BA Group

1240 BRITANNIA ROAD WEST
PROPOSED RESIDENTIAL DEVELOPMENT
URBAN TRANSPORTATION CONSIDERATIONS
UPDATE REPORT

City of Mississauga

Prepared For: National Homes (1240 Britannia) Inc.

October 2020

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1.0 INTRODUCTION

BA Group has been retained by National Homes to provide transportation consultation services in relation to a proposed residential townhouse development located at 1240 Britannia Road West (referred to herein as "the site") in the City of Mississauga.

The site is located on the south side of Britannia Road West, between Whitehorn Avenue and Brookhaven Way. The site is approximately 21,474 m^2 in size and is bounded by Britannia Road West to the north, Galesway Boulevard to the south, residential properties on Cabrera Crescent to the west and residential properties on Candlebrook Court to the east.

The site location and context are illustrated in **Figure 1** and **Figure 2**.

The development program contemplates a total of 106 new residential townhouse units, serviced by internal private condominium roads and the existing Cabrera Crescent, with access provided directly from Galesway Boulevard. This report documents BA Group's updated review of the transportation-related aspects of the project including parking, refuse collection and fire vehicle access, and future traffic operations as part of a City of Mississauga Zoning By-law Amendment (ZBA) and Site Plan Approval (SPA) process.

1.1 OCTOBER 2020 UPDATE

BA Group previously submitted an Urban Transportation Considerations Report for 1240 Britannia Road West, dated March 2020. Upon review of this document, comments were received from the City of Mississauga, dated July 16, 2020. Comments related to transportation have been addressed through updates to this report. A summary of the comments received and their response is provided in **Table 1**.

In addition to the response to comments, site statistics have also been updated for the revised submission. **Table 2** is a comparison between the current and previously submitted site statistics.

TABLE 1 RESPONSE TO COMMENTS

Agency Comment	Response
(i) Should the applicant not be able to satisfy Development Engineering conditions No. 1 and 2, the following will be required: 3.3 Cabrera Crescent Cul-de-Sac- The extension of Cabrera Crescent from Galesway Boulevard to the Cul-de-Sac is a requirement as originally intended.	It is our understanding that the applicant is currently making arrangements with the City to obtain the rights to the lands originally intended to be used for an extension of Cabrera Crescent. As such, this revised application continues to reflect a site plan that assumes the termination of Cabrera Crescent in a cul-de-sac that has been improved to meet the appropriate City road standard.
(ii) 6.1 Existing Traffic Volumes- Provide the Spectrum data TMC tables as apart of the Appendix.	TMC data included as **Appendix E**
(ii) Include a queue table. The table should include the intersection, individual lane movements, 95th Percentile Queues in the A.M. and P.M. peak hours. Include the queue reports (Synchro) for signalized intersections.	**Section 7.3.1.1** and **Section 7.3.2.1** added.
(iii) The TIS shall include a section in the report to address Community Impacts. This section shall include summary statements outlining the resulting traffic increases to the critical streets, movements and intersections. Comments or concerns from the community through future public meetings and engagements that are related to traffic shall also be addressed in this section.	**Section 7.4** added.
(iv) The report is to be stamped by a professional engineer.	This report has now been stamped by a Professional Engineer.

TABLE 2 SITE STATISTICS COMPARISON

Land Use	March 2020	October 2020 (current)	Net Change
Dual Front Townhomes	48 units	45 units	-3 units
Standard Townhomes	60 units	61 units	+1 unit
Freehold Detached Townhomes	1 unit	-	-1 unit
Total	**109 units**	**106 units**	**-3 units**

1.2 STUDY SCOPE

Based on the nature and scale of the proposed development, as well as consultation with City of Mississauga and Region of Peel Transportation Planning staff, the following study scope has been identified and reviewed as part of this report.

- Weekday morning and afternoon peak hour traffic capacity analyses at the following intersections:
    - Britannia Road West / Bidwell Trail / Whitehorn Avenue;
    - Britannia Road West / Brookhaven Way / Douguy Boulevard;
    - Whitehorn Avenue / Galesway Boulevard;
    - Galesway Boulevard / Brookhaven Way / Prestonwood Crescent;
    - Galesway Boulevard / Cabrera Crescent;
    - Galesway Boulevard / Candlebrook Court; and
    - Galesway Boulevard / Proposed Site Driveway.
- Consideration of traffic allowances for any relevant area background development(s) identified using the City of Mississauga's Planning Information Hub tool.
- Consideration of general background corridor traffic growth along Britannia Road West based on historical traffic count information.
- Consideration of new site-generated vehicle trips forecast based on relevant proxy site survey data and the ITE Trip Generation Manual (10th Edition).
- A review of the vehicle and bicycle parking requirements for the development as proposed compared to the prevailing Zoning By-law requirement.
- A functional review of the proposed new internal roads with particular respect to fire route requirements and waste collection vehicle routing and manoeuvres.
- A sightline analysis of the proposed site driveway.

FIGURE 1 - SITE LOCATION

FIGURE 2 - SITE CONTEXT

2.0 THE SITE TODAY

The site is currently occupied by two detached dwellings, with two vehicle access points located on Britannia Road West. Pedestrian sidewalks are currently provided along all boundary roads.

It is noted that there is an existing closed driveway connection to the property on Galesway Boulevard at the southwest corner of the site. Presumably, this driveway connection was constructed in anticipation of the existing Cabrera Crescent being extended from its cul-de-sac terminus to reconnect with Galesway Boulevard. The current development plan for the site does not propose extension of Cabrera Crescent, as discussed in **Section 3.0**.

The City of Mississauga Zoning By-law 0225-2007 designates the site as a Residential Zone (R1), bordered by medium-density residential (various RM code) zones on all sides. Commercial lots exist both northeast and northwest of the site, located along Britannia Road at Creditview Road and at Douguy Boulevard.

There are a number of public parks situated within walking distance of the site, in addition to Whitehorn Public School and BraeBen Golf Course.

3.0 PROPOSED DEVELOPMENT

The proposed development comprises 106 residential units, including 45 dual-frontage townhouse dwellings and 61 standard townhomes (a decrease of 3 units overall compared to the March 2020 development application). Additionally, 6 secondary suites are proposed within 6 of the dual-frontage townhouses fronting onto Britannia Road West. The existing residential uses on the site will be demolished as part of the redevelopment.

A private driveway on Galesway Boulevard, between Cabrera Crescent and Candlebrook Court, is proposed to accommodate fire access and waste collection vehicle access, as well as vehicular access to the visitor parking spaces and resident parking spaces.

Two (2) parking spaces will be provided per unit for the townhouses and 1 additional parking space will be provided for those townhouses with a secondary suite. A total of 27 visitor parking spaces to serve the townhouses, located along the private road, are also proposed.

The proposed site plan is shown in **Figure 3**. An architectural site plan is included in **Appendix A**.

3.1 PROPOSED PRIVATE DRIVEWAY

A private driveway on Galesway Boulevard, between Cabrera Crescent and Candlebrook Court, is proposed to provide vehicular access to the development. The driveway is located approximately 90 meters east of Cabrera Crescent.

The proposed private driveway will intersect with Galesway Boulevard at a one-way, STOP-controlled intersection, with Galesway Boulevard continuing to operate under free-flowing conditions.

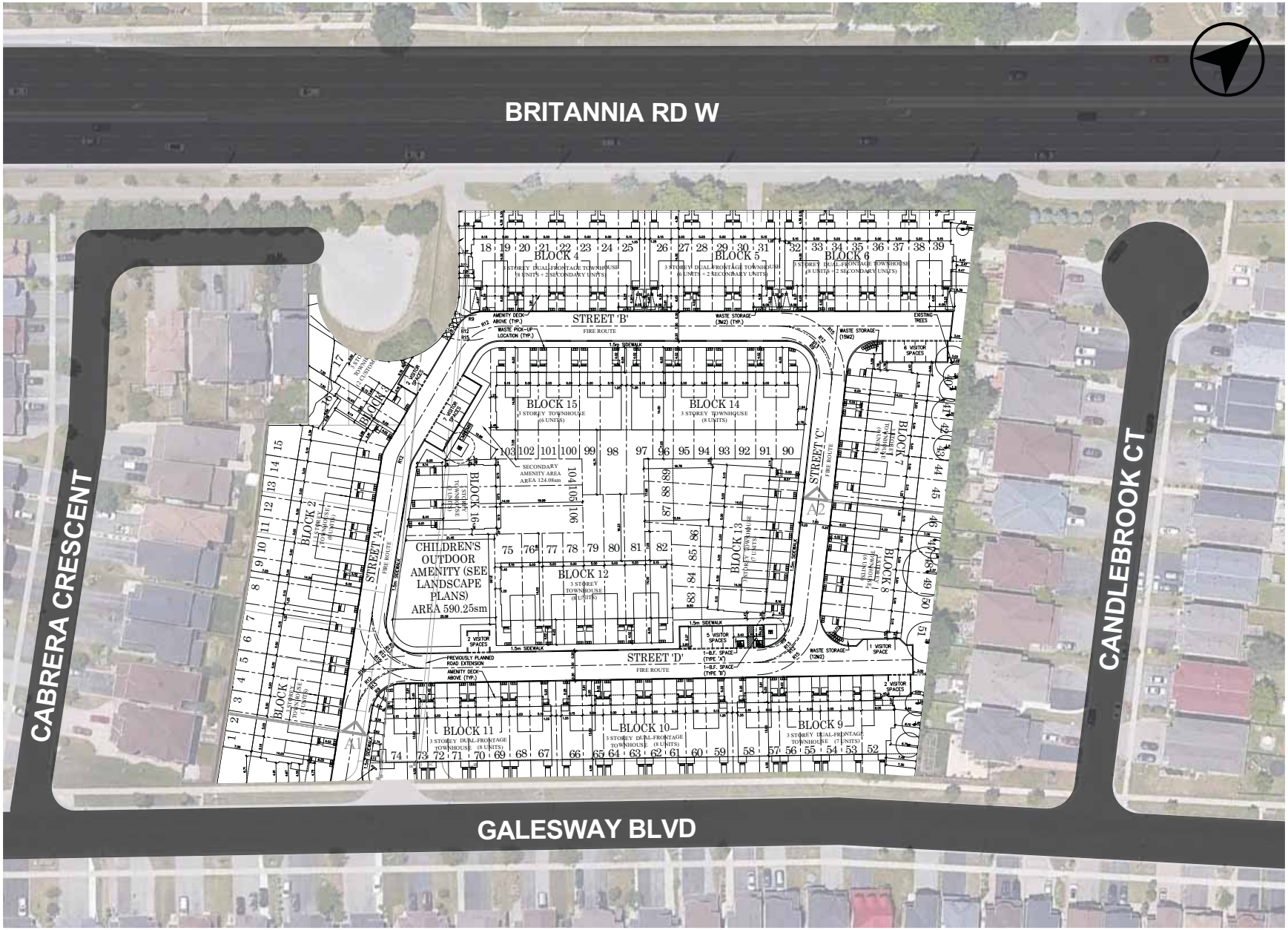

FIGURE 3 - SITE PLAN

The proposed private driveway (internal private road) has been designed to accommodate a 7.0-meter wide pavement width and a 1.5-metre wide pedestrian sidewalk on one side. At-grade visitor parking for the development will be located in various locations along the private road.

