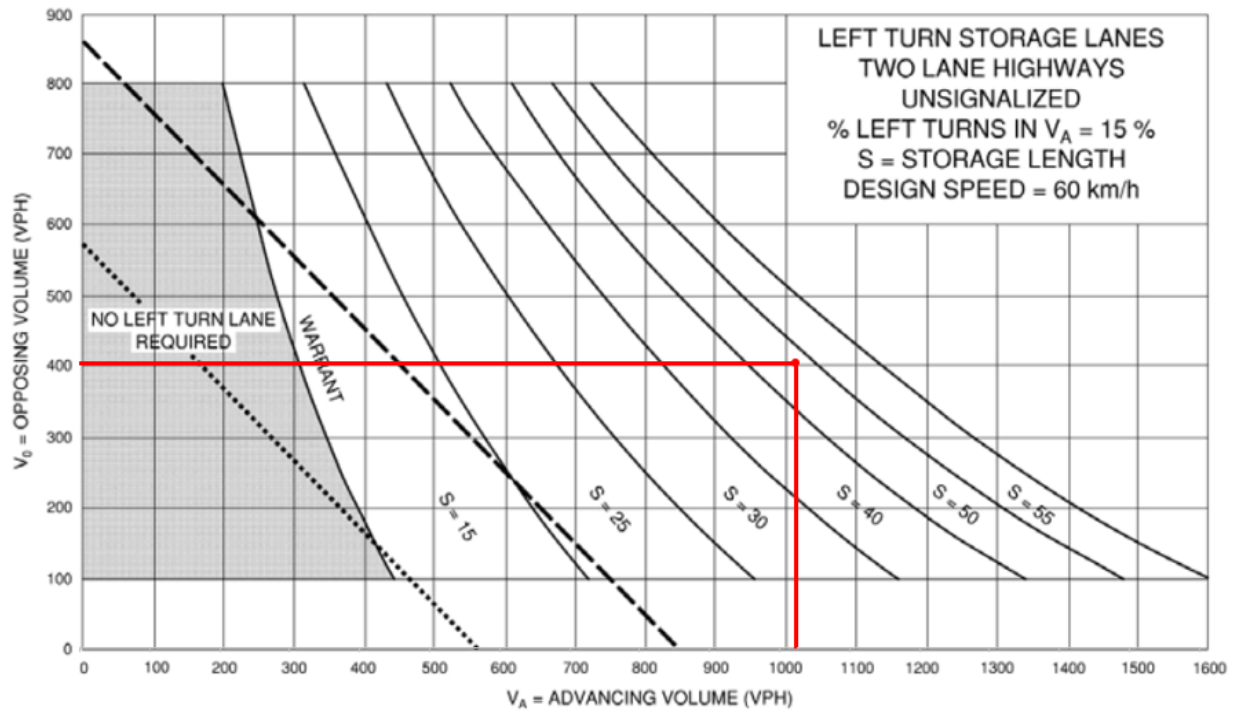
Total Future 2031 (AM)

- $V_a = 1028 \text{ vph}$, $V_o = 403 \text{ vph}$, $LT\% = 13\%$



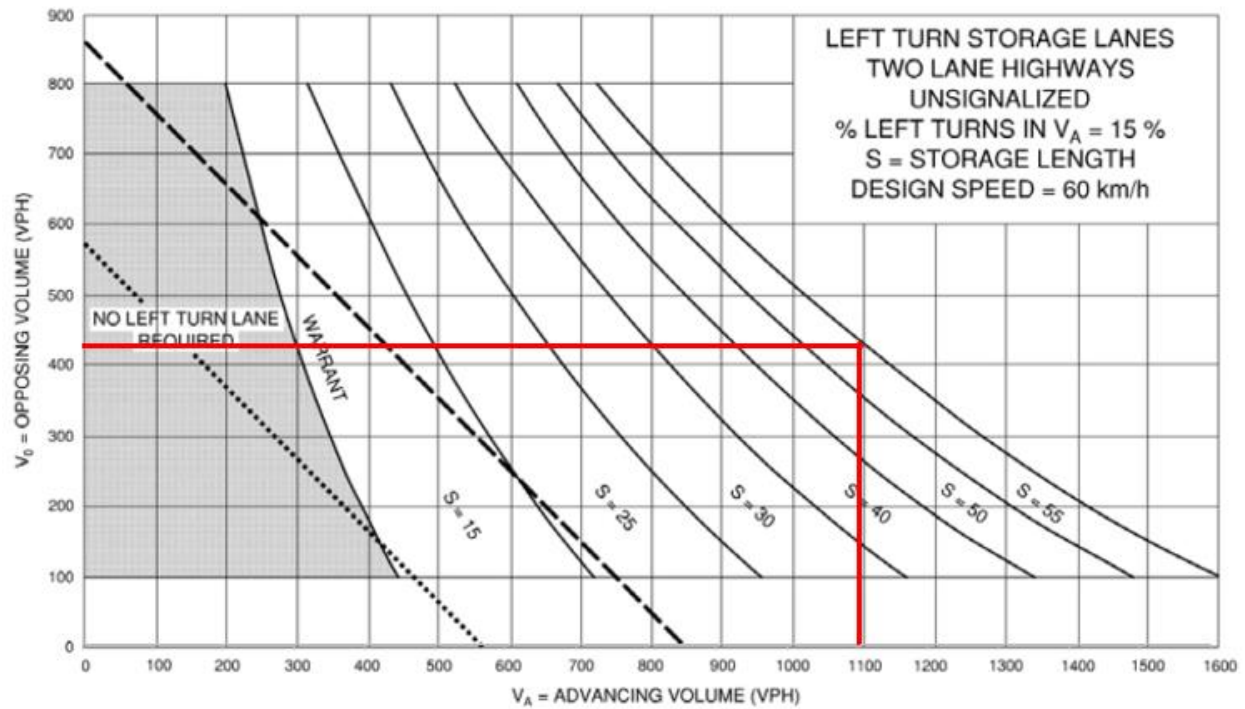
Future Background 2036 (AM)

