BURNSIDE

Centre Wellington Operations Centre Transportation Study
Township of Centre Wellington, ON

Township of Centre Wellington

Centre Wellington Operations Centre Transportation Study (Final Revised) Township of Centre Wellington, ON

Township of Centre Wellington

R.J. Burnside & Associates Limited
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Revision	Date	Description
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R.J. Burnside & Associates Limited

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Executive Summary

R.J. Burnside & Associates Limited (Burnside) was retained to undertake a Transportation Study for a proposed new multi-department operations Centre at 965 Gartshore Street in the Township of Centre Wellington. The proposed facility will occupy approximately 20 acres and will occur in two phases. As Phase 2 of the facility will occur beyond the 20-year time period, it was not considered for this study and will be reviewed under a separate report. The focus of this report will be on Phase 1 and its impact to the surrounding road network. Phase 1 of the facility will include an exterior works yard, an outdoor operations area, garage buildings including heated and unheated storage bays, workshop space, maintenance bays and a greenhouse for a total of 3,560 m^2 (38,321 ft^2), 100 staff / visitor parking spaces, 34 work vehicle parking spaces, 6 vehicle staging parking spaces and is expected to be built-out by 2027. Three accesses are provided along Gartshore Street, including one full movement driveway, one inbound driveway and one outbound driveway.

This Transportation Study is a supporting study for moving forward with the site plan development for the Phase 1 of the new Operations Centre and to obtain the required re-zoning of the site.

The following is a summary of our key findings.

Traffic Operations

Overall, Phase 1 of the site will not require any improvements to external roads or intersections, through horizon period 2037. Under existing and future conditions, all intersections are and will operate with excess capacity, a level of service D or better and queues that are projected to be within their existing storage and link distances, with one exception as discussed below.

Under background traffic conditions, during the afternoon peak hour in 2032 and 2037 horizons, the southbound left turn queue at the intersection of Highway 6 / Gordon Street will extend by about 1 to 2 vehicles into the taper area for this lane. Under total traffic conditions, the impact on this queuing is forecasted to be minimal and therefore similar queuing operations are expected. To minimize the identified future queuing deficiency, it is recommended that the signal timing be optimized at this intersection. A sensitivity analysis was completed that confirms acceptable traffic operations with an optimized signal timing plan. It is recommended that the Township continue to monitor traffic operations at this intersection, to confirm the signal optimization requirements, as well as to confirm the interface of traffic operations at this location with traffic operations at the adjacent intersection at Highway 6 / Sideroad 19.

Geometric Considerations

Left Turn Warrant Analysis

Based on the *MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads* (MTO, April 2020) criteria, under background 2032 conditions, the northbound left at Gordon Street / Gartshore Street intersection and the southbound left at Dickson Drive / Gartshore Street intersection will warrant an exclusive left turn lane with a 15 m storage. However, there will be no operation concerns at these locations. It is recommended that the Township monitor this intersection for future improvements.

Right Turn Warrant Analysis

The warrant for a right turn lane for unsignalized intersections follows the MTO guidelines (Geometric Design Standards for Ontario Highways), and for signalized intersections, the Highway Capacity Manual (HCM) guidelines were reviewed. Based on the two documentation's criteria, the northbound right turn volume at the Dickson Drive / Gartshore Street intersection will have a volume which meets the criteria under background 2032 conditions during the AM Peak Hour. This is due to the traffic generated by the future Dickson Drive industrial developments. The timing for implementing a future northbound right turn lane would be dependent on when the future Dickson Drive industrial developments are to be fully built-out. Phase 1 traffic will not contribute to this movement. However, the movement will not have any capacity and delay concerns. The Township should review this movement to implement a right turn lane or taper.

Site Plan Review

No additional lane requirements will be required due to new traffic from the site. Access and circulation analyses utilizing AutoTURN confirms that the site can accommodate all expected design vehicles. It is noted that future Phase 2 is a minor further expansion of Phase 1 proposed land uses utilizing the same accesses. Therefore, the site plan review of Phase 1 will also accommodate the additional traffic from Phase 2.

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Abbreviations

The following summarizes abbreviations that are utilized within this report:

- Burnside – R.J. Burnside & Associates Limited
- County - Wellington County
- Directions:
  - EB – Eastbound
  - SB – Southbound
  - NB – Northbound
  - WB – Westbound
- ITE – Institute of Transportation Engineers
- LOS – level of service
- LUC – Land Use Code
- MTO - Ministry of Transportation Ontario
- Township – Township of Centre Wellington
- Traffic Movements:
  - LT – shared left-through movement
  - LTR – shared left-through-right movement
  - LR – shared left-right movement
  - TR – shared through-right movement
- v/c – volume to capacity ratio

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1.0 Introduction

1.1 Background

The Township of Centre Wellington (the Client) currently has five operation facilities, including Fergus East, Elora, Pilkington, Fergus Waterworks and West Garafraxa works garages and offices. The current operations facilities within the Township are not sufficient to meet the needs of the growing population, cannot accommodate staff requirements and are not compliant with current guidelines and regulations (such as accessibility). As a result, the Township is proposing to develop a new multi-department operations centre at 965 Gartshore Street in the Township of Centre Wellington. The proposed facility will be developed on approximately 20 acres and will occur in two phases. The focus of this report will be on Phase 1 and its impact to the surrounding road network. As Phase 2 of the facility will occur beyond the 20-year time period, it was not considered for this study and will be review under a separate report.

Three accesses to the Operations Facility are proposed along Gartshore Street, comprised of one full movement driveway, one inbound-only driveway and one outbound-only driveway.

The location of the subject site is shown in Figure 1.

Figure 1: Site Location

This Transportation Study is a supporting study for moving forward with the site plan development for the Phase 1 of the new Operations Centre and to obtain the required re-zoning of the site.

2.0 Scope of Work

The scope of work for this study was confirmed with Wellington County (the County), the Township of Centre Wellington (the Township) and the Ministry of Transportation Ontario (MTO). The MTO has stated that the proposed facility is beyond their Permit Control Area and therefore, MTO's review, approval and permits are not required.

Analysis Scenarios	• Existing traffic conditions • 2032 background and total traffic conditions • 2037 background and total traffic conditions
Analysis Time Periods	• Weekday AM peak hour (7:00 AM to 9:00 AM) • Weekday PM peak hour (4:00 PM to 6:00 PM)
Analysis Intersections (Study Area)	• Gartshore Street / Garafraxa Street East (Wellington Road 19) • Gartshore Street / Gordon Street • Gordon Street / Highway 6 • Sideroad 15 / Highway 6 • Site Accesses / Gartshore Street

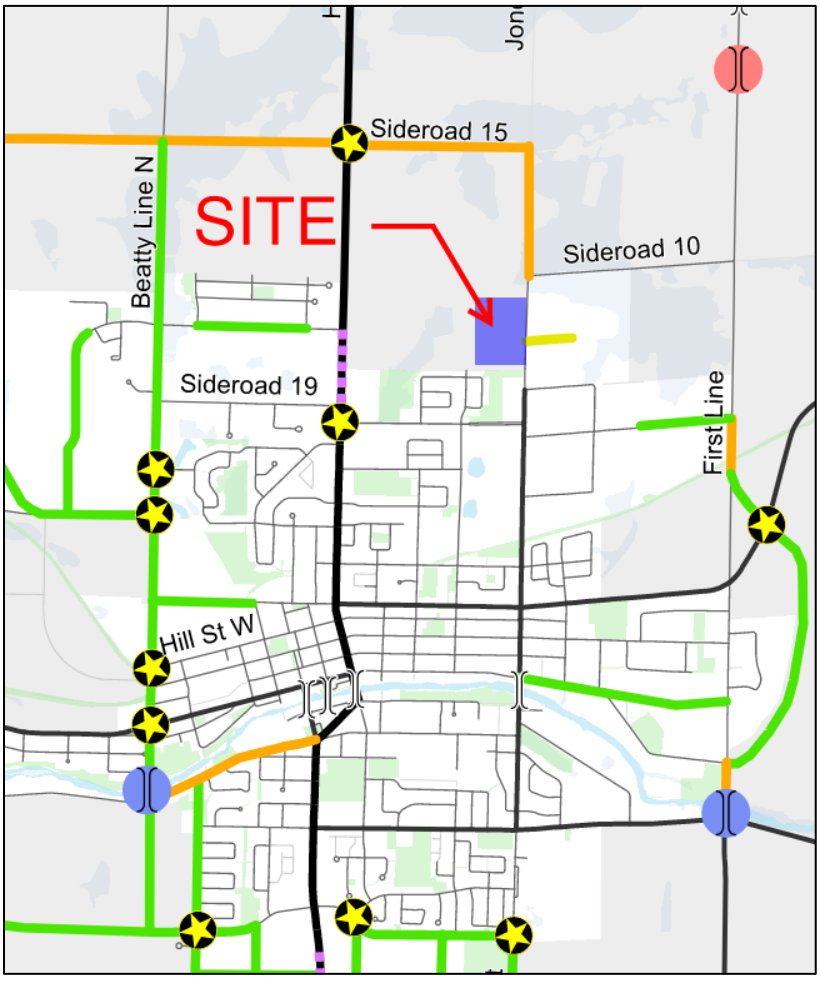
Also, the following documents were reviewed as relevant background information in this study:

- *Township of Centre Wellington Transportation Master Plan Final Report* (Township TMP), prepared by Township and WSP, dated January 2019.
- *Township Operations Centre Draft Report – Space Needs Assessment* (Space Needs Assessment Report), prepared by Township, dated April 28, 2021.
- *Township Operations Centre Space Needs Assessment and Recommendations*, prepared by Township, dated June 21, 2021.
- *Dickson Drive Extension Traffic Impact Study* (Dickson TIS), prepared by Triton Engineering Services Limited, dated January 2022.

The Township TMP identifies the preferred 2041 road network for Centre Wellington, which includes the extension of Gartshore Road as an arterial road to intersect at the intersection of Highway 6 / Sideroad 15, as shown in Figure 2 (excerpt from the Township TMP, Figure 35). This arterial road connection is a future consideration and is beyond the Urban Boundary in the current Official Plan. The ultimate location of this connection is to be finalized through a future Class Environmental Assessment. Therefore, this future modification to the road network is considered a long-term provision. This transportation study considers the road connections without this future arterial road connection, at least to accommodate Phase 1 of the Centre Wellington

Operations Centre. It is anticipated that the Township will continue through the planning process for the future modifications to the road network in this area, including the preparation of a transportation study that includes Phase 2 of the Centre Wellington Operations Centre, as well as other developments in this area.

Figure 2: Future Planned 2041 Road Network



LEGEND

Existing Road Network
- Provincial Highway
- County Road
- Township Road
- Private Road
- Truck By-pass
- Bridge

Proposed Road Network
- Arterial
- Collector
- Local
- Future Connecting Link

Proposed Intersection Improvements [1]
- Proposed Intersection Improvements

Proposed Bridge Improvements
- Proposed Bridge Improvements
- Proposed New Bridge

Source: Township TMP, Figure 35

2.1 Intersection Analysis Methodology

Signalized and stop controlled intersection operations were assessed for intersections in the study area using the software program Synchro 11, which employs methodology from the *Highway Capacity Manual (HCM 2000, HCM 2010 and HCM 6)*, published by the Transportation Research Board National Research Council.

Synchro 11 can analyze both signalized and unsignalized intersections in a road corridor or network considering the spacing, interaction, queues, and operations between intersections. The analysis utilizes the HCM 2000 methodology.

2.1.1 Signalized Intersection Analysis Performance Measures

Signalized intersection analysis considers 2 separate measures of performance:

- The capacity of all intersection movements, which is based on a volume to capacity ratio that is a measure of the degree of capacity utilized.
- The level of service (LOS) for all intersection movements, which is based on the average control delay per vehicle for the various movements through the intersection and overall. Delay is an indicator of how long a vehicle must wait to complete a movement and is represented by a letter between A and F, with F being the longest delay. The link between LOS and delay (in seconds) for signalized intersections is summarized below.

Level of Service	Control Delay per Vehicle(s)
A	≤10
B	> 10 – 20
C	> 20 – 35
D	> 35 – 55
E	> 55 – 80
F	> 80

2.1.2 Unsignalized Intersection Performance Measures

Stop controlled intersection analysis considers 2 separate measures of performance:

- The capacity of the intersection's critical movements, which is based on a volume to capacity ratio.
- The level of service for the critical movements, which is based on the average control delay per vehicle for the various critical movements within the intersection. The link between LOS and delay (in seconds) for stop-controlled intersections is summarized below.

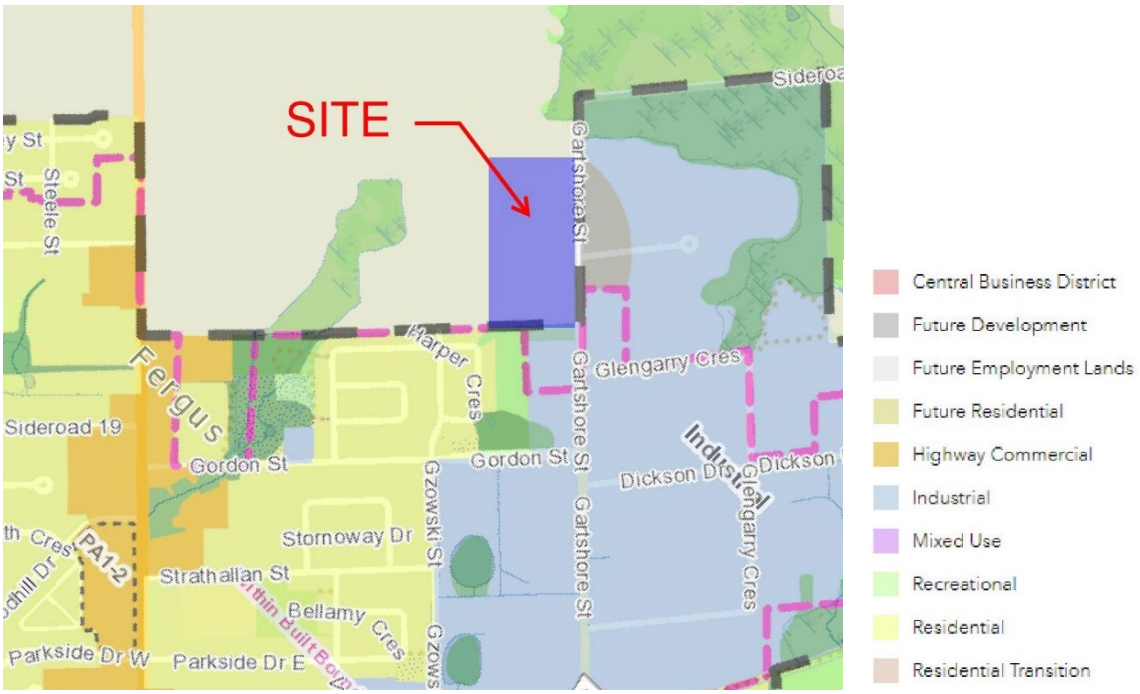
Level of Service	Control Delay per Vehicle(s)
A	0 – 10
B	> 10 – 15
C	> 15 – 25
D	> 25 – 35
E	> 35 – 50
F	> 50

3.0 Existing Conditions

3.1 Site Context

The community of Fergus is the largest community in the Township and has approximately 20,767 people (Statistics Canada, 2016). A significant percentage of the retail and restaurant businesses in Fergus are along Highway 6 (St. David Street North), which is the main north-south road in the community. The majority of industrial developments are located in the northeast part of the community, as shown on Schedule A-1 of the Official Plan (as illustrated in Figure 3), and the proposed development is also located in this area.

Figure 3: Township Official Plan Schedule A-1



Source: Township OP, Schedule A-1

The development property was predominantly farmlands, with an existing farmhouse building remaining located west of the Gartshore Street / Gregson Court intersection. The existing farmhouse may be retained as part of the development. The proposed development is bounded by Gartshore Street to the east, vacant lands to the north and west. South of the property is Harper Crescent Park and industrial developments.

3.2 Existing Road Network

The existing road network is described below.

Highway 6 / St. David Street North

Highway 6 / St. David Street North is a north-south roadway. North of Sideroad 19, the roadway is Highway 6, and it is a provincial highway under the MTO jurisdiction. South of Sideroad 19, the roadway is St. David Street North, and it is a connecting link arterial road under the Township jurisdiction. The Township TMP recommends that the connecting link designation be extended to Sideroad 18 in the future.

South of Sideroad 19, the roadway has a 3-lane urban cross section with a posted speed limit of 50 km/h. North of Sideroad 19, Highway 6 has a 2-lane rural cross section, with a centre median (delineated by lane marking only) and partially paved shoulders. The posted speed limit is 60 km/h, north of Sideroad 19 and transitions to a posted speed limit of 80 km/h, north of Sideroad 18. Sidewalks are provided on both sides of the street. The sidewalk on the east side terminates at Gordon Street and the sidewalk on the west side terminates at Sideroad 19.

Gartshore Street

Gartshore Street is a north-south arterial road, under the jurisdiction of the County for the section south of Glengarry Crescent and under the jurisdiction of the Township north of Glengarry Crescent. The roadway terminates at Sideroad 10 to the north. Gartshore Street has a 2-lane urban cross section south of the Elora Cataract Trailway and has a rural cross section to the north. The roadway has a posted speed limit of 50 km/hr. Sidewalks are provided on both sides of the street between Elora Cataract Trailway and Garafraxa Street East.

Garafraxa Street East / Wellington Road 1

Garafraxa Street E / Wellington Road 19 is an east-west arterial road under the jurisdiction of the County. It has a 2-lane urban cross section and posted speed limit of 40 km/h. Sidewalk is provided on both sides of the road with the sidewalks ending about 120 metres east of Robinson Road.

Side Road 15

Sideroad 15 is an east-west collector road under the jurisdiction of the Township. The Township TMP recommends that this road have an arterial road classification in the future. The roadway terminates at Highway 6 to the east and James Street to the west. It has a 2-lane rural cross section and an assumed unposted speed limit of 80 km/hr.

Gordon Street

Gordon Street is an east-west collector road under the jurisdiction of the Township. It has a 2-lane urban cross section and a posted speed limit of 50 km/hr. Gordon Street has a raised, vegetated centre median to the east of Gzowski Street. Sidewalks are provided on both sides of the road west of Gzowski Street and on south side east of Gzowski Street.

Dickson Drive

Dickson Drive is an east-west collector road under the jurisdiction of the Township. The roadway extends approximately 630 m to the eastward from Gartshore Street and terminates as a cul-de-sac. The Township is currently in the process of extending Dickson Drive between its current termination point and First Line, as part of the development of a Municipal Business Park in this area.

Dickson Drive has a 2-lane rural cross section and an assumed unposted speed limit of 50 km/hr.

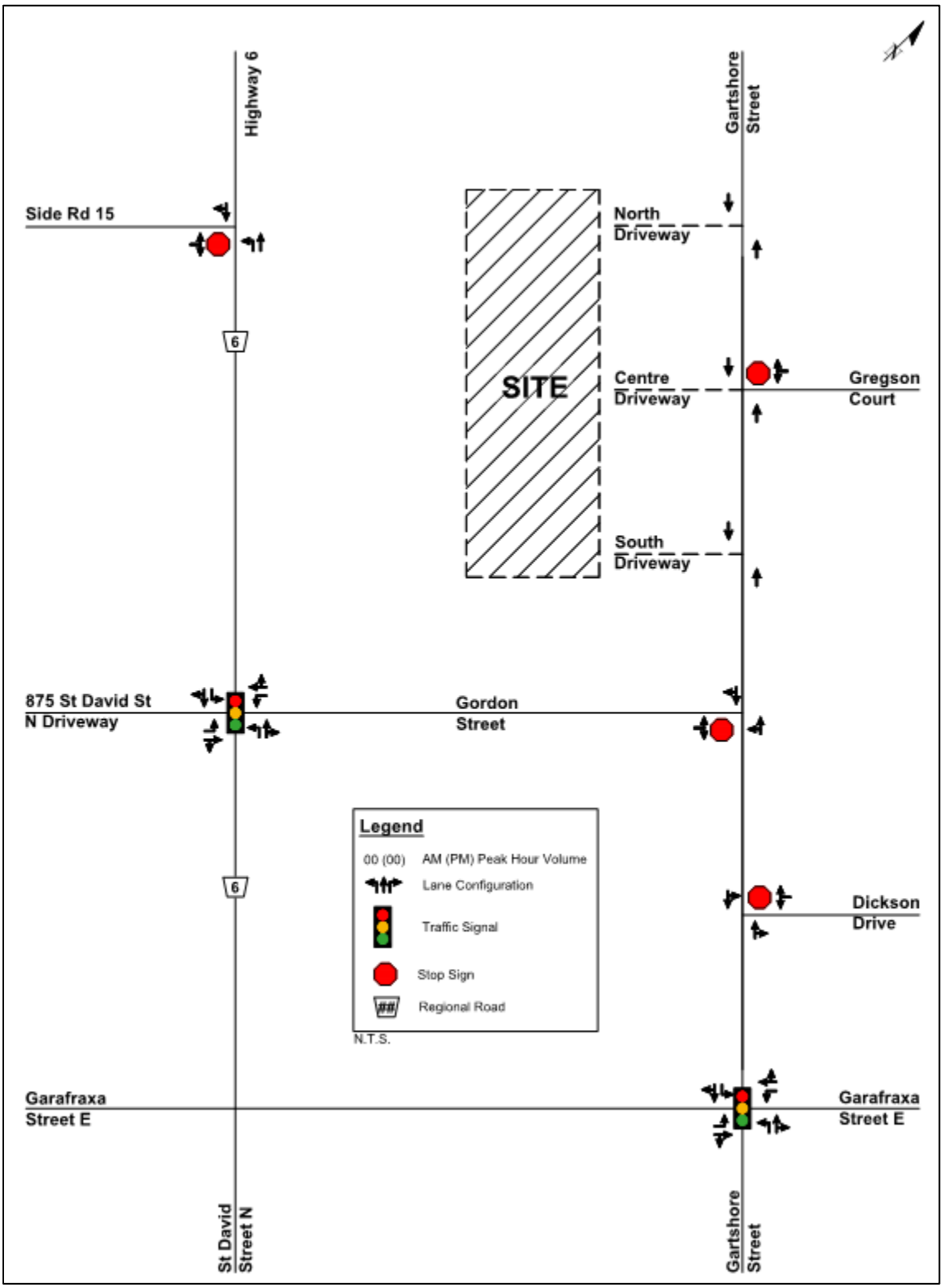
Gregson Court

Gregson Court is an east-west local road under the jurisdiction of the Township. The roadway extends approximately 250 m to the eastward from Gartshore Street and terminates as a cul-de-sac.

Gregson Court has a 2-lane rural cross section and an assumed unposted speed limit of 50 km/hr.

The existing lane configuration and traffic control is illustrated in Figure 4.

Figure 4: Existing Lane Configuration and Traffic Control



3.3 Existing Transit Services

Currently, the County has launched a pilot rideshare transit service that is county-wide, called RIDE WELL^{OM}. This pilot program is expected to be complete in 2025. RIDE WELL^{OM} provides year-round (excluding Statutory Holidays), Monday to Friday, 6:00 AM to 7:00 PM services within the County. This is a rideshare service where residents can book a ride via a mobile application, website and / or by calling a service number. There is no fixed route. Trip requests are real-time. The service will take riders within the County for a fixed fee and to designated transit hubs (Guelph Owen Sound Transportation and GO Transit) in Mount Forest, Arthur, Fergus, Elora, Guelph, Rockwood, and Aberfoyle.

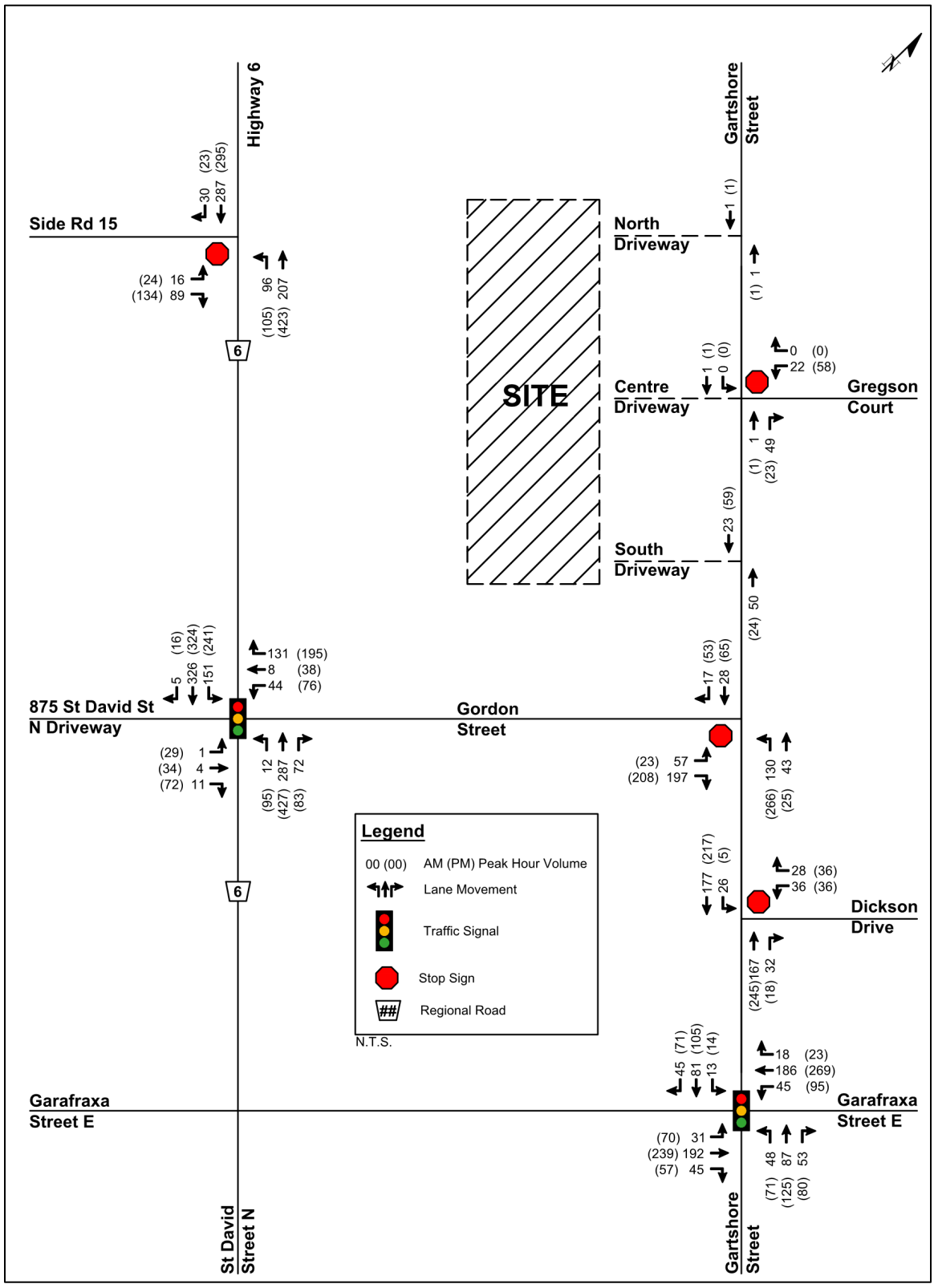
3.4 Existing Traffic Volumes

Existing traffic counts at the intersections identified in Section 2.0 were undertaken for the weekday morning AM peak period (7:00 AM to 9:00 AM) and afternoon PM peak period (4:00 PM to 6:00 PM). Traffic counts were conducted by Ontario Traffic Inc., on behalf of Burnside on Wednesday, July 6, 2022, except for the Dickson Drive / Gartshore Street intersection. The turning movement counts from this intersection were obtained from the Dickson TIS and dated Tuesday, September 2021. The weekday AM and PM peak hours were selected as these are typical peak traffic periods on the road network.

As the traffic counts at the Dickson Drive / Gartshore Street intersection are dated, growth rate was applied to bring the traffic volumes to existing conditions (year 2022). A review of historical counts obtained from the County and Township found that traffic volumes along Gartshore have decreased or remained approximately the same between 2003 to 2020. However, to be conservative, a 1% compound annual growth rate was applied to all movements at the Dickson Drive / Gartshore Street intersection.

The existing 2022 traffic volumes are illustrated in Figure 5. All turning movement counts are provided in Appendix A.

Figure 5: Existing 2022 Traffic Volumes



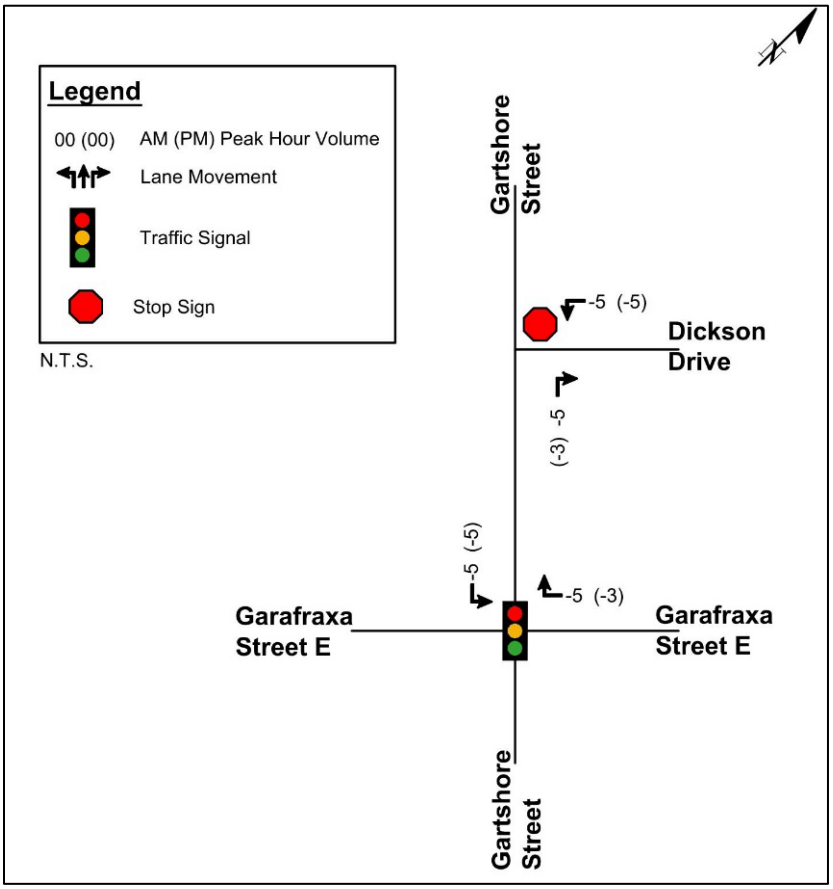
4.0 Future Background Conditions

Future background traffic consists of existing traffic, background traffic growth and traffic from other developments. Background traffic growth and traffic from other developments are discussed below. Future road network, transit and active transportation improvements within the study horizon year are also discussed. With the anticipated build-out year of 2027 for Phase 1, the horizon year of 2032 (i.e., 5 years after build-out) and 2037 (i.e., 10 years after build-out) were selected for future projections.

4.1 Future Road Network

A 2-lane extension of Dickson Drive is planned to be constructed by 2023, between the existing easterly limit to First Line. Estimates of the future traffic that will utilize the extended Dickson Drive were based on the Dickson TIS, which stated that 15% of the inbound and outbound industrial lands traffic on Dickson Drive would utilize First Line. The diversion of traffic to / from the west, originating from the existing industrial lands, will more than offset any increases in traffic from the new Business Park, resulting in a net reduction of traffic contributing to the intersection of Dickson Drive / Gartshore Street. The projected trips are illustrated in Figure 6.

Figure 6: Projected Trips due to Future Dickson Drive Extension



The Township has informed us that the bridge (Bridge 24-WG) on First Line between Sideroad 10 and Sideroad 15 has been closed since July 2018 and it is anticipated that the bridge will be replaced and reopened to traffic by 2024. The status of this bridge has been noted; however, it will not impact the analysis in this current TIS, as there will not be a significant impact to the travel pattern of the study intersections.

In addition, there are also several improvements identified in the Township TMP. However, these improvements are planned to be beyond 2041. This includes the extension of Gartshore Street to the north and intersection improvements along Highway 6 at Sideroad 15 and Gordon Street. The extended Gartshore street is planned to connect to Highway 6 opposite of Sideroad 15. The detail of the extension is still under review and will be subject to a larger area study. It is noted by the Township that, due to the presence of the wetland complex north and west of the site, the alignment will need to be carefully assessed. The Township had indicated that the extended Gartshore is potentially planned to be classed as a major collector rather than an arterial road.

4.2 Future Transit

There are no planned transit improvements within the study area and horizon years.

4.3 Future Active Transportation

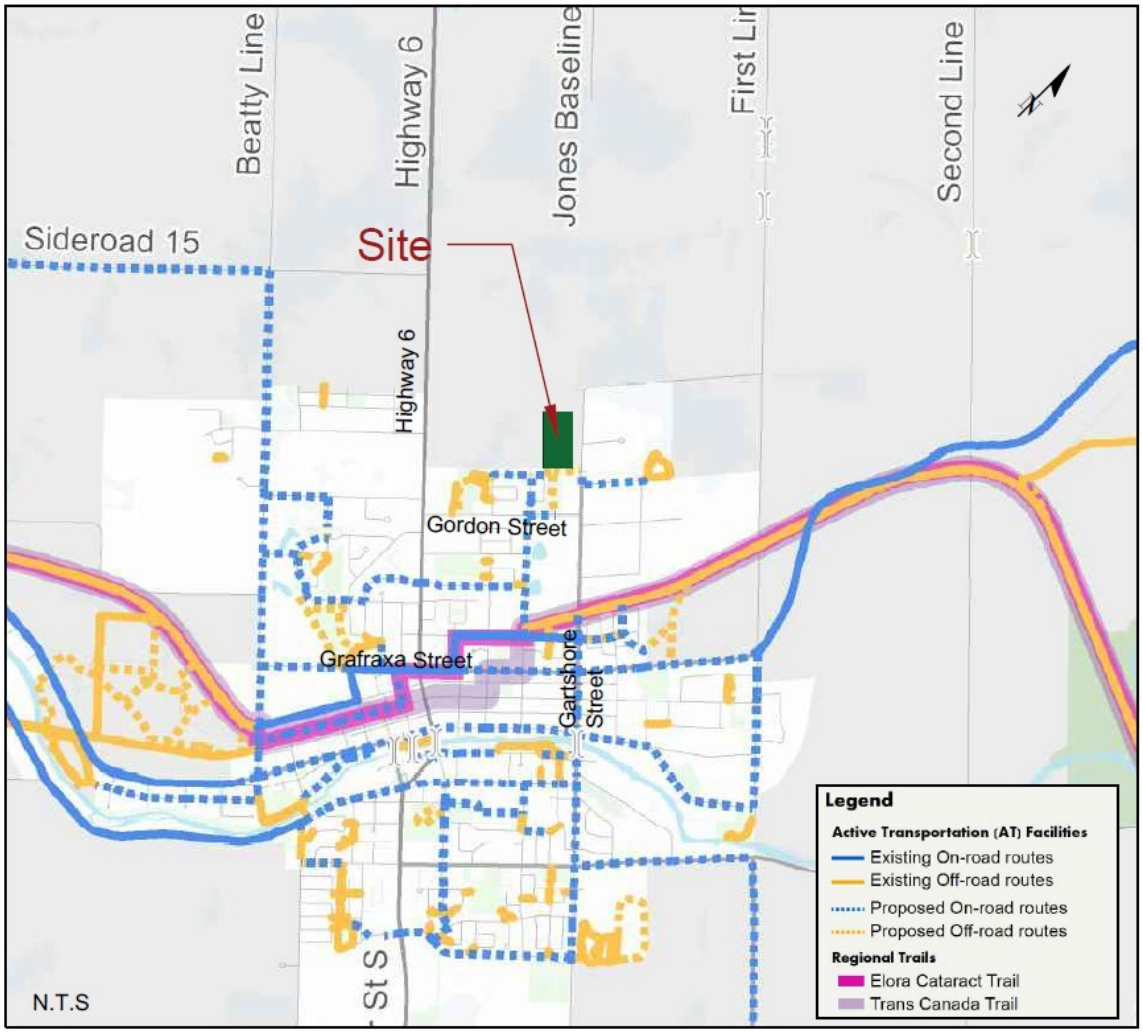
The Township TMP proposes active transportation (AT) routes within the study area. The following AT routes are proposed, which are also illustrated in Figure 7 (excerpt from Township TMP, Figure 37). The following AT routes are planned:

- Off-road route, west of Gartshore Street, south of the site, connecting through the Harper Crescent Park onto Gordon Street.
- Off-road route, west of Gibbons Drive Park, extending south to Gordon Street.
- On-road route, easterly along Glengarry Crescent and extending a short distance along Gartshore Street to the north of Glengarry Crescent.

As part of the future Dickson Drive business park expansion, a north-south off-road multi-use path will be constructed through the business park connecting to the Elora Cataract Trailway.

In addition, on-road routes are planned along Gibbons Drive, Gzowski Street, Garafraxa Street / Wellington Road 19, and Gartshore Street, south of the Elora Cataract Trailway. However, there is no indication of timeline on when these improvements will be implemented.