All private road intersections and corners have also been designed to accommodate a 9.0-metre inside radius and 15.0-metre outside radius, as per the requirements of an appropriate fire route as specified within the Ontario Building Code.

Sight distance diagrams illustrating appropriate driver sight lines are provided at the Galesway Boulevard driveway are included in **Appendix B**.

3.2 WASTE COLLECTION VEHICLE CIRCULATION PLAN

Vehicle Manoeuvring Diagrams (VMDs) illustrating waste collection vehicle manoeuvres for a Peel Region side-loading vehicle are included in **Appendix C**. Note that in order to avoid requiring the collection vehicle to reverse more than 15 metres, as per the Region of Peel *Waste Collection Design Standards Manual*, common collection points having been utilized for units along the tangent portions of the internal private road. Waste collection points for each unit, 3 m^2 in size (consolidated in the common collection points for the aforementioned units), are highlighted on this plan as well.

The suitability of this waste collection arrangement is currently being discussed with Region Waste Management staff.

3.3 CABRERA CRESCENT CUL-DE-SAC

An existing and closed driveway connection to the property on Galesway Boulevard, at the southwest corner of the site, is located approximately 180 metres east of Whitehorn Avenue. Presumably, this driveway connection was constructed in anticipation of the existing Cabrera Crescent being extended from its cul-de-sac terminus to reconnect with Galesway Boulevard.

The subject development lands include the properties that would have been utilized to complete the Cabrera Crescent connection to Galesway Boulevard. However, this public road connection is not proposed as part of the development plan. Instead, it is proposed that the existing driveway ‘stub’ on Galesway Boulevard be removed and replaced with the private road driveway discussed in **Section 3.1**.

Currently, Cabrera Crescent extends from Galesway Boulevard and terminates in a sub-standard cul-de-sac. Given that the development plan does not include the extension of Cabrera Crescent from this cul-de-sac to reconnect with Galesway Boulevard, it is proposed that the cul-de-sac be reconstructed to the appropriate permanent standard.

As such, the development plan includes the reconstruction of the Cabrera Crescent cul-de-sac to be compliant with City of Mississauga Transportation and Works Standard 2211.240 (Residential Road Cul-de-Sac). This reconstruction notably includes a 13.0-metre pavement radius and inclusion of a 3.5 to 5.0-metre wide boulevard around the perimeter of the cul-de-sac, as per the above noted standard.

Cabrera Crescent currently provides access to 25 existing detached dwelling homes. From a traffic capacity perspective, there is no necessity to extend Cabrera Crescent to provide a second access point to Galesway Boulevard – the single access point is sufficient for the level of residential density the road wills serve.

From a vehicular access perspective, the provision of a cul-de-sac at the terminus of Cabrera Crescent as per the City's standard is sufficient to accommodate the turnaround requirements of municipal service vehicles (i.e., street cleaning, snow removal and waste/recycling vehicles). The existing residential houses on Cabrera Crescent have been built and occupied since at least 2009 (according to Google Street View photography) and the current configuration of the road – even with the sub-standard cul-de-sac terminus that exists today – appears to allow for the appropriate servicing of these houses.

The City of Mississauga does not specify the maximum number of residential units that may be located on a cul-de-sac road. However, the City of Vaughan specifies that a maximum of 40 units may be located on a cul-de-sac in its Standard Design Drawings (Standard Drawing C-2: Residential Cul-de-Sac). Furthermore, there are several existing cul-de-sacs within the local neighbourhood that contain greater than 25 residential units. These include Candlebrook Court, Prosper Court, Remington Court and Barnswallow Court. As such, the provision of 25 residential units on Cabrera Crescent is not unprecedented with respect to municipal engineering standards or existing conditions.

An emergency vehicle access connection between the Cabrera Crescent cul-de-sac and the private road serving the development is also proposed. This access will serve as a secondary access point for emergency vehicles to the development, in addition to the site driveway on Galesway Boulevard. This access point will gated and not available for use by non-emergency vehicles. It is noted that this access point has been designed to accommodate the turning requirements of a fire route (9.0 metres inside radius, 15.0 outside radius). This emergency vehicle access point would also, logically, serve as a secondary access point for emergency vehicles to the existing Cabrera Crescent as well.

The suitability of this access arrangement from an emergency vehicle access perspective was confirmed with City staff in a meeting held on September 14, 2020. A summary of the outcomes of this meeting, sent in an e-mail to all those in attendance, is included in **Appendix F** for reference.

3.4 BRITANNIA ROAD RIGHT-OF-WAY WIDENING

A conveyance of lands along site's Britannia Road West frontage is being granted to the Region of Peel to achieve a 22-metre from centerline right-of-way width for the road. This conveyance has been discussed with Region staff and approved by the Traffic Development section, as per the correspondence included in **Appendix F**.

As part of the site development plan, the existing multi-use path along the site's Britannia Road West frontage will be realigned to more closely match the alignment of the path east and west of the site. A 1.0m-wide asphalt splash pad between the path and the edge of the roadway is also being provided, as requested by Region staff. Illustrative cross-sections of the site's Britannia Road West frontage are included in the correspondence attached in **Appendix F**.

4.0 TRANSPORTATION CONTEXT

4.1 AREA ROAD NETWORK

The existing road network within the study is shown in **Figure 4**. A brief description of the area road network is provided as follows.

Britannia Road West is classified as a Regional Arterial road, oriented east-west and extending between Highway 407 in the west and Hurontario Street in the east. The road extends further than these boundaries in both directions, under the names Britannia Road and Britannia Road East. This road is under the jurisdiction of the Region of Peel and consists of a three lanes of travel in either direction nearby the site. The posted speed limit is 60 km/h in vicinity of the site.

Whitehorn Avenue is classified as a Minor Collector road, oriented north-south and extending between Britannia Road West in the north and Bristol Road West in the south. This road is under the jurisdiction of the City of Mississauga and consists of a single lane of travel in either direction. The assumed speed limit is 50 km/h in vicinity of the site.

Galesway Boulevard is classified as a local street, oriented east-west and extending between Whitehorn Avenue in the west and Terry Fox Way in the east. This road is under the jurisdiction of the City of Mississauga and consists of a single lane of travel in either direction. The assumed speed limit is 50 km/h in vicinity of the site.

Brookhaven Way is classified as a local street, oriented north-south and extending between Whitehorn Avenue in the west and Terry Fox Way in the east. This road is under the jurisdiction of the City of Mississauga and consists of a single lane of travel in either direction. The assumed speed limit is 50 km/h in vicinity of the site.

Cabrera Crescent is classified as a local street, oriented north-south and extending from Galesway Boulevard in the south and terminating in a cul-de-sac to the north. This road is under the jurisdiction of the City of Mississauga and consists of a single lane of travel in either direction.

Candlebrook Court is classified as a local street, oriented north-south and extending from Galesway Boulevard in the south and terminating in a cul-de-sac to the north. This road is under the jurisdiction of the City of Mississauga and consists of a single lane of travel in either direction.

Existing area intersection lane configurations and traffic control is illustrated in **Figure 5**.

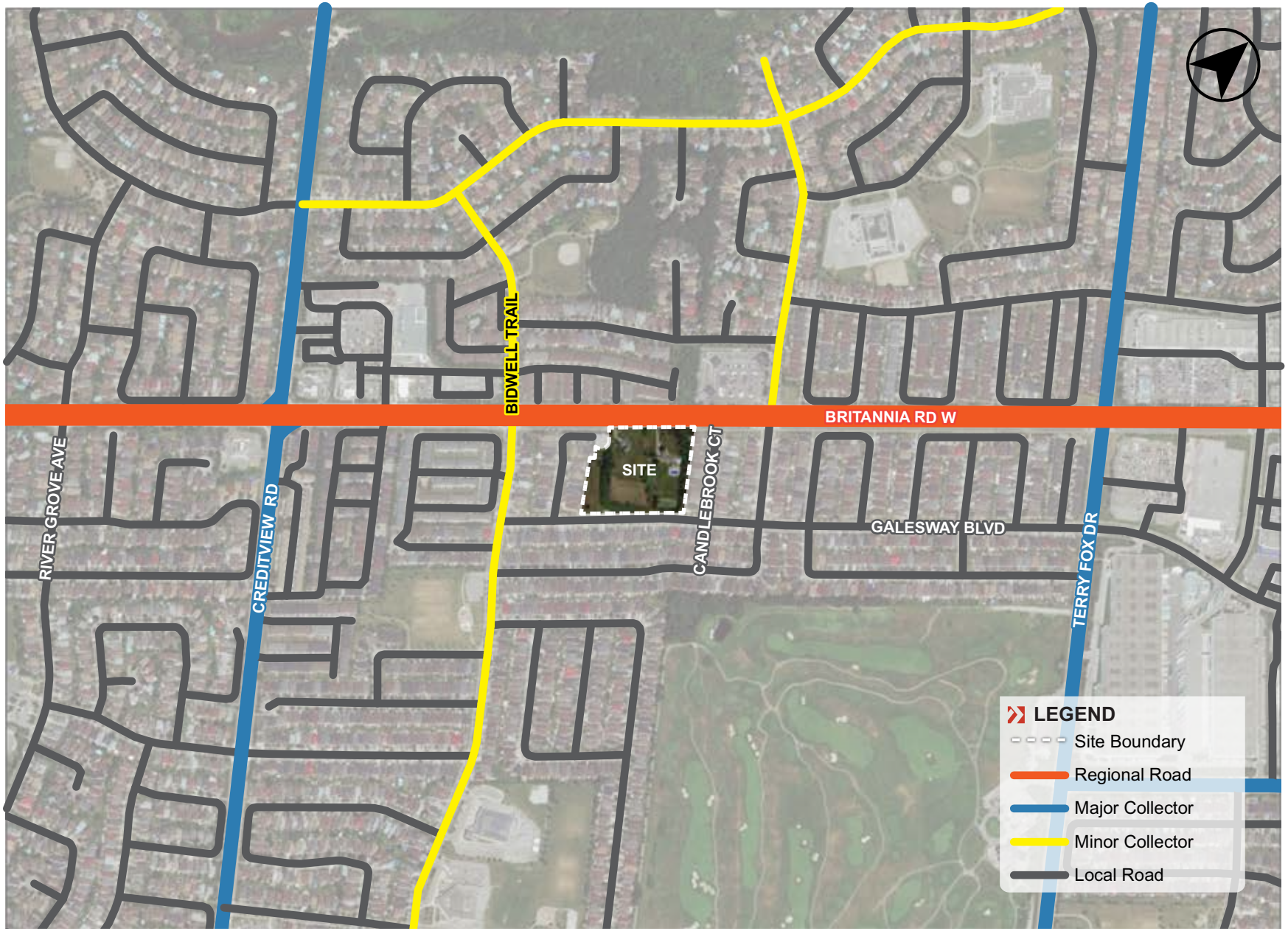

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FIGURE 4 - AREA ROAD CLASSIFICATION