- $V_a = 1024 \text{ vph}$, $V_o = 409 \text{ vph}$, $LT\% = 13\%$



Total Future 2036 (AM)

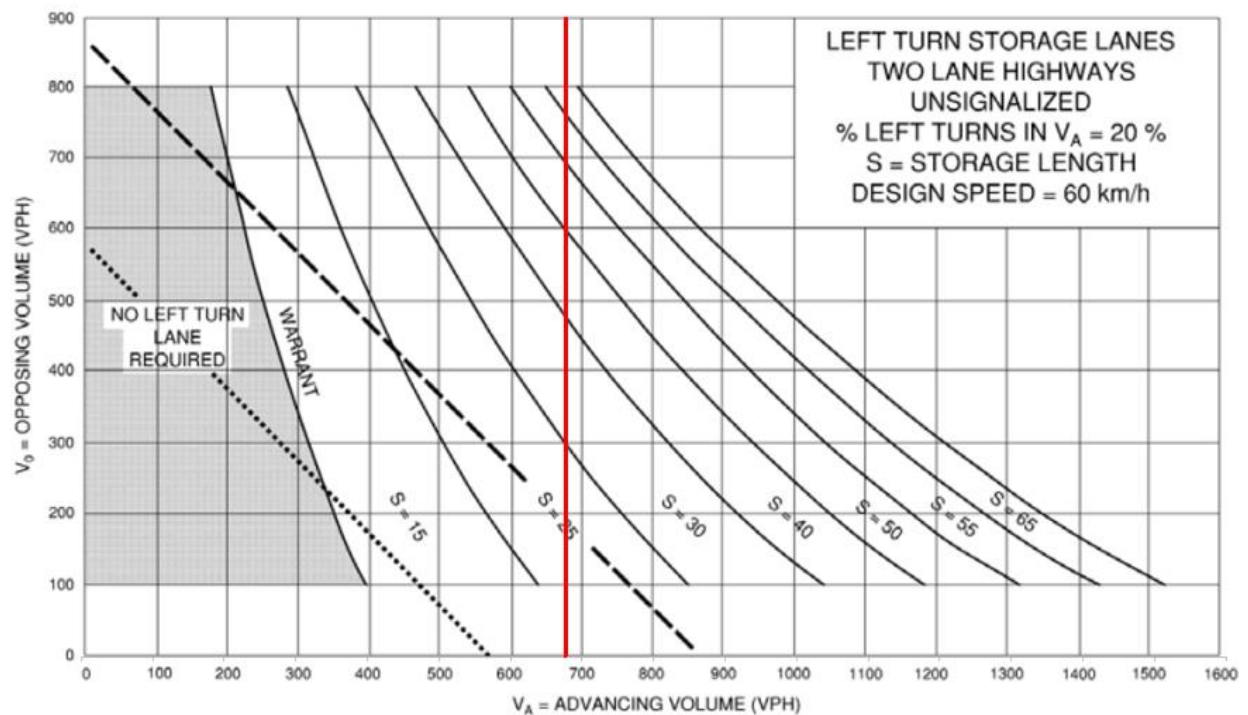
- $V_a = 1102 \text{ vph}$, $V_o = 432 \text{ vph}$, $LT\% = 13\%$



Site Access to Clair Road West

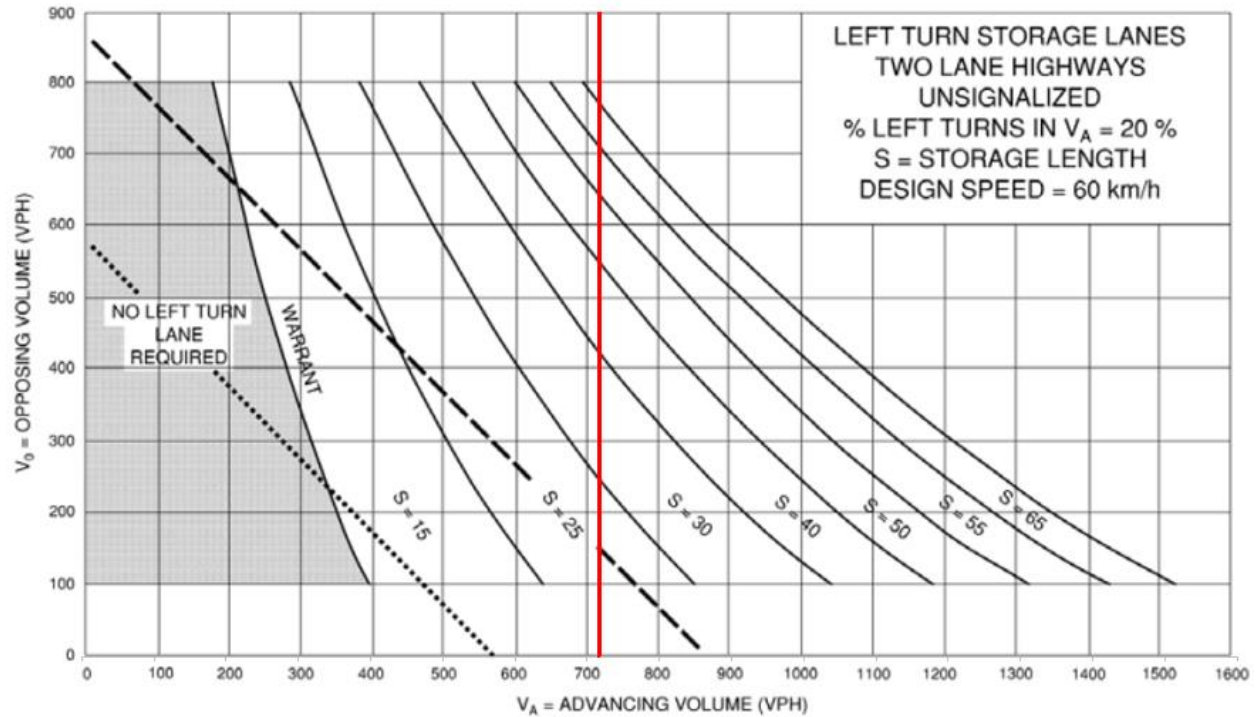
Total Future 2026 (PM)