Figure 7: Existing and Planned Active Transportation Network



Source: Township TMP, Figure 37

4.4 Background Traffic Growth

Historical traffic counts were reviewed, based on data obtained from the MTO, County and Township, for the period from 2003 to 2020. Based on the growth patterns of the historical counts, a growth rate of 0.5% compounded annually is applied to Highway 6 / St. David Street and a growth rate of 1% compounded annually is applied to Gartshore Street, Garafraxa Street and Sideroad 15. No growth was applied to Dickson Drive, Gordon Street and other driveways since those areas are fully built or have had growth forecasted based on background developments, as noted in the next section. Detailed growth analysis is provided in Appendix B.

4.5 Background Developments

The Township provided information on background developments within the proximity of the site for inclusion in the analysis. The developments are summarized in Table 1. Trips generated from each development were included in the background traffic projections. Excerpts of the site traffic figures from each development are provided in Appendix C.

Table 1: Background Development Summary

Address	Development Statistics			Source
	Proposed Use	AM Trips	PM Trips	
Industrial Developments along Dickson Drive	360,000 ft^2 Business Park	457	451	Dickson TIS
950 & 960 St. David Street N	112 Townhouses, 13,500 ft^2 Retail	93	165	*950 & 960 St. David Street N Transportation Impact Study*, prepared by Paradigm Transportation Solutions Limited, dated May 2022
961 St. David Street N	23 Single Family Homes	21	25	*961 St. David Street North Transportation Study*, prepared by Paradigm Transportation Solutions Limited, dated April 2021

The Dickson TIS assumed that the Township's Business Park would be fully occupied by 2026 and that the extension of Dickson Drive would be in place to serve this development. The Dickson TIS identified the potential need to implement traffic signals at the intersection of Gartshore Street / Dickson Drive in this time period. The traffic volume forecasts from the TIS have been carried forward in this current TIS, however the Peak Hour Factors (PHFs) have been adjusted. The Dickson TIS applies the existing PHFs for each movement at this intersection, while the current TIS applies PHFs for the overall intersection, based on typical urban conditions (Synchro default PHF=0.92) and a review of the PHF for the overall intersection. This methodology is considered conservative and more representative of PHF under typical urban conditions, as assessing PHF by movement may result in underestimating the traffic flow.

Therefore, the previous recommendation for signalization at this intersection may not apply.

4.6 Background Traffic Volumes

Background traffic volumes consist of the traffic projections from Dickson Drive extension, application of growth per annum (up to the horizon years of 2032 and 2037) and traffic from background developments. The resulting background for 2032 and 2037 traffic volumes are illustrated in Figure 8 and Figure 9 respectively.

Figure 8: 2032 Background Traffic Volumes

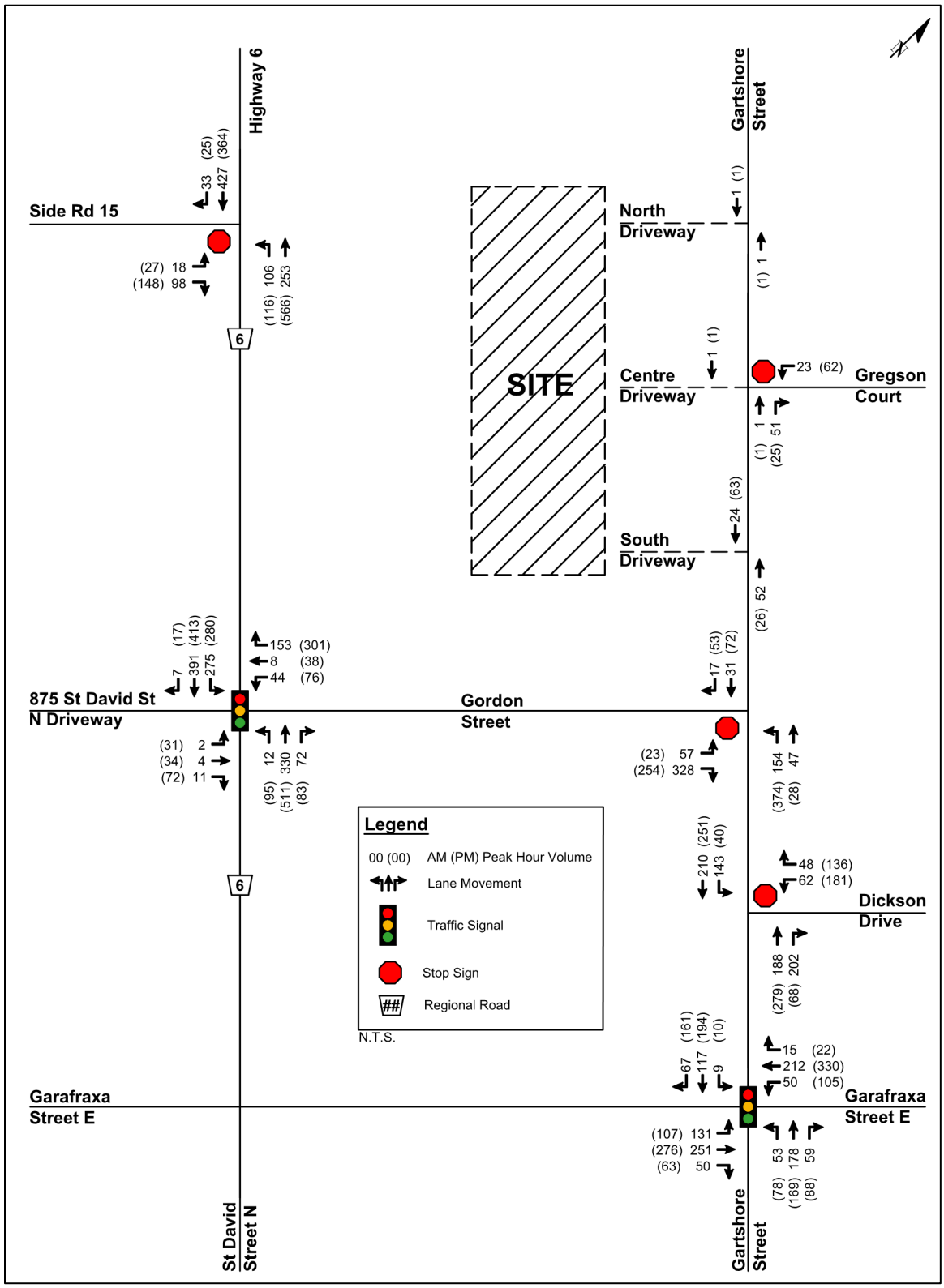
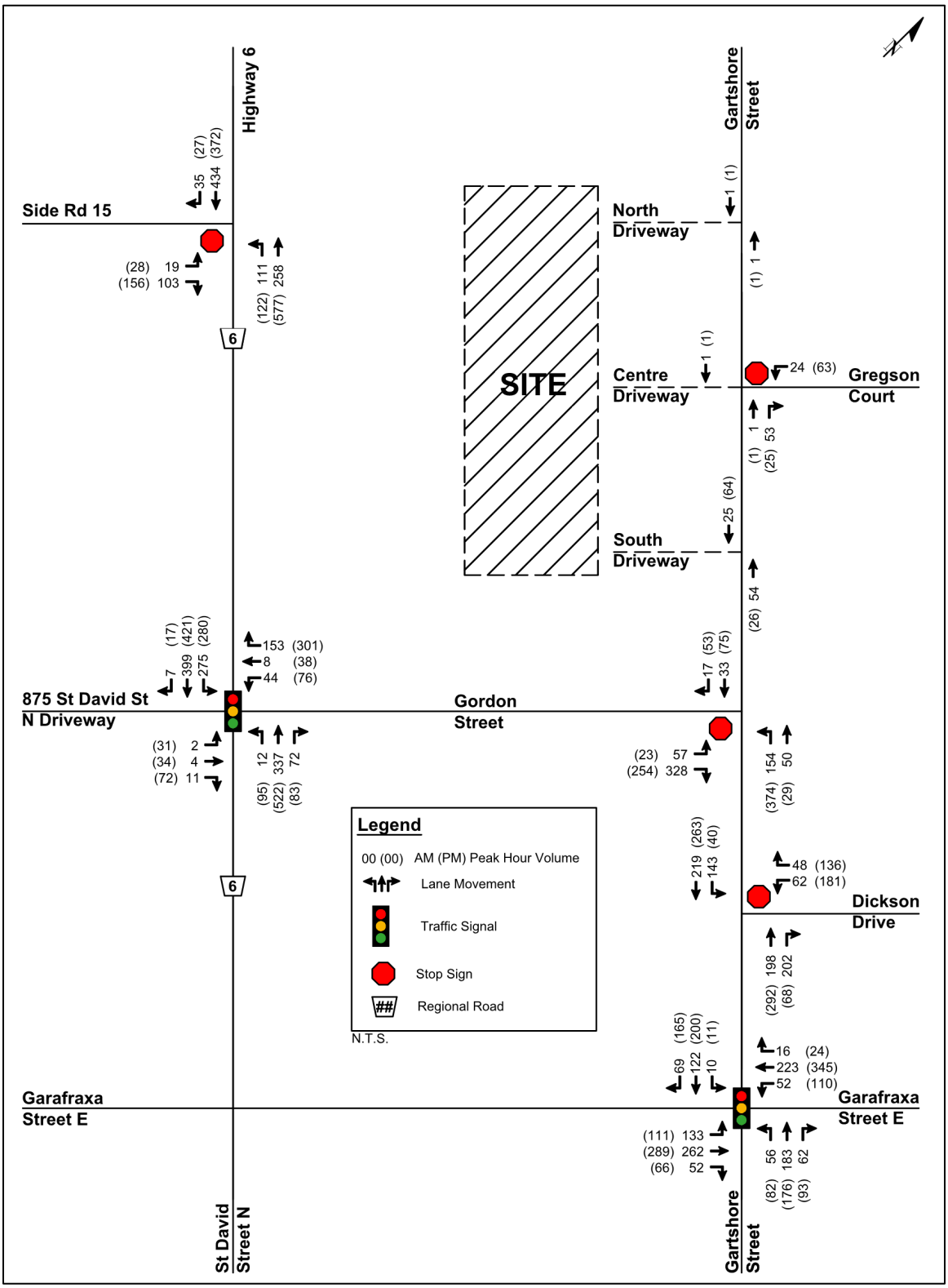


Figure 9: 2037 Background Traffic Volumes



5.0 Proposed Development

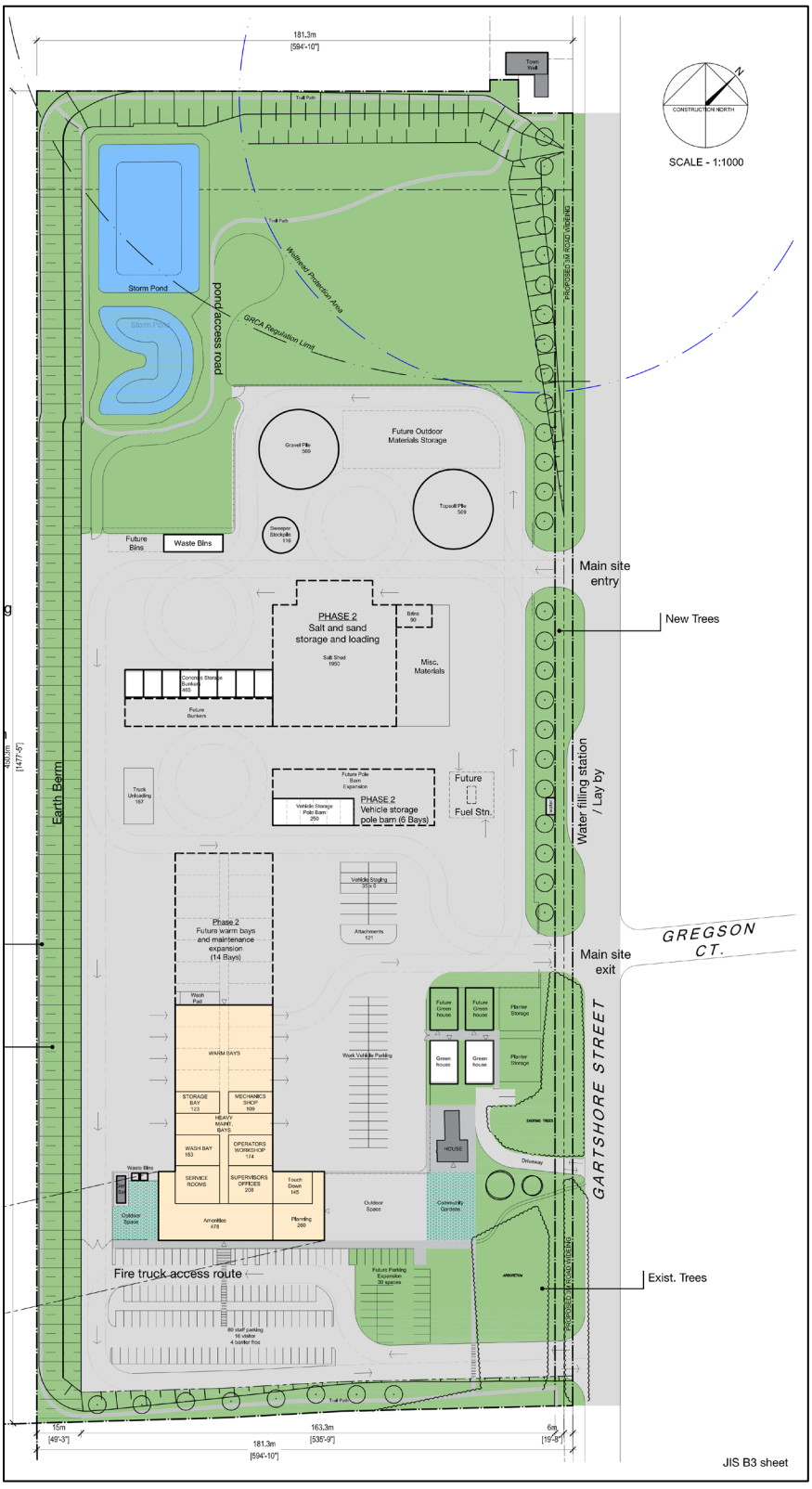
The proposed development will consist of two phases. Phase 1 has an approximate total gross floor area (GFA) of 3,560 m^2 (38,321 ft^2) and is expected to be built-out by 2027.

Phase 1 of the facility will include an exterior works yard, an outdoor operations area, garage buildings including heated and unheated storage bays, workshop space, maintenance bays and a greenhouse. The proposed parking supply consists of 100 staff / visitor parking spaces, 34 work vehicle parking spaces, 6 vehicle staging parking spaces and is expected to be built-out by 2027.

Phase 2 of the facility is expected to be built-out beyond 20 years and will include additional heated and unheated garage areas, salt storage facility and additional greenhouses for an approximate total build-out GFA of 5,515 m^2 (59,365 ft^2). This phase will not be considered in this current study.

Accesses to the proposed Operations Facility are provided along Gartshore Street via one full movement driveway, one inbound-only driveway and one outbound-only driveway. The site plan is shown in Figure 10.

Figure 10: Proposed Site Plan



5.1 Trip Generation

Trip generation was based on information contained in the *Trip Generation Manual, 11th Edition*, published by the Institute of Transportation Engineers. The following Land Use Code (LUC) 710 (General Office Building) was assumed for all office related components and LUC 170 (Utility) was used for the remaining components. In addition, general urban / suburban conditions were assumed. Table 2 summarizes the resulting trip generation for the proposed development.

Table 2: Site Trip Generation

Land Use (Size)	Weekday AM Peak Hour			Weekday PM Peak Hour		
	In	Out	Total	In	Out	Total
General Office Building (12,623 ft²)[1]	25	3	28	5	25	30
Utility (25,698 ft²)	52	8	60	6	27	33
Total	***77***	***11***	***88***	***11***	***52***	***63***

5.2 Trip Distribution and Assignment

Trip distribution and assignment of site trips were based upon existing traffic patterns, the available road network, and a review of other TIS reports in the vicinity of the study area. The estimated distribution for the generated trips is summarized in Table 3.

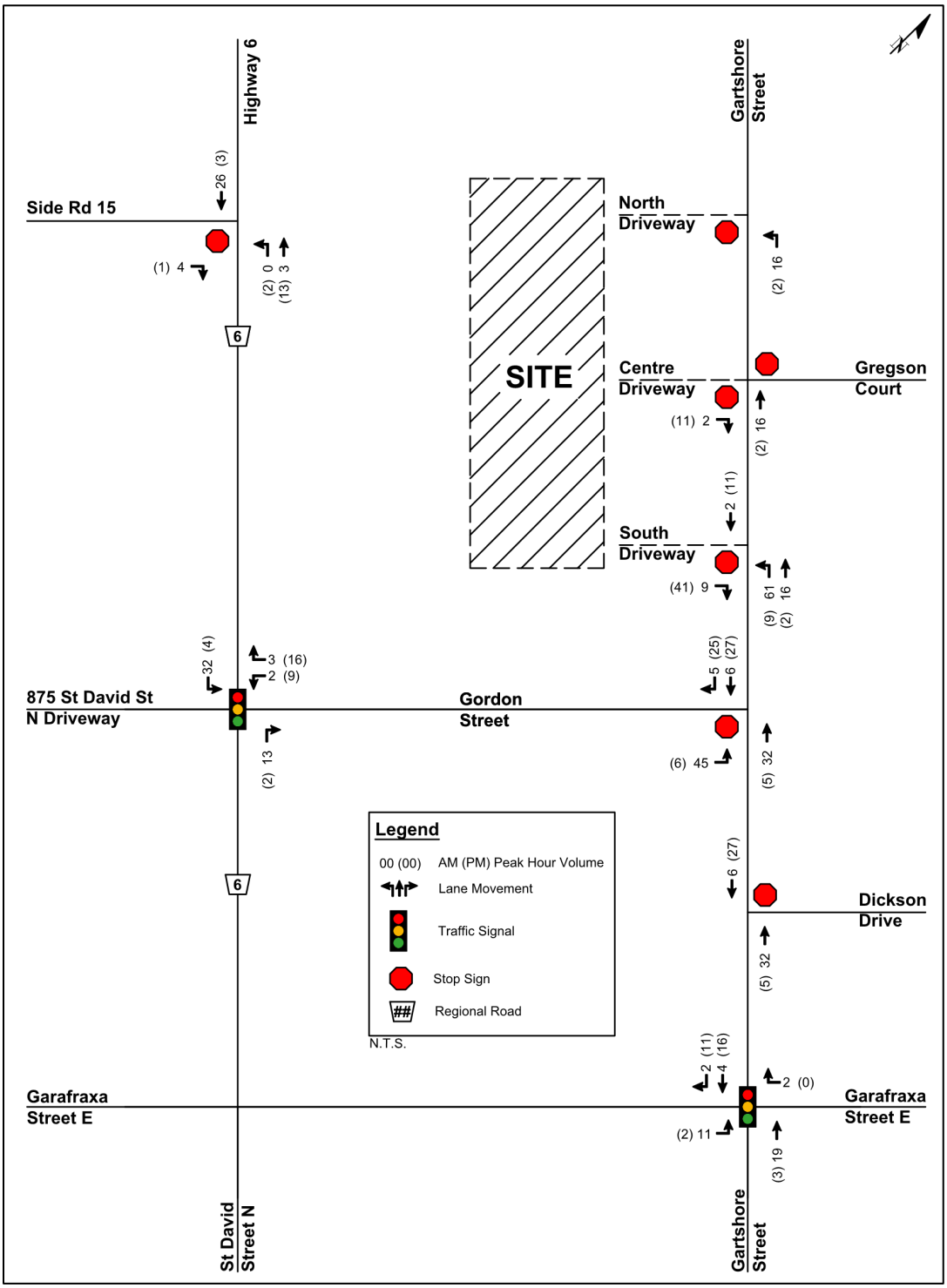
Table 3: Trip Distribution

To/From	Via	Inbound / Outbound Distribution				
		Passenger Vehicles				Trucks
	Peak Period	AM		PM		AM/PM
	Directional Split	In	Out	In	Out	
West	Garafraxa St (Wellington Rd 19)	19%	25%	14%	24%	0%
	Sideroad 15 and other sideroads	11%	0%	14%	8%	0%
East	Garafraxa St (Wellington Rd 19)	2%	0%	15%	3%	0%
North	Highway 6 (via Gordon Street)	32%	25%	14%	24%	40%
South	St David St (via Gordon Street)	11%	13%	14%	11%	33%
	Gartshore Street	25%	37%	29%	30%	27%
Total		**100%**				**100%**

Truck traffic was assumed to be 20% of the total trips and assigned to the northerly driveways on Gartshore Street. The remaining 80% of the site traffic was assignment to the southerly driveway on Gartshore Street. The resulting site traffic is illustrated in

Figure 11. Note that as the northerly driveways are inbound and outbound driveways, it is combined for the analysis to be conservative.

Figure 11: Site Traffic Volumes



6.0 Total Traffic

Total traffic volumes consist of background traffic volumes plus the site traffic were illustrated in Figure 11. The resulting 2032 and 2037 total traffic volumes are shown in Figure 12 and Figure 13 respectively. Note that the northbound and southbound through traffic at the north and south driveways on Gartshore Street was assumed to be half of the screenline volume north of Gordon Street / Gartshore Street intersection as there are relatively little surrounding developments at those locations.

Figure 12: 2032 Total Traffic Volumes

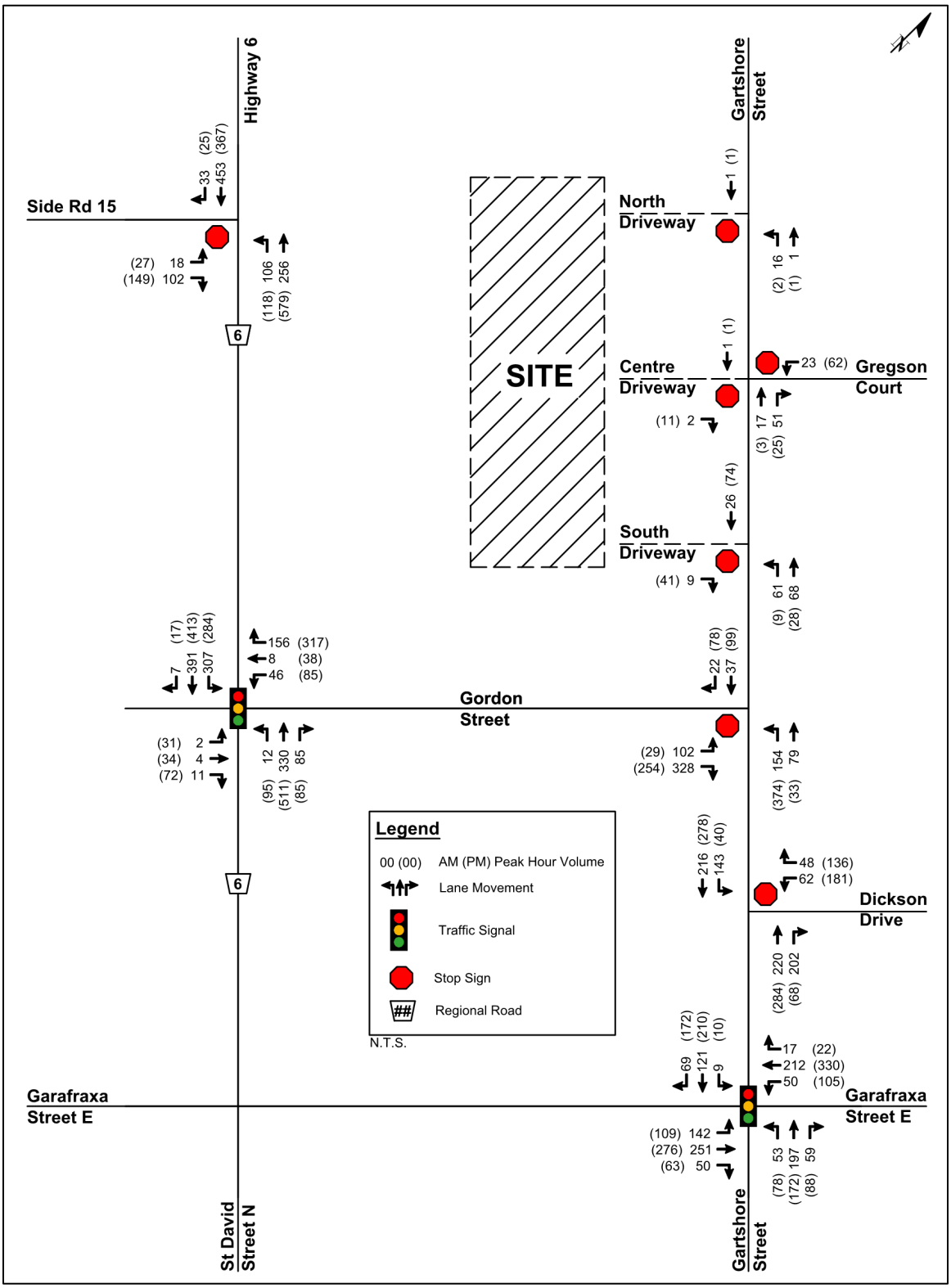
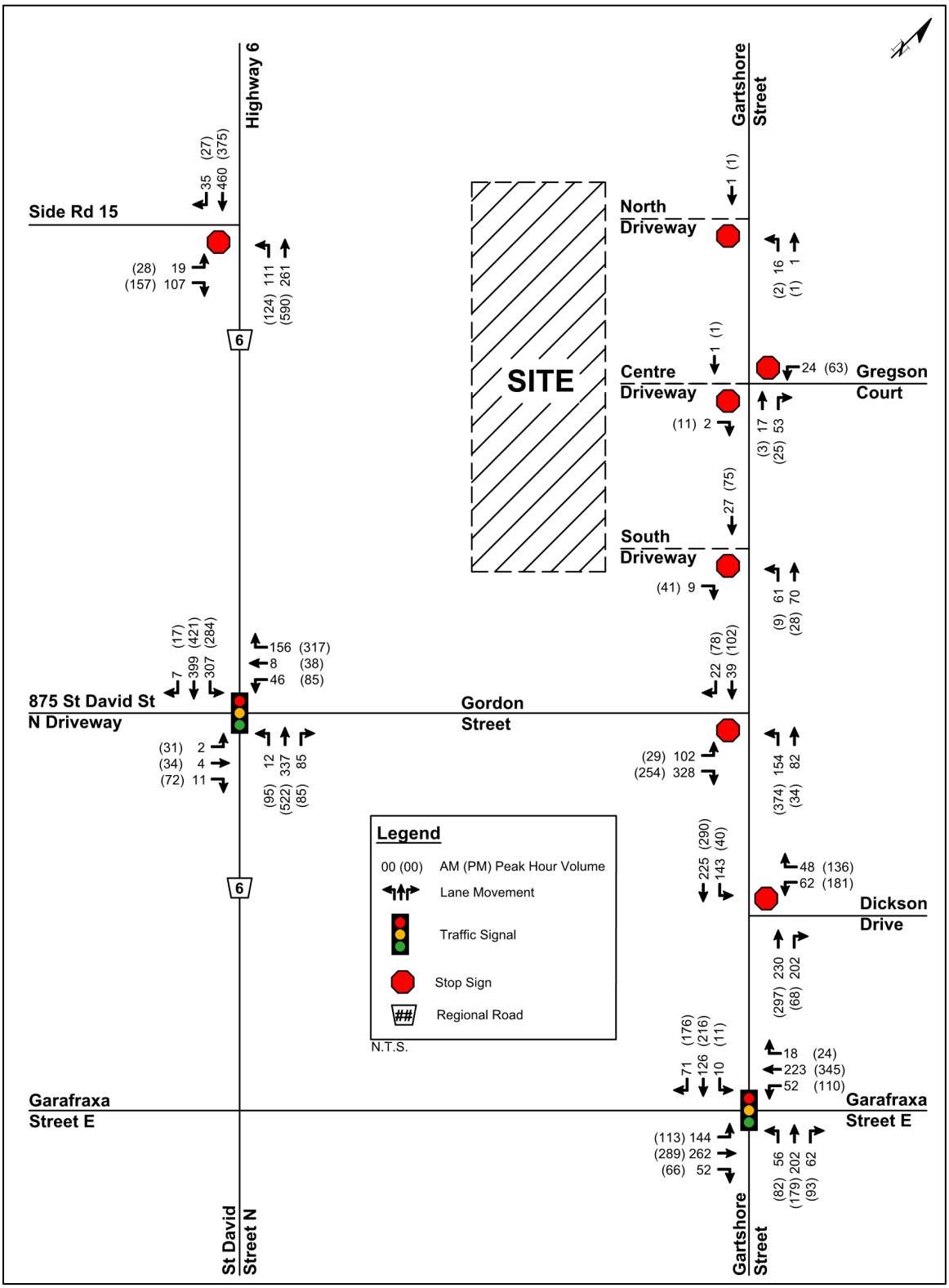


Figure 13: 2037 Total Traffic Volumes



7.0 Traffic Operations Analysis

Traffic operations analyses were conducted under existing and future traffic conditions for the weekday AM and PM peak hours at all study intersections. In addition, queueing was reviewed using Synchro's 95th percentile queue. A comparison of the existing storage / link distances and projected queues are summarized. Detailed Synchro and queue reports are provided in Appendices D through H.

7.1 Highway 6 / St. David Street / Gordon Street/ Commercial Driveway Intersection

The existing, background and total traffic operations at the Highway 6 / St. David Street / Gordon Street / Commercial Driveway intersection are summarized in Table 4.

Table 4: Highway 6 / St. David Street / Gordon Street Intersection Operations

Movement	Existing Storage / Link Distance (m)	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	LOS	95th Queue (m)	v/c	LOS	95th Queue (m)
Existing Conditions							
Overall	-	0.38	B	-	0.51	B	-
EBL	15	0.01	C	2	0.30	C	12
EBTR	50+	0.03	C	6	0.20	C	17
WBL	27	0.32	C	15	0.45	C	23
WBTR	500+	0.15	C	14	0.31	C	24
NBL	90	0.02	A	2	0.15	A	9
NBTR	200	0.41	A	47	0.53	B	80
SBL	26	0.28	A	11	0.49	A	21
SBTR	500+	0.33	A	43	0.34	A	49
Background 2032 Conditions							
Overall	-	0.54	B	-	0.64	B	-
EBL	15	0.02	C	2	0.32	C	12
EBTR	50+	0.03	C	6	0.19	C	17
WBL	27	0.32	C	15	0.42	C	22
WBTR	500+	0.17	C	15	0.37	C	28
NBL	90	0.02	A	2	0.17	A	11
NBTR	200	0.46	B	56	0.63	B	111
SBL	26	0.55	A	21	0.67	B	35
SBTR	500+	0.39	A	54	0.43	B	72

Table 4: Highway 6 / St. David Street / Gordon Street Intersection Operations continued

Movement	Existing Storage / Link Distance (m)	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	LOS	95th Queue (m)	v/c	LOS	95th Queue (m)
Background 2037 Conditions							
Overall	-	0.55	B	-	0.65	B	-
EBL	15	0.02	C	2	0.32	C	12
EBTR	50+	0.03	C	6	0.19	C	17
WBL	27	0.32	C	15	0.42	C	22
WBTR	500+	0.17	C	15	0.37	C	28
NBL	90	0.02	A	2	0.17	A	11
NBTR	200	0.46	B	57	0.64	B	114
SBL	26	0.55	A	21	0.69	B	37
SBTR	500+	0.40	A	55	0.44	B	73
Total 2032 Conditions							
Overall	-	0.61	B	-	0.66	B	-
EBL	15	0.02	C	2	0.32	C	12
EBTR	50+	0.03	C	6	0.18	C	17
WBL	27	0.33	C	16	0.45	C	24
WBTR	500+	0.17	C	15	0.38	C	28
NBL	90	0.02	A	2	0.17	A	11
NBTR	200	0.47	B	58	0.63	B	113
SBL	26	0.62	A	24	0.69	B	38
SBTR	500+	0.39	A	54	0.43	B	72
Total 2037 Conditions							
Overall	-	0.55	B	-	0.67	B	-
EBL	15	0.02	C	2	0.32	C	12
EBTR	50+	0.03	C	6	0.18	C	17
WBL	27	0.32	C	15	0.45	C	24
WBTR	500+	0.17	C	15	0.38	C	28
NBL	90	0.02	A	2	0.17	A	11
NBTR	200	0.46	B	57	0.64	B	116
SBL	26	0.55	A	21	0.70	B	40
SBTR	500+	0.40	A	55	0.44	B	74

Under existing and future conditions, the critical movements for this intersection are operating and will operate with excess capacity and a level of service C or better. Queues are projected to be within the existing storage with one exception. Under background conditions during the afternoon peak hour, the southbound left turn queue is forecasted to extend into the taper area by about 1 vehicle during the PM peak hour under 2032 and 2037 Background traffic conditions. Under 2032 and 2037 PM Peak Hour Total traffic conditions the southbound left turn queue is forecasted to extend into the taper area by about 1 to 2 vehicles. To mitigate the identified future queuing deficiency, it is recommended that the signal timing be optimized at this intersection. A sensitivity analysis was completed to compare the operations with and without signal

optimization, for the worse-case scenario (i.e., Total 2037 PM Peak Hour), as summarized in Table 5.

Table 5: Highway 6 / St. David / Gordon Intersection Operations Total 2037 PM Peak Hour

Movement	Existing Storage / Link Distance (m)	Without Improvements			With Signal Timing Improvements		
		v/c	LOS	95th Queue (m)	v/c	LOS	95th Queue (m)
Total 2037 Conditions							
Overall	-	0.67	B	-	0.62	B	-
EBL	15	0.32	C	12	0.38	D	14
EBTR	50+	0.18	C	17	0.18	D	19
WBL	27	0.45	C	24	0.46	D	28
WBTR	500+	0.38	C	28	0.38	D	33
NBL	90	0.17	A	11	0.17	A	11
NBTR	200	0.64	B	116	0.65	B	142
SBL	26	0.70	B	40	0.63	A	31
SBTR	500+	0.44	B	74	0.41	B	73

With the signal timing improvements, the southbound left turn queue is forecasted to have minimal encroachment into the taper area. It is also important to note that any encroachment will be an infrequent occurrence and therefore traffic operations are acceptable.

It is noted that any extension of the southbound left turn lane at the intersection of Highway 6 / Gordon Street will also need to consider the northbound left turn storage requirements at the intersection of Highway 6 / Sideroad 19, since these intersections are served by back-to-back left turn lanes. The future phase 2 study will review the left turn storage requirements for both intersections and analyze an optimized signal timing plan as required.

7.2 Gartshore Street / Garafraxa Street Intersection

The existing, background and total traffic operations, at the intersection of Gartshore Street / Garafraxa Street, are summarized in Table 6.

Table 6: Gartshore Street / Garafraxa Street Intersection Operations

Movement	Existing Storage / Link Distance (m)	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	LOS	95th Queue (m)	v/c	LOS	95th Queue (m)
Existing Conditions							
Overall	-	0.27	B	-	0.34	B	-
EBL	38	0.12	B	9	0.30	B	16
EBTR	300+	0.53	C	40	0.59	C	49
WBL	37	0.20	B	11	0.41	B	21
WBTR	100+	0.49	B	36	0.60	C	49
NBL	20	0.08	A	9	0.12	A	12
NBTR	100+	0.14	A	15	0.20	A	21
SBL	28	0.02	A	4	0.02	A	4
SBTR	500+	0.13	A	14	0.17	A	17
Background 2032 Conditions							
Overall	-	0.40	B	-	0.50	B	-
EBL	38	0.49	C	28	0.52	C	25
EBTR	300+	0.61	C	51	0.64	C	57
WBL	37	0.24	B	13	0.49	C	24
WBTR	100+	0.49	B	40	0.67	C	61
NBL	20	0.10	A	10	0.18	A	13
NBTR	100+	0.28	A	28	0.28	A	28
SBL	28	0.02	A	3	0.02	A	3
SBTR	500+	0.20	A	20	0.39	B	39
Background 2037 Conditions							
Overall	-	0.41	B	-	0.52	B	-
EBL	38	0.51	C	28	0.57	C	27
EBTR	300+	0.63	C	54	0.67	C	60
WBL	37	0.26	B	13	0.54	C	26
WBTR	100+	0.52	B	42	0.70	C	65
NBL	20	0.11	A	10	0.19	A	14
NBTR	100+	0.29	A	30	0.29	A	30
SBL	28	0.02	A	3	0.02	A	3
SBTR	500+	0.21	A	21	0.40	B	40
Total 2032 Conditions							
Overall	-	0.41	B	-	0.51	B	-
EBL	38	0.54	C	30	0.53	C	25
EBTR	300+	0.61	C	51	0.64	C	57
WBL	37	0.24	B	13	0.49	C	24
WBTR	100+	0.50	B	40	0.67	C	61
NBL	20	0.10	A	10	0.19	A	13
NBTR	100+	0.30	A	31	0.28	A	29
SBL	28	0.02	A	3	0.02	A	3
SBTR	500+	0.21	A	21	0.42	B	43

Table 6: Gartshore Street / Garafraxa Street Intersection Operations continued

Movement	Existing Storage / Link Distance (m)	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	LOS	95th Queue (m)	v/c	LOS	95th Queue (m)
Total 2037 Conditions							
Overall	-	0.41	B	-	0.54	B	-
EBL	38	0.51	C	28	0.58	C	28
EBTR	300+	0.63	C	54	0.67	C	60
WBL	37	0.26	B	13	0.54	C	26
WBTR	100+	0.52	B	42	0.70	C	65
NBL	20	0.11	A	10	0.20	A	14
NBTR	100+	0.29	A	30	0.30	A	30
SBL	28	0.02	A	3	0.02	A	3
SBTR	500+	0.21	A	21	0.44	B	45

Under existing, background and total conditions, the intersection is operating and will operate with excess capacity and a level of service C or better. Queues are projected to be within the existing storage.