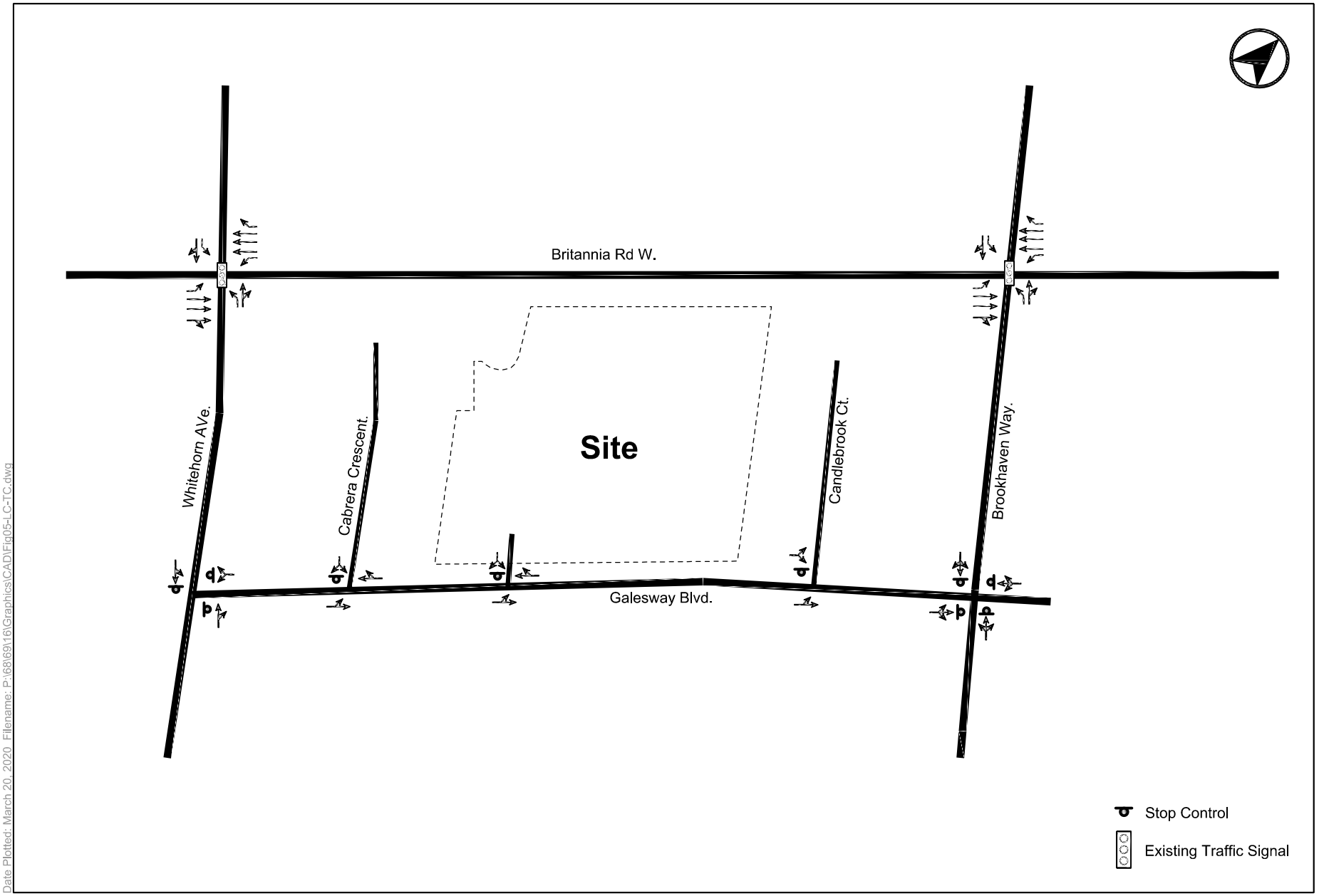

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FIGURE 05 LOCAL AREA INTERSECTIONS LANE CONFIGURATION AND TRAFFIC CONTROL

4.2 AREA TRANSIT SERVICES

The site is served by Mississauga MiWay transit services running along Britannia Road West. In particular, it is serviced by the bus routes 37, 39, 43, 68 and 314. A brief description of these routes is provided below.

37 Creditview-Erindale GO is a regular service bus route. Its predominant travel path is in a north-south direction along Creditview Road, looping from the Erindale GO Station to Britannia Road West and back. This service has 20-30 minute headways between consecutive vehicles and services the proposed development site in both directions.

39 Britannia is a regular service bus route. Its predominant travel path is in an east-west direction along Britannia Road West, extending from the Renforth Transitway Station in the east, and Meadowvale Town Centre Transit Terminal in the west. This service has 20-30 minute headways between consecutive vehicles and services the proposed development site in both directions.

43 Matheson-Argentia is a regular service bus route. Its predominant travel path is in an east-west direction along Britannia Road West, extending from the Renforth Transitway Station in the east, and Meadowvale Town Centre Transit Terminal in the west, via an alternative route to the 39 Britannia service. This service has 20-30 minute headways between consecutive vehicles and services the proposed development site in both directions.

314 Rick Hansen-Creditview is a school bus route, operating before and after school times from Rick Hansen Secondary School, north to Britannia Road West and then south down Creditview Road.

Bus stops for the abovementioned routes are located east and west of the site at the intersections of Britannia Road West / Whitehorn Avenue and Britannia Road West / Brookhaven Way, approximately 200 metres away. The existing area transit context is illustrated in **Figure 6**.

4.3 AREA CYCLING FACILITIES AND INFRASTRUCTURE

The site is located in an area with excellent access to a variety of cycling facilities. The site is located directly adjacent to a multi-use trail along Britannia Road West, in addition to a signed bike route along Galesway Boulevard. Whitehorn Avenue is also a signed bike route.

Further to the east, another multi-use trail exists on Terry Fox Way, and further west on Creditview Road is another multi-use trail. In conjunction with one another, these bicycle routes and facilities enable cyclists to easily travel between the site and popular destinations such as Downtown Mississauga and a variety of other popular trip destinations around Mississauga and Peel Region.

The local area cycling context is shown in **Figure 7**.

FIGURE 6 - AREA TRANSIT CONTEXT

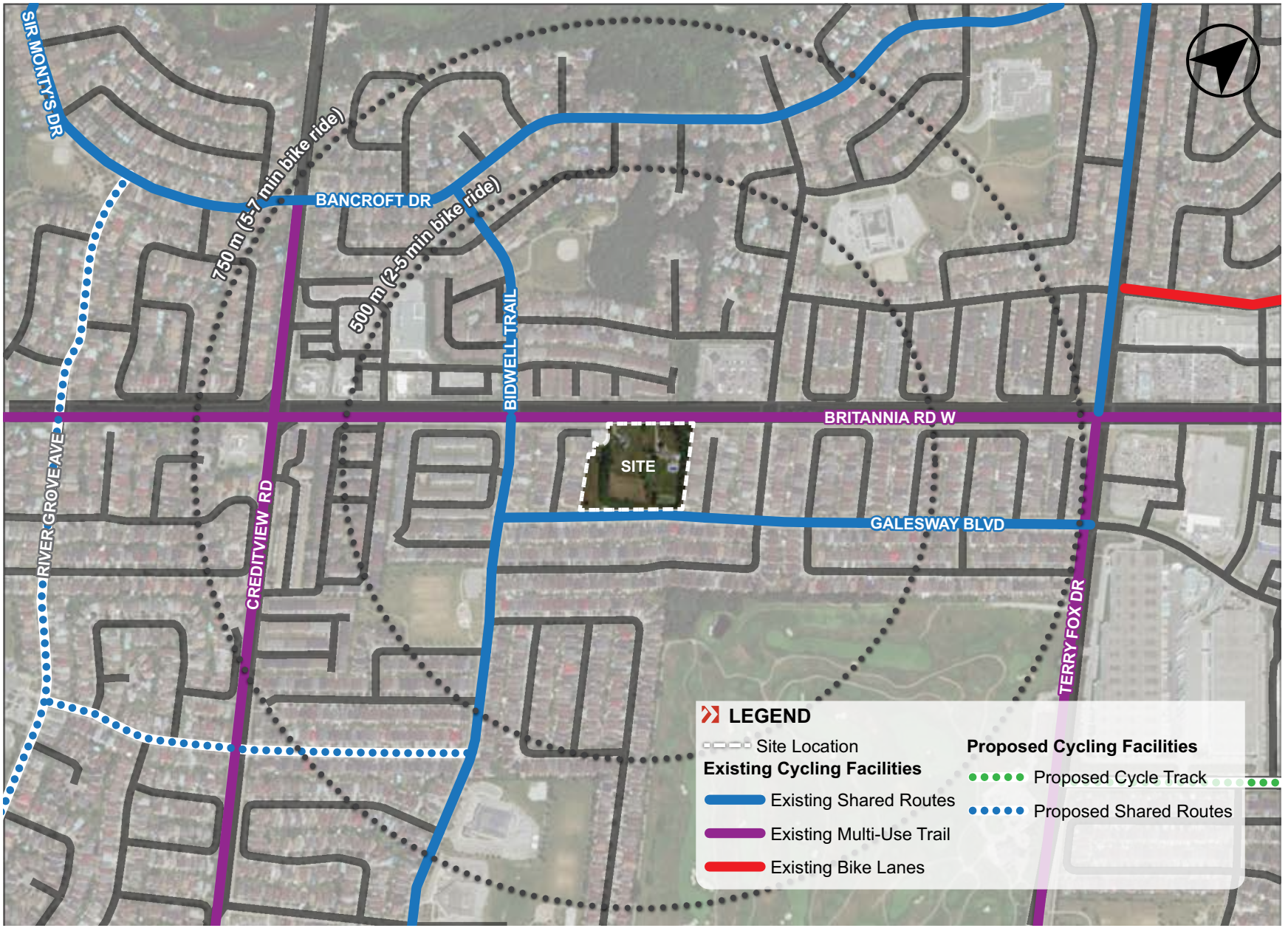

FIGURE 7 - AREA CYCLING CONTEXT

5.0 VEHICLE PARKING CONSIDERATIONS

5.1 ZONING BY-LAW REQUIREMENTS

BA Group has undertaken a review of the prevailing Zoning By-law vehicle parking requirements as applicable to the site's location and proposed development programme. The site is subject to City of Mississauga By-Law 0225-2007.