- $V_a = 677 \text{ vph}$, $V_o = 1076 \text{ vph}$, $LT\% = 22\%$



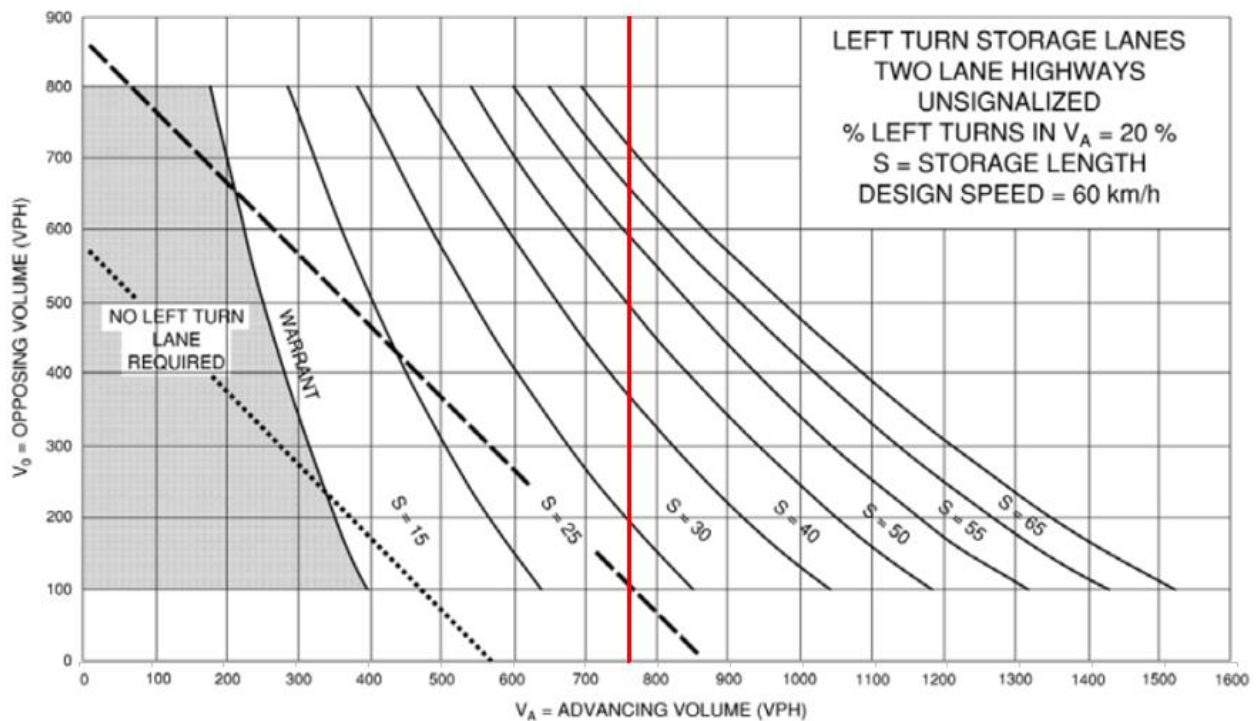
Total Future 2031 (PM)

- $V_a = 717$ vph, $V_o = 1153$ vph, $LT\% = 21\%$



Total Future 2036 (PM)

- $V_a = 761$ vph, $V_o = 1236$ vph, $LT\% = 19\%$



Appendix G

Traffic Signal Warrants

Traffic Signal Warrant Analysis

MTO Method (Ontario Traffic Manual, Book 12)

Existing Conditions

Main street direction	East/West	Major Street	Clair Road West / Laird Road
Main street cross-section	1 lane	Minor Street	Clair Road West
Roadway environment	Restricted flow		
"T" intersection?	Yes		

Time Period	Major Street						Minor Street					
	Clair Road West / Laird Road						Clair Road West					
	Eastbound			Westbound			Northbound			Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
AM Peak	0	337	5	110	746	0	1	0	42	0	0	0
PM Peak	0	830	7	20	493	0	7	0	137	0	0	0
Average Hourly Volume	0	415	4	10	247	0	4	0	69	0	0	0

Justification 7 - OTM Book 12

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume		with AM
747		684
% Satisfied	104%	95%

1B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	180	255	180	255

Average Hourly Volume		with AM
72		47
% Satisfied	78%	68%

Warrant 2 - Delay to Cross Traffic

2A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume		with AM
675		637
% Satisfied	94%	88%

2B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	50	75	120	170

Average Hourly Volume		with AM
4		2
% Satisfied	5%	3%

Result	Signal Not Warranted
	Signal Not Warranted

Traffic Signal Warrant Analysis

MTO Method (Ontario Traffic Manual, Book 12)

2026 Future Background Conditions

Main street direction	East/West	Major Street	Clair Road West / Laird Road
Main street cross-section	1 lane	Minor Street	Clair Road West
Roadway environment	Restricted flow		
"T" intersection?	Yes		