7.3 Highway 6 / Sideroad 15 Intersection

The existing, background and total traffic operations, at the Highway 6 /Sideroad 15 intersection, are summarized in Table 7.

Table 7: Highway 6 / Sideroad 15 Intersection Operations

Movement	Existing Storage / Link Distance (m)	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	LOS	95th Queue (m)	v/c	LOS	95th Queue (m)
Existing Conditions							
EBLR	500+	0.18	B	6	0.32	B	11
NBL	130	0.08	A	3	0.09	A	3
Background 2032 Conditions							
EBLR	500+	0.25	B	8	0.44	C	17
NBL	130	0.11	A	3	0.11	A	3
Background 2037 Conditions							
EBLR	500+	0.27	C	9	0.48	C	20
NBL	130	0.11	A	3	0.12	A	4
Total 2032 Conditions							
EBLR	500+	0.27	C	9	0.45	C	18
NBL	130	0.11	A	3	0.11	A	3
Total 2037 Conditions							
EBLR	500+	0.27	C	9	0.49	C	20
NBL	130	0.11	A	3	0.12	A	4

Under existing, background and total conditions, the intersection is operating and will operate with excess capacity and a level of service C or better. Queues are projected to be within the existing storage.

7.4 Gartshore Street / Gordon Street Intersection

The existing, background and total traffic operations, at the intersection of Gartshore Street / Gordon Street, are summarized in Table 8.

Table 8: Gartshore Street / Gordon Street Intersection Operations

Movement	Existing Storage / Link Distance (m)	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	LOS	95th Queue (m)	v/c	LOS	95th Queue (m)
Existing Conditions							
EBLR	100+	0.32	B	11	0.31	B	11
NBLT	50+	0.09	A	3	0.20	A	6
Background 2032 Conditions							
EBLR	100+	0.47	B	20	0.41	B	16
NBLT	50+	0.11	A	3	0.28	A	9
Background 2037 Conditions							
EBLR	100+	0.47	B	20	0.42	B	16
NBLT	50+	0.11	A	3	0.28	A	9
Total 2032 Conditions							
EBLR	100+	0.58	C	29	0.48	C	20
NBLT	50+	0.11	A	3	0.29	A	10
Total 2037 Conditions							
EBLR	100+	0.47	B	20	0.48	C	20
NBLT	50+	0.11	A	3	0.29	A	10

Under existing, background and total conditions, the intersection is operating and will operate with excess capacity and a level of service C or better. Queues are projected to be within the existing storage.

7.5 Gartshore Street / Dickson Drive Intersection

The existing, background and total traffic operations, at the Gartshore Street / Dickson Drive intersection, are summarized in Table 9.

Table 9: Gartshore Street / Dickson Drive Intersection Operations

Movement	Existing Storage / Link Distance (m)	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	LOS	95th Queue (m)	v/c	LOS	95th Queue (m)
Existing Conditions							
WBLR	100+	0.10	B	3	0.13	B	4
SBLT	50+	0.02	A	1	0.00	A	1
Background 2032 Conditions							
WBLR	100+	0.30	C	10	0.71	D	43
SBLT	50+	0.14	A	4	0.04	A	1
Background 2037 Conditions							
WBLR	100+	0.31	C	10	0.73	D	46
SBLT	50+	0.14	A	4	0.04	A	1
Total 2032 Conditions							
WBLR	100+	0.32	C	11	0.73	D	46
SBLT	50+	0.14	A	4	0.04	A	1
Total 2037 Conditions							
WBLR	100+	0.31	C	10	0.76	D	49
SBLT	50+	0.14	A	4	0.04	A	1

Under existing, background and total conditions, the intersection is operating and will operate with excess capacity and a level of service D or better. Queues are projected to be within the existing storage.

7.6 Gartshore Street / Gregson Court / Centre Driveway

The existing, background, and total conditions, at the Gartshore Street / Gregson Court / Centre Driveway, are summarized in Table 10.

Table 10: Gartshore Street / Gregson Court / Centre Driveway Intersection Operations

Movement	Existing Storage / Link Distance (m)	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	LOS	95th Queue (m)	v/c	LOS	95th Queue (m)
Existing Conditions							
WBLR	100+	0.02	A	1	0.06	A	2
SBLT	100+	0.00	A	0	0.00	A	0
Background 2032 Conditions							
WBLR	100+	0.03	A	1	0.07	A	2
SBLT	100+	0.00	A	0	0.00	A	0
Background 2037 Conditions							
WBLR	100+	0.03	A	1	0.07	A	2
SBLT	100+	0.00	A	0	0.00	A	0

Table 10: Gartshore Street / Gregson Court / Centre Driveway Intersection Operations Continued…

Total 2032 Conditions							
EBLR	50+	0.00	A	0	0.01	A	1
WBLR	100+	0.03	A	1	0.07	A	2
SBLT	100+	0.00	A	0	0.00	A	0
Total 2037 Conditions							
WBLR	100+	0.01	A	0	0.01	A	1
SBLT	100+	0.03	A	1	0.07	A	2

Under existing, background and total conditions, the intersection will operate with excess capacity and a level of service A. Queues are projected to be within the existing or proposed storage. No additional turning lanes will be required.

7.7 Gartshore Street / North Driveway

The total conditions, at the Gartshore Street / North Driveway, are summarized in Table 11.

Table 11: Gartshore Street / North Driveway Intersection Operations

Movement	Existing Storage / Link Distance (m)	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	LOS	95th Queue (m)	v/c	LOS	95th Queue (m)
Total 2032 Conditions							
EBLR	50+	0.00	A	0	0.00	A	0
NBLT	50+	0.01	A	1	0.00	A	0
Total 2037 Conditions							
EBLR	50+	0.00	A	0	0.00	A	0
NBLT	50+	0.00	A	0	0.00	A	0

The intersection will operate with excess capacity and a level of service A. No additional turning lanes will be required.

7.8 Gartshore Street / South Driveway

The total conditions, at the Gartshore Street / South Driveway intersection, are summarized in Table 12.

Table 12: Gartshore Street / South Driveway Intersection Operations

Movement	Existing Storage / Link Distance (m)	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	LOS	95th Queue (m)	v/c	LOS	95th Queue (m)
Total 2032 Conditions							
EBLR	50+	0.01	A	1	0.05	A	2
NBLT	50+	0.04	A	1	0.01	A	1
Total 2037 Conditions							
EBLR	50+	0.05	A	0	0.05	A	2
NBLT	50+	0.00	A	0	0.01	A	1

The intersection will operate with excess capacity and a level of service A. No additional turning lanes will be required.

8.0 Geometric Considerations

8.1 Left Turn Warrant Analysis

The warrants for a left turn lane, under existing and future traffic conditions along Gartshore Street were assessed based on the information contained in the *MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads* (MTO, April 2020). A design speed of 60 km/h was considered along Gartshore Street. The results of the left-turn lane warrant analysis are summarized in Table 13. Detailed analysis can be found in Appendix I.

Table 13: Left Turn Warrant Analysis Along Gartshore Street

Intersections	Direction	Storage Length [m]	
		AM Peak Hour	PM Peak Hour
Existing Conditions			
Gordon Street	Northbound	Not Warranted	Not Warranted
Dickson Drive	Southbound	Not Warranted	Not Warranted
Background 2032 Conditions			
Gordon Street	Northbound	Not Warranted	**15 m**
Dickson Drive	Southbound	**15 m**	Not Warranted

Table 13: Left Turn Warrant Analysis Along Gartshore Street continued

Intersections	Direction	Storage Length [m]	
		AM Peak Hour	PM Peak Hour
Background 2037 Conditions			
Gordon Street	Northbound	Not Warranted	**15 m**
Dickson Drive	Southbound	**15 m**	Not Warranted
Total 2032 Conditions			
South Driveway	Northbound	Not Warranted	Not Warranted
Gordon Street	Northbound	Not Warranted	**15 m**
Dickson Drive	Southbound	**15 m**	Not Warranted
Total 2037 Conditions			
South Driveway	Northbound	Not Warranted	Not Warranted
Gordon Street	Northbound	Not Warranted	**15 m**
Dickson Drive	Southbound	**15 m**	Not Warranted

Based on the above MTO criteria, under background 2032 conditions, the northbound left at Gordon Street / Gartshore Street intersection and the southbound left at Dickson Drive / Gartshore Street intersection will warrant an exclusive left turn lane with a 15 m storage.

Based on the Synchro analysis, under 2037 total conditions during the PM peak hour (worse-case scenario), the projected 95th percentile queue will be 10 m for the northbound left turn at the Gordon Street / Gartshore Street intersection and 4 m for the southbound left turn at the Dickson Drive / Gartshore Street intersection. However, there will not be operation concerns. It is recommended that the Township monitor these movements for future improvement.

8.2 Right Turn Warrant Analysis

For unsignalized intersections, MTO guidelines (Geometric Design Standards for Ontario Highways) indicates that right turn lanes may be considered where right turn volumes exceed 60 vph and where the volume of the right turning vehicles creates a hazard or reduces capacity at the intersection. For signalized intersections, the Highway Capacity Manual (HCM) indicates that an exclusive right turn lane should be considered if right turn movements exceed 300 vph and the adjacent mainline volume exceeds 300 vph. Based on the above criteria, the northbound right turn volume at the Dickson Drive / Gartshore Street intersection will have a volume of 202 vph, which exceeds the criteria under background 2032 conditions during the AM Peak Hour. This is due to the traffic generated by the industrial developments along Dickson Drive. This is due to the traffic generated by the future Dickson Drive industrial developments. The timing for implementing a future northbound right turn lane would be dependent on when the future

Dickson Drive industrial developments are to be fully built-out. Phase 1 traffic will not contribute to this movement. However, the movement will not have any capacity and delay concerns. The Township should monitor this movement to implement a right turn lane or taper.

9.0 Site Plan Review

A high-level review was conducted of the proposed site plan for internal circulation and access. An access and circulation analysis was conducted for a passenger vehicle, a snow plow, and a typical gravel truck (HSU) design vehicles using AutoTURN, which is shown in Appendix J. The analysis confirms that the proposed geometrics will accommodate for all vehicles that will visit the site.

9.1 Active Transportation Considerations

The Township's TMP recommends some enhancements to the active transportation network in the general area of the proposed Operations Centre. Recognizing the additional employment to be generated at the Operations Centre, the following additions to the active transportation facilities may be considered by the Township to minimize the generation of vehicles using the roads and their inherent environmental impacts:

- Extend sidewalk connections north of Gordon Street on Garthshore Street to encourage pedestrians to consider walking.
- Extend off-road active transportation route north of Gordon Street on Garthshore Street to consider cycling.

10.0 Conclusions

10.1 Traffic Operations

Under existing and future conditions, all intersections are and will operate with excess capacity, a level of service D or better and queues that are projected to be within their existing storage and link distances with one exception as discussed below.

Under background traffic conditions, during the afternoon peak hour in 2032 and 2037 horizons, the southbound left turn queue at the intersection of Highway 6 / Gordon Street will extend by about 1 to 2 vehicles into the taper area for this lane. Under total traffic conditions, the impact on this queuing is forecasted to be minimal and therefore similar queuing operations are expected. To minimize the identified future queuing deficiency, it is recommended that the signal timing be optimized at this intersection. A sensitivity analysis was completed that confirms acceptable traffic operations with an optimized signal timing plan. It is recommended that the Township continue to monitor traffic operations at this intersection, to confirm the signal optimization requirements, as well as to confirm the interface of traffic operations at this location with traffic operations at the adjacent intersection at Highway 6 / Sideroad 19.

Overall, Phase 1 of the site will not result in any external intersection improvements.

10.2 Geometric Considerations

Left Turn Warrant Analysis

The warrants for a left turn lane, under existing and future traffic conditions along Gartshore Street were assessed based on the information contained in the *MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads* (MTO, April 2020). A design speed of 60 km/h was considered along Gartshore Street. Based on the MTO criteria, under background 2032 conditions, the northbound left at Gordon Street / Gartshore Street intersection and the southbound left at Dickson Drive / Gartshore Street intersection will warrant an exclusive left turn lane with a 15 m storage. Also, there will be no operation concerns at these locations. It is recommended that the Township continue to monitor this intersection for future improvement.

Right Turn Warrant Analysis

The warrant for a right turn lane for unsignalized intersections follows the MTO guidelines (Geometric Design Standards for Ontario Highways). For signalized intersections, the Highway Capacity Manual (HCM) guidelines were reviewed. Based on the two documentation's criteria, the northbound right turn volume at the Dickson Drive / Gartshore Street intersection will have a volume of 202 vph, which meets the criteria

under background 2032 conditions during the AM Peak Hour. This is due to the traffic generated by the industrial developments along Dickson Drive. Phase 1 traffic will not contribute to this movement. However, the movement will not have any capacity and delay concerns. The Township should review this movement to implement a right turn lane or taper.

10.3 Site Plan Review

No additional lane requirements will be required because of site traffic. Access and circulation analyses utilizing AutoTURN confirms that the site can accommodate all expected design vehicles.

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix A

Traffic Counts and Signal Timing Plan

Peak Hour Diagram

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Specified Period
From: 07:00:00
To: 09:00:00

One Hour Peak
From: 07:30:00
To: 08:30:00

Intersection: Gartshore St & Garafraxa St E
Site Code: 2223400001
Count Date: Jul 06, 2022

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Garafraxa St E runs E/W

North Approach

	Out	In	Total
Cars	132	129	261
Trucks	7	7	14
Bicycles	1	0	1
	140	**136**	**276**

Gartshore St

Bicycles	0	0	1	0
Trucks	0	7	0	0
Cars	45	74	13	0
Totals	**45**	**81**	**14**	**0**

East Approach

	Out	In	Total
Cars	227	249	476
Trucks	22	9	31
Bicycles	0	1	1
	249	**259**	**508**

Garafraxa St E

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	2	29	**31**
0	5	187	**192**
0	1	44	**45**

Peds: 2

Peds: 1

Peds: 0

Garafraxa St E

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	18	15	3	0
	186	170	16	0
	45	42	3	0

West Approach

	Out	In	Total
Cars	260	262	522
Trucks	8	17	25
Bicycles	0	0	0
	268	**279**	**547**

Totals	**48**	**87**	**53**	**0**
Cars	47	85	49	0
Trucks	1	2	4	0
Bicycles	0	0	0	0

Gartshore St

South Approach

	Out	In	Total
Cars	181	160	341
Trucks	7	11	18
Bicycles	0	0	0
	188	**171**	**359**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Gartshore St & Garafraxa St E
Site Code: 2223400001
Count Date: Jul 06, 2022
Period: 07:00 - 09:00

Peak Hour Data (07:30 - 08:30)

Start Time	North Approach Gartshore St						South Approach Gartshore St						East Approach Garafraxa St E						West Approach Garafraxa St E						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:30	7	24	8	0	0	39	12	13	11	0	0	36	11	46	5	0	0	62	10	48	12	0	0	70	207
07:45	0	24	10	0	0	34	13	28	11	0	0	52	18	54	3	0	1	75	9	53	15	0	0	77	238
08:00	4	16	17	0	0	37	11	21	13	0	0	45	9	38	3	0	0	50	6	44	7	0	1	57	189
08:15	3	17	10	0	2	30	12	25	18	0	0	55	7	48	7	0	0	62	6	47	11	0	1	64	211
Grand Total	**14**	**81**	**45**	**0**	**2**	**140**	**48**	**87**	**53**	**0**	**0**	**188**	**45**	**186**	**18**	**0**	**1**	**249**	**31**	**192**	**45**	**0**	**2**	**268**	**845**
Approach %	10	57.9	32.1	0		-	25.5	46.3	28.2	0		-	18.1	74.7	7.2	0		-	11.6	71.6	16.8	0		-	
Totals %	1.7	9.6	5.3	0		16.6	5.7	10.3	6.3	0		22.2	5.3	22	2.1	0		29.5	3.7	22.7	5.3	0		31.7	
PHF	**0.5**	**0.84**	**0.66**	**0**		**0.9**	**0.92**	**0.78**	**0.74**	**0**		**0.85**	**0.63**	**0.86**	**0.64**	**0**		**0.83**	**0.78**	**0.91**	**0.75**	**0**		**0.87**	**0.89**
Cars	13	74	45	0		132	47	85	49	0		181	42	170	15	0		227	29	187	44	0		260	800
% Cars	92.9	91.4	100	0		94.3	97.9	97.7	92.5	0		96.3	93.3	91.4	83.3	0		91.2	93.5	97.4	97.8	0		97	94.7
Trucks	0	7	0	0		7	1	2	4	0		7	3	16	3	0		22	2	5	1	0		8	44
% Trucks	0	8.6	0	0		5	2.1	2.3	7.5	0		3.7	6.7	8.6	16.7	0		8.8	6.5	2.6	2.2	0		3	5.2
Bicycles	1	0	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	1
% Bicycles	7.1	0	0	0		0.7	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0.1
Peds					2	-					0	-					1	-					2	-	5
% Peds					40	-					0	-					20	-					40	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	16:00:00	From:	16:15:00
To:	18:00:00	To:	17:15:00

Intersection: Gartshore St & Garafraxa St E
Site Code: 2223400001
Count Date: Jul 06, 2022

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Garafraxa St E runs E/W

North Approach

	Out	In	Total
Cars	186	214	400
Trucks	4	4	8
Bicycles	1	2	3
	191	**220**	**411**

Gartshore St

Bicycles	0	1	0	0
Trucks	1	3	0	0
Cars	70	102	14	0
Totals	**71**	**106**	**14**	**0**

East Approach

	Out	In	Total
Cars	374	324	698
Trucks	12	9	21
Bicycles	1	2	3
	387	**335**	**722**

Garafraxa St E

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	1	69	**70**
2	8	231	**241**
0	1	56	**57**

Peds: 0
Peds: 1
Peds: 1
Peds: 2

Garafraxa St E

Totals	Cars	Trucks	Bicycles
0	0	0	0
23	21	2	0
269	260	8	1
95	93	2	0

West Approach

	Out	In	Total
Cars	356	400	756
Trucks	10	10	20
Bicycles	2	1	3
	368	**411**	**779**

Gartshore St

Totals	**71**	**127**	**80**	**0**
Cars	70	124	79	0
Trucks	1	1	1	0
Bicycles	0	2	0	0

South Approach

	Out	In	Total
Cars	273	251	524
Trucks	3	6	9
Bicycles	2	1	3
	278	**258**	**536**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Gartshore St & Garafraxa St E
Site Code: 2223400001
Count Date: Jul 06, 2022
Period: 16:00 - 18:00

Peak Hour Data (16:15 - 17:15)

Start Time	North Approach Gartshore St						South Approach Gartshore St						East Approach Garafraxa St E						West Approach Garafraxa St E						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:15	5	26	16	0	0	47	13	29	21	0	0	63	25	66	5	0	0	96	13	57	10	0	0	80	286
16:30	6	36	15	0	0	57	19	28	29	0	2	76	27	72	7	0	1	106	17	55	17	0	1	89	328
16:45	2	21	21	0	0	44	25	32	16	0	0	73	19	53	7	0	0	79	26	69	13	0	0	108	304
17:00	1	23	19	0	0	43	14	38	14	0	0	66	24	78	4	0	0	106	14	60	17	0	0	91	306
Grand Total	**14**	**106**	**71**	**0**	**0**	**191**	**71**	**127**	**80**	**0**	**2**	**278**	**95**	**269**	**23**	**0**	**1**	**387**	**70**	**241**	**57**	**0**	**1**	**368**	**1224**
Approach %	7.3	55.5	37.2	0		-	25.5	45.7	28.8	0		-	24.5	69.5	5.9	0		-	19	65.5	15.5	0		-	
Totals %	1.1	8.7	5.8	0		15.6	5.8	10.4	6.5	0		22.7	7.8	22	1.9	0		31.6	5.7	19.7	4.7	0		30.1	
PHF	**0.58**	**0.74**	**0.85**	**0**		**0.84**	**0.71**	**0.84**	**0.69**	**0**		**0.91**	**0.88**	**0.86**	**0.82**	**0**		**0.91**	**0.67**	**0.87**	**0.84**	**0**		**0.85**	**0.93**
Cars	14	102	70	0		186	70	124	79	0		273	93	260	21	0		374	69	231	56	0		356	1189
% Cars	100	96.2	98.6	0		97.4	98.6	97.6	98.8	0		98.2	97.9	96.7	91.3	0		96.6	98.6	95.9	98.2	0		96.7	97.1
Trucks	0	3	1	0		4	1	1	1	0		3	2	8	2	0		12	1	8	1	0		10	29
% Trucks	0	2.8	1.4	0		2.1	1.4	0.8	1.3	0		1.1	2.1	3	8.7	0		3.1	1.4	3.3	1.8	0		2.7	2.4
Bicycles	0	1	0	0		1	0	2	0	0		2	0	1	0	0		1	0	2	0	0		2	6
% Bicycles	0	0.9	0	0		0.5	0	1.6	0	0		0.7	0	0.4	0	0		0.3	0	0.8	0	0		0.5	0.5
Peds					0	-					2	-					1	-					1	-	4
% Peds					0	-					50	-					25	-					25	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	07:00:00	From:	07:15:00
To:	09:00:00	To:	08:15:00

Intersection: Gartshore St & Gordon St
Site Code: 2223400002
Count Date: Jul 06, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Gartshore St runs N/S

North Approach

	Out	In	Total
Cars	41	99	140
Trucks	4	1	5
Bicycles	0	1	1
	45	**101**	**146**

Gartshore St

Bicycles	0	0	0
Trucks	1	3	0
Cars	16	25	0
Totals	**17**	**28**	**0**

Peds: 0

Gordon St

			Totals
0	0	0	**0**
1	1	56	**58**
0	13	184	**197**

Peds: 0

Peds: 0

Peds: 0

West Approach

	Out	In	Total
Cars	240	136	376
Trucks	14	10	24
Bicycles	1	1	2
	255	**147**	**402**

Totals	**130**	**43**	**0**
Cars	120	43	0
Trucks	9	0	0
Bicycles	1	0	0

Gartshore St

South Approach

	Out	In	Total
Cars	163	209	372
Trucks	9	16	25
Bicycles	1	0	1
	173	**225**	**398**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection:	Gartshore St & Gordon St
Site Code:	2223400002
Count Date:	Jul 06, 2022
Period:	07:00 - 09:00

Peak Hour Data (07:15 - 08:15)

Start Time	North Approach Gartshore St						South Approach Gartshore St						East Approach						West Approach Gordon St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:15		6	2	0	0	8	23	14		0	0	37					0		23		50	0	0	73	118
07:30		11	3	0	0	14	38	6		0	0	44					0		13		58	0	0	71	129
07:45		7	3	0	0	10	31	15		0	0	46					0		10		62	0	0	72	128
08:00		4	9	0	0	13	38	8		0	0	46					0		12		27	0	0	39	98
Grand Total		**28**	**17**	**0**	**0**	**45**	**130**	**43**		**0**	**0**	**173**					**0**	**0**	**58**		**197**	**0**	**0**	**255**	**473**
Approach %		62.2	37.8	0		-	75.1	24.9		0		-						-	22.7		77.3	0		-	
Totals %		5.9	3.6	0		9.5	27.5	9.1		0		36.6						0	12.3		41.6	0		53.9	
PHF		**0.64**	**0.47**	**0**		**0.8**	**0.86**	**0.72**		**0**		**0.94**						**0**	**0.63**		**0.79**	**0**		**0.87**	**0.92**
Cars		25	16	0		41	120	43		0		163						0	56		184	0		240	444
% Cars		89.3	94.1	0		91.1	92.3	100		0		94.2						0	96.6		93.4	0		94.1	93.9
Trucks		3	1	0		4	9	0		0		9						0	1		13	0		14	27
% Trucks		10.7	5.9	0		8.9	6.9	0		0		5.2						0	1.7		6.6	0		5.5	5.7
Bicycles		0	0	0		0	1	0		0		1						0	1		0	0		1	2
% Bicycles		0	0	0		0	0.8	0		0		0.6						0	1.7		0	0		0.4	0.4
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	16:00:00	From:	16:15:00
To:	18:00:00	To:	17:15:00

Intersection: Gartshore St & Gordon St
Site Code: 2223400002
Count Date: Jul 06, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Gartshore St runs N/S

North Approach

	Out	In	Total
Cars	116	47	163
Trucks	2	1	3
Bicycles	1	0	1
	119	**48**	**167**

Gartshore St

Bicycles	0	1	0
Trucks	2	0	0
Cars	51	65	0
Totals	**53**	**66**	**0**

Peds: 0

Gordon St

			Totals
0	0	0	**0**
0	0	23	**23**
2	9	199	**210**

Peds: 0

Peds: 0

Peds: 0

West Approach

	Out	In	Total
Cars	222	312	534
Trucks	9	7	16
Bicycles	2	0	2
	233	**319**	**552**

Totals	**266**	**25**	**0**
Cars	261	24	0
Trucks	5	1	0
Bicycles	0	0	0

Gartshore St

South Approach

	Out	In	Total
Cars	285	264	549
Trucks	6	9	15
Bicycles	0	3	3
	291	**276**	**567**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection:	Gartshore St & Gordon St
Site Code:	2223400002
Count Date:	Jul 06, 2022
Period:	16:00 - 18:00

Peak Hour Data (16:15 - 17:15)

Start Time	North Approach Gartshore St						South Approach Gartshore St						East Approach						West Approach Gordon St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:15		15	5	0	0	20	58	6		0	0	64					0		8		54	0	0	62	146
16:30		14	18	0	0	32	69	8		0	0	77					0		5		61	0	0	66	175
16:45		11	12	0	0	23	71	5		0	0	76					0		8		45	0	0	53	152
17:00		26	18	0	0	44	68	6		0	0	74					0		2		50	0	0	52	170
Grand Total		**66**	**53**	**0**	**0**	**119**	**266**	**25**		**0**	**0**	**291**					**0**	**0**	**23**		**210**	**0**	**0**	**233**	**643**
Approach %		55.5	44.5	0		-	91.4	8.6		0		-						-	9.9		90.1	0		-	
Totals %		10.3	8.2	0		18.5	41.4	3.9		0		45.3						0	3.6		32.7	0		36.2	
PHF		**0.63**	**0.74**	**0**		**0.68**	**0.94**	**0.78**		**0**		**0.94**						**0**	**0.72**		**0.86**	**0**		**0.88**	**0.92**
Cars		65	51	0		116	261	24		0		285						0	23		199	0		222	623
% Cars		98.5	96.2	0		97.5	98.1	96		0		97.9						0	100		94.8	0		95.3	96.9
Trucks		0	2	0		2	5	1		0		6						0	0		9	0		9	17
% Trucks		0	3.8	0		1.7	1.9	4		0		2.1						0	0		4.3	0		3.9	2.6
Bicycles		1	0	0		1	0	0		0		0						0	0		2	0		2	3
% Bicycles		1.5	0	0		0.8	0	0		0		0						0	0		1	0		0.9	0.5
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	07:00:00	From:	07:45:00
To:	09:00:00	To:	08:45:00

Intersection: Gordon St & Hwy 6
Site Code: 2223400003
Count Date: Jul 06, 2022

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Hwy 6 runs N/S

North Approach

	Out	In	Total
Cars	461	394	855
Trucks	21	25	46
Bicycles	0	1	1
	482	**420**	**902**

Hwy 6

Bicycles	0	0	0	0
Trucks	0	10	11	0
Cars	5	316	140	0
Totals	**5**	**326**	**151**	**0**

Peds: 2
Peds: 1
Peds: 0
Peds: 3

East Approach

	Out	In	Total
Cars	175	215	390
Trucks	8	12	20
Bicycles	1	0	1
	184	**227**	**411**

Commerical Entrance

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	0	1	**1**
0	0	4	**4**
0	0	11	**11**

Gordon St

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	132	124	7	1
	8	8	0	0
	44	43	1	0

West Approach

	Out	In	Total
Cars	16	25	41
Trucks	0	0	0
Bicycles	0	0	0
	16	**25**	**41**

Hwy 6

Totals	**12**	**287**	**72**	**0**
Cars	12	269	71	0
Trucks	0	18	1	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	352	370	722
Trucks	19	11	30
Bicycles	0	0	0
	371	**381**	**752**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Gordon St & Hwy 6
Site Code: 2223400003
Count Date: Jul 06, 2022
Period: 07:00 - 09:00

Peak Hour Data (07:45 - 08:45)

Start Time	North Approach Hwy 6						South Approach Hwy 6						East Approach Gordon St						West Approach Commerical Entrance						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:45	54	84	2	0	0	140	4	61	17	0	0	82	7	1	31	0	0	39	1	0	0	0	0	1	262
08:00	27	53	0	0	2	80	1	60	10	0	1	71	18	1	45	0	0	64	0	2	7	0	1	9	224
08:15	45	99	1	0	0	145	3	60	13	0	0	76	10	1	25	0	0	36	0	0	1	0	0	1	258
08:30	25	90	2	0	0	117	4	106	32	0	2	142	9	5	31	0	0	45	0	2	3	0	0	5	309
Grand Total	**151**	**326**	**5**	**0**	**2**	**482**	**12**	**287**	**72**	**0**	**3**	**371**	**44**	**8**	**132**	**0**	**0**	**184**	**1**	**4**	**11**	**0**	**1**	**16**	**1053**
Approach %	31.3	67.6	1	0		-	3.2	77.4	19.4	0		-	23.9	4.3	71.7	0		-	6.3	25	68.8	0		-	
Totals %	14.3	31	0.5	0		45.8	1.1	27.3	6.8	0		35.2	4.2	0.8	12.5	0		17.5	0.1	0.4	1	0		1.5	
PHF	**0.7**	**0.82**	**0.63**	**0**		**0.83**	**0.75**	**0.68**	**0.56**	**0**		**0.65**	**0.61**	**0.4**	**0.73**	**0**		**0.72**	**0.25**	**0.5**	**0.39**	**0**		**0.44**	**0.85**
Cars	140	316	5	0		461	12	269	71	0		352	43	8	124	0		175	1	4	11	0		16	1004
% Cars	92.7	96.9	100	0		95.6	100	93.7	98.6	0		94.9	97.7	100	93.9	0		95.1	100	100	100	0		100	95.3
Trucks	11	10	0	0		21	0	18	1	0		19	1	0	7	0		8	0	0	0	0		0	48
% Trucks	7.3	3.1	0	0		4.4	0	6.3	1.4	0		5.1	2.3	0	5.3	0		4.3	0	0	0	0		0	4.6
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	1	0		1	0	0	0	0		0	1
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0.8	0		0.5	0	0	0	0		0	0.1
Peds					2	-					3	-					0	-					1	-	6
% Peds					33.3	-					50	-					0	-					16.7	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	16:00:00	From:	16:15:00
To:	18:00:00	To:	17:15:00

Intersection: Gordon St & Hwy 6
Site Code: 2223400003
Count Date: Jul 06, 2022

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Hwy 6 runs N/S

North Approach

	Out	In	Total
Cars	565	642	1207
Trucks	16	9	25
Bicycles	0	0	0
	581	**651**	**1232**

Hwy 6

Bicycles	0	0	0	0
Trucks	0	5	11	0
Cars	16	319	230	0
Totals	**16**	**324**	**241**	**0**

Peds: 7

Peds: 2

Peds: 2

Hwy 6

Totals	**95**	**427**	**83**	**0**
Cars	95	422	79	0
Trucks	0	5	4	0
Bicycles	0	0	0	0

East Approach

	Out	In	Total
Cars	303	344	647
Trucks	6	15	21
Bicycles	1	1	2
	310	**360**	**670**

Commerical Entrance

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	0	29	**29**
1	0	35	**36**
1	0	72	**73**

Peds: 2

N
W
E
S

Peds: 1

Gordon St

Totals	Cars	Trucks	Bicycles
0	0	0	0
195	191	4	0
38	38	0	0
77	74	2	1

West Approach

	Out	In	Total
Cars	136	149	285
Trucks	0	0	0
Bicycles	2	0	2
	138	**149**	**287**

South Approach

	Out	In	Total
Cars	596	465	1061
Trucks	9	7	16
Bicycles	0	2	2
	605	**474**	**1079**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Gordon St & Hwy 6
Site Code: 2223400003
Count Date: Jul 06, 2022
Period: 16:00 - 18:00

Peak Hour Data (16:15 - 17:15)

Start Time	North Approach Hwy 6						South Approach Hwy 6						East Approach Gordon St						West Approach Commerical Entrance						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:15	53	71	3	0	4	127	30	104	27	0	1	161	15	10	35	0	1	60	11	8	23	0	1	42	390
16:30	53	91	9	0	1	153	24	110	20	0	0	154	29	12	48	0	0	89	5	11	14	0	0	30	426
16:45	95	87	2	0	1	184	18	96	18	0	1	132	18	11	52	0	0	81	8	10	18	0	0	36	433
17:00	40	75	2	0	1	117	23	117	18	0	0	158	15	5	60	0	0	80	5	7	18	0	1	30	385
Grand Total	**241**	**324**	**16**	**0**	**7**	**581**	**95**	**427**	**83**	**0**	**2**	**605**	**77**	**38**	**195**	**0**	**1**	**310**	**29**	**36**	**73**	**0**	**2**	**138**	**1634**
Approach %	41.5	55.8	2.8	0		-	15.7	70.6	13.7	0		-	24.8	12.3	62.9	0		-	21	26.1	52.9	0		-	
Totals %	14.7	19.8	1	0		35.6	5.8	26.1	5.1	0		37	4.7	2.3	11.9	0		19	1.8	2.2	4.5	0		8.4	
PHF	**0.63**	**0.89**	**0.44**	**0**		**0.79**	**0.79**	**0.91**	**0.77**	**0**		**0.94**	**0.66**	**0.79**	**0.81**	**0**		**0.87**	**0.66**	**0.82**	**0.79**	**0**		**0.82**	**0.94**
Cars	230	319	16	0		565	95	422	79	0		596	74	38	191	0		303	29	35	72	0		136	1600
% Cars	95.4	98.5	100	0		97.2	100	98.8	95.2	0		98.5	96.1	100	97.9	0		97.7	100	97.2	98.6	0		98.6	97.9
Trucks	11	5	0	0		16	0	5	4	0		9	2	0	4	0		6	0	0	0	0		0	31
% Trucks	4.6	1.5	0	0		2.8	0	1.2	4.8	0		1.5	2.6	0	2.1	0		1.9	0	0	0	0		0	1.9
Bicycles	0	0	0	0		0	0	0	0	0		0	1	0	0	0		1	0	1	1	0		2	3
% Bicycles	0	0	0	0		0	0	0	0	0		0	1.3	0	0	0		0.3	0	2.8	1.4	0		1.4	0.2
Peds					7	-					2	-					1	-					2	-	12
% Peds					58.3	-					16.7	-					8.3	-					16.7	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	07:00:00	From:	07:30:00
To:	09:00:00	To:	08:30:00

Intersection: Sideroad 15 & Hwy 6
Site Code: 2223400004
Count Date: Jul 06, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Hwy 6 runs N/S

North Approach

	Out	In	Total
Cars	297	192	489
Trucks	20	31	51
Bicycles	0	0	0
	317	**223**	**540**

Hwy 6

Bicycles	0	0	0
Trucks	5	15	0
Cars	25	272	0
Totals	**30**	**287**	**0**

Peds: 0

Sideroad 15

			Totals
0	0	0	**0**
0	1	15	**16**
2	6	83	**91**

Peds: 0

Peds: 0

Peds: 0

West Approach

	Out	In	Total
Cars	98	117	215
Trucks	7	9	16
Bicycles	2	0	2
	107	**126**	**233**

Totals	**96**	**207**	**0**
Cars	92	177	0
Trucks	4	30	0
Bicycles	0	0	0

Hwy 6

South Approach

	Out	In	Total
Cars	269	355	624
Trucks	34	21	55
Bicycles	0	2	2
	303	**378**	**681**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Sideroad 15 & Hwy 6
Site Code: 2223400004
Count Date: Jul 06, 2022
Period: 07:00 - 09:00

Peak Hour Data (07:30 - 08:30)

Start Time	North Approach Hwy 6						South Approach Hwy 6						East Approach						West Approach Sideroad 15						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:30		87	7	0	0	94	25	52		0	0	77					0		4		19	0	0	23	194
07:45		76	10	0	0	86	21	51		0	0	72					0		5		25	0	0	30	188
08:00		43	6	0	0	49	33	49		0	0	82					0		4		24	0	0	28	159
08:15		81	7	0	0	88	17	55		0	0	72					0		3		23	0	0	26	186
Grand Total		**287**	**30**	**0**	**0**	**317**	**96**	**207**		**0**	**0**	**303**					**0**	**0**	**16**		**91**	**0**	**0**	**107**	**727**
Approach %		90.5	9.5	0		-	31.7	68.3		0		-						-	15		85	0		-	
Totals %		39.5	4.1	0		43.6	13.2	28.5		0		41.7						0	2.2		12.5	0		14.7	
PHF		**0.82**	**0.75**	**0**		**0.84**	**0.73**	**0.94**		**0**		**0.92**						**0**	**0.8**		**0.91**	**0**		**0.89**	**0.94**
Cars		272	25	0		297	92	177		0		269						0	15		83	0		98	664
% Cars		94.8	83.3	0		93.7	95.8	85.5		0		88.8						0	93.8		91.2	0		91.6	91.3
Trucks		15	5	0		20	4	30		0		34						0	1		6	0		7	61
% Trucks		5.2	16.7	0		6.3	4.2	14.5		0		11.2						0	6.3		6.6	0		6.5	8.4
Bicycles		0	0	0		0	0	0		0		0						0	0		2	0		2	2
% Bicycles		0	0	0		0	0	0		0		0						0	0		2.2	0		1.9	0.3
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	16:00:00	From:	16:30:00
To:	18:00:00	To:	17:30:00