Table 3 lists the minimum off-street vehicle parking requirements applicable to the site as set out in By-law 0225-2007.

TABLE 3 ZONING BY-LAW 0225-2007 MINIMUM VEHICLE PARKING REQUIREMENTS

Land Use	No. of Units[1]	Type of Space	Parking Requirement	No. of Spaces Required
Residential (Semi-detached Dwelling off of CEC - Road[2])	106	Resident	2.0 spaces per unit	212 spaces
		Visitor	0.25 spaces per unit	27 spaces
Residential (Second Unit)	6	Resident/Visitor	1.0 space per unit	6 spaces
Total parking spaces required				**245 spaces**

Notes:
1. Site statistics are based on plans provided by National Homes dated October 13, 2020.
2. 'CEC – Road' = Common Elements Condominium Road.

Based on the foregoing, the in-effect Mississauga By-law 0225-2007 requires the provision of 245 parking spaces in total for the proposed development.

5.2 PROPOSED PARKING SUPPLY

Parking for all townhouses units will be provided at a rate of 2 spaces per unit. For the 6 townhouse units with secondary suites, an additional parking space will be provided.

Furthermore, 27 visitor parking spaces will be provided along the private road to accommodate additional parking for visitors to the townhouse units.

The proposed parking spaces serving the development are illustrated on the architectural site plans included in **Appendix A**.

Based on the foregoing, the proposed parking supply meets the requirements of the prevailing and applicable City of Mississauga Zoning By-law 0225-2007 and is therefore considered to be appropriate.

6.0 TRAFFIC VOLUME FORECASTS

6.1 EXISTING TRAFFIC VOLUMES

Existing public street intersection peak hour traffic volumes have been established, based upon a review of recent traffic counts undertaken by Spectrum Traffic Data Inc. in March 2020. Turning movement counts were undertaken at the following locations:

- Britannia Rd West / Bidwell Trail / Whitehorn Avenue;
- Britannia Rd West / Brookhaven Way / Douguy Boulevard;
- Whitehorn Avenue / Galesway Boulevard;
- Galesway Boulevard / Brookhaven Way / Prestonwood Crescent;
- Galesway Boulevard / Cabrera Crescent;
- Galesway Boulevard / Candlebrook Court; and
- Galesway Boulevard / Proposed Site Driveway.

The existing turning movement counts were reviewed in detail to ensure a general consistency in the traffic volumes on links between intersections. Where necessary, minor volume adjustments were made to balance traffic volumes between intersections to provide a balanced and representative traffic volume base for the purposes of the traffic operations analyses undertaken as part of this assessment.

Existing, baseline area traffic volumes for the morning and afternoon peak hours are summarized in **Figure 8**.

6.2 FUTURE BACKGROUND TRAFFIC VOLUMES

An annual corridor traffic growth rate of 0.5% (cumulating) was adopted for morning and afternoon peak hours, for east and west volumes on Britannia Road West. Based on historical data acquired from Peel Region, a negative growth rate was observed since the year 2013, however the 0.5% cumulating growth has been added as a conservative approach to analysis. The growth rate were applied over a five year study horizon for the 2025 horizon year.

Traffic allowances were also made for other specific proposed development in the area, based on a review of the City of Mississauga's 'Planning Information Hub' tool in March 2020. The sole active development application at this time is a Rezoning application for a commercial site located at 5855 Terry Fox Boulevard, which plans to redevelop the block to include a total retail floor area of 26,819 m^2. Associated site traffic has been added to the Britannia Road West and Galesway Boulevard, as reported in the site's Traffic Impact Study by Read, Voorhees & Associates Limited (March 2018, updated August 2019).

Figure 9 summarizes the 2025 future background traffic volumes for the weekday morning and afternoon peak hours, which were developed by adding the abovementioned allowances for corridor traffic growth and background development to base existing traffic volumes.

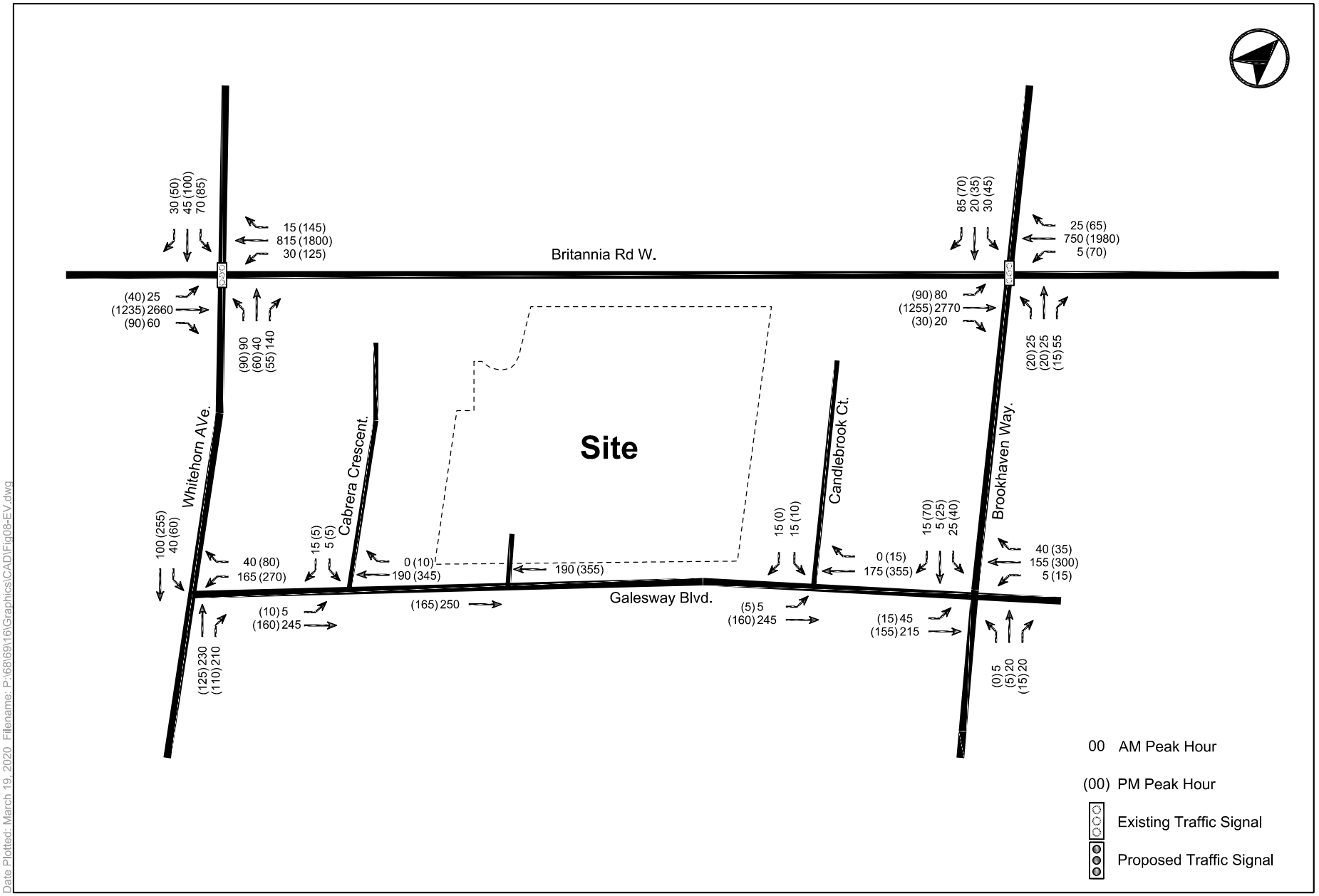

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FIGURE 8 EXISTING TRAFFIC VOLUMES