Time Period	Major Street						Minor Street					
	Clair Road West / Laird Road						Clair Road West					
	Eastbound			Westbound			Northbound			Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
AM Peak	0	347	5	113	769	0	1	0	43	0	0	0
PM Peak	0	855	7	21	508	0	7	0	141	0	0	0
Average Hourly Volume	0	428	4	11	254	0	4	0	71	0	0	0

Justification 7 - OTM Book 12

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume		with AM
770		704
% Satisfied	107%	98%

1B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	180	255	180	255

Average Hourly Volume		with AM
74		48
% Satisfied	79%	69%

Warrant 2 - Delay to Cross Traffic

2A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume		with AM
696		656
% Satisfied	97%	91%

2B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	50	75	120	170

Average Hourly Volume		with AM
4		2
% Satisfied	5%	3%

Result	Signal Not Warranted
	Signal Not Warranted

Traffic Signal Warrant Analysis

MTO Method (Ontario Traffic Manual, Book 12)

2026 Total Future Conditions

Main street direction	East/West	Major Street	Clair Road West / Laird Road
Main street cross-section	1 lane	Minor Street	Clair Road West
Roadway environment	Restricted flow		
"T" intersection?	Yes		

Time Period	Major Street						Minor Street					
	Clair Road West / Laird Road						Clair Road West					
	Eastbound			Westbound			Northbound			Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
AM Peak	0	370	5	124	836	0	1	0	47	0	0	0
PM Peak	0	923	7	28	549	0	7	0	152	0	0	0
Average Hourly Volume	0	462	4	14	275	0	4	0	76	0	0	0

Justification 7 - OTM Book 12

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume		with AM
833		762
% Satisfied	116%	106%

1B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	180	255	180	255

Average Hourly Volume		with AM
80		52
% Satisfied	81%	70%

Warrant 2 - Delay to Cross Traffic

2A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume		with AM
754		711
% Satisfied	105%	99%

2B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	50	75	120	170

Average Hourly Volume		with AM
4		2
% Satisfied	5%	3%

Result	Signal Not Warranted
	Signal Not Warranted

Traffic Signal Warrant Analysis

MTO Method (Ontario Traffic Manual, Book 12)

2031 Future Background Conditions

Main street direction	East/West	Major Street	Clair Road West / Laird Road
Main street cross-section	1 lane	Minor Street	Clair Road West
Roadway environment	Restricted flow		
"T" intersection?	Yes		

Time Period	Major Street						Minor Street					
	Clair Road West / Laird Road						Clair Road West					
	Eastbound			Westbound			Northbound			Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
AM Peak	0	374	6	122	828	0	1	0	47	0	0	0
PM Peak	0	921	8	22	547	0	8	0	152	0	0	0
Average Hourly Volume	0	461	4	11	274	0	4	0	76	0	0	0

Justification 7 - OTM Book 12

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume		with AM
829		759
% Satisfied	115%	105%

1B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	180	255	180	255

Average Hourly Volume		with AM
80		52
% Satisfied	81%	70%

Warrant 2 - Delay to Cross Traffic

2A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume		with AM
749		707
% Satisfied	104%	98%

2B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	50	75	120	170

Average Hourly Volume		with AM
4		2
% Satisfied	5%	3%

Result	Signal Not Warranted
	Signal Not Warranted

Traffic Signal Warrant Analysis

MTO Method (Ontario Traffic Manual, Book 12)

2031 Total Future Conditions

Main street direction	East/West	Major Street	Clair Road West / Laird Road
Main street cross-section	1 lane	Minor Street	Clair Road West
Roadway environment	Restricted flow		
"T" intersection?	Yes		

Time Period	Major Street						Minor Street					
	Clair Road West / Laird Road						Clair Road West					
	Eastbound			Westbound			Northbound			Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
AM Peak	0	397	6	133	895	0	1	0	51	0	0	0
PM Peak	0	989	8	29	588	0	8	0	163	0	0	0
Average Hourly Volume	0	495	4	15	294	0	4	0	82	0	0	0

Justification 7 - OTM Book 12

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume		with AM
893		817
% Satisfied	124%	113%

1B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	180	255	180	255

Average Hourly Volume		with AM
86		56
% Satisfied	84%	72%

Warrant 2 - Delay to Cross Traffic

2A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume		with AM
807		761
% Satisfied	112%	106%

2B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	50	75	120	170

Average Hourly Volume		with AM
4		2
% Satisfied	5%	3%

Result	Signal Not Warranted
	Signal Not Warranted

Traffic Signal Warrant Analysis

MTO Method (Ontario Traffic Manual, Book 12)

2036 Future Background Conditions

Main street direction	East/West	Major Street	Clair Road West / Laird Road
Main street cross-section	1 lane	Minor Street	Clair Road West
Roadway environment	Restricted flow		
"T" intersection?	Yes		

Time Period	Major Street						Minor Street					
	Clair Road West / Laird Road						Clair Road West					
	Eastbound			Westbound			Northbound			Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
AM Peak	0	403	6	132	892	0	1	0	50	0	0	0
PM Peak	0	922	8	24	589	0	8	0	164	0	0	0
Average Hourly Volume	0	461	4	12	295	0	4	0	82	0	0	0

Justification 7 - OTM Book 12

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume		with AM
858		800
% Satisfied	119%	111%

1B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	180	255	180	255

Average Hourly Volume		with AM
86		56
% Satisfied	84%	72%

Warrant 2 - Delay to Cross Traffic

2A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume		with AM
772		744
% Satisfied	107%	103%

2B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	50	75	120	170

Average Hourly Volume		with AM
4		2
% Satisfied	5%	3%

Result	Signal Not Warranted
	Signal Not Warranted

Traffic Signal Warrant Analysis

MTO Method (Ontario Traffic Manual, Book 12)