Intersection: Sideroad 15 & Hwy 6
Site Code: 2223400004
Count Date: Jul 06, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Hwy 6 runs N/S

North Approach

	Out	In	Total
Cars	305	437	742
Trucks	13	10	23
Bicycles	0	0	0
	318	**447**	**765**

Hwy 6

Bicycles	0	0	0
Trucks	3	10	0
Cars	20	285	0
Totals	**23**	**295**	**0**

Peds: 0

Sideroad 15

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	1	23	**24**	
0	4	130	**134**	

Peds: 0

Peds: 0

Peds: 0

West Approach

	Out	In	Total
Cars	153	124	277
Trucks	5	4	9
Bicycles	0	0	0
	158	**128**	**286**

Totals	**105**	**423**	**0**
Cars	104	414	0
Trucks	1	9	0
Bicycles	0	0	0

Hwy 6

South Approach

	Out	In	Total
Cars	518	415	933
Trucks	10	14	24
Bicycles	0	0	0
	528	**429**	**957**

Cars - Trucks - Bicycles

Comments

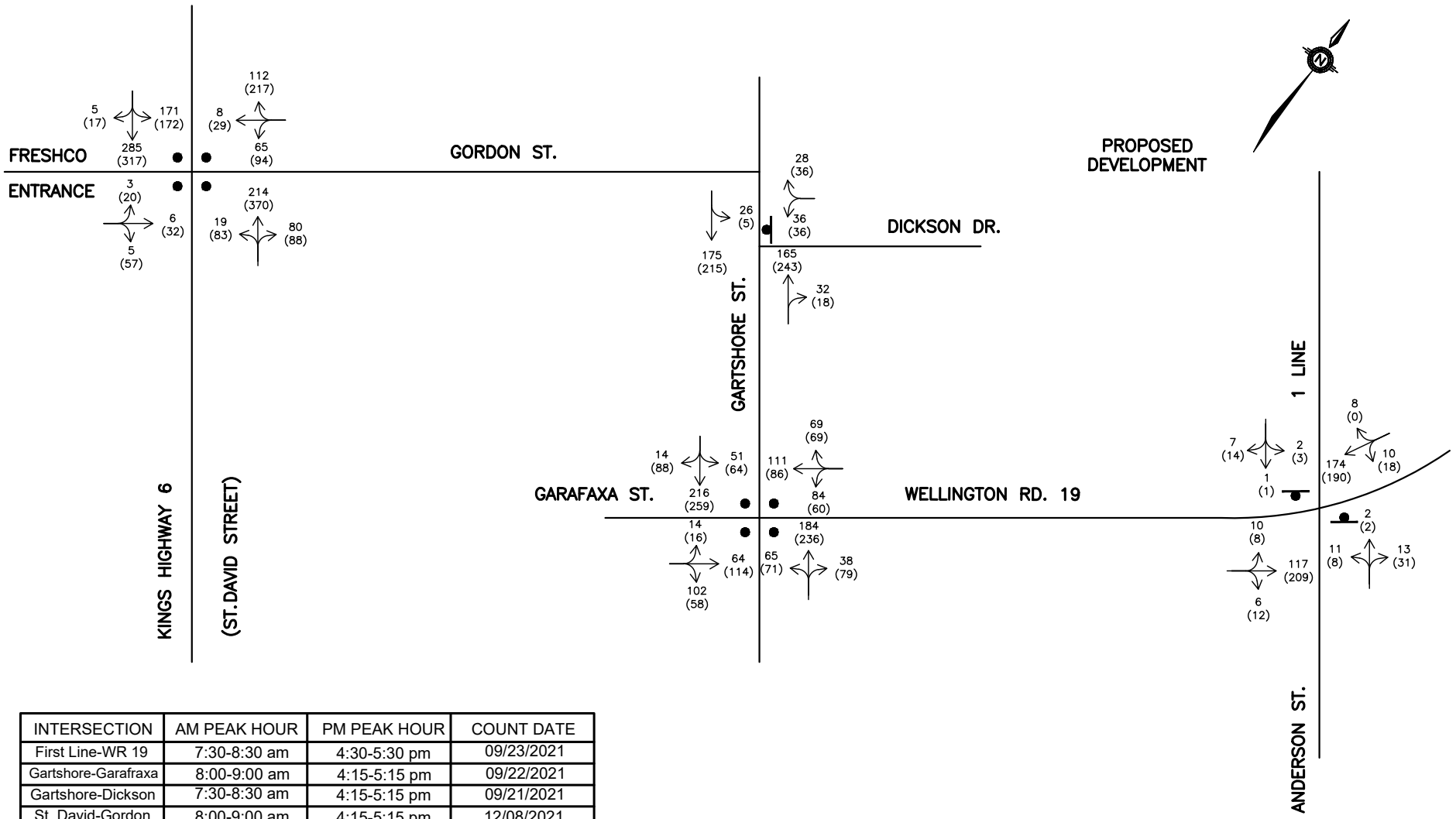
Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Sideroad 15 & Hwy 6
Site Code: 2223400004
Count Date: Jul 06, 2022
Period: 16:00 - 18:00

Peak Hour Data (16:30 - 17:30)

Start Time	North Approach Hwy 6						South Approach Hwy 6						East Approach						West Approach Sideroad 15						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:30		81	5	0	0	86	27	107		0	0	134					0		4		30	0	0	34	254
16:45		64	4	0	0	68	29	84		0	0	113					0		5		28	0	0	33	214
17:00		72	6	0	0	78	26	115		0	0	141					0		6		34	0	0	40	259
17:15		78	8	0	0	86	23	117		0	0	140					0		9		42	0	0	51	277
Grand Total		**295**	**23**	**0**	**0**	**318**	**105**	**423**		**0**	**0**	**528**					**0**	**0**	**24**		**134**	**0**	**0**	**158**	**1004**
Approach %		92.8	7.2	0		-	19.9	80.1		0		-						-	15.2		84.8	0		-	
Totals %		29.4	2.3	0		31.7	10.5	42.1		0		52.6						0	2.4		13.3	0		15.7	
PHF		**0.91**	**0.72**	**0**		**0.92**	**0.91**	**0.9**		**0**		**0.94**						**0**	**0.67**		**0.8**	**0**		**0.77**	**0.91**
Cars		285	20	0		305	104	414		0		518						0	23		130	0		153	976
% Cars		96.6	87	0		95.9	99	97.9		0		98.1						0	95.8		97	0		96.8	97.2
Trucks		10	3	0		13	1	9		0		10						0	1		4	0		5	28
% Trucks		3.4	13	0		4.1	1	2.1		0		1.9						0	4.2		3	0		3.2	2.8
Bicycles		0	0	0		0	0	0		0		0						0	0		0	0		0	0
% Bicycles		0	0	0		0	0	0		0		0						0	0		0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	



INTERSECTION	AM PEAK HOUR	PM PEAK HOUR	COUNT DATE
First Line-WR 19	7:30-8:30 am	4:30-5:30 pm	09/23/2021
Gartshore-Garafraxa	8:00-9:00 am	4:15-5:15 pm	09/22/2021
Gartshore-Dickson	7:30-8:30 am	4:15-5:15 pm	09/21/2021
St. David-Gordon	8:00-9:00 am	4:15-5:15 pm	12/08/2021

(NOT TO SCALE)

LEGEND:

STOP CONTROL

25 (25) AM PEAK HOUR / PM PEAK HOUR TRAFFIC VOLUMES

EXISTING ROAD

TRAFFIC FLOW

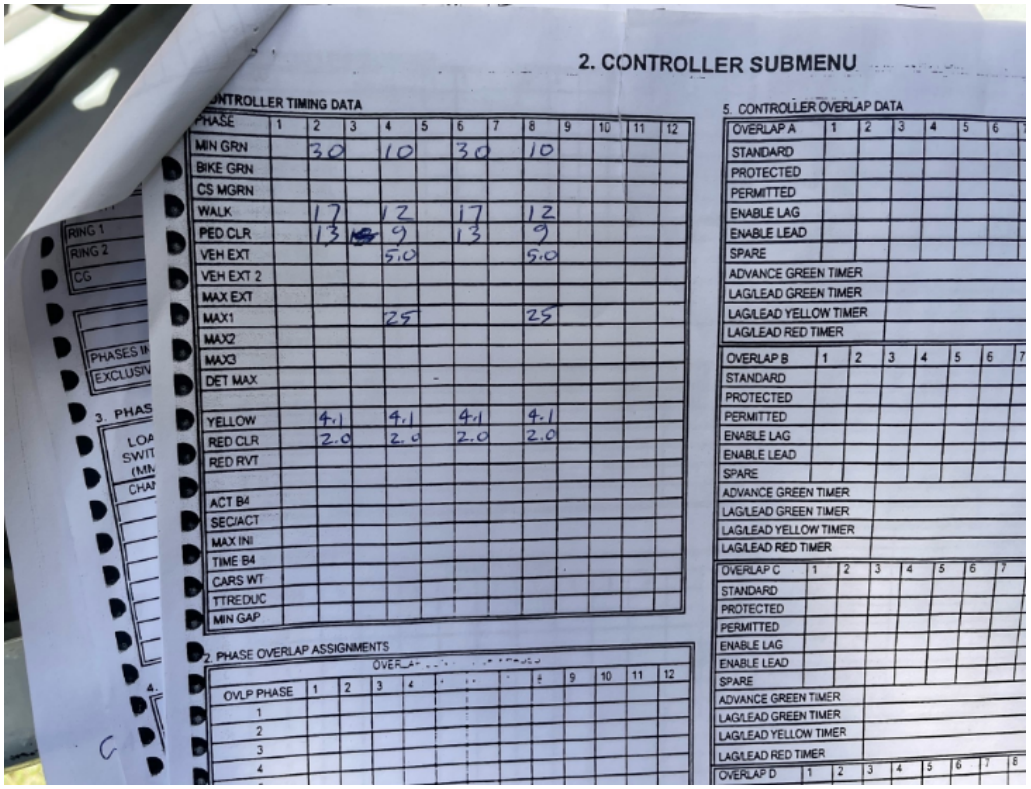
TRAFFIC SIGNALS

PROPOSED ENTRANCE

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

FIGURE 1:
2021 EXISTING PEAK HOUR TRAFFIC

Gartshore / Garafraxa Signal Timing



1-3 PHASE TO LOAD SWITCH (MMU) ASSIGNMENT

LOAD SWITCH	PHASE / OVERLAP 1-16	TYPE VPO	DIMMING				AUTOMATIC FLASH		
			RED	YELLOW	GREEN	DIMMING PHASE + -	RED	YELLOW	FLASH TOGETHER
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									

1-4-2 MMU PROGRAM

#

CH2CH	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															

1-4-1 SDLC OPTIONS

	BIU NUMBER							
TERM & FACIL	1	2	3	4	5	6	7	8
ENABLE								
DETECTOR RACK	1	2	3	4	5	6	7	8
ENABLE								

ENABLE TS2 / MMU TYPE CABINET TYPE	
ENABLE SDLC MMU STOP TIME	
ENABLE 3 CRITICAL RFEs LOCKUP	
ENABLE DIAGNOSTIC ENABLE (TEST FIXTURE)	
ENABLE SECONDARY TO SECONDARY	
SECONDARY TO SECONDARY ADDRESSING	

T&F	01	02	03	04	05	06	07	08	MMU
D/R	09	10	11	12	13	14	15	16	

1-4-3 COLOUR CHECK ENABLE

ENABLE ALL COLOUR CHECKS								
MMU CHANNEL	1	2	3	4	5	6	7	8
GREEN / WALK								
YELLOW / PC								
RED / DW								
MMU CHANNEL	9	10	11	12	13	14	15	16
GREEN / WALK								
YELLOW / PC								
RED / DW								

1-5-1 ETHERNET PORT CONFIGURATION

MAC ADDRESS						
CONTROLLER IP						
SUBNET MASK						
DEFAULT GATEWAY IP						
SERVER IP						
LINK SPEED / DUPLEX						

1-5-2 ASC/3 PORT 2 – 2070 C50S

ENABLE		PROTOCOL	
BIT RATE		ADDRESS	
DATA/PARITY/STOP DATA/P/S		GROUP ADD / TDR	
DUPLEX HALF/FULL		SIGNAL FLAG	
FLOW CONTROL		DROP-OUT TIME	
INTERSECTION MONITOR			
MODEM SETUP STRING			
USER STRING			

1-5-3 ASC/3 PORT 3A – 2070 C21S

ENABLE		PROTOCOL	
BIT RATE		ADDRESS	
DATA/PARITY/STOP DATA/P/S		GROUP ADD / TDR	
DUPLEX HALF/FULL		SIGNAL FLAG	
FLOW CONTROL		DROP-OUT TIME	

1-5-4 ASC/3 PORT 3B – 2070 C22S

ENABLE		PROTOCOL	
BIT RATE		ADDRESS	
DATA/PARITY/STOP DATA/P/S		GROUP ADD / TDR	
DUPLEX HALF/FULL		SIGNAL FLAG	
FLOW CONTROL		DROP-OUT TIME	
RTS-CTS DELAY			
RTS TURN OFF			
EARLY RTS			

1-5-5 GLOBAL PORT PARAMETERS

NTCIP BACKUP TIME (SECONDS)	
UDP PORT	
ETHERNET PRIORITY	
PORT 2/C50S PRIORITY	
PORT 3A/C21S PRIORITY	
PORT 3B/C22S PRIORITY	

1-5-6 ECPIP

SYSTEM DETECTOR ASSIGNMENT:								
SYSTEM DET	A1	A2	B1	B2	C1	C2	D1	D2
LOCAL DET								
SECOND SYS DETECTORS A1-D2 ADDRESS								
SYSTEM DET	A1	A2	B1	B2	C1	C2	D1	D2
LOCAL DET								

1-6-1 ENABLE EVENT LOGS

CRITICAL RFEs (MMU/T&F)		3 CRITICAL FRE ERRORS IN 24	
MMU FLASH FAULTS		LOCAL FLASH FAULTS	
NON-CRITICAL RFEs (DET/TEST)		DETECTOR ERRORS	
COORDINATION ERRORS		CONTROLLER DOWNLOAD	
PREEMPT		TSP/SCP	
POWER ON/OFF		LOW BATTERY	
ACCESS		DATA CHANGE	
ALARM 1		ALARM 2	
ALARM 3		ALARM 4	
ALARM 5		ALARM 6	
ALARM 7		ALARM 8	
ALARM 9		ALARM 10	
ALARM 11		ALARM 12	
ALARM 13		ALARM 14	
ALARM 15		ALARM 16	

1-7-1 ADMINISTRATION

ENABLE CU/CABINET INTERLOCK CRC	
CU/CABINET INTERLOCK CRC VALUE	
CU/CABINET INTERLOCK HW VALUE	
CONTROLLER DATA SUMCHECK (CRC) #	
REQUEST DOWNLOAD OF PROGRAMMED DATA	

1-7-2 DISPLAY OPTIONS

KEY CLICK ENABLE	
BACKLIGHT ENABLE	

1-8-1 LOGIC STATEMENT CONTROL

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 01-15															
LP 16-30															
LP 31-45															
LP 46-60															
LP 61-75															
LP 76-90															
LP 91-100															

1-8-2 LOGIC PROCESSOR STATEMENTS 1-4

LOGIC GATE NUMBER				1
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				2
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				3
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				4
IF				
THEN				
ELSE				

1-8-2 LOGIC PROCESSOR STATEMENTS, continued

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

CONTROLLER SUBMENU

2-1 CONTROLLER TIMING DATA

TIMING PLAN 1																
PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
MINIMUM GREEN	5	35		7	5	35		7								
BICYCLE MINIMUM GREEN																
CONDITIONAL SERVICE MINIMUM GREEN																
DELAYED GREEN																
WALK		25		10		25		10								
WALK 2																
WALK MAX																
PEDESTRIAN CLEARANCE		14		8		14		8								
PEDESTRIAN CLEARANCE 2																
PEDESTRIAN CLEARANCE MAX																
PEDESTRIAN CARRY OVER																
VEHICLE EXTENSION	2	5		3	2	5		3								
VEHICLE EXTENSION 2																
MAX1	10	35		25	10	35		25								
MAX2																
MAX3																
DYNAMIC MAX																
DYNAMIC MAX STEP																
YELLOW CHANGE	3	3.8		3.7	3	3.8		3.7								
RED CLRANCE	1	3.2		2.3	1	3.2		2.3								
RED MAX																
RED REVERT																
ACTUATIONS BEFORE GAP REDUCTION																
SECONDS PER ACTIONS ADDED TO INITIAL																
MAXIMUM ADDED INITIAL GREEN																
TIME BEFORE GAP REDUCTION																
CARS WAITING BEFORE GAP REDUCTION																
STEP TO REDUCE																
TIME TO REDUCE TO MINIMUM																
MINIMUM GAP																

2-1 CONTROLLER TIMING DATA, continued

TIMING PLAN																
PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
MINIMUM GREEN																
BICYCLE MINIMUM GREEN																
CONDITIONAL SERVICE MINIMUM GREEN																
DELAYED GREEN																
WALK																
WALK 2																
WALK MAX																
PEDESTRIAN CLEARANCE																
PEDESTRIAN CLEARANCE 2																
PEDESTRIAN CLEARANCE MAX																
PEDESTRIAN CARRY OVER																
VEHICLE EXTENSION																
VEHICLE EXTENSION 2																
MAX1																
MAX2																
MAX3																
DYNAMIC MAX																
DYNAMIC MAX STEP																
YELLOW CHANGE																
RED CLRANCE																
RED MAX																
RED REVERT																
ACTUATIONS BEFORE GAP REDUCTION																
SECONDS PER ACTIONS ADDED TO INITIAL																
MAXIMUM ADDED INITIAL GREEN																
TIME BEFORE GAP REDUCTION																
CARS WAITING BEFORE GAP REDUCTION																
STEP TO REDUCE																
TIME TO REDUCE TO MINIMUM																
MINIMUM GAP																

2-2 VEHICLE OVERLAP

TIMING VEHICLE OVERLAP (A)	TYPE -															
PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
INCLUDED																
PROTECT																
MODIFIER																
PED PRTC																
NO SERVE																
FLSH GRN																
LAG X PH																
LAG 2 PH																
	LAG GRN					LAG YEL			LAG RED				ADV GRN			

TIMING VEHICLE OVERLAP (B)	TYPE -															
PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
INCLUDED																
PROTECT																
MODIFIER																
PED PRTC																
NO SERVE																
FLSH GRN																
LAG X PH																
LAG 2 PH																
	LAG GRN					LAG YEL			LAG RED				ADV GRN			

TIMING VEHICLE OVERLAP (C)	TYPE -															
PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
INCLUDED																
PROTECT																
MODIFIER																
PED PRTC																
NO SERVE																
FLSH GRN																
LAG X PH																
LAG 2 PH																
	LAG GRN					LAG YEL			LAG RED				ADV GRN			

2-2 VEHICLE OVERLAP, continued

TIMING VEHICLE OVERLAP ____	TYPE -															
PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
INCLUDED																
PROTECT																
MODIFIER																
PED PRTC																
NO SERVE																
FLSH GRN																
LAG X PH																
LAG 2 PH																
	LAG GRN				LAG YEL				LAG RED				ADV GRN			

TIMING VEHICLE OVERLAP ____	TYPE -															
PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
INCLUDED																
PROTECT																
MODIFIER																
PED PRTC																
NO SERVE																
FLSH GRN																
LAG X PH																
LAG 2 PH																
	LAG GRN				LAG YEL				LAG RED				ADV GRN			

TIMING VEHICLE OVERLAP ____	TYPE -															
PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
INCLUDED																
PROTECT																
MODIFIER																
PED PRTC																
NO SERVE																
FLSH GRN																
LAG X PH																
LAG 2 PH																
	LAG GRN				LAG YEL				LAG RED				ADV GRN			

2-3 VEH-PED OVERLAP

VEH OL \ PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
VEH OL A																
VEH OL B																
VEH OL C																
VEH OL D																
VEH OL E																
VEH OL F																
VEH OL G																
VEH OL H																
VEH OL I																
VEH OL J																
VEH OL K																
VEH OL L																
VEH OL M																
VEH OL N																
VEH OL O																
VEH OL P																
PED OL \ PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PED OL 1																
PED OL 2																
PED OL 3																
PED OL 4																
PED OL #																
PED OL #																
PED OL #																
PED OL #																
PED OL #																
PED OL #																
PED OL #																
PED OL #																
PED OL #																
PED OL #																
PED OL #																
PED OL #																

2-4 GUARANTEED MINIMUM TIMES

OL / PHASE	A01	B02	C03	D04	E05	F06	G07	H08
MIN GREEN								
WALK								
PED CLR								
YELLOW								
RED CLR								
OVL GRN								
OL / PHASE	I09	J10	K11	L12	M13	N14	O15	P16
MIN GRN								
WALK								
PED CLR								
YELLOW								
RED CLR								
OVL GRN								

2-5 START / FLASH DATA

START UP																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASE																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
OVERLAP																

FLASH > MON.		FLASH TIME			ALL RED TIME	
PWR START SEQ.						

AUTOMATIC FLASH																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ENTRY																
EXIT																
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
EXIT																

FLASH > MON.	MIN FLASH		EXIT FLASH	
MINIMUM RECALL			CYCLE THROUGH PHASES	

2-6-1 CONTROLLER OPTIONS

PEDESTRIAN CLEARANCE PROTECT																
UNIT RED REVERT																
PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
GUAR PASSAGE																
NON-ACT I																
NON-ACT II																
DUAL ENTRY		X		X		X		X								
COND SERVICE																
COND RESERVICE																
PED RESERVICE																
REST IN WALK		X				X										
FLASHING WALK																
PED CLEAR > YELL0W																
PED CLEAR > ALL RED																
IGRN + VEH EXT																

2-7 ACTUATED PRE-TIMED MODE

ENABLE PRE-TIMED OPERATION																
FREE INPUT DISABLED PRE-TIMED																
PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PRETIMED																

2-8 PHASE RECALL OPTIONS

TIMING PLAN NUMBER (1)																
PHASE	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
LOCK DET																
VE RCALL																
PD RCALL																
MX RCALL																
SF RCALL																
NO REST																
AI CALC																

TIMING PLAN NUMBER (2)																
PHASE	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
LOCK DET																
VE RCALL																
PD RCALL																
MX RCALL																
SF RCALL																
NO REST																
AI CALC																

TIMING PLAN NUMBER (3)																
PHASE	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
LOCK DET																
VE RCALL																
PD RCALL																
MX RCALL																
SF RCALL																
NO REST																
AI CALC																

TIMING PLAN NUMBER (4)																
PHASE	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
LOCK DET																
VE RCALL																
PD RCALL																
MX RCALL																
SF RCALL																
NO REST																
AI CALC																

COORDINATOR SUBMENU

3-1 COORDINATOR OPTIONS

COORD OPTIONS			
MANUAL PATTERN		ECPI COORD	
SYSTEM SOURCE		SYSTEM FORMAT	
SPLITS IN		OFFSET IN	
TRANSITION		MAX SELECT	
DWELL / ADD TIME		ENABLE MAN SYNC	
DLY COORD WK-LZ		NO FORCE OFF	
OFFSET REF		LEAD CAL USE PED TM	
PED RECALL		PED RESERVE	
LOCAL ZERO OVRD		FO ADD INI GRN	
RE-SYNC COUNT		MULTISYNC	

3-2 COORDINATOR PATTERN

COORINATOR PATTERN									
USE SPLIT PATTERN 1									
TS2 PATTERN / OFFSET									
CYCLE		STD (COS)							
OFFSET VAL									
ACTUATED COORD		TIMING PLAN							
ACT WALK REST 0		SEQUENCE							
PHASE RESRVCE 0		ACTION PLAN							
SPLIT PREFERENCE PHASES									
PHASES	01	02	03	04	05	06	07	08	
SPT									
PREF 1									
PREF 2									
SPLT EXT									
VEH PERM				DISP					
RING DISP					(RING 2-4)				
SPLIT PREFERENCE PHASES									
PHASE	09	10	11	12	13	14	15	16	
SPT									
PREF 1									
PREF 2									
			1	2					
SPLIT DEMAND PTRN					XART PTRN				

PHASE	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
COORD																
VE RCALL																
PD RCALL																
MX RCALL																
OMIT																
SF OUT									(1-8)							

3-2 COORDINATOR PATTERN, continued

COORINATOR PATTERN			
USE SPLIT PATTERN 1			
TS2 PATTERN / OFFSET			
CYCLE		STD (COS)	
OFFSET VAL			
ACTUATED COORD		TIMING PLAN	
ACT WALK REST 0		SEQUENCE	
PHASE RESRVCE 0		ACTION PLAN	

SPLIT PREFERENCE PHASES

PHASES	01	02	03	04	05	06	07	08
SPT								
PREF 1								
PREF 2								
SPLT EXT								
VEH PERM				DISP				
RING DISP					(RING 2-4)			

SPLIT PREFERENCE PHASES

PHASE	09	10	11	12	13	14	15	16
SPT								
PREF 1								
PREF 2								

	1	2		
SPLIT DEMAND PTRN			XART PTRN	

PHASE	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
COORD																
VE RCALL																
PD RCALL																
MX RCALL																
OMIT																
SF OUT									(1-8)							

3-3 SPLIT PATTERN

SPLIT PATTERN NUMBER																
PHASE	1		2		3		4		5		6		7		8	
SPLIT																
PHASE	9		10		11		12		13		14		15		16	
SPLIT VALUE																
PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COORD																
VE RCALL																
PD RCALL																
MX RCALL																
OMIT																

SPLIT PATTERN NUMBER																
PHASE	1		2		3		4		5		6		7		8	
SPLIT																
PHASE	9		10		11		12		13		14		15		16	
SPLIT VALUE																
PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COORD																
VE RCALL																
PD RCALL																
MX RCALL																
OMIT																

SPLIT PATTERN NUMBER																
PHASE	1		2		3		4		5		6		7		8	
SPLIT																
PHASE	9		10		11		12		13		14		15		16	
SPLIT VALUE																
PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COORD																
VE RCALL																
PD RCALL																
MX RCALL																
OMIT																

SPLIT PATTERN NUMBER																
PHASE	1		2		3		4		5		6		7		8	
SPLIT																
PHASE	9		10		11		12		13		14		15		16	
SPLIT VALUE																
PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COORD																
VE RCALL																
PD RCALL																
MX RCALL																
OMIT																

3-4 AUTO PERMISSIVE MINIMUM GREEN TIME

PHASE	1	2	3	4	5	6	7	8
MIN GRN								
PHASE	9	10	11	12	13	45	15	16
MIN GRN								

3-5 SPLIT DEMAND

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DEMAND 1																
DEMAND 2																

DEMAND	1	2
DETECTOR		
CALL TIME (SEC)		
CYCLE COUNT		

PREEMPTOR SUBMENU

4-1 PREEMPTOR

PREEMPTOR NUMBER	1

VEH / PED	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
TRACK CLR V																
TRACK CLR O																
ENA TRL																
DWEL VEH																
DWEL PED																
DWEL OLP																
CYC VEH																
CYC PED																
CYC OLP																
EXIT PH																
EXIT CAL																
SP FUNC																

ENABLE		PREEMPTION OVERRIDE		INTERLOCK ENABLE	
NON-LOCK INPUT		DELAY TIME (SECONDS)		INHIBIT TIME (SECONDS)	
AUTOMATIC FLASH HAS PRIORITY		DURATION TIME (SECONDS)		RED CLEAR GOES GREEN	
TERMINATE OVERLAPS ASAP		PED CLEAR THROUGH YELLOW		TERM PH	
PED DARD		TRACK CLEARANCE RESERVICE		DWELL FL	
LINKED PREEMPTOR		FLASH EXIT COLOUR		PREEMPTION TO COORDINATION	
EXIT TIMING PLAN		RESERVICE TIME			

FREE DURING PREEMPTION	RING 1		RING 2		RING 3		RING 4	

TIMING	WALK	PED CLEAR	GREEN	YELLOW	RED
ENTRANCE					
	MIN GREEN	EXT GREEN	MAX GREEN	YELLOW	RED
TRACK CLEAR					
	MIN DWELL	PMT EXT	MAX TIME	YELLOW	RED
DWELL / CYCLE - EXIT					

PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL	
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT	

4-1 PREEMPTOR, continued

PREEMPTOR NUMBER																
VEH / PED	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
TRACK CLR V																
TRACK CLR O																
ENA TRL																
DWEL VEH																
DWEL PED																
DWEL OLP																
CYC VEH																
CYC PED																
CYC OLP																
EXIT PH																
EXIT CAL																
SP FUNC																

ENABLE		PREEMPTION OVERRIDE		INTERLOCK ENABLE	
NON-LOCK INPUT		DELAY TIME (SECONDS)		INHIBIT TIME (SECONDS)	
AUTOMATIC FLASH HAS PRIORITY		DURATION TIME (SECONDS)		RED CLEAR GOES GREEN	
TERMINATE OVERLAPS ASAP		PED CLEAR THROUGH YELLOW		TERM PH	
PED DARD		TRACK CLEARANCE RESERVICE		DWELL FL	
LINKED PREEMPTOR		FLASH EXIT COLOUR		PREEMPTION TO COORDINATION	
EXIT TIMING PLAN		RESERVICE TIME			

FREE DURING PREEMPTION		RING 1		RING 2		RING 3		RING 4	

TIMING	WALK	PED CLEAR	GREEN	YELLOW	RED
ENTRANCE					
	MIN GREEN	EXT GREEN	MAX GREEN	YELLOW	RED
TRACK CLEAR					
	MIN DWELL	PMT EXT	MAX TIME	YELLOW	RED
DWELL / CYCLE - EXIT					

PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL	
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT	

4-2 LOW PRIORITY PREEMPTOR SELECTION

FILTERED INPUT	SOLID	PULSING
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

TIME BASE SUBMENU

5-1 CLOCK / CALENDAR DATA

DATE SET:		TIME SET:	
MANUAL ACTION PLAN			
SYNC REFERENCE TIME		SYNC REFERENCE	
STANDARD TIME FROM GMT		DAYLIGHT SAVINGS	
TIME RESET INPUT TIME SET			

5-2 ACTION PLAN

ACTION PLAN EVENT																
PATTERN								SYSTEM OVERRIDE								
TIMING PLAN								SEQUENCE								
VEHICLE DETECTOR PLAN								DETECTOR LOG								
FLASH								RED REST								
VEHICLE DET DIAGNOSTI C PLAN								PED DET DIAGNOSTIC PLAN								
DIMMING ENABLE																
PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PED RECALL																
WALK 2																
VEH ECT 2																
VEH RECALL																
MAX RECALL																
MAX 2																
MAX 3																
CS INHIBIT																
PHASE OMIT																
SPEC FUNCTION									(1-8)							
AUX FUNCTION				(1-3)												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
LP 01-15																
LP 16-30																
LP 31-45																
LP 46-60																
LP 61-75																
LP 76-90																
LP 91-100																

ACTION PLAN EVENT																
PATTERN								SYSTEM OVERRIDE								
TIMING PLAN								SEQUENCE								
VEHICLE DETECTOR PLAN								DETECTOR LOG								
FLASH								RED REST								
VEHICLE DET DIAGNOSTI C PLAN								PED DET DIAGNOSTIC PLAN								
DIMMING ENABLE																
PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PED RECALL																
WALK 2																
VEH ECT 2																
VEH RECALL																
MAX RECALL																
MAX 2																
MAX 3																
CS INHIBIT																
PHASE OMIT																
SPEC FUNCTION									(1-8)							
AUX FUNCTION				(1-3)												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
LP 01-15																
LP 16-30																
LP 31-45																
LP 46-60																
LP 61-75																
LP 76-90																
LP 91-100																

5-3 DAY PLAN

DAY PLAN #	EVENT #	ACTION PLAN #	START TIME
	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
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	32		
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	39		
	40		
	41		
	42		
	43		
	44		
	45		
	46		
	47		
	48		
	49		
	50		

DAY PLAN #	EVENT #	ACTION PLAN #	START TIME
	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
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	40		
	41		
	42		
	43		
	44		
	45		
	46		
	47		
	48		
	49		
	50		

5-4 SCHEDULE

SCHEDULE NUMBER	
DAY PLAN NUMBER	

MONTH						
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER

DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT

DAY OF MONTH (DOM)										
	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	
DAY PLAN NUMBER	

MONTH						
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER

DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT

DAY OF MONTH (DOM)										
	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	
DAY PLAN NUMBER	

MONTH						
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER

DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT

DAY OF MONTH (DOM)										
	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

5-5 EXCEPTION DAY PROGRAM

EXCEPTION DAY	FLOAT / FIXED	MON / MON	DOW / DOM	WOM / YEAR	DAY PLAN
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
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31					
32					
33					
34					
35					
36					

DETECTOR SUBMENU

6-1 VEH DET ASSIGNMENT

VEHICLE DETECTOR PLAN NUMBER (1)

DET	PH	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
01		X															
02			X														
03				X													
04					X												
05						X											
06							X										
07								X									
08									X								
09																	
10																	
11																	
12																	
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14																	
15																	
16																	
17																	
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59																	
60																	
61																	
62																	
63																	
64																	

6-2 VEHICLE DETECTOR SETUP

DETECTOR NUMBER	1		
ECPI TYPE		TS2 DETECTOR	
VEH DET PLAN #	1	ECPI LOG	

DET	PH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																	

EXTEND TIME		DELAY TIME	
CALL OPTION		PASSAGE OPTION	
ADDED OPTION		X SWITCH PHASE	
QUEUE OPTION		QUEUE LIMIT	
NTCIP OCCUPANCY		NTCIP VOLUME	
YELLOW LOCK		RED LOCK	

DETECTOR NUMBER	2		
ECPI TYPE		TS2 DETECTOR	
VEH DET PLAN #	1	ECPI LOG	

DET	PH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																	

EXTEND TIME		DELAY TIME	
CALL OPTION		PASSAGE OPTION	
ADDED OPTION		X SWITCH PHASE	
QUEUE OPTION		QUEUE LIMIT	
NTCIP OCCUPANCY		NTCIP VOLUME	
YELLOW LOCK		RED LOCK	

DETECTOR NUMBER	3		
ECPI TYPE		TS2 DETECTOR	
VEH DET PLAN #	1	ECPI LOG	

DET	PH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																	

EXTEND TIME		DELAY TIME	
CALL OPTION		PASSAGE OPTION	
ADDED OPTION		X SWITCH PHASE	
QUEUE OPTION		QUEUE LIMIT	
NTCIP OCCUPANCY		NTCIP VOLUME	
YELLOW LOCK		RED LOCK	

DETECTOR NUMBER	4		
ECPI TYPE		TS2 DETECTOR	
VEH DET PLAN #	1	ECPI LOG	

DET	PH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																	

EXTEND TIME		DELAY TIME	
CALL OPTION		PASSAGE OPTION	
ADDED OPTION		X SWITCH PHASE	
QUEUE OPTION		QUEUE LIMIT	
NTCIP OCCUPANCY		NTCIP VOLUME	
YELLOW LOCK		RED LOCK	

DETECTOR NUMBER	5		
ECPI TYPE		TS2 DETECTOR	
VEH DET PLAN #	1	ECPI LOG	

DET	PH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																	

EXTEND TIME		DELAY TIME	
CALL OPTION		PASSAGE OPTION	
ADDED OPTION		X SWITCH PHASE	
QUEUE OPTION		QUEUE LIMIT	
NTCIP OCCUPANCY		NTCIP VOLUME	
YELLOW LOCK		RED LOCK	

DETECTOR NUMBER	6		
ECPI TYPE		TS2 DETECTOR	
VEH DET PLAN #	1	ECPI LOG	

DET	PH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																	

EXTEND TIME		DELAY TIME	
CALL OPTION		PASSAGE OPTION	
ADDED OPTION		X SWITCH PHASE	
QUEUE OPTION		QUEUE LIMIT	
NTCIP OCCUPANCY		NTCIP VOLUME	
YELLOW LOCK		RED LOCK	

DETECTOR NUMBER	7		
ECPI TYPE		TS2 DETECTOR	
VEH DET PLAN #	1	ECPI LOG	

DET	PH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																	

EXTEND TIME		DELAY TIME	
CALL OPTION		PASSAGE OPTION	
ADDED OPTION		X SWITCH PHASE	
QUEUE OPTION		QUEUE LIMIT	
NTCIP OCCUPANCY		NTCIP VOLUME	
YELLOW LOCK		RED LOCK	

DETECTOR NUMBER	8		
ECPI TYPE		TS2 DETECTOR	
VEH DET PLAN #	1	ECPI LOG	

DET	PH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																	

EXTEND TIME		DELAY TIME	
CALL OPTION		PASSAGE OPTION	
ADDED OPTION		X SWITCH PHASE	
QUEUE OPTION		QUEUE LIMIT	
NTCIP OCCUPANCY		NTCIP VOLUME	
YELLOW LOCK		RED LOCK	