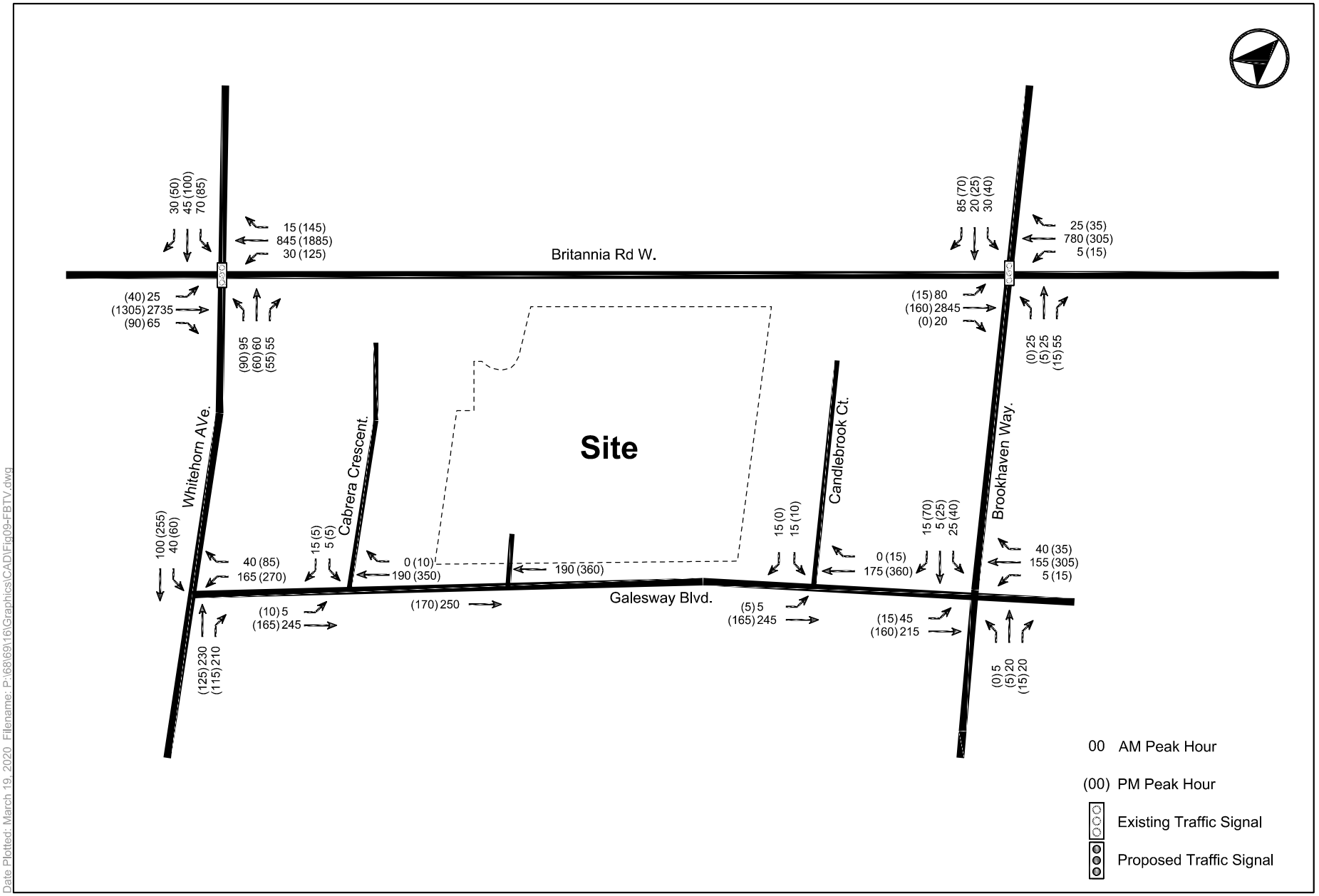

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FIGURE 9 FUTURE BACKGROUND 2025 TRAFFIC VOLUMES

6.3 SITE TRAFFIC VOLUMES

6.3.1 Site Trip Generation

Vehicular trip generation rates assumed for the proposed residential townhomes were based on a review of data contained within the *ITE Trip Generation Manual (10th Edition)* for Land Use Code 220 (Residential Multi-Family Housing, Low-Rise), in conjunction with observed trip generation at two proxy sites with similar transportation contexts to the subject site.

The highest rates from the three trip generation rate sources shown (from Queen Street West / Link Lane, Brampton) were adopted as trip generation rates for the proposed development at 1240 Britannia Road West. These rates represent what would likely be a conservative estimate, with actual rates more likely to fall more closely towards ITE or average surveyed rates.

Site trip generation forecasts are summarized in **Table 4**.

TABLE 4 SITE TRIP GENERATION

Trip Generation Rate Source	Units	AM Peak Hour			PM Peak Hour		
		In	Out	2-Way	In	Out	2-Way
ITE Land Use Code 220 (Multi-Family Housing, Low-Rise)	-	0.11	0.35	0.46	0.35	0.21	0.56
Wellington Green Townhouses (Proxy Site)[3]	72	0.06	0.25	0.31	0.21	0.08	0.29
Queen Street West / Links Lane, Brampton (Proxy Site)[4]	87	0.13	0.49	0.62	0.54	0.31	0.85
Average Trip Rate	**-**	**0.10**	**0.36**	**0.46**	**0.37**	**0.20**	**0.57**
Adopted Trip Generation Rates for 1240 Britannia Road West	**-**	***0.13***	***0.49***	***0.62***	***0.54***	***0.31***	***0.85***
Number of Trips Generated for 1240 Britannia Road West[2]	**106**	**15**	**55**	**70**	**60**	**35**	**95**

Notes:
1. Trip generation rates are shown in *italic text*.
2. Trips generated for proposed development are rounded to the nearest five (5).
3. *Wellington Green* proxy site surveyed on Monday August 13, 2018.
4. *Queen Street West* proxy site surveyed on Tuesday May 16, 2017.
5. Trip generation is conservative for October submission due to a reduction of 3 units. Trips generated has not been updated.

The site is anticipated to generate approximately 70 and 95 two-way vehicle trips during the weekday morning and afternoon peak hours, respectively.

6.3.2 Site Traffic Distribution/Assignment

The trip distribution pattern for site traffic was established based upon a review of 2016 Transportation Tomorrow Survey (TTS) data for home-based vehicle trips to and from the study area during the weekday peak hour periods. The distribution of inbound and outbound traffic adopted for the proposed development is outlined in **Table 5**. Site traffic volumes assigned onto the area road network are illustrated in **Figure 10**.

TABLE 5 SITE TRAFFIC DISTRIBUTION

To/From	Inbound	Outbound
North to/from Bidwell Trail	5%	5%
South to/from Whitehorn Avenue	15%	15%
East to/from Britannia Road West	40%	40%
East to/from Galesway Boulevard	25%	20%
West to/from Britannia Road West	15%	20%
Total	**100%**	**100%**

Notes:
1. Based on a review of 2016 TTS data for home-based trips to and from 2006 TTS Zones 3604, 3607, 3691 and 3694 during weekday morning and afternoon peak periods.

6.4 FUTURE TOTAL TRAFFIC VOLUMES

Future total 2025 traffic volumes were developed by adding site-generated traffic to future background 2025 traffic volumes. **Figure 11** illustrates future total traffic volumes for the weekday morning and afternoon peak hours for horizon year of 2025.

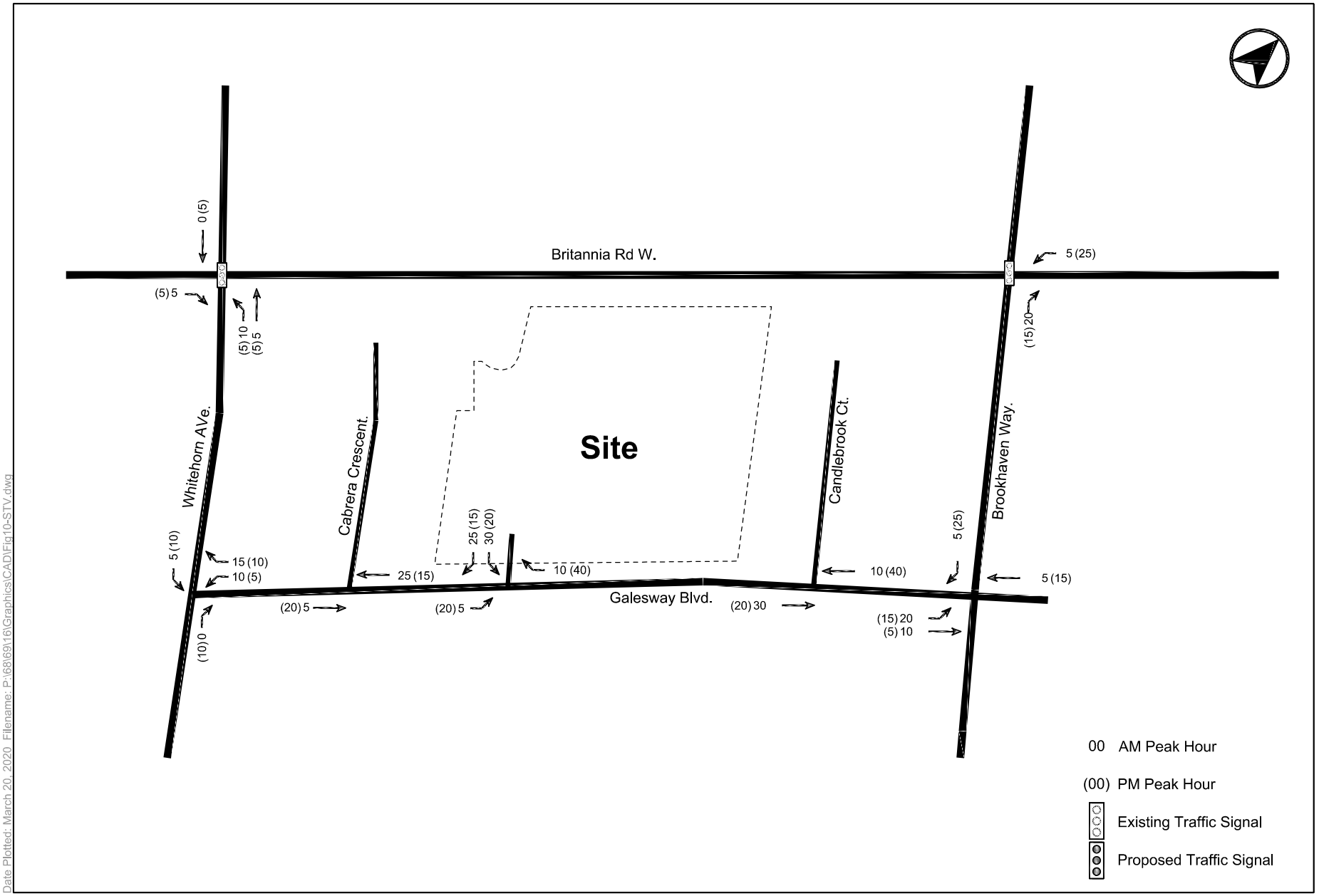

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FIGURE 10 SITE TRAFFIC VOLUMES