2036 Total Future Conditions

Main street direction	East/West	Major Street	Clair Road West / Laird Road
Main street cross-section	1 lane	Minor Street	Clair Road West
Roadway environment	Restricted flow		
"T" intersection?	Yes		

Time Period	Major Street						Minor Street					
	Clair Road West / Laird Road						Clair Road West					
	Eastbound			Westbound			Northbound			Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
AM Peak	0	426	6	143	959	0	1	0	54	0	0	0
PM Peak	0	1060	8	31	630	0	8	0	175	0	0	0
Average Hourly Volume	0	530	4	16	315	0	4	0	88	0	0	0

Justification 7 - OTM Book 12

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume	with AM
956	875
% Satisfied	133% 122%

1B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	180	255	180	255

Average Hourly Volume	with AM
92	60
% Satisfied	86% 73%

Warrant 2 - Delay to Cross Traffic

2A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume	with AM
865	816
% Satisfied	120% 113%

2B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	50	75	120	170

Average Hourly Volume	with AM
4	2
% Satisfied	5% 3%

Result	Signal Not Warranted
	Signal Not Warranted

Traffic Signal Warrant Analysis

MTO Method (Ontario Traffic Manual, Book 12)

2026 Total Future Conditions

Main street direction	East/West	Major Street	Clair Road West
Main street cross-section	1 lane	Minor Street	Site Access
Roadway environment	Restricted flow		
"T" intersection?	Yes		

Time Period	Major Street						Minor Street					
	Clair Road West						Site Access					
	Eastbound			Westbound			Northbound			Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
AM Peak	0	390	26	49	882	0	78	0	146	0	0	0
PM Peak	0	996	80	148	529	0	48	0	89	0	0	0
Average Hourly Volume	0	498	40	74	265	0	24	0	45	0	0	0

Justification 7 - OTM Book 12

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume	with AM
945	865
% Satisfied	131% 120%

1B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	180	255	180	255

Average Hourly Volume	with AM
69	90
% Satisfied	77% 85%

Warrant 2 - Delay to Cross Traffic

2A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume	with AM
877	775
% Satisfied	122% 108%

2B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	50	75	120	170

Average Hourly Volume	with AM
24	32
% Satisfied	32% 42%

Result	Signal Not Warranted
	Signal Not Warranted

Traffic Signal Warrant Analysis

MTO Method (Ontario Traffic Manual, Book 12)

2031 Total Future Conditions

Main street direction	East/West	Major Street	Clair Road West
Main street cross-section	1 lane	Minor Street	Site Access
Roadway environment	Restricted flow		
"T" intersection?	Yes		

Time Period	Major Street						Minor Street					
	Clair Road West						Site Access					
	Eastbound			Westbound			Northbound			Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
AM Peak	0	421	26	49	950	0	78	0	146	0	0	0
PM Peak	0	1073	80	148	569	0	48	0	89	0	0	0
Average Hourly Volume	0	537	40	74	285	0	24	0	45	0	0	0

Justification 7 - OTM Book 12

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume		with AM
1004		919
% Satisfied	139%	128%

1B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	180	255	180	255

Average Hourly Volume		with AM
69		90
% Satisfied	77%	85%

Warrant 2 - Delay to Cross Traffic

2A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume		with AM
935		829
% Satisfied	130%	115%

2B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	50	75	120	170

Average Hourly Volume		with AM
24		32
% Satisfied	32%	42%

Result	Signal Not Warranted
	Signal Not Warranted

Traffic Signal Warrant Analysis

MTO Method (Ontario Traffic Manual, Book 12)

2036 Total Future Conditions

Main street direction	East/West	Major Street	Clair Road West
Main street cross-section	1 lane	Minor Street	Site Access
Roadway environment	Restricted flow		
"T" intersection?	Yes		

Time Period	Major Street						Minor Street					
	Clair Road West						Site Access					
	Eastbound			Westbound			Northbound			Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
AM Peak	0	453	29	55	1023	0	87	0	161	0	0	0
PM Peak	0	1156	80	148	613	0	48	0	89	0	0	0
Average Hourly Volume	0	578	40	74	307	0	24	0	45	0	0	0

Justification 7 - OTM Book 12

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume	with AM
1067	986
% Satisfied	148% 137%

1B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	180	255	180	255

Average Hourly Volume	with AM
69	96
% Satisfied	77% 88%

Warrant 2 - Delay to Cross Traffic

2A	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	480	720	600	900

Average Hourly Volume	with AM
999	889
% Satisfied	139% 124%

2B	Approach Lanes	1		2+	
	Flow Conditions	Free	Restricted	Free	Restricted
	All Approaches	50	75	120	170