6-2 VEHICLE DETECTOR SETUP, continued

DETECTOR NUMBER			
ECPI TYPE		TS2 DETECTOR	
VEH DET PLAN #		ECPI LOG	

DET	PH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																	

EXTEND TIME		DELAY TIME	
CALL OPTION		PASSAGE OPTION	
ADDED OPTION		X SWITCH PHASE	
QUEUE OPTION		QUEUE LIMIT	
NTCIP OCCUPANCY		NTCIP VOLUME	
YELLOW LOCK		RED LOCK	

DETECTOR NUMBER			
ECPI TYPE		TS2 DETECTOR	
VEH DET PLAN #		ECPI LOG	

DET	PH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																	

EXTEND TIME		DELAY TIME	
CALL OPTION		PASSAGE OPTION	
ADDED OPTION		X SWITCH PHASE	
QUEUE OPTION		QUEUE LIMIT	
NTCIP OCCUPANCY		NTCIP VOLUME	
YELLOW LOCK		RED LOCK	

DETECTOR NUMBER			
ECPI TYPE		TS2 DETECTOR	
VEH DET PLAN #		ECPI LOG	

DET	PH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																	

EXTEND TIME		DELAY TIME	
CALL OPTION		PASSAGE OPTION	
ADDED OPTION		X SWITCH PHASE	
QUEUE OPTION		QUEUE LIMIT	
NTCIP OCCUPANCY		NTCIP VOLUME	
YELLOW LOCK		RED LOCK	

DETECTOR NUMBER			
ECPI TYPE		TS2 DETECTOR	
VEH DET PLAN #		ECPI LOG	

DET	PH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																	

EXTEND TIME		DELAY TIME	
CALL OPTION		PASSAGE OPTION	
ADDED OPTION		X SWITCH PHASE	
QUEUE OPTION		QUEUE LIMIT	
NTCIP OCCUPANCY		NTCIP VOLUME	
YELLOW LOCK		RED LOCK	

DETECTOR NUMBER			
ECPI TYPE		TS2 DETECTOR	
VEH DET PLAN #		ECPI LOG	

DET	PH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																	

EXTEND TIME		DELAY TIME	
CALL OPTION		PASSAGE OPTION	
ADDED OPTION		X SWITCH PHASE	
QUEUE OPTION		QUEUE LIMIT	
NTCIP OCCUPANCY		NTCIP VOLUME	
YELLOW LOCK		RED LOCK	

DETECTOR NUMBER			
ECPI TYPE		TS2 DETECTOR	
VEH DET PLAN #		ECPI LOG	

DET	PH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																	

EXTEND TIME		DELAY TIME	
CALL OPTION		PASSAGE OPTION	
ADDED OPTION		X SWITCH PHASE	
QUEUE OPTION		QUEUE LIMIT	
NTCIP OCCUPANCY		NTCIP VOLUME	
YELLOW LOCK		RED LOCK	

DETECTOR NUMBER			
ECPI TYPE		TS2 DETECTOR	
VEH DET PLAN #		ECPI LOG	

DET	PH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																	

EXTEND TIME		DELAY TIME	
CALL OPTION		PASSAGE OPTION	
ADDED OPTION		X SWITCH PHASE	
QUEUE OPTION		QUEUE LIMIT	
NTCIP OCCUPANCY		NTCIP VOLUME	
YELLOW LOCK		RED LOCK	

DETECTOR NUMBER			
ECPI TYPE		TS2 DETECTOR	
VEH DET PLAN #		ECPI LOG	

DET	PH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																	

EXTEND TIME		DELAY TIME	
CALL OPTION		PASSAGE OPTION	
ADDED OPTION		X SWITCH PHASE	
QUEUE OPTION		QUEUE LIMIT	
NTCIP OCCUPANCY		NTCIP VOLUME	
YELLOW LOCK		RED LOCK	

6-4 PED DETECTOR INPUT ASSIGNMENT

DETECTOR INPUT TO PED PHASE ASSIGNMENT								
PHASE #	01	02	03	04	05	06	07	08
INPUT #								
PHASE #	09	10	11	12	13	14	15	16
INPUT #								

6-5 LOG – SPEED DETECTOR SET UP

NTCIP LOG		ECPI LOG			LENGTH UNIT		
SPEED DET	1	2	3	4	5	6	7	8
LOCAL DET								
ONE / TWO DET								
VEH LENGTH								
TRAP LENGTH								
ENABLE LOG								
SPEED DET	9	10	11	12	13	14	15	16
LOCAL DET								
ONE / TWO DET								
VEH LENGTH								
TRAP LENGTH								
ENABLE LOG								

6-6 VEH DET DIAG

VEHICLE DIAGNOSTIC PLAN NUMBER				1	FAILED	
DET	COUNTS	ACT	PRES	X's	TIME	CL DELAY
01						
02						
03						
04						
05						
06						
07						
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64						

VEHICLE DIAGNOSTIC PLAN NUMBER				2	FAILED	
DET	COUNTS	ACT	PRES	X's	TIME	CL DELAY
01						
02						
03						
04						
05						
06						
07						
08						
09						
10						
11						
12						
13						
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6-6 VEH DET DIAG, continued

VEHICLE DIAGNOSTIC PLAN NUMBER				3	FAILED	
DET	COUNTS	ACT	PRES	X's	TIME	CL DELAY
01						
02						
03						
04						
05						
06						
07						
08						
09						
10						
11						
12						
13						
14						
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63						
64						

VEHICLE DIAGNOSTIC PLAN NUMBER				4	FAILED	
DET	COUNTS	ACT	PRES	X's	TIME	CL DELAY
01						
02						
03						
04						
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06						
07						
08						
09						
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64						

6-7 PED DETECTOR DIAG

PED DETECTOR DIAG PLAN				1	PED DETECTOR DIAG PLAN				2
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER
1					1				
2					2				
3					3				
4					4				
5					5				
6					6				
7					7				
8					8				
9					9				
10					10				
11					11				
12					12				
13					13				
14					14				
15					15				
16					16				

PED DETECTOR DIAG PLAN				3	PED DETECTOR DIAG PLAN				4
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER
1					1				
2					2				
3					3				
4					4				
5					5				
6					6				
7					7				
8					8				
9					9				
10					10				
11					11				
12					12				
13					13				
14					14				
15					15				
16					16				

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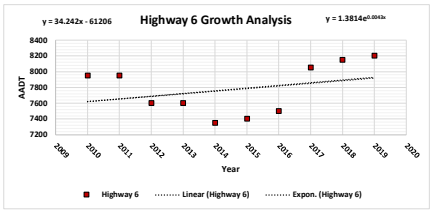
Appendix B

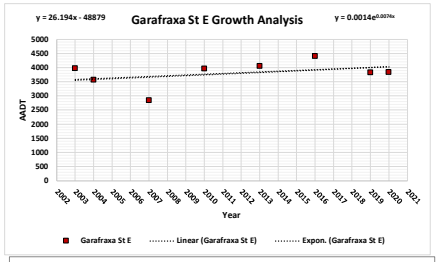
Growth Analysis

PHV to AADT 0.1

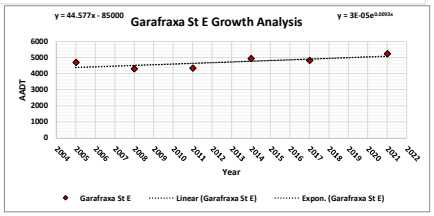
ID	Road	Point	Intersection	Source	Year	AADT		
1001	Highway 6	1	Highway 6 in Centre Wellington	MTO	2010	7950		
		2	Highway 6 in Centre Wellington	MTO	2011	7950		
		3	Highway 6 in Centre Wellington	MTO	2012	7600		
		4	Highway 6 in Centre Wellington	MTO	2013	7600		
		5	Highway 6 in Centre Wellington	MTO	2014	7350		
		6	Highway 6 in Centre Wellington	MTO	2015	7400		
		7	Highway 6 in Centre Wellington	MTO	2016	7500		
		8	Highway 6 in Centre Wellington	MTO	2017	8050		
		9	Highway 6 in Centre Wellington	MTO	2018	8150	Calculated Linear	Calculated Expnential
		10	Highway 6 in Centre Wellington	MTO	2019	8200	7929	8142
		Projection						
			LINEAR GROWTH		2022	8031	0.427%	0.430%
			EXPONENTIAL GROWTH		2022	8248	0.432%	
			LINEAR GROWTH		2032	8374	0.419%	0.425%
			EXPONENTIAL GROWTH		2032	8610	0.430%	
			LINEAR GROWTH		2037	8545	0.414%	0.422%
			EXPONENTIAL GROWTH		2037	8797	0.431%	
							Assume:	0.50%



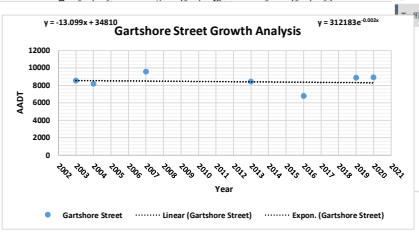
ID	Road	Point	Intersection	Source	Year	AADT		
1904	Garafraxa St E	1	Centre of Wellington	Township of Centre Wellington	2003	3975		
		2	Centre of Wellington	Township of Centre Wellington	2004	3572		
		3	Centre of Wellington	Township of Centre Wellington	2007	2845		
		4	Centre of Wellington	Township of Centre Wellington	2010	3964		
		5	Centre of Wellington	Township of Centre Wellington	2013	4049		
		6	Centre of Wellington	Township of Centre Wellington	2016	4401		
		7	Centre of Wellington	Township of Centre Wellington	2019	3828	Calculated Linear	Calculated Expnential
		8	Centre of Wellington	Township of Centre Wellington	2020	3841	4033	4345
		Projection						
			LINEAR GROWTH		2022	4085	0.643%	0.694%
			EXPONENTIAL GROWTH		2022	4410	0.745%	
			LINEAR GROWTH		2032	4347	0.624%	0.682%
			EXPONENTIAL GROWTH		2032	4748	0.741%	
			LINEAR GROWTH		2037	4478	0.614%	0.678%
			EXPONENTIAL GROWTH		2037	4927	0.742%	
							Assume:	1.00%



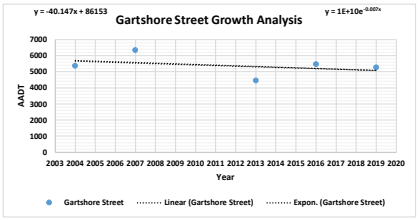
ID	Road	Point	Intersection	Source	Year	AADT	Growth Rate Linear	Growth Rate Exp.
1905	Garafraxa StE	1	Centre of Wellington	Township of Centre Wellington	2005	4703		
		2	Centre of Wellington	Township of Centre Wellington	2008	4294		
		3	Centre of Wellington	Township of Centre Wellington	2011	4339		
		4	Centre of Wellington	Township of Centre Wellington	2014	4929		
		5	Centre of Wellington	Township of Centre Wellington	2017	4813	Calculated Linear	Calculated Expnential
		6	Centre of Wellington	Township of Centre Wellington	2021	5235	5090	4363
		Projection						
			LINEAR GROWTH		2022	5135	0.884%	0.912%
			EXPONENTIAL GROWTH		2022	4404	0.940%	
			LINEAR GROWTH		2032	5580	0.835%	0.884%
			EXPONENTIAL GROWTH		2032	4833	0.934%	
			LINEAR GROWTH		2032	5580	0.835%	0.884%
			EXPONENTIAL GROWTH		2032	4833	0.934%	
							Assume:	1.00%



ID	Road	Point	Intersection	Source	Year	AADT	Growth Rate Linear	Growth Rate Exp.
4301	Gartshore Street	1	North of St George Street E	Township of Centre Wellington	2003	8519		
		2	North of St George Street E	Township of Centre Wellington	2004	8153		
		3	North of St George Street E	Township of Centre Wellington	2007	9556		
		4	North of St George Street E	Township of Centre Wellington				
		5	North of St George Street E	Township of Centre Wellington	2013	8440		
		6	North of St George Street E	Township of Centre Wellington	2016	6785		
		7	North of St George Street E	Township of Centre Wellington	2019	8850	Calculated Linear	
		8	North of St George Street E	Township of Centre Wellington	2020	8913	8532	
		Projection						
			LINEAR GROWTH		2022	8506	-0.152%	-0.152%
			EXPONENTIAL GROWTH		2022			
			LINEAR GROWTH		2032	8376	-0.154%	-0.154%
			EXPONENTIAL GROWTH		2032			
			LINEAR GROWTH		2037	8311	-0.175%	-0.175%
			EXPONENTIAL GROWTH		2037			
							Assume:	0.00%



ID	Road	Point	Intersection	Source	Year	AADT	Growth Rate Linear	Growth Rate Exp.
4302	Gartshore Street	1	North of Glengarry Crescent	Township of Centre Wellington	2004	5385		
		2	North of Glengarry Crescent	Township of Centre Wellington	2007	6344		
		3	North of Glengarry Crescent	Township of Centre Wellington				
		4	North of Glengarry Crescent	Township of Centre Wellington	2013	4457		
		5	North of Glengarry Crescent	Township of Centre Wellington	2016	5467	Calculated Linear	Calculated Expnential
		6	North of Glengarry Crescent	Township of Centre Wellington	2019	5268	5096	
		Projection						
			LINEAR GROWTH		2022	4976	-0.791%	-0.791%
			EXPONENTIAL GROWTH		2022			
					2032	4574	-1.075%	-1.075%
					2032			
			LINEAR GROWTH		2037	4374	-3.009%	-3.009%
			EXPONENTIAL GROWTH		2037			
							Assume:	0.00%



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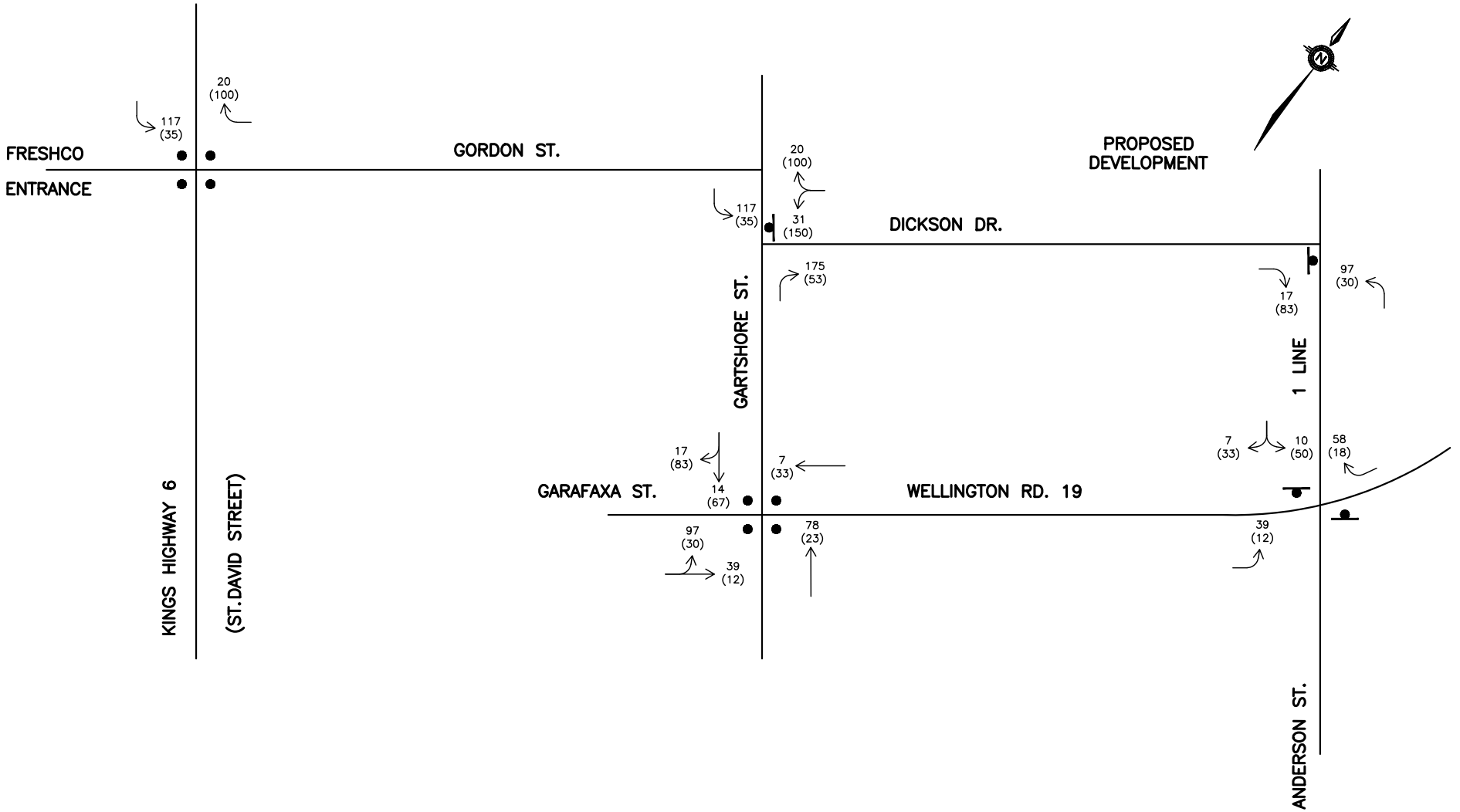
Appendix C

Background Development Traffic



LEGEND:

STOP CONTROL

25 (25) AM PEAK HOUR / PM PEAK HOUR TRAFFIC VOLUMES

EXISTING ROAD

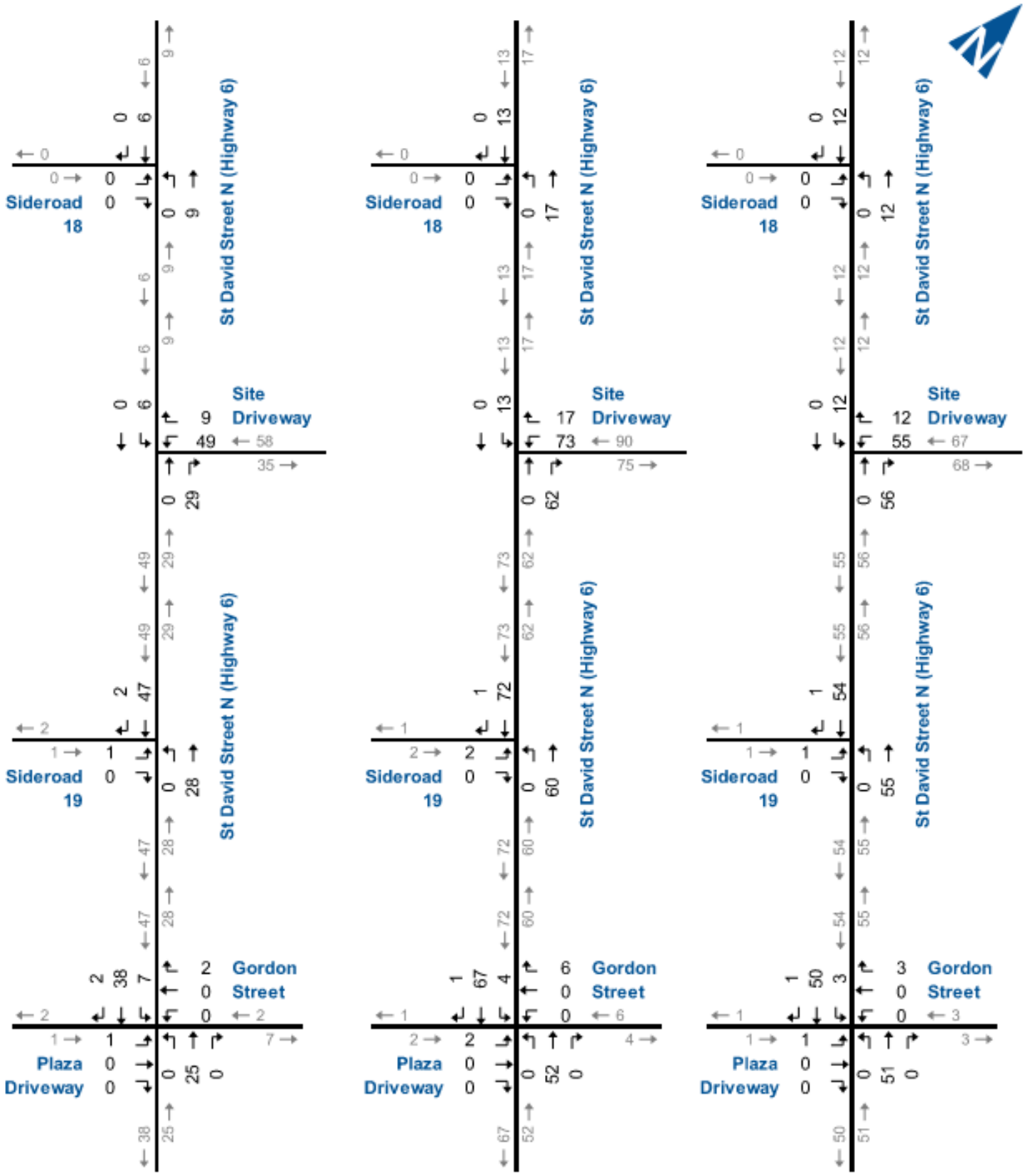
TRAFFIC FLOW

TRAFFIC SIGNALS

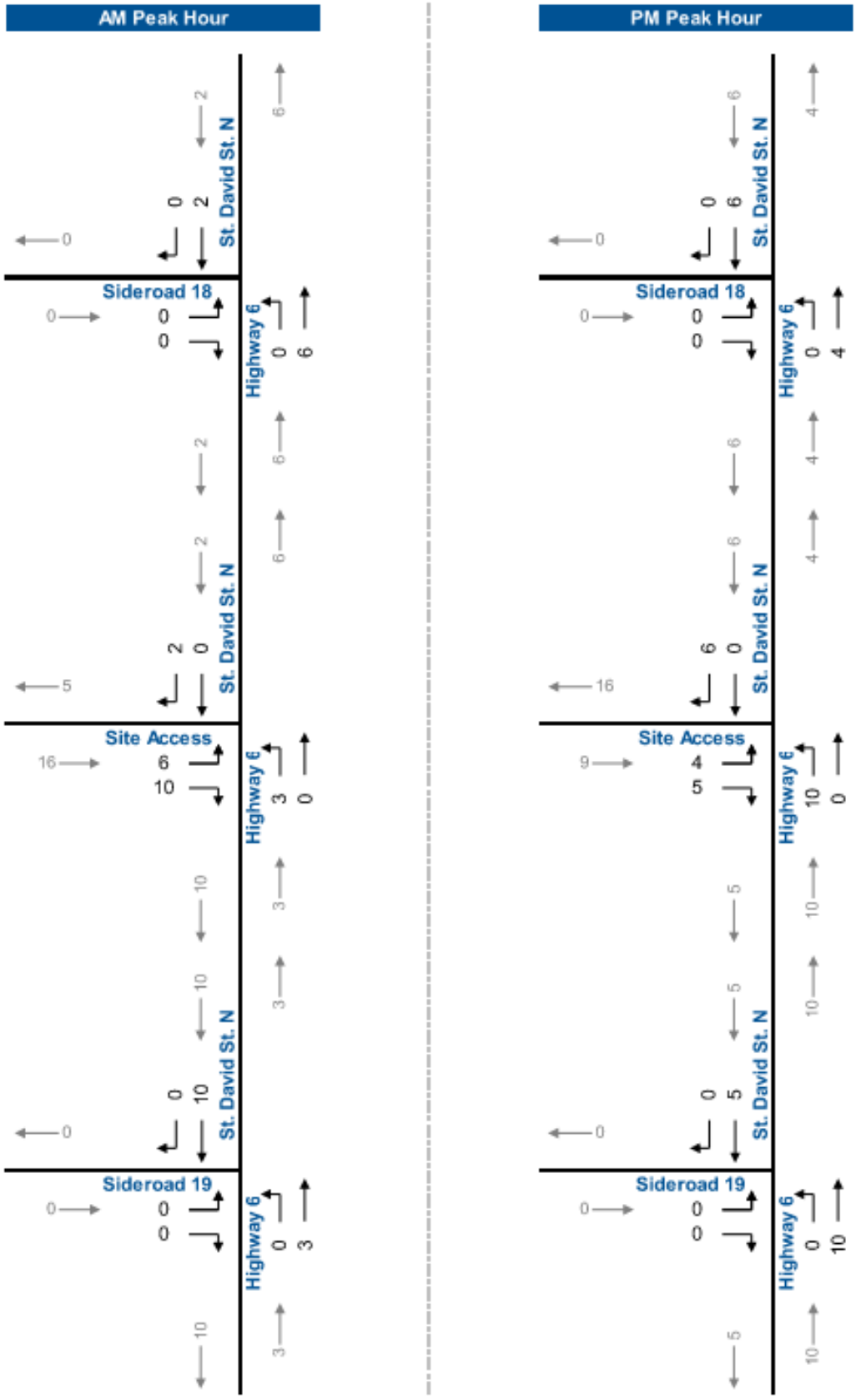
PROPOSED ENTRANCE

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

FIGURE 6:
SITE GENERATED TRAFFIC



Site Traffic Volumes
Full Build-out
Weekday AM, PM and SAT Peak Hours



Site Generated Traffic Volumes

961 St David Street North, Fergus TIS
210066

Figure 3.2

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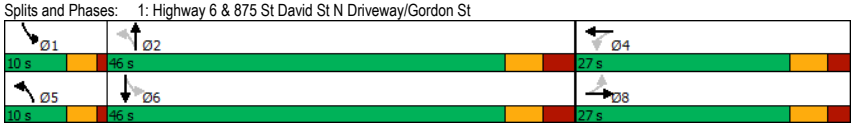
Appendix D

Existing Traffic Operations

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	1	4	44	8	12	287	151	326
Future Volume (vph)	1	4	44	8	12	287	151	326
Lane Group Flow (vph)	1	18	52	163	14	423	178	390
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		8		4	5	2	1	6
Permitted Phases	8		4		2		6	
Detector Phase	8	8	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	35.0	5.0	35.0
Minimum Split (s)	27.0	27.0	27.0	27.0	9.5	46.0	9.5	46.0
Total Split (s)	27.0	27.0	27.0	27.0	10.0	46.0	10.0	46.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	12.0%	55.4%	12.0%	55.4%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.8	3.0	3.8
All-Red Time (s)	2.3	2.3	2.3	2.3	1.0	3.2	1.0	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	4.0	7.0	4.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
v/c Ratio	0.01	0.08	0.31	0.51	0.02	0.43	0.27	0.31
Control Delay	27.0	17.7	33.3	12.4	3.1	10.6	4.1	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	17.7	33.3	12.4	3.1	10.6	4.1	6.6
Queue Length 50th (m)	0.1	0.6	6.4	1.1	0.4	27.4	5.0	15.5
Queue Length 95th (m)	1.3	5.3	14.8	14.0	1.6	47.0	11.0	42.2
Internal Link Dist (m)		72.4		1007.5		421.8		1511.2
Turn Bay Length (m)	15.0		27.0		90.0		26.0	
Base Capacity (vph)	352	511	417	567	765	994	656	1247
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	0.00	0.04	0.12	0.29	0.02	0.43	0.27	0.31

Intersection Summary
Cycle Length: 83
Actuated Cycle Length: 70.3
Natural Cycle: 85
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Highway 6 & 875 St David St N Driveway/Gordon St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	4	11	44	8	131	12	287	72	151	326	5
Future Volume (vph)	1	4	11	44	8	131	12	287	72	151	326	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.86		1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1819	1681		1779	1539		1825	1775		1706	1861	
Flt Permitted	0.62	1.00		0.75	1.00		0.53	1.00		0.44	1.00	
Satd. Flow (perm)	1181	1681		1396	1539		1020	1775		793	1861	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	1	5	13	52	9	154	14	338	85	178	384	6
RTOR Reduction (vph)	0	11	0	0	136	0	0	9	0	0	0	0
Lane Group Flow (vph)	1	7	0	52	27	0	14	414	0	178	390	0
Confl. Peds. (#/hr)	2		3	3		2	1					1
Heavy Vehicles (%)	0%	0%	0%	2%	0%	5%	0%	6%	1%	7%	3%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	8.5	8.5		8.5	8.5		43.3	42.3		52.1	47.1	
Effective Green, g (s)	8.5	8.5		8.5	8.5		43.3	42.3		52.1	47.1	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.59	0.57		0.71	0.64	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	136	194		161	177		611	1020		633	1190	
v/s Ratio Prot		0.00			0.02		0.00	c0.23		c0.02	0.21	
v/s Ratio Perm	0.00			c0.04			0.01			0.18		
v/c Ratio	0.01	0.03		0.32	0.15		0.02	0.41		0.28	0.33	
Uniform Delay, d1	28.8	28.9		29.9	29.3		6.3	8.7		3.9	6.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.1		1.2	0.4		0.0	1.2		0.1	0.7	
Delay (s)	28.8	29.0		31.1	29.7		6.3	9.9		4.0	6.8	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		29.0			30.0			9.8			5.9	
Approach LOS		C			C			A			A	

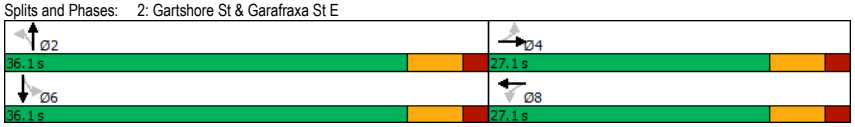
Intersection Summary					
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B		
HCM 2000 Volume to Capacity ratio	0.38				
Actuated Cycle Length (s)	73.6	Sum of lost time (s)	17.0		
Intersection Capacity Utilization	61.2%	ICU Level of Service	B		
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	31	192	45	186	48	87	13	81
Future Volume (vph)	31	192	45	186	48	87	13	81
Lane Group Flow (vph)	35	267	51	229	54	158	15	142
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
v/c Ratio	0.12	0.54	0.20	0.50	0.08	0.17	0.02	0.15
Control Delay	16.5	21.0	17.9	21.1	8.5	6.0	8.3	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	21.0	17.9	21.1	8.5	6.0	8.3	6.1
Queue Length 50th (m)	2.8	21.8	4.1	19.3	2.5	4.6	0.7	4.2
Queue Length 95th (m)	8.1	39.2	11.0	35.1	8.3	14.4	3.4	13.5
Internal Link Dist (m)		303.5		128.8		131.6		933.4
Turn Bay Length (m)	38.0		37.0		20.0		28.0	
Base Capacity (vph)	408	686	363	645	658	938	663	926
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	0.09	0.39	0.14	0.36	0.08	0.17	0.02	0.15

Intersection Summary
Cycle Length: 63.2
Actuated Cycle Length: 57.3
Natural Cycle: 65
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Gartshore St & Garafraxa St E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	192	45	45	186	18	48	87	53	13	81	45
Future Volume (vph)	31	192	45	45	186	18	48	87	53	13	81	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.94		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1718	1829		1722	1741		1786	1730		1824	1715	
Flt Permitted	0.61	1.00		0.54	1.00		0.67	1.00		0.66	1.00	
Satd. Flow (perm)	1109	1829		986	1741		1253	1730		1261	1715	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	35	216	51	51	209	20	54	98	60	15	91	51
RTOR Reduction (vph)	0	15	0	0	6	0	0	28	0	0	24	0
Lane Group Flow (vph)	35	252	0	51	223	0	54	130	0	15	118	0
Confl. Peds. (#/hr)	2					2	2		1	1		2
Heavy Vehicles (%)	6%	2%	2%	6%	8%	16%	2%	2%	7%	0%	8%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.9	14.9		14.9	14.9		30.1	30.1		30.1	30.1	
Effective Green, g (s)	14.9	14.9		14.9	14.9		30.1	30.1		30.1	30.1	
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.53	0.53		0.53	0.53	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	288	476		256	453		659	910		663	902	
v/s Ratio Prot		c0.14			0.13			c0.07			0.07	
v/s Ratio Perm	0.03			0.05			0.04			0.01		
v/c Ratio	0.12	0.53		0.20	0.49		0.08	0.14		0.02	0.13	
Uniform Delay, d1	16.2	18.1		16.5	17.9		6.7	6.9		6.5	6.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	2.0		0.8	1.8		0.2	0.3		0.1	0.3	
Delay (s)	16.5	20.2		17.3	19.7		7.0	7.3		6.6	7.2	
Level of Service	B	C		B	B		A	A		A	A	
Approach Delay (s)		19.8			19.3			7.2			7.1	
Approach LOS		B			B			A			A	

Intersection Summary					
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.27				
Actuated Cycle Length (s)	57.2	Sum of lost time (s)		12.2	
Intersection Capacity Utilization	66.5%	ICU Level of Service		C	
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	89	96	207	287	30
Future Volume (Veh/h)	16	89	96	207	287	30
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	17	95	102	220	305	32
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	745	321	337			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	745	321	337			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	95	87	92			
cM capacity (veh/h)	344	711	1211			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	112	102	220	337
Volume Left	17	102	0	0
Volume Right	95	0	0	32
cSH	612	1211	1700	1700
Volume to Capacity	0.18	0.08	0.13	0.20
Queue Length 95th (m)	5.1	2.1	0.0	0.0
Control Delay (s)	12.2	8.2	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	12.2	2.6		0.0
Approach LOS	B			

Intersection Summary				
Average Delay	2.9			
Intersection Capacity Utilization	38.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	57	197	130	43	28	17
Future Volume (Veh/h)	57	197	130	43	28	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	62	214	141	47	30	18
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	368	39	48			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	368	39	48			
tC, single (s)	6.4	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.3			
p0 queue free %	89	79	91			
cM capacity (veh/h)	576	1021	1534			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	276	188	48
Volume Left	62	141	0
Volume Right	214	0	18
cSH	870	1534	1700
Volume to Capacity	0.32	0.09	0.03
Queue Length 95th (m)	10.4	2.3	0.0
Control Delay (s)	11.0	5.9	0.0
Lane LOS	B	A	
Approach Delay (s)	11.0	5.9	0.0
Approach LOS	B		

Intersection Summary				
Average Delay	8.1			
Intersection Capacity Utilization	38.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	28	167	32	26	177
Future Volume (Veh/h)	36	28	167	32	26	177
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	30	182	35	28	192
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	448	200			217	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	448	200			217	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	96			98	
cM capacity (veh/h)	561	847			1365	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	69	217	220
Volume Left	39	0	28
Volume Right	30	35	0
cSH	657	1700	1365
Volume to Capacity	0.10	0.13	0.02
Queue Length 95th (m)	2.7	0.0	0.5
Control Delay (s)	11.1	0.0	1.1
Lane LOS	B		A
Approach Delay (s)	11.1	0.0	1.1
Approach LOS	B		

Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	35.2%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	22	0	1	49	0	1
Future Volume (Veh/h)	22	0	1	49	0	1
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	0	1	53	0	1
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	28	28			54	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	28	28			54	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	986	1048			1551	

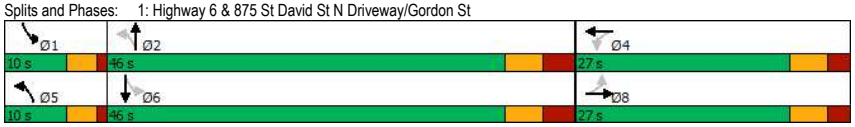
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	24	54	0
Volume Left	24	0	0
Volume Right	0	53	0
cSH	986	1700	1700
Volume to Capacity	0.02	0.03	0.00
Queue Length 95th (m)	0.6	0.0	0.0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.7	0.0	Err
Approach LOS	A		

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

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	29	34	76	38	95	427	241	324
Future Volume (vph)	29	34	76	38	95	427	241	324
Lane Group Flow (vph)	31	113	81	247	101	542	256	362
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		8		4	5	2	1	6
Permitted Phases	8		4		2		6	
Detector Phase	8	8	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	35.0	5.0	35.0
Minimum Split (s)	27.0	27.0	27.0	27.0	9.5	46.0	9.5	46.0
Total Split (s)	27.0	27.0	27.0	27.0	10.0	46.0	10.0	46.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	12.0%	55.4%	12.0%	55.4%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.8	3.0	3.8
All-Red Time (s)	2.3	2.3	2.3	2.3	1.0	3.2	1.0	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	4.0	7.0	4.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
v/c Ratio	0.30	0.37	0.45	0.61	0.14	0.54	0.47	0.33
Control Delay	34.9	15.0	36.1	13.9	4.2	13.6	7.2	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	15.0	36.1	13.9	4.2	13.6	7.2	10.6
Queue Length 50th (m)	3.8	4.4	10.2	4.9	3.1	41.9	8.7	24.7
Queue Length 95th (m)	11.2	16.9	22.2	23.6	8.9	80.0	21.0	48.7
Internal Link Dist (m)		72.4		1007.5		421.8		1511.2
Turn Bay Length (m)	15.0		27.0		90.0		26.0	
Base Capacity (vph)	214	547	373	612	759	1001	547	1081
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	0.14	0.21	0.22	0.40	0.13	0.54	0.47	0.33