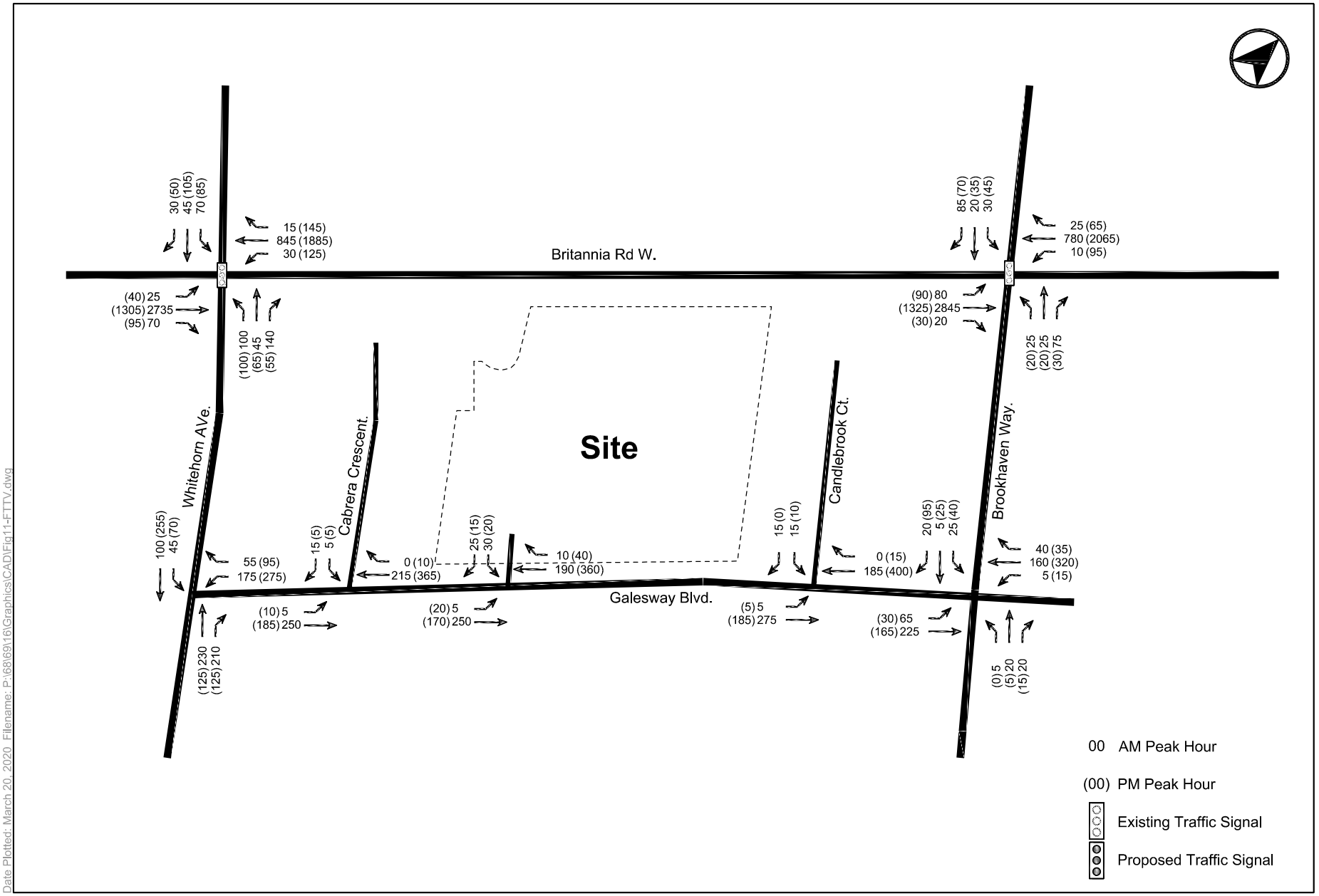

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FIGURE 11 FUTURE TOTAL 2025 TRAFFIC VOLUMES

7.0 OPERATIONS ANALYSIS

7.1 ANALYSIS SCENARIOS

Traffic operations analyses were undertaken at the study area intersections for the weekday morning and afternoon peak travel hours under the following traffic conditions:

- Existing traffic conditions;
- Future background traffic conditions, which include allowances for general corridor traffic growth and active area background development applications; and
- Future total traffic conditions, which take into consideration future background traffic volumes plus site-generated traffic volumes.

7.2 ANALYSIS METHODOLOGY

Traffic operations analyses have been completed using the Synchro (Version 9) capacity analysis software in accordance with the methodologies outlined in the *Highway Capacity Manual* (HCM) and City of Mississauga's *Transportation Impact Study Guidelines*. Default Synchro parameters as outlined by the City of Peel were used for the analysis of signalized intersections.

The key performance indicator of the signalized intersection evaluation is an intersection performance index (volume to capacity ratio, or v/c), where a v/c index of 1.00 indicates 'at or near capacity' conditions.

The key performance indicator of the unsignalized intersection / driveway analyses is an average delay per vehicle (in seconds) and a level of service (LOS) designation, where the LOS A (little delay) to LOS F (extended delay) range provides an understanding of the relative time a motorist may have to wait to complete a turn at an intersection or driveway.

Signal Timings

Existing traffic signal timing plans for all signalized intersections within the study area were obtained Regional Municipality of Peel. Analyses were undertaken using this signal timing plan for existing, future background and future total traffic conditions.

Road Network Assumptions

Existing lane configurations in the area road network have been assumed in the analysis for the existing and future background traffic scenarios.

Under future total conditions, it was assumed that the new private driveway will intersect Galesway Boulevard at a STOP-controlled intersection. The site driveway is assumed to be two-way with a single-lane outbound approach.

The existing road network intersection lane configurations are shown in **Figure 4**. Synchro analysis worksheets are included in **Appendix D**.

7.3 ANALYSIS SUMMARY

7.3.1 Signalized Intersection Analysis

Britannia Road West / Whitehorn Avenue / Bidwell Trail

The Britannia Road West / Whitehorn Avenue / Bidwell Trail intersection operates under traffic signal control with cycle length of 160 seconds in the weekday morning and afternoon peak periods. The existing cycle length was maintained in all analysis scenarios. A summary of traffic analysis results for this intersection is shown in **Table 6**.

TABLE 6 BRITANNIA ROAD W / WHITEHORN AVENUE / BIDWELL TRAIL ANALYSIS SUMMARY

Traffic Movement	Existing		Future Background		Future Total	
	V/C	LOS	V/C	LOS	V/C	LOS
EBL	0.06 (0.42)	A (B)	0.06 (0.45)	A (B)	0.06 (0.45)	A (B)
EBTR	0.79 (0.42)	B (A)	0.80 (0.42)	B (A)	0.81 (0.42)	B (A)
WBL	0.30 (0.67)	B (B)	0.31 (0.69)	B (B)	0.32 (0.70)	B (C)
WBT	0.23 (0.56)	A (A)	0.24 (0.56)	A (A)	0.24 (0.56)	A (A)
WBR	0.01 (0.10)	A (A)	0.01 (0.11)	A (A)	0.01 (0.11)	A (A)
NBL	0.56 (0.43)	D (C)	0.58 (0.48)	D (D)	0.61 (0.52)	D (D)
NBTR	0.49 (0.31)	D (C)	0.51 (0.32)	D (D)	0.50 (0.34)	D (D)
SBL	0.62 (0.39)	E (C)	0.66 (0.40)	E (D)	0.63 (0.41)	E (D)
SBTR	0.26 (0.44)	D (C)	0.26 (0.46)	D (D)	0.25 (0.48)	D (D)
Overall	**0.75 (0.62)**	**B (B)**	**0.77 (0.65)**	**B (B)**	**0.77 (0.66)**	**B (B)**

Notes:
1. xx(xx) = weekday AM peak hour (weekday PM peak hour)

Under existing, future background and future total conditions, the intersection operates at an acceptable level of service during the weekday and morning and afternoon peak traffic hours with overall v/c ratios of 0.77 or less at all times.

Based on the foregoing, the traffic generated by the proposed development can be acceptably accommodated at the Britannia Road West / Whitehorn Avenue intersection. No mitigation measures or improvements are recommended at this intersection.

Britannia Road West / Brookhaven Way / Douguy Boulevard

The Britannia Road West / Brookhaven Way / Douguy Boulevard intersection operates under traffic signal control with cycle length of 160 seconds in the weekday morning and afternoon peak periods. The existing cycle length was maintained in all analysis scenarios. A summary of traffic analysis results for this intersection is shown in **Table 7**.

TABLE 7 BRITANNIA ROAD WEST / BROOKHAVEN WAY ANALYSIS SUMMARY

Traffic Movement	Existing		Future Background		Future Total	
	V/C	LOS	V/C	LOS	V/C	LOS
EBL	0.19 (0.79)	A (D)	0.19 (0.89)	A (E)	0.19 (0.89)	A (E)
EBTR	0.76 (0.32)	A (A)	0.77 (0.34)	A (A)	0.78 (0.34)	A (A)
WBL	0.07 (0.26)	A (A)	0.07 (0.28)	A (A)	0.16 (0.38)	A (A)
WBT	0.21 (0.49)	A (A)	0.22 (0.51)	A (A)	0.22 (0.51)	A (A)
WBR	0.02 (0.05)	A (A)	0.02 (0.05)	A (A)	0.02 (0.05)	A (A)
NBL	0.22 (0.17)	D (D)	0.23 (0.17)	D (D)	0.20 (0.17)	D (D)
NBTR	0.43 (0.13)	D (D)	0.45 (0.13)	D (D)	0.51 (0.14)	D (D)
SBL	0.23 (0.35)	D (E)	0.24 (0.35)	D (E)	0.22 (0.35)	D (E)
SBT	0.17 (0.58)	D (E)	0.18 (0.59)	D (E)	0.16 (0.59)	D (E)
Overall	**0.71 (0.77)**	**A (A)**	**0.73 (0.85)**	**A (A)**	**0.74 (0.85)**	**B (A)**

Notes:
1. xx(xx) = weekday AM peak hour (weekday PM peak hour)

Under existing, future background and future total conditions, the intersection operates at an acceptable level of service during the weekday and morning and afternoon peak traffic hours with overall v/c ratios of 0.85 or less.

Based on the foregoing, the traffic generated by the proposed development can be acceptably accommodated at the Britannia Road West / Brookhaven Way / Douguy Boulevard intersection. Similar to at Whitehorn Avenue, no mitigation measures or improvements are recommended at this intersection.

7.3.1.1 Signalized Intersection Queueing

Britannia Road West is notably busy in both existing and future conditions, with long queues reported eastbound in the morning peak hour and westbound in the afternoon peak hour. However, no additional queueing concerns are noted at signalized intersections as a result of the addition of development site traffic.

In the future total scenario, 95th percentile queue lengths are generally very close to those reported under future background conditions. As a result, future queueing impacts can be readily accommodated within the existing storage provisions at each signalized intersection.

Table 8 is a summary of the 95th percentile queue lengths reported for each movement at the signalized intersection within the study area.

TABLE 8 95TH PERCENTILE QUEUEING SUMMARY (SIGNALIZED INTERSECTIONS)

Intersection	Movement / Lane	95th Percentile Queue Length (m)		
		Existing	Future Background	Future Total
Britannia Road West / Whitehorn Avenue / Bidwell Trail	EBL	6.2 (14.8)	6.2 (17.3)	6.5 (18)
	EBTR	224.7 (59.4)	238.1 (65.6)	248.7 (68.4)
	WBL	4.3 (45.3)	4.3 (56.3)	4.6 (66.0)
	WBT	30.6 (91.5)	31.8 (101.2)	33.4 (105.0)
	WBR	0.9 (6.3)	0.9 (7.1)	1.0 (7.4)
	NBL	44.6 (45.8)	44.6 (47.9)	48.6 (49.9)
	NBTR	52.5 (45.3)	52.5 (45.3)	54.5 (47.5)
	SBL	37.8 (42.5)	38.0 (42.5)	37.8 (42.6)
	SBT	30.8 (63.5)	30.8 (63.5)	30.8 (65.8)
Britannia Road West / Brookhaven Way / Douguy Boulevard	EBL	10.4 (26.3)	10.6 (34.0)	11.5 (34.0)
	EBTR	146.1 (42.9)	156.1 (46.3)	171.0 (46.3)
	WBL	1.5 (11.8)	1.5 (12.4)	3.3 (19.0)
	WBT	22.3 (78.2)	23.4 (84.5)	25.6 (84.5)
	WBR	1.8 (4.1)	1.8 (4.3)	1.9 (4.3)
	NBL	16.5 (13.9)	16.5 (13.9)	16.2 (13.9)
	NBTR	39.0 (16.1)	39.2 (16.1)	47.1 (18.2)
	SBL	19.1 (24.8)	18.8 (24.8)	18.8 (24.9)
	SBT	23.9 (44.5)	23.9 (45.0)	23.6 (45.0)

Notes:
1. xx(xx) = weekday AM peak hour (weekday PM peak hour)

7.3.2 Unsignalized Intersection Analysis

Traffic operations at all unsignalized intersections within the study area are acceptable under all scenarios without any need for road improvements or mitigation measures. All movements will function at **LOS C or better** in the future total scenario.