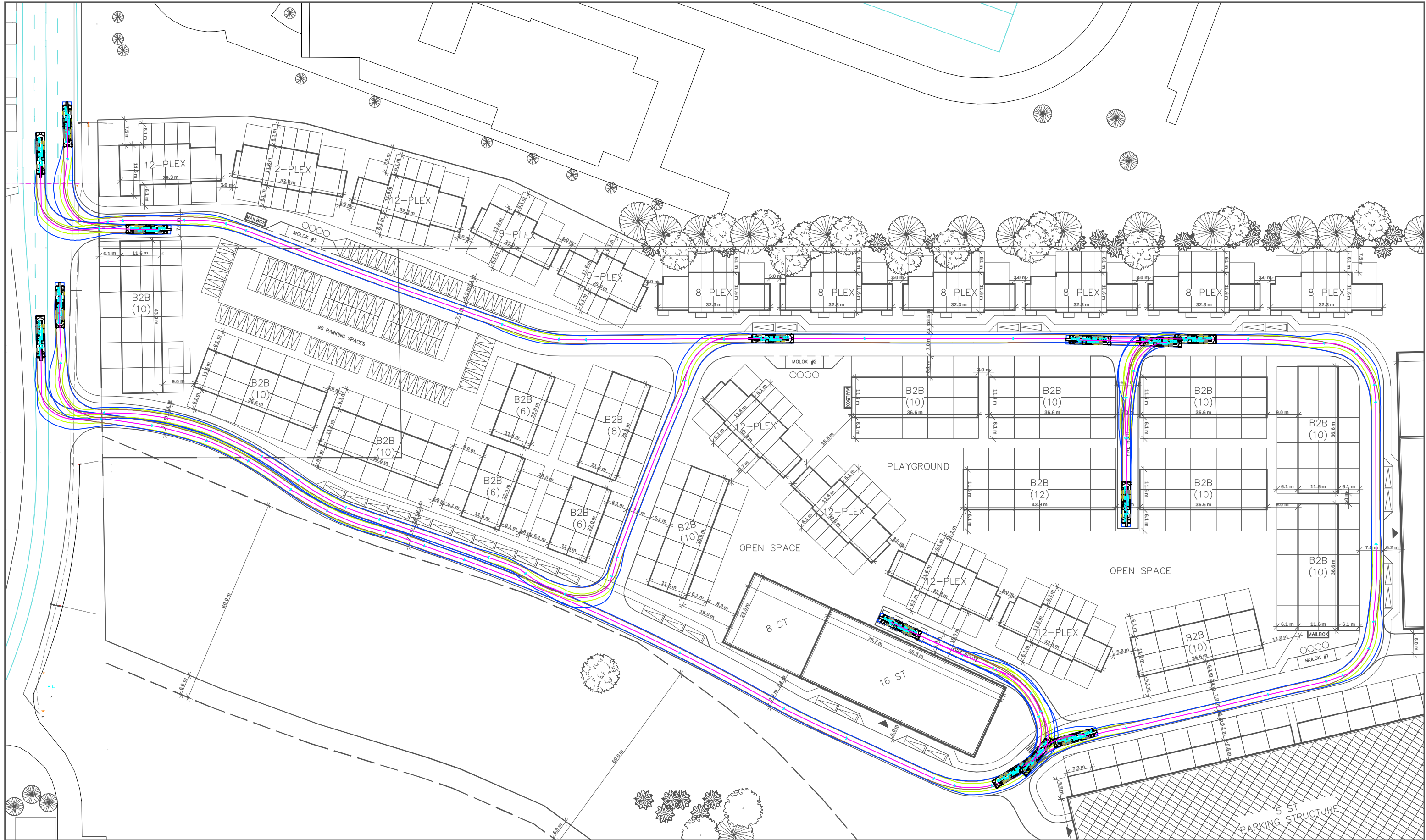
Average Hourly Volume	with AM
24	34
% Satisfied	32% 45%

Result	Signal Not Warranted
	Signal Not Warranted

Appendix H

Truck Turning Path Assessment

235 YORKLAND BLVD., SUITE 800, TORONTO, ON M2J 4Y8

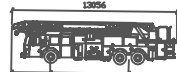


Conditions of Use

Verify elevations and/or dimensions on drawing prior to use.
Report any discrepancies to Dillon Consulting Limited.

Do not scale dimensions from drawing.

Do not modify drawing, re-use it, or use it for purposes other
than those intended at the time of its preparation without prior
written permission from Dillon Consulting Limited.