Intersection Summary
Cycle Length: 83
Actuated Cycle Length: 72.4
Natural Cycle: 85
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Highway 6 & 875 St David St N Driveway/Gordon St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	34	72	76	38	195	95	427	83	241	324	16
Future Volume (vph)	29	34	72	76	38	195	95	427	83	241	324	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.97		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.87		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1809	1697		1783	1605		1824	1841		1755	1888	
Flt Permitted	0.39	1.00		0.68	1.00		0.55	1.00		0.36	1.00	
Satd. Flow (perm)	739	1697		1284	1605		1047	1841		674	1888	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	31	36	77	81	40	207	101	454	88	256	345	17
RTOR Reduction (vph)	0	66	0	0	178	0	0	7	0	0	2	0
Lane Group Flow (vph)	31	47	0	81	69	0	101	535	0	256	360	0
Confl. Peds. (#/hr)	7		2	2		7	2		1	1		2
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	1%	4%	4%	1%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	10.3	10.3		10.3	10.3		44.5	40.0		47.3	41.4	
Effective Green, g (s)	10.3	10.3		10.3	10.3		44.5	40.0		47.3	41.4	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.61	0.55		0.65	0.57	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	103	238		180	225		684	1006		522	1067	
v/s Ratio Prot		0.03			0.04		0.01	c0.29		c0.04	0.19	
v/s Ratio Perm	0.04			c0.06			0.08			0.28		
v/c Ratio	0.30	0.20		0.45	0.31		0.15	0.53		0.49	0.34	
Uniform Delay, d1	28.2	27.8		28.9	28.2		6.0	10.6		6.1	8.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	0.4		1.8	0.8		0.0	2.0		0.3	0.9	
Delay (s)	29.9	28.2		30.6	29.0		6.0	12.6		6.4	9.4	
Level of Service	C	C		C	C		A	B		A	A	
Approach Delay (s)		28.6			29.4			11.6			8.1	
Approach LOS		C			C			B			A	

Intersection Summary					
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.51				
Actuated Cycle Length (s)	73.2	Sum of lost time (s)		17.0	
Intersection Capacity Utilization	84.1%	ICU Level of Service		E	
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	70	239	95	269	71	125	14	105
Future Volume (vph)	70	239	95	269	71	125	14	105
Lane Group Flow (vph)	75	318	102	314	76	220	15	189
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
v/c Ratio	0.30	0.60	0.41	0.60	0.12	0.23	0.02	0.20
Control Delay	19.5	22.2	22.4	22.8	9.5	7.0	8.9	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.5	22.2	22.4	22.8	9.5	7.0	8.9	6.4
Queue Length 50th (m)	6.3	27.3	8.8	28.3	4.1	8.2	0.8	6.2
Queue Length 95th (m)	15.5	48.2	20.3	49.0	11.1	20.2	3.4	16.8
Internal Link Dist (m)		303.5		128.8		131.6		933.4
Turn Bay Length (m)	38.0		37.0		20.0		28.0	
Base Capacity (vph)	321	658	312	659	618	944	607	933
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.48	0.33	0.48	0.12	0.23	0.02	0.20

Intersection Summary
Cycle Length: 63.2
Actuated Cycle Length: 59.1
Natural Cycle: 65
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Gartshore St & Garafraxa St E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	239	57	95	269	23	71	125	80	14	105	71
Future Volume (vph)	70	239	57	95	269	23	71	125	80	14	105	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.94		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1807	1810		1786	1836		1806	1787		1824	1762	
Flt Permitted	0.47	1.00		0.47	1.00		0.64	1.00		0.62	1.00	
Satd. Flow (perm)	899	1810		877	1836		1214	1787		1192	1762	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	75	257	61	102	289	25	76	134	86	15	113	76
RTOR Reduction (vph)	0	14	0	0	5	0	0	34	0	0	36	0
Lane Group Flow (vph)	75	304	0	102	309	0	76	186	0	15	153	0
Confl. Peds. (#/hr)			2	2			1		1	1		1
Heavy Vehicles (%)	1%	3%	1%	2%	3%	8%	1%	0%	1%	0%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.7	16.7		16.7	16.7		30.1	30.1		30.1	30.1	
Effective Green, g (s)	16.7	16.7		16.7	16.7		30.1	30.1		30.1	30.1	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.51	0.51		0.51	0.51	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	254	512		248	519		619	911		608	898	
v/s Ratio Prot		0.17			c0.17			c0.10			0.09	
v/s Ratio Perm	0.08			0.12			0.06			0.01		
v/c Ratio	0.30	0.59		0.41	0.60		0.12	0.20		0.02	0.17	
Uniform Delay, d1	16.5	18.2		17.2	18.2		7.6	7.9		7.2	7.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	2.8		2.3	2.8		0.4	0.5		0.1	0.4	
Delay (s)	17.9	21.0		19.5	21.0		8.0	8.4		7.2	8.2	
Level of Service	B	C		B	C		A	A		A	A	
Approach Delay (s)		20.4			20.6			8.3			8.1	
Approach LOS		C			C			A			A	

Intersection Summary					
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.34				
Actuated Cycle Length (s)	59.0	Sum of lost time (s)		12.2	
Intersection Capacity Utilization	70.9%	ICU Level of Service		C	
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	24	134	105	423	295	23
Future Volume (Veh/h)	24	134	105	423	295	23
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	26	147	115	465	324	25
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	1032	336	349			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1032	336	349			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	79	91			
cM capacity (veh/h)	232	703	1215			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	173	115	465	349
Volume Left	26	115	0	0
Volume Right	147	0	0	25
cSH	539	1215	1700	1700
Volume to Capacity	0.32	0.09	0.27	0.21
Queue Length 95th (m)	10.5	2.4	0.0	0.0
Control Delay (s)	14.8	8.3	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	14.8	1.6		0.0
Approach LOS	B			

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	42.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	23	208	266	25	65	53
Future Volume (Veh/h)	23	208	266	25	65	53
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	226	289	27	71	58
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	705	100	129			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	705	100	129			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	76	80			
cM capacity (veh/h)	326	950	1463			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	251	316	129
Volume Left	25	289	0
Volume Right	226	0	58
cSH	798	1463	1700
Volume to Capacity	0.31	0.20	0.08
Queue Length 95th (m)	10.3	5.6	0.0
Control Delay (s)	11.6	7.5	0.0
Lane LOS	B	A	
Approach Delay (s)	11.6	7.5	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	7.6		
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	36	245	18	5	217
Future Volume (Veh/h)	36	36	245	18	5	217
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	39	266	20	5	236
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	522	276			286	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	522	276			286	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	95			100	
cM capacity (veh/h)	517	768			1288	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	78	286	241
Volume Left	39	0	5
Volume Right	39	20	0
cSH	617	1700	1288
Volume to Capacity	0.13	0.17	0.00
Queue Length 95th (m)	3.3	0.0	0.1
Control Delay (s)	11.7	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	11.7	0.0	0.2
Approach LOS	B		

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	26.3%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	58	0	1	23	0	1
Future Volume (Veh/h)	58	0	1	23	0	1
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	63	0	1	25	0	1
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	14	14			26	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	14	14			26	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	100			100	
cM capacity (veh/h)	1004	1067			1588	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	63	26	0
Volume Left	63	0	0
Volume Right	0	25	0
cSH	1004	1700	1700
Volume to Capacity	0.06	0.02	0.00
Queue Length 95th (m)	1.5	0.0	0.0
Control Delay (s)	8.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.8	0.0	Err
Approach LOS	A		

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

BURNSIDE

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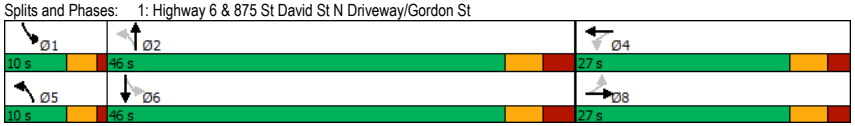
Appendix E

Background 2032 Traffic Operations

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	2	4	44	8	12	330	275	391
Future Volume (vph)	2	4	44	8	12	330	275	391
Lane Group Flow (vph)	2	18	52	189	14	473	324	468
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		8		4	5	2	1	6
Permitted Phases	8		4		2		6	
Detector Phase	8	8	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	35.0	5.0	35.0
Minimum Split (s)	27.0	27.0	27.0	27.0	9.5	46.0	9.5	46.0
Total Split (s)	27.0	27.0	27.0	27.0	10.0	46.0	10.0	46.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	12.0%	55.4%	12.0%	55.4%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.8	3.0	3.8
All-Red Time (s)	2.3	2.3	2.3	2.3	1.0	3.2	1.0	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	4.0	7.0	4.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
v/c Ratio	0.02	0.08	0.31	0.55	0.02	0.48	0.53	0.38
Control Delay	27.0	17.7	33.1	12.3	3.2	11.5	7.1	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	17.7	33.1	12.3	3.2	11.5	7.1	7.3
Queue Length 50th (m)	0.2	0.6	6.4	1.1	0.4	32.2	10.0	19.7
Queue Length 95th (m)	1.8	5.3	14.8	14.7	1.7	55.6	20.8	53.5
Internal Link Dist (m)		72.4		1007.5		421.8		1511.2
Turn Bay Length (m)	15.0		27.0		90.0		26.0	
Base Capacity (vph)	293	509	415	583	720	991	611	1246
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	0.01	0.04	0.13	0.32	0.02	0.48	0.53	0.38

Intersection Summary
Cycle Length: 83
Actuated Cycle Length: 70.6
Natural Cycle: 85
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Highway 6 & 875 St David St N Driveway/Gordon St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	4	11	44	8	153	12	330	72	275	391	7
Future Volume (vph)	2	4	11	44	8	153	12	330	72	275	391	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.86		1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1820	1681		1779	1536		1825	1779		1706	1861	
Flt Permitted	0.52	1.00		0.75	1.00		0.49	1.00		0.40	1.00	
Satd. Flow (perm)	987	1681		1396	1536		950	1779		726	1861	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	2	5	13	52	9	180	14	388	85	324	460	8
RTOR Reduction (vph)	0	11	0	0	159	0	0	8	0	0	0	0
Lane Group Flow (vph)	2	7	0	52	30	0	14	465	0	324	468	0
Confl. Peds. (#/hr)	2		3	3		2	1					1
Heavy Vehicles (%)	0%	0%	0%	2%	0%	5%	0%	6%	1%	7%	3%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	8.6	8.6		8.6	8.6		43.3	42.3		52.3	47.3	
Effective Green, g (s)	8.6	8.6		8.6	8.6		43.3	42.3		52.3	47.3	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.59	0.57		0.71	0.64	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	114	195		162	178		568	1018		593	1191	
v/s Ratio Prot		0.00			0.02		0.00	0.26		c0.04	0.25	
v/s Ratio Perm	0.00			c0.04			0.01			c0.34		
v/c Ratio	0.02	0.03		0.32	0.17		0.02	0.46		0.55	0.39	
Uniform Delay, d1	28.9	29.0		30.0	29.4		6.4	9.2		4.6	6.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1		1.2	0.4		0.0	1.5		0.6	1.0	
Delay (s)	29.0	29.0		31.1	29.9		6.4	10.6		5.2	7.4	
Level of Service	C	C		C	C		A	B		A	A	
Approach Delay (s)		29.0			30.1			10.5			6.5	
Approach LOS		C			C			B			A	

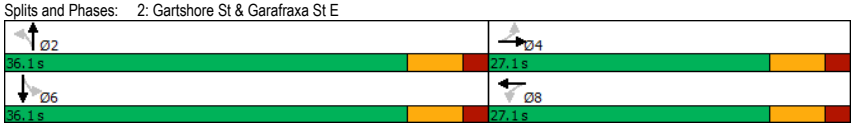
Intersection Summary				
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	73.9	Sum of lost time (s)	17.0	
Intersection Capacity Utilization	69.0%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	131	251	50	212	53	178	9	117
Future Volume (vph)	131	251	50	212	53	178	9	117
Lane Group Flow (vph)	147	338	56	255	60	266	10	206
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
v/c Ratio	0.49	0.62	0.24	0.50	0.10	0.29	0.02	0.23
Control Delay	23.4	22.6	18.7	20.5	9.5	9.2	8.9	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	22.6	18.7	20.5	9.5	9.2	8.9	7.3
Queue Length 50th (m)	13.1	29.8	4.6	22.2	3.4	14.1	0.6	8.4
Queue Length 95th (m)	27.3	51.0	12.2	39.3	9.1	28.0	2.6	19.2
Internal Link Dist (m)		303.5		128.8		131.6		933.4
Turn Bay Length (m)	38.0		37.0		20.0		28.0	
Base Capacity (vph)	364	659	280	621	596	916	575	894
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.51	0.20	0.41	0.10	0.29	0.02	0.23

Intersection Summary
Cycle Length: 63.2
Actuated Cycle Length: 59.8
Natural Cycle: 65
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Gartshore St & Garafraxa St E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	251	50	50	212	15	53	178	59	9	117	67
Future Volume (vph)	131	251	50	50	212	15	53	178	59	9	117	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.96		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1718	1837		1722	1750		1787	1782		1824	1714	
Flt Permitted	0.57	1.00		0.44	1.00		0.63	1.00		0.60	1.00	
Satd. Flow (perm)	1032	1837		796	1750		1182	1782		1143	1714	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	147	282	56	56	238	17	60	200	66	10	131	75
RTOR Reduction (vph)	0	12	0	0	4	0	0	18	0	0	31	0
Lane Group Flow (vph)	147	326	0	56	251	0	60	248	0	10	175	0
Confl. Peds. (#/hr)	2					2	2		1	1		2
Heavy Vehicles (%)	6%	2%	2%	6%	8%	16%	2%	2%	7%	0%	8%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	17.4	17.4		17.4	17.4		30.1	30.1		30.1	30.1	
Effective Green, g (s)	17.4	17.4		17.4	17.4		30.1	30.1		30.1	30.1	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.50	0.50		0.50	0.50	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	300	535		232	510		595	898		576	864	
v/s Ratio Prot		c0.18			0.14			c0.14			0.10	
v/s Ratio Perm	0.14			0.07			0.05			0.01		
v/c Ratio	0.49	0.61		0.24	0.49		0.10	0.28		0.02	0.20	
Uniform Delay, d1	17.5	18.2		16.1	17.5		7.7	8.5		7.4	8.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	2.9		1.1	1.6		0.3	0.8		0.1	0.5	
Delay (s)	20.1	21.1		17.3	19.1		8.1	9.3		7.5	8.7	
Level of Service	C	C		B	B		A	A		A	A	
Approach Delay (s)		20.8			18.7			9.1			8.6	
Approach LOS		C			B			A			A	

Intersection Summary					
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.40				
Actuated Cycle Length (s)	59.7	Sum of lost time (s)		12.2	
Intersection Capacity Utilization	69.9%	ICU Level of Service		C	
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	98	106	253	427	33
Future Volume (Veh/h)	18	98	106	253	427	33
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	19	104	113	269	454	35
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	966	472	489			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	966	472	489			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	92	82	89			
cM capacity (veh/h)	248	584	1064			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	123	113	269	489
Volume Left	19	113	0	0
Volume Right	104	0	0	35
cSH	483	1064	1700	1700
Volume to Capacity	0.25	0.11	0.16	0.29
Queue Length 95th (m)	7.6	2.7	0.0	0.0
Control Delay (s)	15.0	8.8	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	15.0	2.6		0.0
Approach LOS	B			

Intersection Summary				
Average Delay	2.9			
Intersection Capacity Utilization	47.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	57	328	154	47	31	17
Future Volume (Veh/h)	57	328	154	47	31	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	62	357	167	51	34	18
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	428	43	52			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	428	43	52			
tC, single (s)	6.4	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.3			
p0 queue free %	88	65	89			
cM capacity (veh/h)	522	1016	1529			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	419	218	52
Volume Left	62	167	0
Volume Right	357	0	18
cSH	891	1529	1700
Volume to Capacity	0.47	0.11	0.03
Queue Length 95th (m)	19.4	2.8	0.0
Control Delay (s)	12.6	6.1	0.0
Lane LOS	B	A	
Approach Delay (s)	12.6	6.1	0.0
Approach LOS	B		

Intersection Summary				
Average Delay	9.6			
Intersection Capacity Utilization	47.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	62	48	188	202	143	210
Future Volume (Veh/h)	62	48	188	202	143	210
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	67	52	204	220	155	228
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	852	314			424	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	852	314			424	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	77	93			86	
cM capacity (veh/h)	288	731			1146	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	119	424	383
Volume Left	67	0	155
Volume Right	52	220	0
cSH	391	1700	1146
Volume to Capacity	0.30	0.25	0.14
Queue Length 95th (m)	9.6	0.0	3.6
Control Delay (s)	18.2	0.0	4.3
Lane LOS	C		A
Approach Delay (s)	18.2	0.0	4.3
Approach LOS	C		

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	23	0	1	51	0	1
Future Volume (Veh/h)	23	0	1	51	0	1
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	0	1	55	0	1
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	30	28			56	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	30	28			56	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	985	1046			1549	

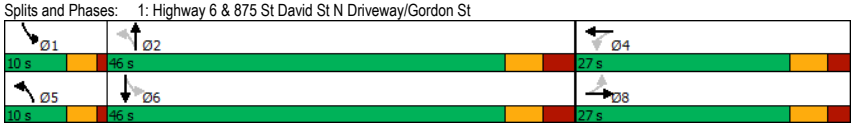
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	25	56	0
Volume Left	25	0	0
Volume Right	0	55	0
cSH	985	1700	1700
Volume to Capacity	0.03	0.03	0.00
Queue Length 95th (m)	0.6	0.0	0.0
Control Delay (s)	8.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.8	0.0	Err
Approach LOS	A		

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

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	31	34	76	38	95	511	280	413
Future Volume (vph)	31	34	76	38	95	511	280	413
Lane Group Flow (vph)	33	113	81	360	101	632	298	457
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		8		4	5	2	1	6
Permitted Phases	8		4		2		6	
Detector Phase	8	8	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	35.0	5.0	35.0
Minimum Split (s)	27.0	27.0	27.0	27.0	9.5	46.0	9.5	46.0
Total Split (s)	27.0	27.0	27.0	27.0	10.0	46.0	10.0	46.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	12.0%	55.4%	12.0%	55.4%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.8	3.0	3.8
All-Red Time (s)	2.3	2.3	2.3	2.3	1.0	3.2	1.0	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	4.0	7.0	4.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
v/c Ratio	0.32	0.35	0.42	0.70	0.15	0.64	0.65	0.43
Control Delay	35.4	14.2	34.1	13.3	4.8	16.5	13.9	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	14.2	34.1	13.3	4.8	16.5	13.9	12.4
Queue Length 50th (m)	4.1	4.4	10.2	4.9	3.1	53.0	10.5	33.3
Queue Length 95th (m)	11.6	16.5	21.8	27.2	10.6	110.9	#34.9	71.2
Internal Link Dist (m)		72.4		1007.5		421.8		1511.2
Turn Bay Length (m)	15.0		27.0		90.0		26.0	
Base Capacity (vph)	195	541	368	682	664	991	461	1070
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.21	0.22	0.53	0.15	0.64	0.65	0.43

Intersection Summary
Cycle Length: 83
Actuated Cycle Length: 73.4
Natural Cycle: 85
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Highway 6 & 875 St David St N Driveway/Gordon St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	34	72	76	38	301	95	511	83	280	413	17
Future Volume (vph)	31	34	72	76	38	301	95	511	83	280	413	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.97		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.87		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1813	1696		1783	1586		1824	1849		1755	1890	
Flt Permitted	0.36	1.00		0.68	1.00		0.47	1.00		0.29	1.00	
Satd. Flow (perm)	682	1696		1284	1586		896	1849		539	1890	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	33	36	77	81	40	320	101	544	88	298	439	18
RTOR Reduction (vph)	0	65	0	0	272	0	0	6	0	0	1	0
Lane Group Flow (vph)	33	48	0	81	88	0	101	626	0	298	456	0
Confl. Peds. (#/hr)	7		2	2		7	2		1	1		2
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	1%	4%	4%	1%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	11.2	11.2		11.2	11.2		44.5	40.0		47.5	41.5	
Effective Green, g (s)	11.2	11.2		11.2	11.2		44.5	40.0		47.5	41.5	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.60	0.54		0.64	0.56	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	102	256		193	239		593	996		443	1057	
v/s Ratio Prot		0.03			0.06		0.01	0.34		c0.05	0.24	
v/s Ratio Perm	0.05			c0.06			0.09			c0.38		
v/c Ratio	0.32	0.19		0.42	0.37		0.17	0.63		0.67	0.43	
Uniform Delay, d1	28.1	27.5		28.6	28.3		6.3	11.9		7.6	9.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.8	0.4		1.5	1.0		0.0	3.0		3.2	1.3	
Delay (s)	30.0	27.9		30.0	29.3		6.4	14.9		10.8	10.8	
Level of Service	C	C		C	C		A	B		B	B	
Approach Delay (s)		28.3			29.4			13.7			10.8	
Approach LOS		C			C			B			B	

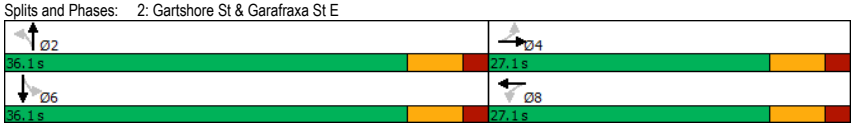
Intersection Summary					
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.64				
Actuated Cycle Length (s)	74.2	Sum of lost time (s)		17.0	
Intersection Capacity Utilization	87.9%	ICU Level of Service		E	
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	107	276	105	330	78	169	10	194
Future Volume (vph)	107	276	105	330	78	169	10	194
Lane Group Flow (vph)	115	365	113	379	84	277	11	382
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
v/c Ratio	0.52	0.65	0.49	0.68	0.18	0.30	0.02	0.42
Control Delay	26.9	23.3	25.4	24.9	10.7	8.7	9.0	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.9	23.3	25.4	24.9	10.7	8.7	9.0	9.5
Queue Length 50th (m)	10.4	32.7	10.2	35.8	5.3	14.3	0.6	20.0
Queue Length 95th (m)	24.5	56.6	23.8	60.6	12.6	27.7	2.8	38.5
Internal Link Dist (m)		303.5		128.8		131.6		933.4
Turn Bay Length (m)	38.0		37.0		20.0		28.0	
Base Capacity (vph)	254	642	264	644	469	923	561	911
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	0.45	0.57	0.43	0.59	0.18	0.30	0.02	0.42

Intersection Summary
Cycle Length: 63.2
Actuated Cycle Length: 60.7
Natural Cycle: 65
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Gartshore St & Garafraxa St E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	276	63	105	330	22	78	169	88	10	194	161
Future Volume (vph)	107	276	63	105	330	22	78	169	88	10	194	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.95		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1807	1812		1787	1842		1806	1803		1824	1747	
Flt Permitted	0.38	1.00		0.41	1.00		0.50	1.00		0.59	1.00	
Satd. Flow (perm)	732	1812		762	1842		946	1803		1131	1747	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	115	297	68	113	355	24	84	182	95	11	209	173
RTOR Reduction (vph)	0	14	0	0	4	0	0	29	0	0	45	0
Lane Group Flow (vph)	115	351	0	113	375	0	84	248	0	11	337	0
Confl. Peds. (#/hr)			2	2			1		1	1		1
Heavy Vehicles (%)	1%	3%	1%	2%	3%	8%	1%	0%	1%	0%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.3	18.3		18.3	18.3		30.1	30.1		30.1	30.1	
Effective Green, g (s)	18.3	18.3		18.3	18.3		30.1	30.1		30.1	30.1	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.50	0.50		0.50	0.50	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	221	547		230	556		469	895		561	867	
v/s Ratio Prot		0.19			c0.20			0.14			c0.19	
v/s Ratio Perm	0.16			0.15			0.09			0.01		
v/c Ratio	0.52	0.64		0.49	0.67		0.18	0.28		0.02	0.39	
Uniform Delay, d1	17.5	18.3		17.3	18.5		8.4	8.9		7.8	9.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.2	3.5		3.4	4.2		0.8	0.8		0.1	1.3	
Delay (s)	21.7	21.8		20.8	22.7		9.3	9.7		7.8	10.8	
Level of Service	C	C		C	C		A	A		A	B	
Approach Delay (s)		21.8			22.3			9.6			10.7	
Approach LOS		C			C			A			B	

Intersection Summary				
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.50			
Actuated Cycle Length (s)	60.6	Sum of lost time (s)	12.2	
Intersection Capacity Utilization	74.3%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	27	148	116	566	364	25
Future Volume (Veh/h)	27	148	116	566	364	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	30	163	127	622	400	27
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	1290	414	427			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1290	414	427			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	81	74	89			
cM capacity (veh/h)	159	637	1138			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	193	127	622	427
Volume Left	30	127	0	0
Volume Right	163	0	0	27
cSH	434	1138	1700	1700
Volume to Capacity	0.44	0.11	0.37	0.25
Queue Length 95th (m)	17.0	2.9	0.0	0.0
Control Delay (s)	19.8	8.6	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	19.8	1.5		0.0
Approach LOS	C			

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	47.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	23	254	374	28	72	53
Future Volume (Veh/h)	23	254	374	28	72	53
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	276	407	30	78	58
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	951	107	136			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	951	107	136			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	88	71	72			
cM capacity (veh/h)	209	942	1454			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	301	437	136
Volume Left	25	407	0
Volume Right	276	0	58
cSH	730	1454	1700
Volume to Capacity	0.41	0.28	0.08
Queue Length 95th (m)	15.4	8.8	0.0
Control Delay (s)	13.4	8.0	0.0
Lane LOS	B	A	
Approach Delay (s)	13.4	8.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	181	136	279	68	40	251
Future Volume (Veh/h)	181	136	279	68	40	251
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	197	148	303	74	43	273
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	699	340			377	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	699	340			377	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	50	79			96	
cM capacity (veh/h)	394	707			1193	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	345	377	316
Volume Left	197	0	43
Volume Right	148	74	0
cSH	487	1700	1193
Volume to Capacity	0.71	0.22	0.04
Queue Length 95th (m)	42.3	0.0	0.9
Control Delay (s)	28.4	0.0	1.4
Lane LOS	D		A
Approach Delay (s)	28.4	0.0	1.4
Approach LOS	D		

Intersection Summary			
Average Delay	9.9		
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	62	0	1	25	0	1
Future Volume (Veh/h)	62	0	1	25	0	1
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	67	0	1	27	0	1
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	16	14			28	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	16	14			28	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	100			100	
cM capacity (veh/h)	1003	1065			1585	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	67	28	0
Volume Left	67	0	0
Volume Right	0	27	0
cSH	1003	1700	1700
Volume to Capacity	0.07	0.02	0.00
Queue Length 95th (m)	1.6	0.0	0.0
Control Delay (s)	8.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.8	0.0	Err
Approach LOS	A		

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

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

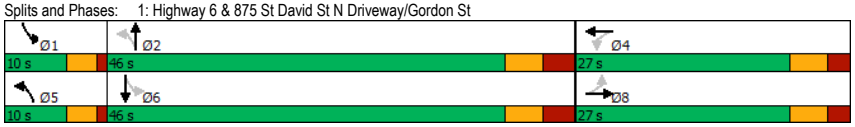
Appendix F

Background 2037 Traffic Operations

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	2	4	44	8	12	337	275	399
Future Volume (vph)	2	4	44	8	12	337	275	399
Lane Group Flow (vph)	2	18	52	189	14	481	324	477
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		8		4	5	2	1	6
Permitted Phases	8		4		2		6	
Detector Phase	8	8	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	35.0	5.0	35.0
Minimum Split (s)	27.0	27.0	27.0	27.0	9.5	46.0	9.5	46.0
Total Split (s)	27.0	27.0	27.0	27.0	10.0	46.0	10.0	46.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	12.0%	55.4%	12.0%	55.4%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.8	3.0	3.8
All-Red Time (s)	2.3	2.3	2.3	2.3	1.0	3.2	1.0	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	4.0	7.0	4.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
v/c Ratio	0.02	0.08	0.31	0.55	0.02	0.49	0.54	0.38
Control Delay	27.0	17.7	33.1	12.3	3.2	11.7	7.2	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	17.7	33.1	12.3	3.2	11.7	7.2	7.3
Queue Length 50th (m)	0.2	0.6	6.4	1.1	0.4	33.1	10.0	20.1
Queue Length 95th (m)	1.8	5.3	14.8	14.7	1.7	56.7	20.8	54.8
Internal Link Dist (m)		72.4		1007.5		421.8		1511.2
Turn Bay Length (m)	15.0		27.0		90.0		26.0	
Base Capacity (vph)	293	509	415	583	715	990	605	1246
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	0.01	0.04	0.13	0.32	0.02	0.49	0.54	0.38

Intersection Summary
Cycle Length: 83
Actuated Cycle Length: 70.6
Natural Cycle: 85
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Highway 6 & 875 St David St N Driveway/Gordon St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	4	11	44	8	153	12	337	72	275	399	7
Future Volume (vph)	2	4	11	44	8	153	12	337	72	275	399	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.86		1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1820	1681		1779	1536		1825	1779		1706	1861	
Flt Permitted	0.52	1.00		0.75	1.00		0.49	1.00		0.40	1.00	
Satd. Flow (perm)	987	1681		1396	1536		942	1779		716	1861	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	2	5	13	52	9	180	14	396	85	324	469	8
RTOR Reduction (vph)	0	11	0	0	159	0	0	8	0	0	0	0
Lane Group Flow (vph)	2	7	0	52	30	0	14	473	0	324	477	0
Confl. Peds. (#/hr)	2		3	3		2	1					1
Heavy Vehicles (%)	0%	0%	0%	2%	0%	5%	0%	6%	1%	7%	3%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	8.6	8.6		8.6	8.6		43.3	42.3		52.3	47.3	
Effective Green, g (s)	8.6	8.6		8.6	8.6		43.3	42.3		52.3	47.3	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.59	0.57		0.71	0.64	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	114	195		162	178		563	1018		587	1191	
v/s Ratio Prot		0.00			0.02		0.00	0.27		c0.04	0.26	
v/s Ratio Perm	0.00			c0.04			0.01			c0.35		
v/c Ratio	0.02	0.03		0.32	0.17		0.02	0.46		0.55	0.40	
Uniform Delay, d1	28.9	29.0		30.0	29.4		6.4	9.2		4.7	6.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1		1.2	0.4		0.0	1.5		0.6	1.0	
Delay (s)	29.0	29.0		31.1	29.9		6.4	10.7		5.3	7.4	
Level of Service	C	C		C	C		A	B		A	A	
Approach Delay (s)		29.0			30.1			10.6			6.6	
Approach LOS		C			C			B			A	

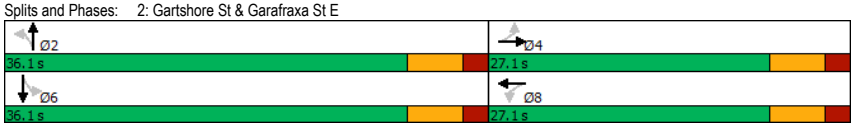
Intersection Summary					
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B		
HCM 2000 Volume to Capacity ratio	0.55				
Actuated Cycle Length (s)	73.9	Sum of lost time (s)	17.0		
Intersection Capacity Utilization	69.0%	ICU Level of Service	C		
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	133	262	52	223	56	183	10	122
Future Volume (vph)	133	262	52	223	56	183	10	122
Lane Group Flow (vph)	149	352	58	269	63	276	11	215
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
v/c Ratio	0.51	0.64	0.26	0.52	0.11	0.30	0.02	0.24
Control Delay	24.3	23.1	19.2	20.9	9.6	9.4	9.0	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	23.1	19.2	20.9	9.6	9.4	9.0	7.5
Queue Length 50th (m)	13.4	31.5	4.8	23.6	3.6	15.0	0.6	9.1
Queue Length 95th (m)	28.0	53.6	12.7	41.6	9.4	29.1	2.8	20.1
Internal Link Dist (m)		303.5		128.8		131.6		933.4
Turn Bay Length (m)	38.0		37.0		20.0		28.0	
Base Capacity (vph)	348	656	266	618	588	911	568	891
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.54	0.22	0.44	0.11	0.30	0.02	0.24

Intersection Summary
Cycle Length: 63.2
Actuated Cycle Length: 60
Natural Cycle: 65
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Gartshore St & Garafraxa St E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	262	52	52	223	16	56	183	62	10	122	69
Future Volume (vph)	133	262	52	52	223	16	56	183	62	10	122	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.96		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1718	1837		1722	1750		1787	1780		1824	1715	
Flt Permitted	0.55	1.00		0.42	1.00		0.62	1.00		0.59	1.00	
Satd. Flow (perm)	993	1837		760	1750		1173	1780		1132	1715	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	149	294	58	58	251	18	63	206	70	11	137	78
RTOR Reduction (vph)	0	12	0	0	4	0	0	18	0	0	31	0
Lane Group Flow (vph)	149	340	0	58	265	0	63	258	0	11	184	0
Confl. Peds. (#/hr)	2					2	2		1	1		2
Heavy Vehicles (%)	6%	2%	2%	6%	8%	16%	2%	2%	7%	0%	8%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	17.6	17.6		17.6	17.6		30.1	30.1		30.1	30.1	
Effective Green, g (s)	17.6	17.6		17.6	17.6		30.1	30.1		30.1	30.1	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.50	0.50		0.50	0.50	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	291	539		223	514		589	894		568	861	
v/s Ratio Prot		c0.19			0.15			c0.14			0.11	
v/s Ratio Perm	0.15			0.08			0.05			0.01		
v/c Ratio	0.51	0.63		0.26	0.52		0.11	0.29		0.02	0.21	
Uniform Delay, d1	17.6	18.3		16.2	17.6		7.8	8.7		7.5	8.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.0	3.3		1.3	1.7		0.4	0.8		0.1	0.6	
Delay (s)	20.6	21.7		17.5	19.3		8.2	9.5		7.5	8.9	
Level of Service	C	C		B	B		A	A		A	A	
Approach Delay (s)		21.3			19.0			9.2			8.8	
Approach LOS		C			B			A			A	

Intersection Summary					
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.41				
Actuated Cycle Length (s)	59.9	Sum of lost time (s)		12.2	
Intersection Capacity Utilization	70.6%	ICU Level of Service		C	
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	19	103	111	258	434	35
Future Volume (Veh/h)	19	103	111	258	434	35
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	20	110	118	274	462	37
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	990	480	499			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	990	480	499			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	92	81	89			
cM capacity (veh/h)	238	577	1055			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	130	118	274	499
Volume Left	20	118	0	0
Volume Right	110	0	0	37
cSH	474	1055	1700	1700
Volume to Capacity	0.27	0.11	0.16	0.29
Queue Length 95th (m)	8.4	2.9	0.0	0.0
Control Delay (s)	15.4	8.8	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	15.4	2.7		0.0
Approach LOS	C			

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	48.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	57	328	154	50	33	17
Future Volume (Veh/h)	57	328	154	50	33	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	62	357	167	54	36	18
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	433	45	54			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	433	45	54			
tC, single (s)	6.4	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.3			
p0 queue free %	88	65	89			
cM capacity (veh/h)	518	1014	1526			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	419	221	54
Volume Left	62	167	0
Volume Right	357	0	18
cSH	888	1526	1700
Volume to Capacity	0.47	0.11	0.03
Queue Length 95th (m)	19.5	2.8	0.0
Control Delay (s)	12.6	6.0	0.0
Lane LOS	B	A	
Approach Delay (s)	12.6	6.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	9.5		
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	62	48	198	202	143	219
Future Volume (Veh/h)	62	48	198	202	143	219
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	67	52	215	220	155	238
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	873	325			435	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	873	325			435	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	76	93			86	
cM capacity (veh/h)	279	721			1135	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	119	435	393
Volume Left	67	0	155
Volume Right	52	220	0
cSH	381	1700	1135
Volume to Capacity	0.31	0.26	0.14
Queue Length 95th (m)	10.0	0.0	3.6
Control Delay (s)	18.7	0.0	4.3
Lane LOS	C		A
Approach Delay (s)	18.7	0.0	4.3
Approach LOS	C		

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	24	0	1	53	0	1
Future Volume (Veh/h)	24	0	1	53	0	1
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	0	1	58	0	1
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	31	30			59	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	31	30			59	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	983	1044			1545	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	26	59	0
Volume Left	26	0	0
Volume Right	0	58	0
cSH	983	1700	1700
Volume to Capacity	0.03	0.03	0.00
Queue Length 95th (m)	0.6	0.0	0.0
Control Delay (s)	8.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.8	0.0	Err
Approach LOS	A		

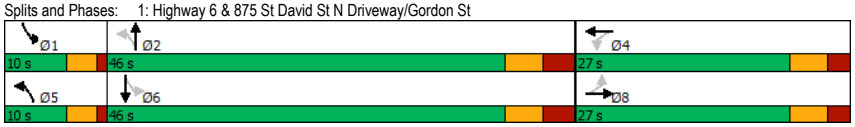
Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	31	34	76	38	95	522	280	421
Future Volume (vph)	31	34	76	38	95	522	280	421
Lane Group Flow (vph)	33	113	81	360	101	643	298	466
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		8		4	5	2	1	6
Permitted Phases	8		4		2		6	
Detector Phase	8	8	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	35.0	5.0	35.0
Minimum Split (s)	27.0	27.0	27.0	27.0	9.5	46.0	9.5	46.0
Total Split (s)	27.0	27.0	27.0	27.0	10.0	46.0	10.0	46.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	12.0%	55.4%	12.0%	55.4%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.8	3.0	3.8
All-Red Time (s)	2.3	2.3	2.3	2.3	1.0	3.2	1.0	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	4.0	7.0	4.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
v/c Ratio	0.32	0.35	0.42	0.70	0.16	0.65	0.66	0.44
Control Delay	35.4	14.2	34.1	13.3	4.9	16.8	14.6	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	14.2	34.1	13.3	4.9	16.8	14.6	12.5
Queue Length 50th (m)	4.1	4.4	10.2	4.9	3.1	54.4	10.5	34.2
Queue Length 95th (m)	11.6	16.5	21.8	27.2	10.6	113.9	#36.4	72.9
Internal Link Dist (m)		72.4		1007.5		421.8		1511.2
Turn Bay Length (m)	15.0		27.0		90.0		26.0	
Base Capacity (vph)	195	541	368	682	655	991	452	1070
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.21	0.22	0.53	0.15	0.65	0.66	0.44