The results of the capacity analysis undertaken at the unsignalized intersections within the study area are summarized in **Table 9**.

Vehicular access to the site will be provided via a single driveway located on Galesway Boulevard. The driveway is expected to operate at a good level of service (LOS B) under the future total scenario.

TABLE 9 UNSIGNALIZED INTERSECTION ANALYSIS SUMMARY

Traffic Movement	Existing		Future Background		Future Total	
	Delay	LOS	Delay	LOS	Delay	LOS
Whitehorn Avenue & Galesway Boulevard						
WBLR	11.1 (15.3)	B (C)	11.1 (15.6)	B (C)	11.4 (16.7)	B (C)
NBTR	13.5 (11.2)	B (B)	13.5 (11.4)	B (B)	13.9 (11.8)	B (B)
SBLT	9.6 (13.8)	A (B)	9.6 (14.0)	A (B)	9.8 (14.7)	A (B)
Galesway Boulevard & Cabrera Crescent						
EBLT	0.2 (0.6)	A (A)	0.2 (0.6)	A (A)	0.2 (0.5)	A (A)
SBLR	10.1 (11.6)	B (B)	10.1 (11.6)	B (B)	10.2 (11.9)	B (B)
Galesway Boulevard & Site Access						
EBLT	-- (--)	-- (--)	-- (--)	-- (--)	0.2 (1.0)	A (A)
SBLR	-- (--)	-- (--)	-- (--)	-- (--)	11.3 (12.7)	B (B)
Galesway Boulevard & Candlebrook Court						
EBLT	0.2 (0.3)	A (A)	0.2 (0.3)	A (A)	0.2 (0.2)	A (A)
SBLR	10.5 (12.8)	B (B)	10.5 (12.9)	B (B)	10.8 (13.6)	B (B)
Prestonwood Crescent/Brookhaven Way & Galesway Boulevard						
EBLTR	9.5 (9.4)	A (A)	9.5 (9.5)	A (A)	9.9 (10.0)	A (B)
WBLTR	8.8 (11.7)	A (B)	8.8 (11.8)	A (B)	9.0 (12.7)	A (B)
NBLTR	8.1 (8.2)	A (A)	8.1 (8.2)	A (A)	8.2 (8.4)	A (A)
SBLTR	8.4 (9.3)	A (A)	8.4 (9.3)	A (A)	8.5 (9.8)	A (A)

Notes:
1. 0.0 (0.0) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour)

7.3.2.1 Unsignalized Intersection Queueing

Queueing at all unsignalized intersections within the study area can be comfortably contained by the existing road network configuration, under all analysis scenarios.

The maximum 95th percentile queue at an unsignalized intersection under future total conditions, is calculated as four (4) vehicles queueing westbound at Whitehorn Avenue / Galesway Boulevard (PM peak hour). This queue is reported in 'vehicles', rather than 'metres', as HCM 2000 does not provide All Way Stop Control analysis results. Therefore, the HCM 2010 analysis methodology was utilized in this case, which reports 95th percentile queue length in the number of vehicles.

A queue of four (4) vehicles is equivalent to approximately 26 metres queue length, assuming one vehicle requires 6.5 metres of storage space when queueing.

7.4 COMMUNITY IMPACTS

As the subject site utilizes Galesway Boulevard to facilitate vehicular access, traffic generated by the new development will be primarily along this street. Under existing and future background scenarios, two-way traffic volumes are approximately 500 to 600 vehicles per hour in the weekday morning and weekday afternoon peak hours. Typically, Annual Average Daily Traffic (AADT) can be estimated using peak hour traffic volumes by multiplying the highest peak hour volume by a factor of 10. Accordingly, Galesway Boulevard currently facilitates approximately 5,000 to 6,000 two-way vehicles per 24 hour period, on average.

Under future total conditions, the development site is expected to generate approximately 40 new two-way vehicles to the east and 30 new two-way vehicles to the west in the weekday morning peak hour. In the afternoon peak hour, the site will generate approximately 60 new two-way vehicles to the east and 35 new two-way vehicles to the west. During peak times along Galesway Boulevard, the addition of site traffic would result in a maximum of one new vehicle per 60 seconds (on average) along any given section of Galesway Boulevard.

In a 24 hour period, the approximate AADT volumes for this section of Galesway Boulevard would likely increase to 5,500 to 6,500 vehicles per day. This change in traffic volume is not expected to influence the character of the street or result in any major impact to the existing community in terms of traffic noise or road safety. Outside of Galesway Boulevard, site traffic is generally evenly distributed and no single road segment will experience any notable traffic impact as a result.

8.0 TRANSPORTATION DEMAND MANAGEMENT PLAN

Consistent with the objectives of the Region of Peel Official Plan, a Transportation Demand Management (TDM) plan for the proposed residential development is provided herein. The following outlines the proposed physical and operational strategies that complement the site design with the goal of encouraging a shift in the travel pattern of future residents to sustainable modes of transportation.

8.1 TDM PLAN OBJECTIVES

The Plan strives to reduce automobile use as a part of the design and construction of the development, as well as after construction as an on-going strategy by supporting and promoting the use of non-auto travel modes.

The key objective of the TDM Plan is to reduce peak hour single occupant automobile traffic by focusing on four specific policy areas:

1. Encourage the use of sustainable travel modes (transit, cycling, walking);
2. Increase vehicle occupancy;
3. Shift travel to off-peak periods; and
4. Reduce vehicle kilometres travelled.

8.2 SITE TRANSPORTATION CHARACTERISTICS

8.2.1 Existing Travel Mode Characteristics

The existing travel mode split for home-based trips in the area based on 2016 Transportation Tomorrow Survey (TTS) data is summarized in **Table 10**.

TABLE 10 EXISTING AREA TRAVEL MODE SPLIT

Travel Mode	% of Trips
Transit	21%
Auto Driver	55%
Auto Passenger	18%
Cycle	1%
Walk	5%

Notes:
1. Based on 2016 TTS data for home-based trips originating in 2006 TTS Zones 3604, 3607, 3691 and 3694 between hours of 6:00 and 9:00 a.m. on a weekday.

Based on the most recent 2016 TTS data, in the order of 55% of residents living in the area regularly drive during the peak travel periods, which is typical for a suburban area of Peel Region.

8.3 TDM PLAN STRATEGIES

The future site context provides for good public transit service, cyclist facilities and pedestrian connectivity. Additional TDM strategies have been developed to further support the use of non-auto modes of travel. Based upon the site context and proposed land uses, the recommended TDM strategies have been selected.

8.3.1 Pedestrian Connections

The site design, including walkway connections through the site, provides for good pedestrian linkages to Britannia Road West and Galesway Boulevard, which is well-connected to the area pedestrian sidewalk network. Combined with the close proximity of neighbourhood amenities such as schools, parks and retail shops, this will encourage residents of the proposed development to rely less on automobiles. Neighbourhood amenities within walking distance, which include grocery stores, pharmacies, banks and restaurants, are illustrated in **Figure 2**.

These good pedestrian connections will also support usage of transit by residents of the proposed development by providing easy access on foot to local area transit stops.

8.3.2 Visitor Bicycle Parking

The in-effect Mississauga Zoning By-law 0225-2007 does not specify any bicycle parking requirements for new residential developments. Notwithstanding, the provision of garages for each of the units allows for bicycles to be stored when not in use for residents and visitors. Additionally, the provision of bicycle parking rings within the proposed central private park is being considered as part of the final design for that communal space.

The ability for future residents and visitors to the development to park and store bicycles, combined with the site's excellent location relative to existing cycling facilities/routes (see **Section 4.3)** and proximity to neighbourhood amenities within cycling distance, will encourage the use of cycling as a viable alternative to automobile use on a regular basis.

8.3.3 Travel Mode Information Packages

Marketing programs aimed at new residential unit purchasers should be implemented to ensure that new residents have comprehensive information on modal choices in the area now and in the future. This information should be made available at the sales centres for the new homes.

8.4 IMPLEMENTATION

The physical infrastructure components or 'hard' TDM measures outlined in this plan (i.e., pedestrian connections and visitor bicycle parking) will be incorporated into the development designs and are illustrated on the site plan included in **Appendix A**. The implementation of these elements and the costs associated with them will be the responsibility of the applicant/land developer.

The 'soft' measures of the TDM plan (i.e., travel mode information packages) will be implemented by the developer as part of the marketing process for the site.

9.0 SUMMARY AND CONCLUSIONS

BA Group has been retained by National Homes to provide transportation consultation services in relation to a proposed residential townhouse development located at 1240 Britannia Road West (referred to herein as "the site") in the City of Mississauga.

The site is located on the south side of Britannia Road West, between Whitehorn Avenue and Brookhaven Way. The site is approximately 21,474 m^2 in size and is bounded by Britannia Road West to the north, Galesway Boulevard to the south, residential properties on Cabrera Crescent to the west and residential properties on Candlebrook Court to the east.

The site is currently occupied by two detached dwellings, with two vehicle access points located on Britannia Road West. Pedestrian sidewalks are currently provided along all boundary roads. It is noted that there is an existing closed driveway connection to the property on Galesway Boulevard at the southwest corner of the site. Presumably, this driveway connection was constructed in anticipation of the existing Cabrera Crescent being extended from its cul-de-sac terminus to reconnect with Galesway Boulevard.

The development program contemplates a total of 106 new residential townhouse units, serviced by internal private condominium roads and the existing Cabrera Crescent, with access provided directly from Galesway Boulevard. The existing residential uses on the site will be removed as part of the redevelopment. The current development plan for the site does not propose extension of Cabrera Crescent. Instead, the existing driveway 'stub' on Galesway Boulevard will be removed and the cul-de-sac at the terminus of the existing Cabrera Crescent will be reconstructed to the appropriate City of Mississauga design standard. Architectural site plans are included in **Appendix A**.