Sneal Aerial RM 105ft

Width: 12.5m
Truck: 18.5m
Look to Lock: 18.5m
Steering Angle: 18.5m

DILLON
CONSULTING

1	TRANSPORTATION IMPACT STUDY SUBMISSION	2024-10-07	AS
No.	ISSUED FOR	DATE	BY

DESIGN	AS	REVIEWED BY	MDW
DRAWN	AS	CHECKED BY	MDW
DATE	2024-10-07		
SCALE	1:1000		

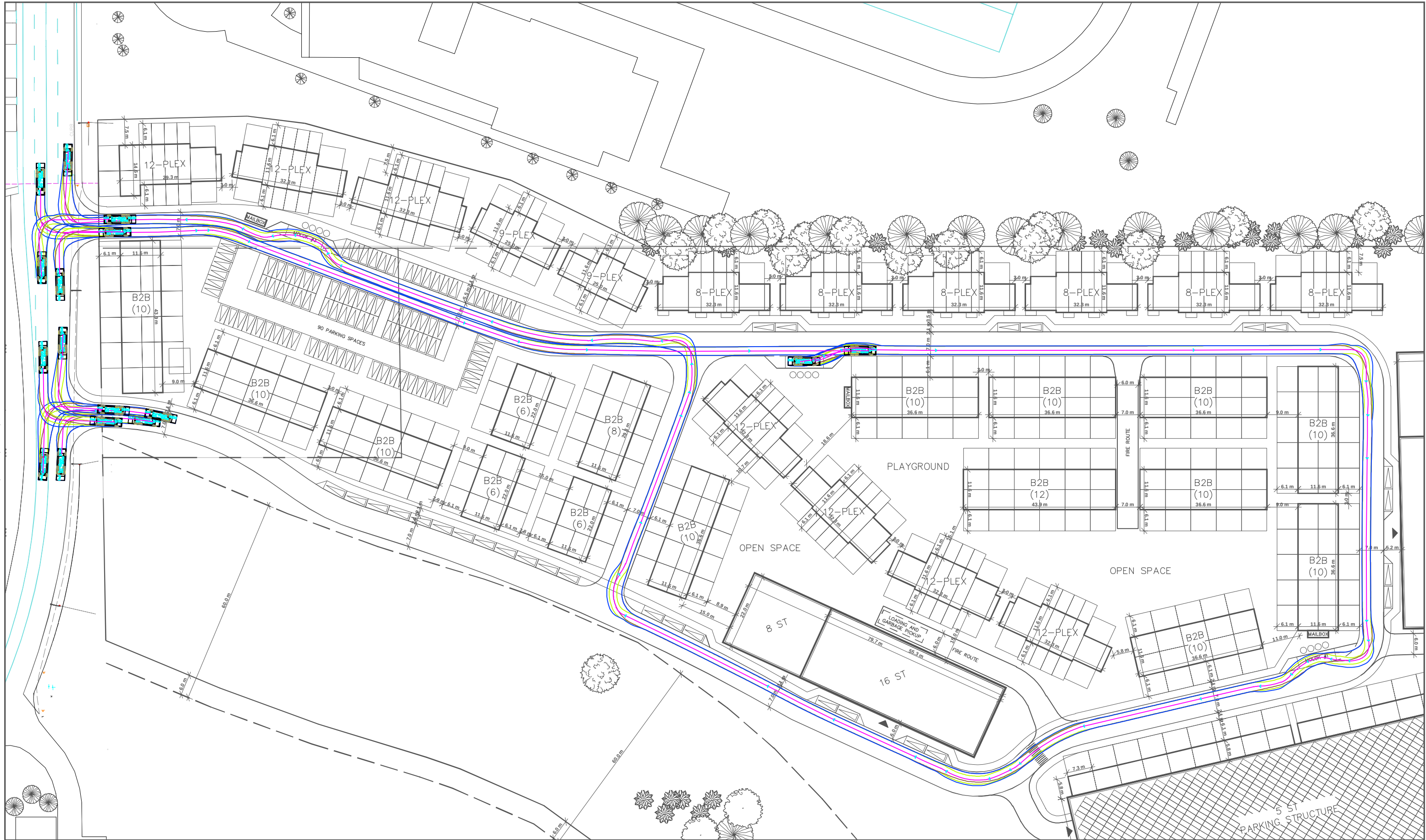
PROPOSED RESIDENTIAL DEVELOPMENT
280 CLAIR ROAD WEST, CITY OF GUELPH

PROJECT NO.
247484

SHEET NO.