Intersection Summary

Cycle Length: 83
Actuated Cycle Length: 73.4
Natural Cycle: 85
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Highway 6 & 875 St David St N Driveway/Gordon St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	34	72	76	38	301	95	522	83	280	421	17
Future Volume (vph)	31	34	72	76	38	301	95	522	83	280	421	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.97		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.87		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1813	1696		1783	1586		1824	1850		1755	1890	
Flt Permitted	0.36	1.00		0.68	1.00		0.46	1.00		0.28	1.00	
Satd. Flow (perm)	682	1696		1284	1586		882	1850		524	1890	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	33	36	77	81	40	320	101	555	88	298	448	18
RTOR Reduction (vph)	0	65	0	0	272	0	0	6	0	0	1	0
Lane Group Flow (vph)	33	48	0	81	88	0	101	637	0	298	465	0
Confl. Peds. (#/hr)	7		2	2		7	2		1	1		2
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	1%	4%	4%	1%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	11.2	11.2		11.2	11.2		44.5	40.0		47.5	41.5	
Effective Green, g (s)	11.2	11.2		11.2	11.2		44.5	40.0		47.5	41.5	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.60	0.54		0.64	0.56	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	102	256		193	239		586	997		434	1057	
v/s Ratio Prot		0.03			0.06		0.01	0.34		c0.06	0.25	
v/s Ratio Perm	0.05			c0.06			0.09			c0.38		
v/c Ratio	0.32	0.19		0.42	0.37		0.17	0.64		0.69	0.44	
Uniform Delay, d1	28.1	27.5		28.6	28.3		6.4	12.0		7.8	9.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.8	0.4		1.5	1.0		0.1	3.1		3.6	1.3	
Delay (s)	30.0	27.9		30.0	29.3		6.4	15.2		11.4	10.9	
Level of Service	C	C		C	C		A	B		B	B	
Approach Delay (s)		28.3			29.4			14.0			11.1	
Approach LOS		C			C			B			B	

Intersection Summary

HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.65			
Actuated Cycle Length (s)	74.2	Sum of lost time (s)	17.0	
Intersection Capacity Utilization	88.0%	ICU Level of Service	E	
Analysis Period (min)	15			

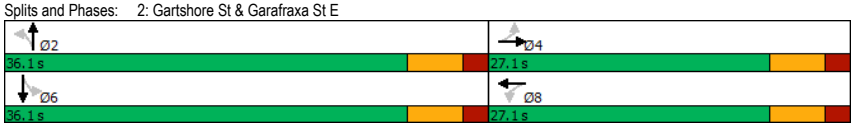
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	111	289	110	345	82	176	11	200
Future Volume (vph)	111	289	110	345	82	176	11	200
Lane Group Flow (vph)	119	382	118	397	88	289	12	392
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
v/c Ratio	0.57	0.68	0.54	0.70	0.19	0.31	0.02	0.43
Control Delay	29.6	24.2	27.7	25.8	11.0	9.0	9.1	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	24.2	27.7	25.8	11.0	9.0	9.1	9.8
Queue Length 50th (m)	11.0	34.9	10.8	38.1	5.6	15.3	0.7	21.1
Queue Length 95th (m)	#26.4	60.0	25.5	64.1	13.2	29.1	3.0	39.9
Internal Link Dist (m)		303.5		128.8		131.6		933.4
Turn Bay Length (m)	38.0		37.0		20.0		28.0	
Base Capacity (vph)	237	638	249	640	457	919	553	907
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.60	0.47	0.62	0.19	0.31	0.02	0.43

Intersection Summary

Cycle Length: 63.2
Actuated Cycle Length: 60.9
Natural Cycle: 65
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Gartshore St & Garafraxa St E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	289	66	110	345	24	82	176	93	11	200	165
Future Volume (vph)	111	289	66	110	345	24	82	176	93	11	200	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.95		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1807	1812		1787	1841		1806	1802		1824	1747	
Flt Permitted	0.36	1.00		0.38	1.00		0.49	1.00		0.58	1.00	
Satd. Flow (perm)	687	1812		720	1841		925	1802		1119	1747	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	119	311	71	118	371	26	88	189	100	12	215	177
RTOR Reduction (vph)	0	13	0	0	4	0	0	29	0	0	45	0
Lane Group Flow (vph)	119	369	0	118	393	0	88	260	0	12	347	0
Confl. Peds. (#/hr)			2	2			1		1	1		1
Heavy Vehicles (%)	1%	3%	1%	2%	3%	8%	1%	0%	1%	0%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.6	18.6		18.6	18.6		30.1	30.1		30.1	30.1	
Effective Green, g (s)	18.6	18.6		18.6	18.6		30.1	30.1		30.1	30.1	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.49	0.49		0.49	0.49	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	209	553		219	562		457	890		553	863	
v/s Ratio Prot		0.20			c0.21			0.14			c0.20	
v/s Ratio Perm	0.17			0.16			0.10			0.01		
v/c Ratio	0.57	0.67		0.54	0.70		0.19	0.29		0.02	0.40	
Uniform Delay, d1	17.8	18.4		17.6	18.7		8.6	9.1		7.9	9.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.8	4.0		4.6	4.8		0.9	0.8		0.1	1.4	
Delay (s)	23.5	22.5		22.2	23.5		9.5	9.9		7.9	11.1	
Level of Service	C	C		C	C		A	A		A	B	
Approach Delay (s)		22.7			23.2			9.8			11.0	
Approach LOS		C			C			A			B	

Intersection Summary

HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.52			
Actuated Cycle Length (s)	60.9	Sum of lost time (s)	12.2	
Intersection Capacity Utilization	75.6%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	28	156	122	577	372	27
Future Volume (Veh/h)	28	156	122	577	372	27
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	31	171	134	634	409	30
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	1326	424	439			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1326	424	439			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	79	73	88			
cM capacity (veh/h)	150	628	1126			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	202	134	634	439
Volume Left	31	134	0	0
Volume Right	171	0	0	30
cSH	421	1126	1700	1700
Volume to Capacity	0.48	0.12	0.37	0.26
Queue Length 95th (m)	19.2	3.1	0.0	0.0
Control Delay (s)	21.2	8.6	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	21.2	1.5		0.0
Approach LOS	C			

Intersection Summary				
Average Delay	3.9			
Intersection Capacity Utilization	49.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	23	254	374	29	75	53
Future Volume (Veh/h)	23	254	374	29	75	53
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	276	407	32	82	58
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	957	111	140			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	957	111	140			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	88	71	72			
cM capacity (veh/h)	207	937	1449			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	301	439	140
Volume Left	25	407	0
Volume Right	276	0	58
cSH	725	1449	1700
Volume to Capacity	0.42	0.28	0.08
Queue Length 95th (m)	15.6	8.8	0.0
Control Delay (s)	13.4	8.0	0.0
Lane LOS	B	A	
Approach Delay (s)	13.4	8.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	181	136	292	68	40	263
Future Volume (Veh/h)	181	136	292	68	40	263
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	197	148	317	74	43	286
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	726	354			391	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	726	354			391	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	48	79			96	
cM capacity (veh/h)	380	694			1179	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	345	391	329
Volume Left	197	0	43
Volume Right	148	74	0
cSH	472	1700	1179
Volume to Capacity	0.73	0.23	0.04
Queue Length 95th (m)	45.2	0.0	0.9
Control Delay (s)	30.7	0.0	1.4
Lane LOS	D		A
Approach Delay (s)	30.7	0.0	1.4
Approach LOS	D		

Intersection Summary				
Average Delay	10.4			
Intersection Capacity Utilization	63.9%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	63	0	1	25	0	1
Future Volume (Veh/h)	63	0	1	25	0	1
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	0	1	27	0	1
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	16	14			28	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	16	14			28	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	100			100	
cM capacity (veh/h)	1003	1065			1585	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	68	28	0
Volume Left	68	0	0
Volume Right	0	27	0
cSH	1003	1700	1700
Volume to Capacity	0.07	0.02	0.00
Queue Length 95th (m)	1.7	0.0	0.0
Control Delay (s)	8.9	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.9	0.0	Err
Approach LOS	A		

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

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

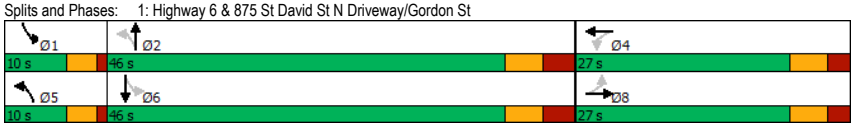
Appendix G

Total 2032 Traffic Operations

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	2	4	46	8	12	330	307	391
Future Volume (vph)	2	4	46	8	12	330	307	391
Lane Group Flow (vph)	2	18	54	193	14	488	361	468
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		8		4	5	2	1	6
Permitted Phases	8		4		2		6	
Detector Phase	8	8	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	35.0	5.0	35.0
Minimum Split (s)	27.0	27.0	27.0	27.0	9.5	46.0	9.5	46.0
Total Split (s)	27.0	27.0	27.0	27.0	10.0	46.0	10.0	46.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	12.0%	55.4%	12.0%	55.4%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.8	3.0	3.8
All-Red Time (s)	2.3	2.3	2.3	2.3	1.0	3.2	1.0	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	4.0	7.0	4.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
v/c Ratio	0.02	0.08	0.32	0.55	0.02	0.49	0.60	0.38
Control Delay	27.0	17.6	33.3	12.2	3.2	11.8	8.8	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	17.6	33.3	12.2	3.2	11.8	8.8	7.3
Queue Length 50th (m)	0.2	0.6	6.6	1.1	0.4	33.7	11.6	19.8
Queue Length 95th (m)	1.8	5.3	15.1	14.7	1.7	57.7	23.5	53.6
Internal Link Dist (m)		72.4		1007.5		421.8		1511.2
Turn Bay Length (m)	15.0		27.0		90.0		26.0	
Base Capacity (vph)	284	508	414	585	719	988	599	1245
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	0.01	0.04	0.13	0.33	0.02	0.49	0.60	0.38

Intersection Summary
Cycle Length: 83
Actuated Cycle Length: 70.7
Natural Cycle: 85
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Highway 6 & 875 St David St N Driveway/Gordon St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	4	11	46	8	156	12	330	85	307	391	7
Future Volume (vph)	2	4	11	46	8	156	12	330	85	307	391	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.86		1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1820	1681		1779	1535		1825	1774		1706	1861	
Flt Permitted	0.50	1.00		0.75	1.00		0.49	1.00		0.39	1.00	
Satd. Flow (perm)	958	1681		1396	1535		950	1774		707	1861	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	2	5	13	54	9	184	14	388	100	361	460	8
RTOR Reduction (vph)	0	11	0	0	163	0	0	9	0	0	0	0
Lane Group Flow (vph)	2	7	0	54	30	0	14	479	0	361	468	0
Confl. Peds. (#/hr)	2		3	3		2	1					1
Heavy Vehicles (%)	0%	0%	0%	2%	0%	5%	0%	6%	1%	7%	3%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	8.6	8.6		8.6	8.6		43.3	42.3		52.3	47.3	
Effective Green, g (s)	8.6	8.6		8.6	8.6		43.3	42.3		52.3	47.3	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.59	0.57		0.71	0.64	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	111	195		162	178		568	1015		581	1191	
v/s Ratio Prot		0.00			0.02		0.00	0.27		c0.05	0.25	
v/s Ratio Perm	0.00			c0.04			0.01			c0.39		
v/c Ratio	0.02	0.03		0.33	0.17		0.02	0.47		0.62	0.39	
Uniform Delay, d1	28.9	29.0		30.0	29.4		6.4	9.3		4.9	6.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1		1.2	0.5		0.0	1.6		1.5	1.0	
Delay (s)	29.0	29.0		31.2	29.9		6.4	10.8		6.4	7.4	
Level of Service	C	C		C	C		A	B		A	A	
Approach Delay (s)		29.0			30.2			10.7			6.9	
Approach LOS		C			C			B			A	

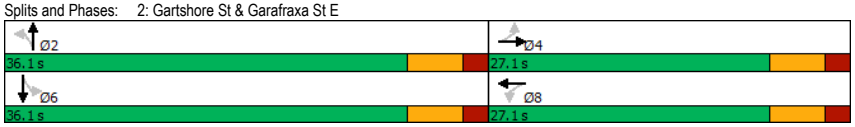
Intersection Summary					
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B		
HCM 2000 Volume to Capacity ratio	0.61				
Actuated Cycle Length (s)	73.9	Sum of lost time (s)	17.0		
Intersection Capacity Utilization	70.9%	ICU Level of Service	C		
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	142	251	50	212	53	197	9	121
Future Volume (vph)	142	251	50	212	53	197	9	121
Lane Group Flow (vph)	160	338	56	257	60	287	10	214
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
v/c Ratio	0.54	0.62	0.24	0.50	0.10	0.31	0.02	0.24
Control Delay	24.9	22.6	18.7	20.5	9.5	9.6	8.9	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	22.6	18.7	20.5	9.5	9.6	8.9	7.4
Queue Length 50th (m)	14.5	29.8	4.6	22.3	3.4	15.8	0.6	8.9
Queue Length 95th (m)	29.8	51.0	12.2	39.6	9.1	30.8	2.6	20.1
Internal Link Dist (m)		303.5		128.8		131.6		933.4
Turn Bay Length (m)	38.0		37.0		20.0		28.0	
Base Capacity (vph)	362	659	280	621	591	918	565	894
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.51	0.20	0.41	0.10	0.31	0.02	0.24

Intersection Summary
Cycle Length: 63.2
Actuated Cycle Length: 59.8
Natural Cycle: 65
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Gartshore St & Garafraxa St E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	251	50	50	212	17	53	197	59	9	121	69
Future Volume (vph)	142	251	50	50	212	17	53	197	59	9	121	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1718	1837		1722	1747		1787	1790		1824	1714	
Flt Permitted	0.57	1.00		0.44	1.00		0.62	1.00		0.58	1.00	
Satd. Flow (perm)	1027	1837		796	1747		1174	1790		1121	1714	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	160	282	56	56	238	19	60	221	66	10	136	78
RTOR Reduction (vph)	0	12	0	0	5	0	0	16	0	0	31	0
Lane Group Flow (vph)	160	326	0	56	252	0	60	271	0	10	183	0
Confl. Peds. (#/hr)	2					2	2		1	1		2
Heavy Vehicles (%)	6%	2%	2%	6%	8%	16%	2%	2%	7%	0%	8%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	17.4	17.4		17.4	17.4		30.1	30.1		30.1	30.1	
Effective Green, g (s)	17.4	17.4		17.4	17.4		30.1	30.1		30.1	30.1	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.50	0.50		0.50	0.50	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	299	535		232	509		591	902		565	864	
v/s Ratio Prot		c0.18			0.14			c0.15			0.11	
v/s Ratio Perm	0.16			0.07			0.05			0.01		
v/c Ratio	0.54	0.61		0.24	0.50		0.10	0.30		0.02	0.21	
Uniform Delay, d1	17.8	18.2		16.1	17.5		7.7	8.6		7.4	8.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.3	2.9		1.1	1.6		0.3	0.9		0.1	0.6	
Delay (s)	21.1	21.1		17.3	19.1		8.1	9.5		7.5	8.8	
Level of Service	C	C		B	B		A	A		A	A	
Approach Delay (s)		21.1			18.8			9.3			8.7	
Approach LOS		C			B			A			A	

Intersection Summary					
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B		
HCM 2000 Volume to Capacity ratio	0.41				
Actuated Cycle Length (s)	59.7	Sum of lost time (s)	12.2		
Intersection Capacity Utilization	69.9%	ICU Level of Service	C		
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	102	106	256	453	33
Future Volume (Veh/h)	18	102	106	256	453	33
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	19	109	113	272	482	35
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	998	500	517			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	998	500	517			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	92	81	89			
cM capacity (veh/h)	237	563	1039			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	128	113	272	517
Volume Left	19	113	0	0
Volume Right	109	0	0	35
cSH	468	1039	1700	1700
Volume to Capacity	0.27	0.11	0.16	0.30
Queue Length 95th (m)	8.4	2.8	0.0	0.0
Control Delay (s)	15.6	8.9	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	15.6	2.6		0.0
Approach LOS	C			

Intersection Summary				
Average Delay	2.9			
Intersection Capacity Utilization	49.0%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	102	328	154	79	37	22
Future Volume (Veh/h)	102	328	154	79	37	22
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	111	357	167	86	40	24
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	472	52	64			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	472	52	64			
tC, single (s)	6.4	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.3			
p0 queue free %	77	64	89			
cM capacity (veh/h)	491	1004	1513			

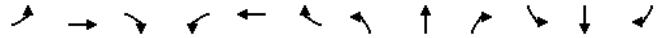
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	468	253	64
Volume Left	111	167	0
Volume Right	357	0	24
cSH	805	1513	1700
Volume to Capacity	0.58	0.11	0.04
Queue Length 95th (m)	29.0	2.8	0.0
Control Delay (s)	15.5	5.4	0.0
Lane LOS	C	A	
Approach Delay (s)	15.5	5.4	0.0
Approach LOS	C		

Intersection Summary				
Average Delay	11.0			
Intersection Capacity Utilization	51.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	62	48	220	202	143	216
Future Volume (Veh/h)	62	48	220	202	143	216
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	67	52	239	220	155	235
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	894	349			459	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	894	349			459	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	75	93			86	
cM capacity (veh/h)	270	699			1113	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	119	459	390
Volume Left	67	0	155
Volume Right	52	220	0
cSH	369	1700	1113
Volume to Capacity	0.32	0.27	0.14
Queue Length 95th (m)	10.4	0.0	3.7
Control Delay (s)	19.3	0.0	4.3
Lane LOS	C		A
Approach Delay (s)	19.3	0.0	4.3
Approach LOS	C		

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	2	23	0	0	0	17	51	0	1	0
Future Volume (Veh/h)	0	0	2	23	0	0	0	17	51	0	1	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	2	25	0	0	0	18	55	0	1	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)												
pX, platoon unblocked												
vC, conflicting volume	46	74	1	48	46	46	1			73		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	46	74	1	48	46	46	1			73		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	100	100	100			100		
cM capacity (veh/h)	955	816	1084	950	845	1024	1622			1527		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	2	25	73	1
Volume Left	0	25	0	0
Volume Right	2	0	55	0
cSH	1084	950	1622	1527
Volume to Capacity	0.00	0.03	0.00	0.00
Queue Length 95th (m)	0.0	0.6	0.0	0.0
Control Delay (s)	8.3	8.9	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	8.3	8.9	0.0	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	9	61	68	26	0
Future Volume (Veh/h)	0	9	61	68	26	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	10	66	74	28	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)						
pX, platoon unblocked						
vC, conflicting volume	234	28	28			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	234	28	28			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	96			
cM capacity (veh/h)	723	1047	1585			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	10	140	28
Volume Left	0	66	0
Volume Right	10	0	0
cSH	1047	1585	1700
Volume to Capacity	0.01	0.04	0.02
Queue Length 95th (m)	0.2	1.0	0.0
Control Delay (s)	8.5	3.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.5	3.6	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	23.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	16	1	1	0
Future Volume (Veh/h)	0	0	16	1	1	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	17	1	1	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)						
pX, platoon unblocked						
vC, conflicting volume	36	1	1			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	36	1	1			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	99			
cM capacity (veh/h)	966	1084	1622			

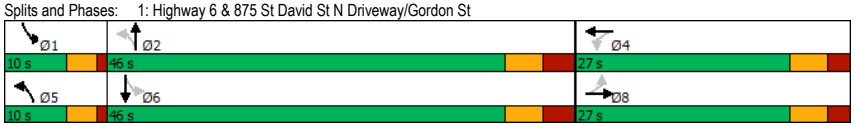
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	18	1
Volume Left	0	17	0
Volume Right	0	0	0
cSH	1700	1622	1700
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (m)	0.0	0.2	0.0
Control Delay (s)	0.0	6.8	0.0
Lane LOS	A	A	
Approach Delay (s)	0.0	6.8	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	6.5			
Intersection Capacity Utilization	10.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	31	34	85	38	95	511	284	413
Future Volume (vph)	31	34	85	38	95	511	284	413
Lane Group Flow (vph)	33	113	90	377	101	634	302	457
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		8		4	5	2	1	6
Permitted Phases	8		4		2		6	
Detector Phase	8	8	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	35.0	5.0	35.0
Minimum Split (s)	27.0	27.0	27.0	27.0	9.5	46.0	9.5	46.0
Total Split (s)	27.0	27.0	27.0	27.0	10.0	46.0	10.0	46.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	12.0%	55.4%	12.0%	55.4%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.8	3.0	3.8
All-Red Time (s)	2.3	2.3	2.3	2.3	1.0	3.2	1.0	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	4.0	7.0	4.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
v/c Ratio	0.32	0.34	0.45	0.71	0.16	0.64	0.66	0.43
Control Delay	35.4	13.9	34.9	13.1	5.0	16.9	15.0	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	13.9	34.9	13.1	5.0	16.9	15.0	12.6
Queue Length 50th (m)	4.1	4.4	11.5	4.9	3.2	54.1	11.1	34.0
Queue Length 95th (m)	11.7	16.5	23.8	27.9	10.7	112.5	#37.9	72.0
Internal Link Dist (m)		72.4		1007.5		421.8		1511.2
Turn Bay Length (m)	15.0		27.0		90.0		26.0	
Base Capacity (vph)	188	539	366	692	658	987	455	1065
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.21	0.25	0.54	0.15	0.64	0.66	0.43

Intersection Summary
Cycle Length: 83
Actuated Cycle Length: 73.8
Natural Cycle: 85
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Highway 6 & 875 St David St N Driveway/Gordon St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	34	72	85	38	317	95	511	85	284	413	17
Future Volume (vph)	31	34	72	85	38	317	95	511	85	284	413	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.97		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.87		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1814	1696		1783	1584		1824	1848		1755	1890	
Flt Permitted	0.34	1.00		0.68	1.00		0.47	1.00		0.29	1.00	
Satd. Flow (perm)	658	1696		1284	1584		893	1848		533	1890	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	33	36	77	90	40	337	101	544	90	302	439	18
RTOR Reduction (vph)	0	65	0	0	285	0	0	6	0	0	1	0
Lane Group Flow (vph)	33	48	0	90	92	0	101	628	0	302	456	0
Confl. Peds. (#/hr)	7		2	2		7	2		1	1		2
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	1%	4%	4%	1%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	11.6	11.6		11.6	11.6		44.6	40.1		47.6	41.6	
Effective Green, g (s)	11.6	11.6		11.6	11.6		44.6	40.1		47.6	41.6	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.60	0.54		0.64	0.56	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	102	263		199	245		589	992		437	1052	
v/s Ratio Prot		0.03			0.06		0.01	0.34		c0.06	0.24	
v/s Ratio Perm	0.05			c0.07			0.09			c0.38		
v/c Ratio	0.32	0.18		0.45	0.38		0.17	0.63		0.69	0.43	
Uniform Delay, d1	28.1	27.4		28.7	28.3		6.5	12.1		7.9	9.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.8	0.3		1.6	1.0		0.1	3.1		3.8	1.3	
Delay (s)	29.9	27.8		30.3	29.3		6.5	15.2		11.7	11.0	
Level of Service	C	C		C	C		A	B		B	B	
Approach Delay (s)		28.2			29.5			14.0			11.2	
Approach LOS		C			C			B			B	

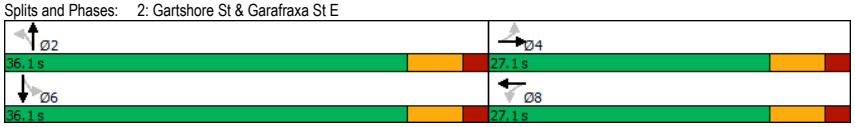
Intersection Summary					
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B		
HCM 2000 Volume to Capacity ratio	0.66				
Actuated Cycle Length (s)	74.7	Sum of lost time (s)	17.0		
Intersection Capacity Utilization	88.2%	ICU Level of Service	E		
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	109	276	105	330	78	172	10	210
Future Volume (vph)	109	276	105	330	78	172	10	210
Lane Group Flow (vph)	117	365	113	379	84	280	11	411
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
v/c Ratio	0.53	0.65	0.49	0.67	0.19	0.30	0.02	0.45
Control Delay	27.3	23.3	25.5	24.7	10.9	8.8	9.0	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.3	23.3	25.5	24.7	10.9	8.8	9.0	10.1
Queue Length 50th (m)	10.7	32.7	10.2	35.8	5.3	14.6	0.6	22.5
Queue Length 95th (m)	25.0	56.6	23.8	60.3	12.8	28.2	2.8	42.6
Internal Link Dist (m)		303.5		128.8		131.6		933.4
Turn Bay Length (m)	38.0		37.0		20.0		28.0	
Base Capacity (vph)	254	643	265	650	444	924	560	912
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	0.46	0.57	0.43	0.58	0.19	0.30	0.02	0.45

Intersection Summary
Cycle Length: 63.2
Actuated Cycle Length: 60.6
Natural Cycle: 65
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Gartshore St & Garafraxa St E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	109	276	63	105	330	22	78	172	88	10	210	172
Future Volume (vph)	109	276	63	105	330	22	78	172	88	10	210	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.95		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1807	1812		1787	1859		1806	1804		1824	1747	
Flt Permitted	0.38	1.00		0.41	1.00		0.47	1.00		0.59	1.00	
Satd. Flow (perm)	732	1812		762	1859		895	1804		1128	1747	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	117	297	68	113	355	24	84	185	95	11	226	185
RTOR Reduction (vph)	0	14	0	0	4	0	0	28	0	0	45	0
Lane Group Flow (vph)	117	351	0	113	375	0	84	252	0	11	366	0
Confl. Peds. (#/hr)			2	2			1		1	1		1
Heavy Vehicles (%)	1%	3%	1%	2%	2%	8%	1%	0%	1%	0%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.3	18.3		18.3	18.3		30.1	30.1		30.1	30.1	
Effective Green, g (s)	18.3	18.3		18.3	18.3		30.1	30.1		30.1	30.1	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.50	0.50		0.50	0.50	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	221	547		230	561		444	896		560	867	
v/s Ratio Prot		0.19			c0.20			0.14			c0.21	
v/s Ratio Perm	0.16			0.15			0.09			0.01		
v/c Ratio	0.53	0.64		0.49	0.67		0.19	0.28		0.02	0.42	
Uniform Delay, d1	17.6	18.3		17.3	18.5		8.5	8.9		7.8	9.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.3	3.5		3.4	4.0		0.9	0.8		0.1	1.5	
Delay (s)	21.9	21.8		20.8	22.5		9.4	9.7		7.8	11.2	
Level of Service	C	C		C	C		A	A		A	B	
Approach Delay (s)		21.8			22.1			9.6			11.1	
Approach LOS		C			C			A			B	

Intersection Summary					
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B		
HCM 2000 Volume to Capacity ratio	0.51				
Actuated Cycle Length (s)	60.6	Sum of lost time (s)	12.2		
Intersection Capacity Utilization	74.4%	ICU Level of Service	D		
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	27	149	118	579	367	25
Future Volume (Veh/h)	27	149	118	579	367	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	30	164	130	636	403	27
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	1312	416	430			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1312	416	430			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	80	74	89			
cM capacity (veh/h)	153	636	1140			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	194	130	636	430
Volume Left	30	130	0	0
Volume Right	164	0	0	27
cSH	428	1140	1700	1700
Volume to Capacity	0.45	0.11	0.37	0.25
Queue Length 95th (m)	17.5	2.9	0.0	0.0
Control Delay (s)	20.2	8.6	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	20.2	1.5		0.0
Approach LOS	C			

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	48.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	254	374	33	99	78
Future Volume (Veh/h)	29	254	374	33	99	78
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	276	407	36	108	85
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	1000	150	193			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1000	150	193			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	83	69	71			
cM capacity (veh/h)	192	891	1386			

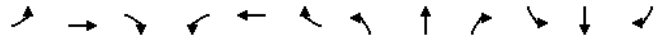
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	308	443	193
Volume Left	32	407	0
Volume Right	276	0	85
cSH	646	1386	1700
Volume to Capacity	0.48	0.29	0.11
Queue Length 95th (m)	19.6	9.4	0.0
Control Delay (s)	15.5	8.2	0.0
Lane LOS	C	A	
Approach Delay (s)	15.5	8.2	0.0
Approach LOS	C		

Intersection Summary				
Average Delay	8.9			
Intersection Capacity Utilization	59.7%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	181	136	284	68	40	278
Future Volume (Veh/h)	181	136	284	68	40	278
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	197	148	309	74	43	302
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	734	346			383	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	734	346			383	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	48	79			96	
cM capacity (veh/h)	376	702			1187	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	345	383	345
Volume Left	197	0	43
Volume Right	148	74	0
cSH	470	1700	1187
Volume to Capacity	0.73	0.23	0.04
Queue Length 95th (m)	45.6	0.0	0.9
Control Delay (s)	31.1	0.0	1.3
Lane LOS	D		A
Approach Delay (s)	31.1	0.0	1.3
Approach LOS	D		

Intersection Summary				
Average Delay		10.4		
Intersection Capacity Utilization		64.3%	ICU Level of Service	C
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	11	62	0	0	0	3	25	0	1	0
Future Volume (Veh/h)	0	0	11	62	0	0	0	3	25	0	1	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	12	67	0	0	0	3	27	0	1	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)												
pX, platoon unblocked												
vC, conflicting volume	18	31	1	30	18	16	1			30		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	18	31	1	30	18	16	1			30		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	93	100	100	100			100		
cM capacity (veh/h)	997	862	1084	968	877	1063	1622			1583		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	12	67	30	1
Volume Left	0	67	0	0
Volume Right	12	0	27	0
cSH	1084	968	1622	1583
Volume to Capacity	0.01	0.07	0.00	0.00
Queue Length 95th (m)	0.3	1.7	0.0	0.0
Control Delay (s)	8.4	9.0	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	8.4	9.0	0.0	0.0
Approach LOS	A	A		

Intersection Summary				
Average Delay		6.4		
Intersection Capacity Utilization		20.1%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	41	9	28	74	0
Future Volume (Veh/h)	0	41	9	28	74	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	45	10	30	80	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)						
pX, platoon unblocked						
vC, conflicting volume	130	80	80			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	130	80	80			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	95	99			
cM capacity (veh/h)	859	980	1518			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	45	40	80
Volume Left	0	10	0
Volume Right	45	0	0
cSH	980	1518	1700
Volume to Capacity	0.05	0.01	0.05
Queue Length 95th (m)	1.1	0.2	0.0
Control Delay (s)	8.8	1.9	0.0
Lane LOS	A	A	
Approach Delay (s)	8.8	1.9	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	2	1	1	0
Future Volume (Veh/h)	0	0	2	1	1	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	2	1	1	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)						
pX, platoon unblocked						
vC, conflicting volume	6	1	1			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	6	1	1			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1014	1084	1622			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	3	1
Volume Left	0	2	0
Volume Right	0	0	0
cSH	1700	1622	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	4.8	0.0
Lane LOS	A	A	
Approach Delay (s)	0.0	4.8	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

BURNSIDE

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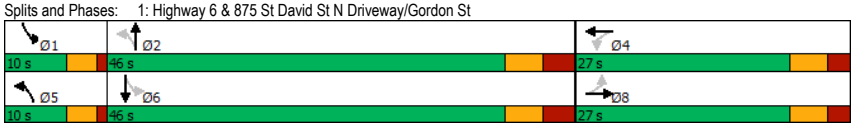
Appendix H

Total 2037 Traffic Operations

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	2	4	44	8	12	337	275	399
Future Volume (vph)	2	4	44	8	12	337	275	399
Lane Group Flow (vph)	2	18	52	189	14	481	324	477
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		8		4	5	2	1	6
Permitted Phases	8		4		2		6	
Detector Phase	8	8	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	35.0	5.0	35.0
Minimum Split (s)	27.0	27.0	27.0	27.0	9.5	46.0	9.5	46.0
Total Split (s)	27.0	27.0	27.0	27.0	10.0	46.0	10.0	46.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	12.0%	55.4%	12.0%	55.4%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.8	3.0	3.8
All-Red Time (s)	2.3	2.3	2.3	2.3	1.0	3.2	1.0	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	4.0	7.0	4.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
v/c Ratio	0.02	0.08	0.31	0.55	0.02	0.49	0.54	0.38
Control Delay	27.0	17.7	33.1	12.3	3.2	11.7	7.2	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	17.7	33.1	12.3	3.2	11.7	7.2	7.3
Queue Length 50th (m)	0.2	0.6	6.4	1.1	0.4	33.1	10.0	20.1
Queue Length 95th (m)	1.8	5.3	14.8	14.7	1.7	56.7	20.8	54.8
Internal Link Dist (m)		72.4		1007.5		421.8		1511.2
Turn Bay Length (m)	15.0		27.0		90.0		26.0	
Base Capacity (vph)	293	509	415	583	715	990	605	1246
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	0.01	0.04	0.13	0.32	0.02	0.49	0.54	0.38

Intersection Summary
Cycle Length: 83
Actuated Cycle Length: 70.6
Natural Cycle: 85
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Highway 6 & 875 St David St N Driveway/Gordon St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	4	11	44	8	153	12	337	72	275	399	7
Future Volume (vph)	2	4	11	44	8	153	12	337	72	275	399	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.86		1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1820	1681		1779	1536		1825	1779		1706	1861	
Flt Permitted	0.52	1.00		0.75	1.00		0.49	1.00		0.40	1.00	
Satd. Flow (perm)	987	1681		1396	1536		942	1779		716	1861	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	2	5	13	52	9	180	14	396	85	324	469	8
RTOR Reduction (vph)	0	11	0	0	159	0	0	8	0	0	0	0
Lane Group Flow (vph)	2	7	0	52	30	0	14	473	0	324	477	0
Confl. Peds. (#/hr)	2		3	3		2	1					1
Heavy Vehicles (%)	0%	0%	0%	2%	0%	5%	0%	6%	1%	7%	3%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	8.6	8.6		8.6	8.6		43.3	42.3		52.3	47.3	
Effective Green, g (s)	8.6	8.6		8.6	8.6		43.3	42.3		52.3	47.3	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.59	0.57		0.71	0.64	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	114	195		162	178		563	1018		587	1191	
v/s Ratio Prot		0.00			0.02		0.00	0.27		c0.04	0.26	
v/s Ratio Perm	0.00			c0.04			0.01			c0.35		
v/c Ratio	0.02	0.03		0.32	0.17		0.02	0.46		0.55	0.40	
Uniform Delay, d1	28.9	29.0		30.0	29.4		6.4	9.2		4.7	6.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1		1.2	0.4		0.0	1.5		0.6	1.0	
Delay (s)	29.0	29.0		31.1	29.9		6.4	10.7		5.3	7.4	
Level of Service	C	C		C	C		A	B		A	A	
Approach Delay (s)		29.0			30.1			10.6			6.6	
Approach LOS		C			C			B			A	

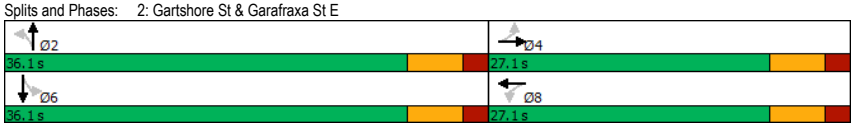
Intersection Summary				
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	73.9	Sum of lost time (s)	17.0	
Intersection Capacity Utilization	69.0%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	133	262	52	223	56	183	10	122
Future Volume (vph)	133	262	52	223	56	183	10	122
Lane Group Flow (vph)	149	352	58	269	63	276	11	215
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
v/c Ratio	0.51	0.64	0.26	0.52	0.11	0.30	0.02	0.24
Control Delay	24.3	23.1	19.2	20.9	9.6	9.4	9.0	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	23.1	19.2	20.9	9.6	9.4	9.0	7.5
Queue Length 50th (m)	13.4	31.5	4.8	23.6	3.6	15.0	0.6	9.1
Queue Length 95th (m)	28.0	53.6	12.7	41.6	9.4	29.1	2.8	20.1
Internal Link Dist (m)		303.5		128.8		131.6		933.4
Turn Bay Length (m)	38.0		37.0		20.0		28.0	
Base Capacity (vph)	348	656	266	618	588	911	568	891
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.54	0.22	0.44	0.11	0.30	0.02	0.24