TRUCK TURNING PATH ASSESSMENT

TM-1



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CONSULTING

1	TRANSPORTATION IMPACT STUDY SUBMISSION	2024-10-07	AS
No.	ISSUED FOR	DATE	BY

DESIGN	AS	REVIEWED BY	MDW
DRAWN	AS	CHECKED BY	MDW
DATE	2024-10-07		
SCALE	1:1000		

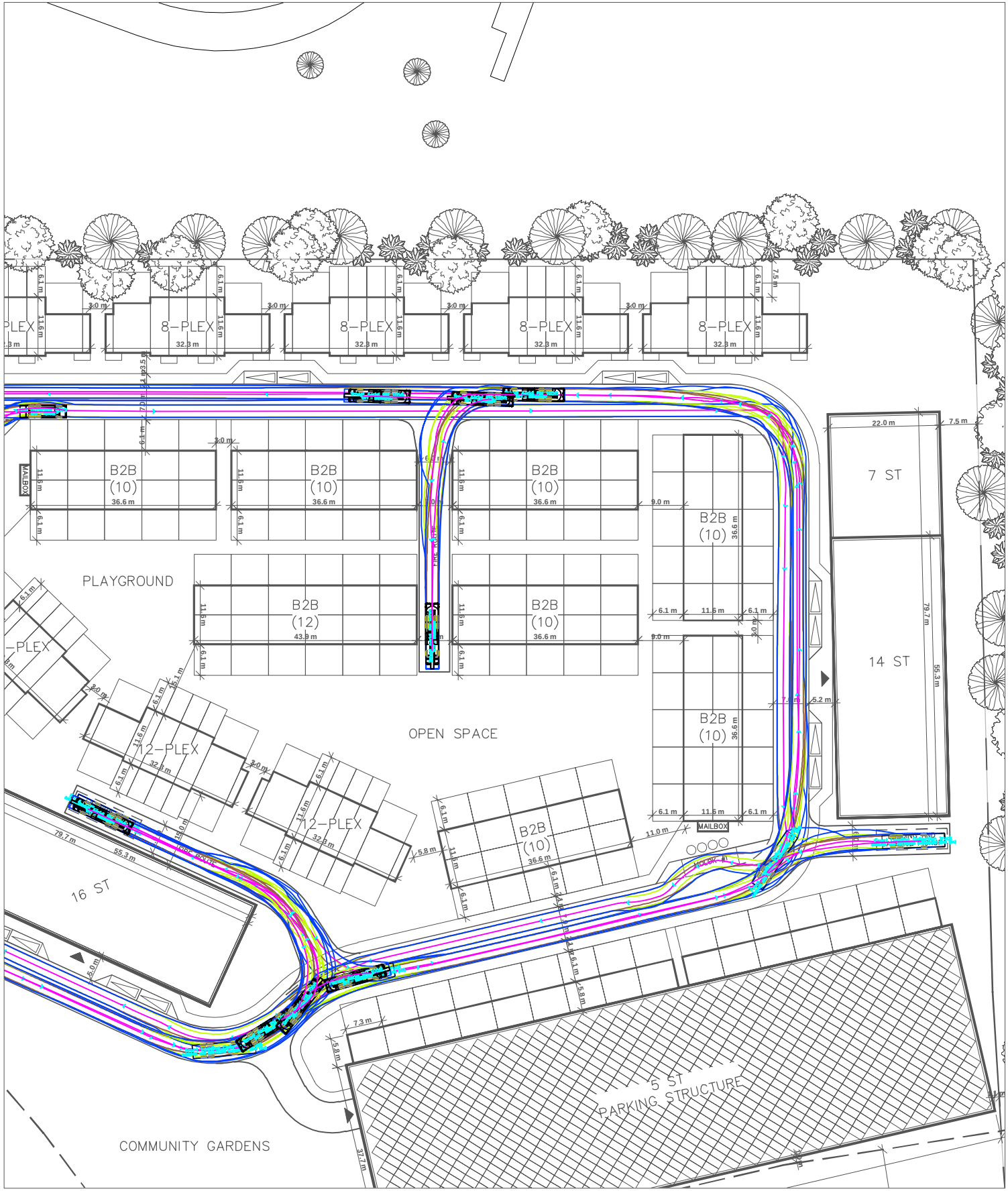
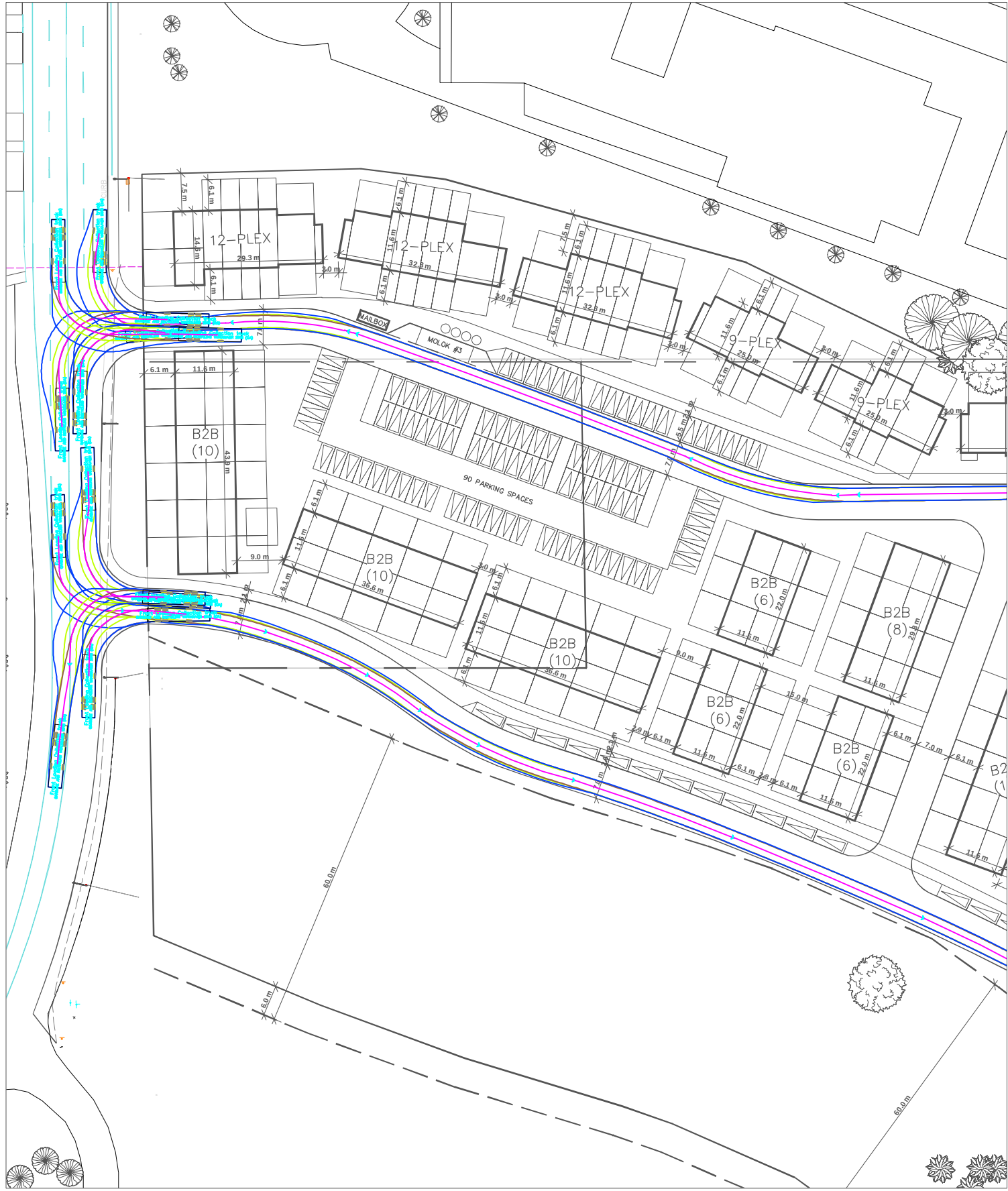
PROPOSED RESIDENTIAL DEVELOPMENT
280 CLAIR ROAD WEST, CITY OF GUELPH

TRUCK TURNING PATH ASSESSMENT

PROJECT NO.
247484

SHEET NO.

TM-2

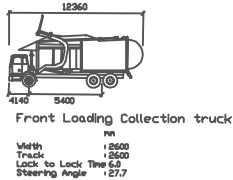


Conditions of Use

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DESIGN	AS	REVIEWED BY	MDW
DRAWN	AS	CHECKED BY	MDW
DATE	2024-10-07		
SCALE	1:1000		
1	TRANSPORTATION IMPACT STUDY SUBMISSION		
NO.	ISSUED FOR		
	DATE		
	BY		

PROPOSED RESIDENTIAL DEVELOPMENT 280 CLAIR ROAD WEST, CITY OF GUELPH		PROJECT NO. 247484
TRUCK TURNING PATH ASSESSMENT		SHEET NO. TM-3