Intersection Summary
Cycle Length: 63.2
Actuated Cycle Length: 60
Natural Cycle: 65
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Gartshore St & Garafraxa St E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	262	52	52	223	16	56	183	62	10	122	69
Future Volume (vph)	133	262	52	52	223	16	56	183	62	10	122	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.96		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1718	1837		1722	1750		1787	1780		1824	1715	
Flt Permitted	0.55	1.00		0.42	1.00		0.62	1.00		0.59	1.00	
Satd. Flow (perm)	993	1837		760	1750		1173	1780		1132	1715	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	149	294	58	58	251	18	63	206	70	11	137	78
RTOR Reduction (vph)	0	12	0	0	4	0	0	18	0	0	31	0
Lane Group Flow (vph)	149	340	0	58	265	0	63	258	0	11	184	0
Confl. Peds. (#/hr)	2					2	2		1	1		2
Heavy Vehicles (%)	6%	2%	2%	6%	8%	16%	2%	2%	7%	0%	8%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	17.6	17.6		17.6	17.6		30.1	30.1		30.1	30.1	
Effective Green, g (s)	17.6	17.6		17.6	17.6		30.1	30.1		30.1	30.1	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.50	0.50		0.50	0.50	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	291	539		223	514		589	894		568	861	
v/s Ratio Prot		c0.19			0.15			c0.14			0.11	
v/s Ratio Perm	0.15			0.08			0.05			0.01		
v/c Ratio	0.51	0.63		0.26	0.52		0.11	0.29		0.02	0.21	
Uniform Delay, d1	17.6	18.3		16.2	17.6		7.8	8.7		7.5	8.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.0	3.3		1.3	1.7		0.4	0.8		0.1	0.6	
Delay (s)	20.6	21.7		17.5	19.3		8.2	9.5		7.5	8.9	
Level of Service	C	C		B	B		A	A		A	A	
Approach Delay (s)		21.3			19.0			9.2			8.8	
Approach LOS		C			B			A			A	

Intersection Summary					
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.41				
Actuated Cycle Length (s)	59.9	Sum of lost time (s)		12.2	
Intersection Capacity Utilization	70.6%	ICU Level of Service		C	
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	19	103	111	258	434	35
Future Volume (Veh/h)	19	103	111	258	434	35
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	20	110	118	274	462	37
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	990	480	499			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	990	480	499			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	92	81	89			
cM capacity (veh/h)	238	577	1055			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	130	118	274	499
Volume Left	20	118	0	0
Volume Right	110	0	0	37
cSH	474	1055	1700	1700
Volume to Capacity	0.27	0.11	0.16	0.29
Queue Length 95th (m)	8.4	2.9	0.0	0.0
Control Delay (s)	15.4	8.8	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	15.4	2.7		0.0
Approach LOS	C			

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	48.5%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	57	328	154	50	33	17
Future Volume (Veh/h)	57	328	154	50	33	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	62	357	167	54	36	18
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	433	45	54			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	433	45	54			
tC, single (s)	6.4	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.3			
p0 queue free %	88	65	89			
cM capacity (veh/h)	518	1014	1526			

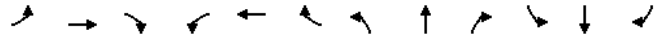
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	419	221	54
Volume Left	62	167	0
Volume Right	357	0	18
cSH	888	1526	1700
Volume to Capacity	0.47	0.11	0.03
Queue Length 95th (m)	19.5	2.8	0.0
Control Delay (s)	12.6	6.0	0.0
Lane LOS	B	A	
Approach Delay (s)	12.6	6.0	0.0
Approach LOS	B		

Intersection Summary				
Average Delay	9.5			
Intersection Capacity Utilization	47.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	62	48	198	202	143	219
Future Volume (Veh/h)	62	48	198	202	143	219
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	67	52	215	220	155	238
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	873	325			435	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	873	325			435	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	76	93			86	
cM capacity (veh/h)	279	721			1135	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	119	435	393
Volume Left	67	0	155
Volume Right	52	220	0
cSH	381	1700	1135
Volume to Capacity	0.31	0.26	0.14
Queue Length 95th (m)	10.0	0.0	3.6
Control Delay (s)	18.7	0.0	4.3
Lane LOS	C		A
Approach Delay (s)	18.7	0.0	4.3
Approach LOS	C		

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	24	0	0	0	1	53	0	1	0
Future Volume (Veh/h)	0	0	0	24	0	0	0	1	53	0	1	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	26	0	0	0	1	58	0	1	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)												
pX, platoon unblocked												
vC, conflicting volume	31	60	1	31	31	30	1			59		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	31	60	1	31	31	30	1			59		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	100	100	100			100		
cM capacity (veh/h)	977	831	1084	977	862	1044	1622			1545		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	26	59	1
Volume Left	0	26	0	0
Volume Right	0	0	58	0
cSH	1700	977	1622	1545
Volume to Capacity	0.01	0.03	0.00	0.00
Queue Length 95th (m)	0.0	0.6	0.0	0.0
Control Delay (s)	0.0	8.8	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	0.0	8.8	0.0	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	54	25	0
Future Volume (Veh/h)	0	0	0	54	25	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	59	27	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)						
pX, platoon unblocked						
vC, conflicting volume	86	27	27			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	86	27	27			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	915	1048	1587			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	59	27
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1587	1700
Volume to Capacity	0.05	0.00	0.02
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		6.7%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	1	1	0
Future Volume (Veh/h)	0	0	0	1	1	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	1	1	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)						
pX, platoon unblocked						
vC, conflicting volume	2	1	1			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2	1	1			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1021	1084	1622			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	1	1
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1622	1700
Volume to Capacity	0.00	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		

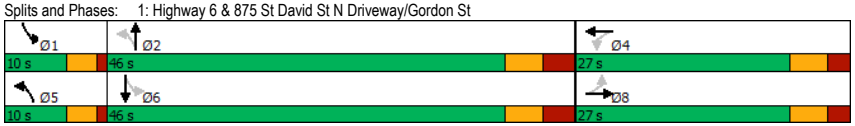
Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		6.7%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	31	34	85	38	95	522	284	421
Future Volume (vph)	31	34	85	38	95	522	284	421
Lane Group Flow (vph)	33	113	90	377	101	645	302	466
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		8		4	5	2	1	6
Permitted Phases	8		4		2		6	
Detector Phase	8	8	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	35.0	5.0	35.0
Minimum Split (s)	27.0	27.0	27.0	27.0	9.5	46.0	9.5	46.0
Total Split (s)	27.0	27.0	27.0	27.0	10.0	46.0	10.0	46.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	12.0%	55.4%	12.0%	55.4%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.8	3.0	3.8
All-Red Time (s)	2.3	2.3	2.3	2.3	1.0	3.2	1.0	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	4.0	7.0	4.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
v/c Ratio	0.32	0.34	0.45	0.71	0.16	0.65	0.68	0.44
Control Delay	35.4	13.9	34.9	13.1	5.0	17.2	15.8	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	13.9	34.9	13.1	5.0	17.2	15.8	12.7
Queue Length 50th (m)	4.1	4.4	11.5	4.9	3.2	55.7	11.1	34.9
Queue Length 95th (m)	11.7	16.5	23.8	27.9	10.7	115.8	#39.3	73.7
Internal Link Dist (m)		72.4		1007.5		421.8		1511.2
Turn Bay Length (m)	15.0		27.0		90.0		26.0	
Base Capacity (vph)	188	539	366	692	650	986	446	1065
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.21	0.25	0.54	0.16	0.65	0.68	0.44

Intersection Summary

Cycle Length: 83
Actuated Cycle Length: 73.8
Natural Cycle: 85
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Highway 6 & 875 St David St N Driveway/Gordon St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	34	72	85	38	317	95	522	85	284	421	17
Future Volume (vph)	31	34	72	85	38	317	95	522	85	284	421	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.97		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.87		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1814	1696		1783	1584		1824	1849		1755	1890	
Flt Permitted	0.34	1.00		0.68	1.00		0.46	1.00		0.28	1.00	
Satd. Flow (perm)	658	1696		1284	1584		879	1849		518	1890	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	33	36	77	90	40	337	101	555	90	302	448	18
RTOR Reduction (vph)	0	65	0	0	285	0	0	6	0	0	1	0
Lane Group Flow (vph)	33	48	0	90	92	0	101	639	0	302	465	0
Confl. Peds. (#/hr)	7		2	2		7	2		1	1		2
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	1%	4%	4%	1%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	11.6	11.6		11.6	11.6		44.6	40.1		47.6	41.6	
Effective Green, g (s)	11.6	11.6		11.6	11.6		44.6	40.1		47.6	41.6	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.60	0.54		0.64	0.56	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	102	263		199	245		581	992		429	1052	
v/s Ratio Prot		0.03			0.06		0.01	0.35		c0.06	0.25	
v/s Ratio Perm	0.05			c0.07			0.09			c0.39		
v/c Ratio	0.32	0.18		0.45	0.38		0.17	0.64		0.70	0.44	
Uniform Delay, d1	28.1	27.4		28.7	28.3		6.5	12.2		8.0	9.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.8	0.3		1.6	1.0		0.1	3.2		4.3	1.3	
Delay (s)	29.9	27.8		30.3	29.3		6.5	15.5		12.3	11.1	
Level of Service	C	C		C	C		A	B		B	B	
Approach Delay (s)		28.2			29.5			14.3			11.5	
Approach LOS		C			C			B			B	

Intersection Summary

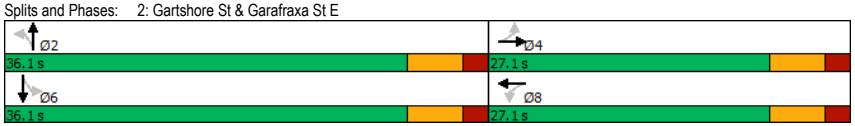
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.67			
Actuated Cycle Length (s)	74.7	Sum of lost time (s)	17.0	
Intersection Capacity Utilization	88.3%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	113	289	110	345	82	179	11	216
Future Volume (vph)	113	289	110	345	82	179	11	216
Lane Group Flow (vph)	122	382	118	397	88	292	12	421
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (s)	27.1	27.1	27.1	27.1	36.1	36.1	36.1	36.1
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
v/c Ratio	0.58	0.68	0.54	0.70	0.20	0.32	0.02	0.46
Control Delay	30.4	24.2	27.7	25.8	11.2	9.1	9.1	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	24.2	27.7	25.8	11.2	9.1	9.1	10.4
Queue Length 50th (m)	11.4	34.9	10.8	38.1	5.6	15.6	0.7	23.7
Queue Length 95th (m)	#27.8	60.0	25.5	64.1	13.4	29.6	3.0	44.1
Internal Link Dist (m)		303.5		128.8		131.6		933.4
Turn Bay Length (m)	38.0		37.0		20.0		28.0	
Base Capacity (vph)	237	638	249	640	431	919	551	907
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	0.51	0.60	0.47	0.62	0.20	0.32	0.02	0.46

Intersection Summary
Cycle Length: 63.2
Actuated Cycle Length: 60.9
Natural Cycle: 65
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Gartshore St & Garafraxa St E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	289	66	110	345	24	82	179	93	11	216	176
Future Volume (vph)	113	289	66	110	345	24	82	179	93	11	216	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.95		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1807	1812		1787	1841		1806	1803		1824	1748	
Flt Permitted	0.36	1.00		0.38	1.00		0.46	1.00		0.58	1.00	
Satd. Flow (perm)	687	1812		720	1841		874	1803		1116	1748	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	122	311	71	118	371	26	88	192	100	12	232	189
RTOR Reduction (vph)	0	13	0	0	4	0	0	28	0	0	45	0
Lane Group Flow (vph)	122	369	0	118	393	0	88	264	0	12	376	0
Confl. Peds. (#/hr)			2	2			1		1	1		1
Heavy Vehicles (%)	1%	3%	1%	2%	3%	8%	1%	0%	1%	0%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.6	18.6		18.6	18.6		30.1	30.1		30.1	30.1	
Effective Green, g (s)	18.6	18.6		18.6	18.6		30.1	30.1		30.1	30.1	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.49	0.49		0.49	0.49	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	209	553		219	562		431	891		551	863	
v/s Ratio Prot		0.20			c0.21			0.15			c0.22	
v/s Ratio Perm	0.18			0.16			0.10			0.01		
v/c Ratio	0.58	0.67		0.54	0.70		0.20	0.30		0.02	0.44	
Uniform Delay, d1	17.9	18.4		17.6	18.7		8.7	9.1		7.9	9.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.3	4.0		4.6	4.8		1.1	0.8		0.1	1.6	
Delay (s)	24.2	22.5		22.2	23.5		9.7	10.0		7.9	11.5	
Level of Service	C	C		C	C		A	A		A	B	
Approach Delay (s)		22.9			23.2			9.9			11.4	
Approach LOS		C			C			A			B	

Intersection Summary				
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	60.9	Sum of lost time (s)	12.2	
Intersection Capacity Utilization	75.7%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	28	157	124	590	375	27
Future Volume (Veh/h)	28	157	124	590	375	27
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	31	173	136	648	412	30
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	1347	427	442			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1347	427	442			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	79	72	88			
cM capacity (veh/h)	145	625	1123			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	204	136	648	442
Volume Left	31	136	0	0
Volume Right	173	0	0	30
cSH	416	1123	1700	1700
Volume to Capacity	0.49	0.12	0.38	0.26
Queue Length 95th (m)	20.0	3.1	0.0	0.0
Control Delay (s)	21.7	8.6	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	21.7	1.5		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	254	374	34	102	78
Future Volume (Veh/h)	29	254	374	34	102	78
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	276	407	37	111	85
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	1004	154	196			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1004	154	196			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	83	69	71			
cM capacity (veh/h)	191	887	1383			

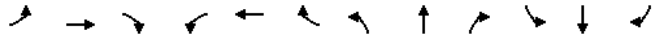
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	308	444	196
Volume Left	32	407	0
Volume Right	276	0	85
cSH	643	1383	1700
Volume to Capacity	0.48	0.29	0.12
Queue Length 95th (m)	19.7	9.4	0.0
Control Delay (s)	15.6	8.2	0.0
Lane LOS	C	A	
Approach Delay (s)	15.6	8.2	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	8.9		
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	181	136	297	68	40	290
Future Volume (Veh/h)	181	136	297	68	40	290
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	197	148	323	74	43	315
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	761	360			397	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	761	360			397	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	46	79			96	
cM capacity (veh/h)	362	689			1173	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	345	397	358
Volume Left	197	0	43
Volume Right	148	74	0
cSH	455	1700	1173
Volume to Capacity	0.76	0.23	0.04
Queue Length 95th (m)	48.8	0.0	0.9
Control Delay (s)	33.7	0.0	1.3
Lane LOS	D		A
Approach Delay (s)	33.7	0.0	1.3
Approach LOS	D		

Intersection Summary				
Average Delay		11.0		
Intersection Capacity Utilization		65.6%	ICU Level of Service	C
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	11	63	0	0	0	3	25	0	1	0
Future Volume (Veh/h)	0	0	11	63	0	0	0	3	25	0	1	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	12	68	0	0	0	3	27	0	1	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)												
pX, platoon unblocked												
vC, conflicting volume	18	31	1	30	18	16	1			30		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	18	31	1	30	18	16	1			30		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	93	100	100	100			100		
cM capacity (veh/h)	997	862	1084	968	877	1063	1622			1583		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	12	68	30	1
Volume Left	0	68	0	0
Volume Right	12	0	27	0
cSH	1084	968	1622	1583
Volume to Capacity	0.01	0.07	0.00	0.00
Queue Length 95th (m)	0.3	1.7	0.0	0.0
Control Delay (s)	8.4	9.0	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	8.4	9.0	0.0	0.0
Approach LOS	A	A		

Intersection Summary				
Average Delay		6.4		
Intersection Capacity Utilization		20.2%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	41	9	28	75	0
Future Volume (Veh/h)	0	41	9	28	75	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	45	10	30	82	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)						
pX, platoon unblocked						
vC, conflicting volume	132	82	82			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	132	82	82			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	95	99			
cM capacity (veh/h)	856	978	1515			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	45	40	82
Volume Left	0	10	0
Volume Right	45	0	0
cSH	978	1515	1700
Volume to Capacity	0.05	0.01	0.05
Queue Length 95th (m)	1.1	0.2	0.0
Control Delay (s)	8.9	1.9	0.0
Lane LOS	A	A	
Approach Delay (s)	8.9	1.9	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	18.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	2	1	1	0
Future Volume (Veh/h)	0	0	2	1	1	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	2	1	1	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)						
pX, platoon unblocked						
vC, conflicting volume	6	1	1			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	6	1	1			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1014	1084	1622			

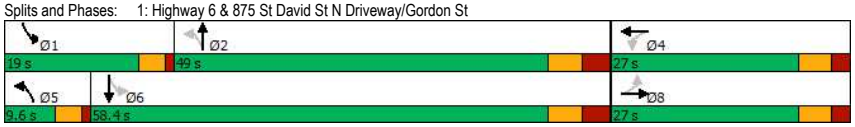
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	3	1
Volume Left	0	2	0
Volume Right	0	0	0
cSH	1700	1622	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	4.8	0.0
Lane LOS	A	A	
Approach Delay (s)	0.0	4.8	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	6.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	31	34	85	38	95	522	284	421
Future Volume (vph)	31	34	85	38	95	522	284	421
Lane Group Flow (vph)	33	113	90	377	101	645	302	466
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		8		4	5	2	1	6
Permitted Phases	8		4		2		6	
Detector Phase	8	8	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	35.0	5.0	35.0
Minimum Split (s)	27.0	27.0	27.0	27.0	9.5	46.0	9.5	46.0
Total Split (s)	27.0	27.0	27.0	27.0	9.6	49.0	19.0	58.4
Total Split (%)	28.4%	28.4%	28.4%	28.4%	10.1%	51.6%	20.0%	61.5%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.8	3.0	3.8
All-Red Time (s)	2.3	2.3	2.3	2.3	1.0	3.2	1.0	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	4.0	7.0	4.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
v/c Ratio	0.38	0.35	0.45	0.71	0.15	0.66	0.61	0.41
Control Delay	44.8	15.7	40.6	14.0	5.6	20.6	10.3	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	15.7	40.6	14.0	5.6	20.6	10.3	11.7
Queue Length 50th (m)	5.0	5.3	13.9	5.9	3.9	68.5	13.2	38.5
Queue Length 95th (m)	13.8	18.9	27.6	32.1	10.8	141.7	30.1	72.3
Internal Link Dist (m)		72.4		1007.5		421.8		1511.2
Turn Bay Length (m)	15.0		27.0		90.0		26.0	
Base Capacity (vph)	141	476	316	643	655	982	571	1146
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	0.23	0.24	0.28	0.59	0.15	0.66	0.53	0.41

Intersection Summary
Cycle Length: 95
Actuated Cycle Length: 85.9
Natural Cycle: 85
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Highway 6 & 875 St David St N Driveway/Gordon St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	34	72	85	38	317	95	522	85	284	421	17
Future Volume (vph)	31	34	72	85	38	317	95	522	85	284	421	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.97		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.87		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1814	1696		1782	1581		1824	1849		1755	1890	
Flt Permitted	0.30	1.00		0.68	1.00		0.50	1.00		0.26	1.00	
Satd. Flow (perm)	574	1696		1283	1581		951	1849		475	1890	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	33	36	77	90	40	337	101	555	90	302	448	18
RTOR Reduction (vph)	0	65	0	0	285	0	0	5	0	0	1	0
Lane Group Flow (vph)	33	48	0	90	92	0	101	640	0	302	465	0
Confl. Peds. (#/hr)	7		2	2		7	2		1	1		2
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	1%	4%	4%	1%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	13.3	13.3		13.3	13.3		50.7	46.4		60.4	52.1	
Effective Green, g (s)	13.3	13.3		13.3	13.3		50.7	46.4		60.4	52.1	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.58	0.54		0.70	0.60	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	88	260		196	242		599	989		478	1135	
v/s Ratio Prot		0.03			0.06		0.01	0.35		c0.07	0.25	
v/s Ratio Perm	0.06			c0.07			0.09			c0.37		
v/c Ratio	0.38	0.18		0.46	0.38		0.17	0.65		0.63	0.41	
Uniform Delay, d1	33.0	32.0		33.4	33.0		7.9	14.3		8.4	9.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.7	0.3		1.7	1.0		0.0	3.3		2.0	1.1	
Delay (s)	35.6	32.3		35.1	34.0		8.0	17.6		10.4	10.3	
Level of Service	D	C		D	C		A	B		B	B	
Approach Delay (s)		33.1			34.2			16.3			10.3	
Approach LOS		C			C			B			B	

Intersection Summary					
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.62				
Actuated Cycle Length (s)	86.7	Sum of lost time (s)		17.0	
Intersection Capacity Utilization	88.3%	ICU Level of Service		E	
Analysis Period (min)	15				

c Critical Lane Group

BURNSIDE

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Appendix I

Detailed Left Turn Analysis

Table A: Left Turn Warrant Analysis Along Gartshore Street (Existing Total Conditions)

Existing Traffic Volume	AM Peak Hour	PM Peak Hour
Gordon Street: Northbound		
Advancing	173	291
Opposing	45	118
Left Turn Volume (%)	130 (75%)	266 (91%)
Figure from MTO Geometric Standards	Figure 9A -10	Figure 9A -10
Storage Length (m)	**Not Warranted**	**Not Warranted**
Dickson Drive: Southbound		
Advancing	203	222
Opposing	199	263
Left Turn Volume (%)	26 (13%)	5 (2%)
Figure from MTO Geometric Standards	Figure 9A -8	Figure 9A -7
Storage Length (m)	**Not Warranted**	**Not Warranted**

Table B: Left Turn Warrant Analysis Along Gartshore Street (2032 Background Conditions)

2032 Background Traffic Volume	AM Peak Hour	PM Peak Hour
Gordon Street: Northbound		
Advancing	201	402
Opposing	48	125
Left Turn Volume (%)	154 (77%)	374 (93%)
Figure from MTO Geometric Standards	Figure 9A -10	Figure 9A -10
Storage Length (m)	**Not Warranted**	**15 m**
Dickson Drive: Southbound		
Advancing	353	291
Opposing	390	347
Left Turn Volume (%)	143 (41%)	40 (14%)
Figure from MTO Geometric Standards	Figure 9A -10	Figure 9A -8
Storage Length (m)	**15 m**	**Not Warranted**

Table C: Left Turn Warrant Analysis Along Gartshore Street (2037 Background Conditions)

2037 Background Traffic Volume	AM Peak Hour	PM Peak Hour
Gordon Street: Northbound		
Advancing	204	403
Opposing	50	128
Left Turn Volume (%)	154 (75%)	374 (93%)
Figure from MTO Geometric Standards	Figure 9A -10	Figure 9A -10
Storage Length (m)	**Not Warranted**	**15 m**
Dickson Drive: Southbound		
Advancing	362	303
Opposing	400	360
Left Turn Volume (%)	143 (40%)	40 (13%)
Figure from MTO Geometric Standards	Figure 9A -10	Figure 9A -8
Storage Length (m)	**15 m**	**Not Warranted**

Table D: Left Turn Warrant Analysis Along Gartshore Street (2032 Total Conditions)

2032 Total Traffic Volume	AM Peak Hour	PM Peak Hour
South Driveway: Northbound		
Advancing	129	37
Opposing	26	74
Left Turn Volume (%)	61 (47%)	9 (24%)
Figure from MTO Geometric Standards	Figure 9A -10	Figure 9A -8
Storage Length (m)	**Not Warranted**	**Not Warranted**
Gordon Street: Northbound		
Advancing	233	407
Opposing	59	177
Left Turn Volume (%)	154 (66%)	374 (92%)
Figure from MTO Geometric Standards	Figure 9A -10	Figure 9A -10
Storage Length (m)	**Not Warranted**	**15 m**

Table D: Left Turn Warrant Analysis Along Gartshore Street (2032 Total Conditions) continued

2032 Total Traffic Volume	AM Peak Hour	PM Peak Hour
Dickson Drive: Southbound		
Advancing	359	318
Opposing	422	352
Left Turn Volume (%)	143 (40%)	40 (13%)
Figure from MTO Geometric Standards	Figure 9A -10	Figure 9A -8
Storage Length (m)	**15 m**	**Not Warranted**

Table E: Left Turn Warrant Analysis Along Gartshore Street (2037 Total Conditions)

2037 Total Traffic Volume	AM Peak Hour	PM Peak Hour
South Driveway: Northbound		
Advancing	120	37
Opposing	27	75
Left Turn Volume (%)	53 (44%)	9 (24%)
Figure from MTO Geometric Standards	Figure 9A -10	Figure 9A -8
Storage Length (m)	**Not Warranted**	**Not Warranted**
Gordon Street: Northbound		
Advancing	236	408
Opposing	61	180
Left Turn Volume (%)	154 (65%)	374 (92%)
Figure from MTO Geometric Standards	Figure 9A -10	Figure 9A -10
Storage Length (m)	**Not Warranted**	**15 m**
Dickson Drive: Southbound		
Advancing	368	330
Opposing	432	365
Left Turn Volume (%)	143 (39%)	40 (12%)
Figure from MTO Geometric Standards	Figure 9A -10	Figure 9A -8
Storage Length (m)	**15 m**	**Not Warranted**

BURNSIDE

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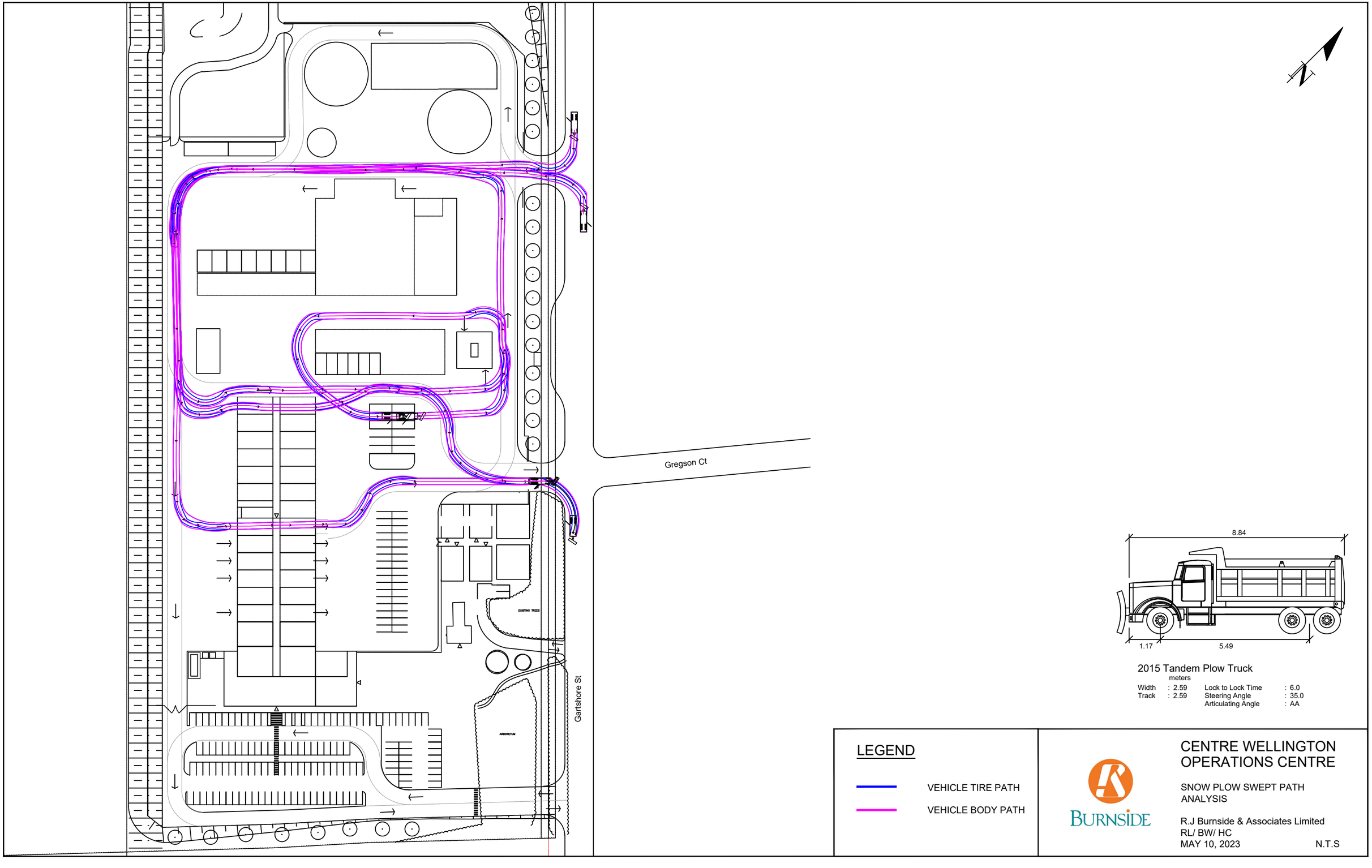
Appendix J

Swept Path Analysis



2015 Tandem Plow Truck

meters

Width	: 2.59	Lock to Lock Time	: 6.0
Track	: 2.59	Steering Angle	: 35.0
		Articulating Angle	: AA

LEGEND

VEHICLE TIRE PATH

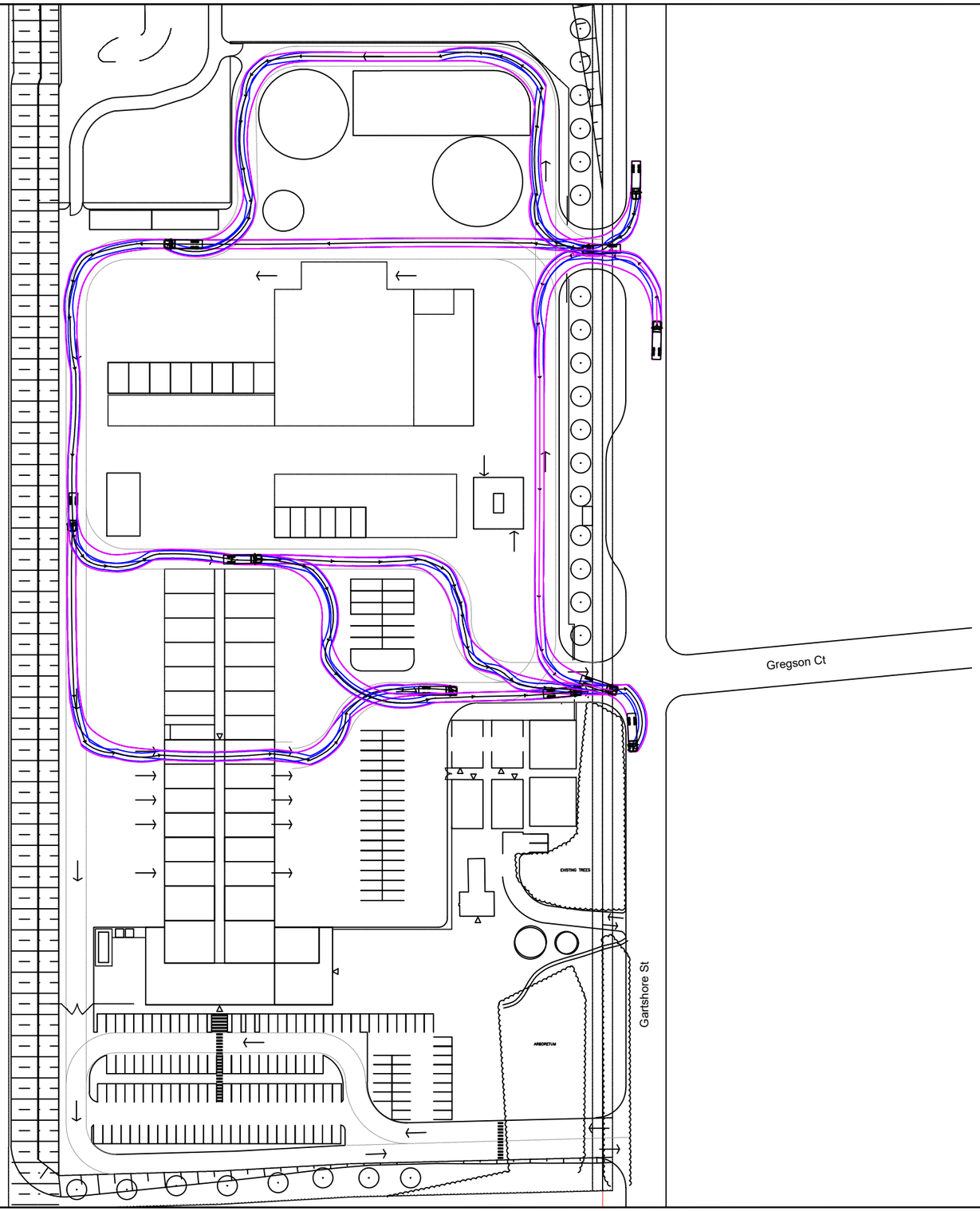
VEHICLE BODY PATH

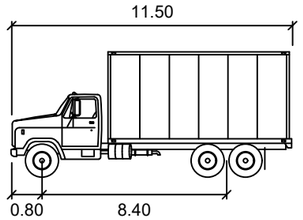
BURNSIDE

CENTRE WELLINGTON OPERATIONS CENTRE

SNOW PLOW SWEPT PATH ANALYSIS

R.J Burnside & Associates Limited
RL/ BW/ HC
MAY 10, 2023 N.T.S





HSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

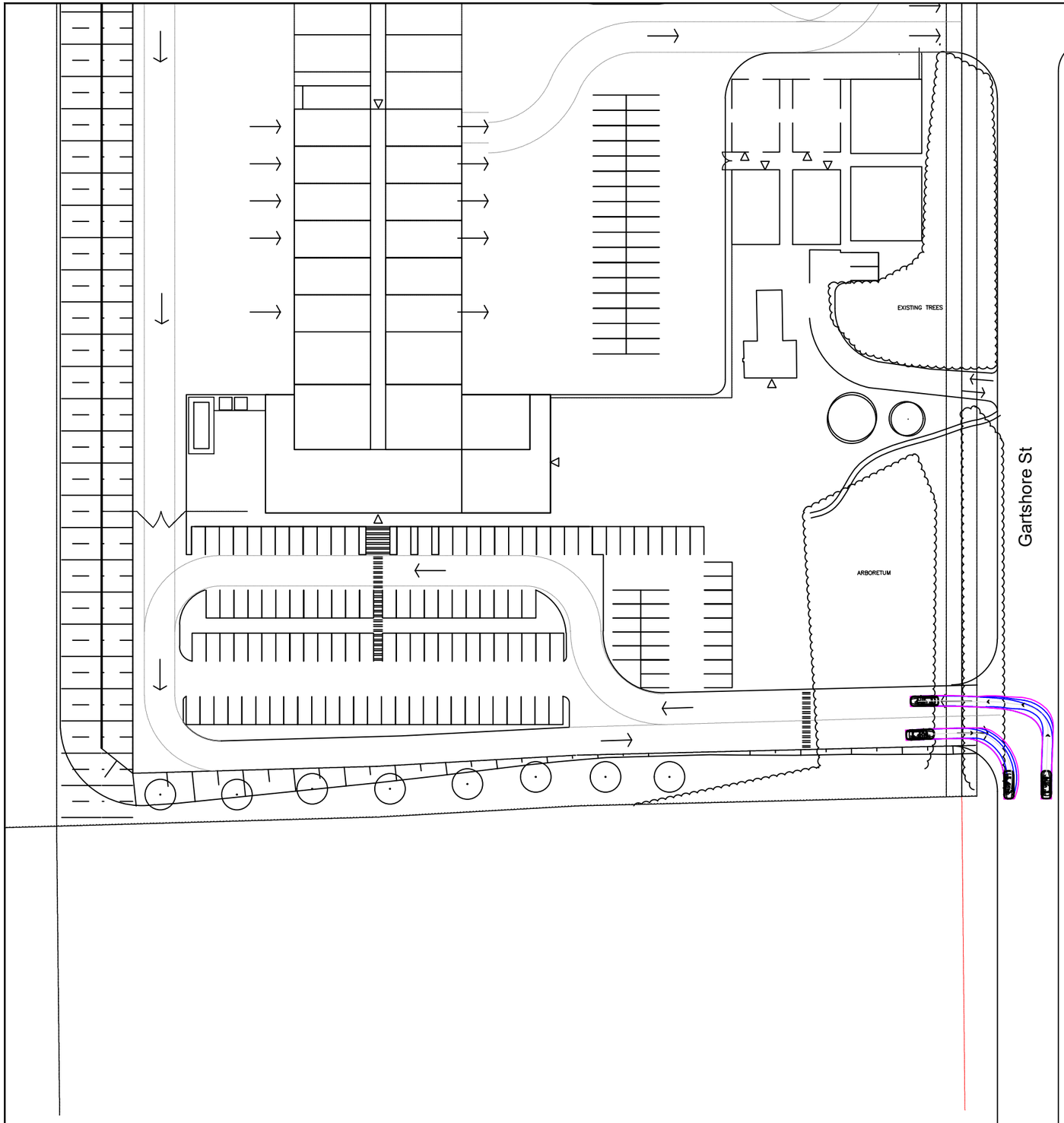
LEGEND

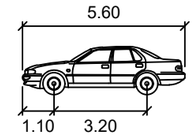
- VEHICLE TIRE PATH
- VEHICLE BODY PATH

CENTRE WELLINGTON OPERATIONS CENTRE

HSU TRUCK SWEPT PATH ANALYSIS

R.J Burnside & Associates Limited
RL/ BW/ HC
MAY 10, 2023 N.T.S





P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

LEGEND

VEHICLE TIRE PATH

VEHICLE BODY PATH

BURNSIDE

CENTRE WELLINGTON OPERATIONS CENTRE

PASSENGER CAR SWEPT PATH ANALYSIS

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