This report documents BA Group's review of the transportation-related aspects of the project including parking, refuse collection and fire vehicle access, and future traffic operations as part of a City of Mississauga Zoning By-law Amendment (ZBA) and Site Plan Approval (SPA) process.

Transportation Context

1. The site is served by Mississauga MiWay transit services running on Britannia Road West. In particular, it is serviced by MiWay bus routes 37, 39, 43, 68 and 314. These bus routes generally have service headways of 20-30 minutes. The bus stops closest to the site are located at Whitehorn Avenue and Brookhaven Way, approximately 250 metres away.

2. The site is located in an area with excellent access to a variety of cycling facilities, including the adjacent multi-use trail along Britannia Road West, a signed bike route along Galesway Boulevard, and a signed bike route on Whitehorn Avenue.

3. There are a number of neighbourhood amenities within walking distance of the site, including schools, parks, restaurants, grocery stores, pharmacies and banks.

Vehicular and Pedestrian Connections

4. The proposed internal private road servicing the new townhouse units has been designed with appropriate widths (7.0 metres) and turning radii (minimum 9.0 metres inside, 15.0 metres outside), suitable to accommodate the manoeuvres of a municipal waste collection vehicle and the requirements of a fire access route as per the Ontario Building Code.

5. Pedestrian walkways 1.5 metres in width are provided along the private road (on one side) and provide connections to Britannia Road West and Galesway Boulevard.

6. The site plans show the reconstruction of the existing Cabrera Crescent cul-de-sac terminus to meet City of Mississauga Transportation and Works Standard 2211.240 (Residential Road Cul-de-Sac) and is therefore considered appropriate.

7. A secondary emergency access point to the development is provided from Cabrera Crescent from the new cul-de-sac. This access will be gated and only available for use by emergency vehicles.

Parking

8. The applicable City of Mississauga By-law 0225-2007 requires a total of 245 parking spaces be provided for the site as proposed. This includes 2.0 spaces per unit for townhouse units and detached dwellings, 1.0 space per unit for second units, and 0.25 spaces per unit for visitors to the townhouse units.

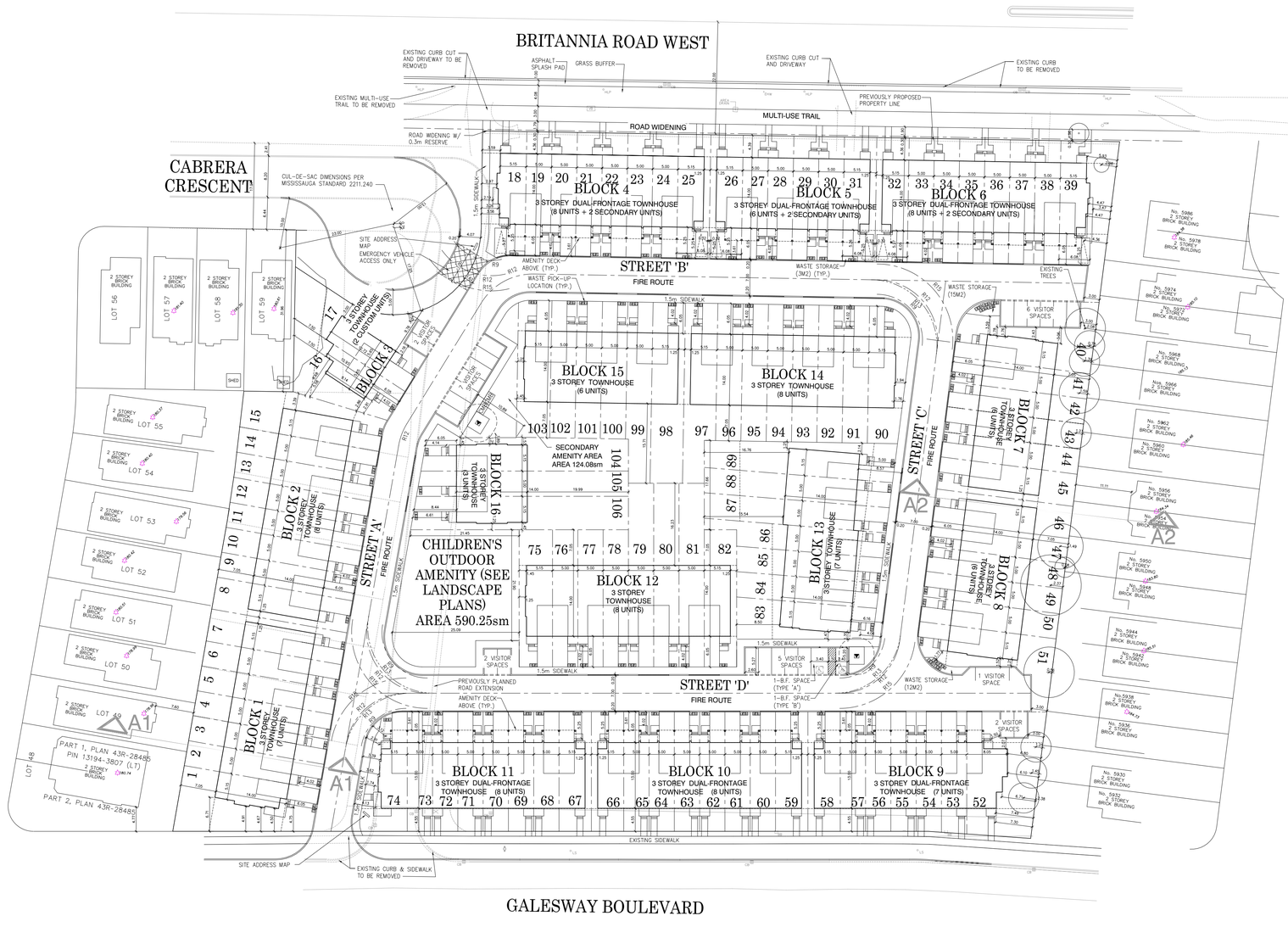
9. The proposed site plans illustrate the provision of parking to meet these requirements, including 27 visitor parking spaces located along the private road, and is therefore considered to be appropriate.

Traffic Operations

10. The site is anticipated to generate approximately 70 and 95 two-way vehicle trips during the weekday morning and afternoon peak hours, respectively.

11. Under future total traffic conditions with the build-out of the site, all signalized and unsignalized intersections within the study area are anticipated to operate within their theoretical capacity. No road network infrastructure improvements are warranted or recommended.

Appendix A: Architectural Site Plans



BLOCK 1 (8 Units)								
Unit Number	1	2	3	4	5	6	7	8
Lot Area (m²)	206.80	135.50	135.50	135.50	135.50	135.50	135.50	173.44
Total Lot Area (m²)								1195.24
Lot Width (m)	10.08	5.00	5.00	5.00	5.00	5.00	5.00	6.40
Gross Floor Area (ft²)	2217.00	2018.00	2018.00	2018.00	2018.00	2018.00	2018.00	2086.00
Floor Space Index (m2)	0.99	1.38	1.38	1.38	1.38	1.38	1.38	1.12
Lot Coverage (m2)	75.03	73.06	73.06	73.06	73.06	73.06	73.06	75.39
Landscape Space Rear (m²)	66.73	35.25	35.25	35.25	35.25	35.25	35.25	45.12
Landscaped Open Area (m²)	48.27	8.43	8.43	8.43	8.43	8.43	8.43	34.16
Total Landscape Area (m²)								456.36
BLOCK 2 (9 Units)								
Unit Number	9	10	11	12	13	14	15	16
Lot Area (m²)	173.44	135.50	135.54	135.88	136.54	137.74	139.21	176.53
Total Lot Area (m²)								1170.39
Lot Width (m)	6.40	5.00	5.00	5.00	5.00	5.00	5.00	6.40
Gross Floor Area (ft²)	2086.00	2018.00	2018.00	2018.00	2018.00	2018.00	2018.00	2086.00
Floor Space Index (m2)	1.12	1.38	1.38	1.38	1.38	1.38	1.38	1.10
Lot Coverage (m2)	75.40	73.06	73.08	73.08	73.06	73.06	73.06	75.40
Landscape Space Rear (m²)	45.12	35.25	35.28	35.64	36.29	37.48	38.95	47.82
Landscaped Open Area (m²)	34.17	8.43	8.43	8.43	8.43	8.43	8.43	34.56
Total Landscape Area (m²)								431.14
BLOCK 3 (9 Units)								
Unit Number	17	18	19	20	21	22	23	24
Lot Area (m²)	171.32	125.50	125.50	125.50	125.50	125.50	125.50	160.62
Total Lot Area (m²)								1564.94
Lot Width (m)	6.66	5.00	5.00	5.00	5.00	5.00	5.00	6.40
Gross Floor Area (ft²)	2217.00	2018.00	2018.00	2018.00	2018.00	2018.00	2018.00	2086.00
Floor Space Index (m2)	1.20	1.49	1.49	1.49	1.49	1.49	1.49	1.21
Lot Coverage (m2)	78.90	76.12	76.12	76.12	76.12	76.12	76.12	75.81
Landscape Space Rear (m²)	50.82	25.29	25.29	25.29	25.29	25.29	25.29	32.32
Landscaped Open Area (m²)	19.61	8.43	8.43	8.43	8.43	8.43	8.43	20.41
Total Landscape Area (m²)								368.04
BLOCK 4 (8 Units)								
Unit Number	25	26	27	28	29	30		
Lot Area (m²)	160.63	125.50	125.50	125.55	125.45	160.64		
Total Lot Area (m²)						823.27		
Lot Width (m)	6.40	5.00	5.00	5.00	5.00	6.40		
Gross Floor Area (ft²)	2086.00	2018.00	2018.00	2018.00	2018.00	2086.00		
Floor Space Index (m2)	1.21	1.49	1.49	1.49	1.49	1.21		
Lot Coverage (m2)	75.81	76.10	76.10	76.10	76.10	75.80		
Landscape Space Rear (m²)	32.32	25.25	25.25	25.25	25.25	32.32		
Landscaped Open Area (m²)	20.41	8.43	8.43	8.43	8.43	20.41		
Total Landscape Area (m²)								240.18
BLOCK 5 (8 Units)								
Unit Number	31	32	33	34	35	36	37	38
Lot Area (m²)	160.62	125.61	125.40	125.50	125.50	125.52	125.52	269.49
Total Lot Area (m²)								1353.16
Lot Width (m)	6.40	5.00	5.00	5.00	5.00	5.00	5.00	12.12
Gross Floor Area (ft²)	2086.00	2018.00	2018.00	2018.00	2018.00	2018.00	2018.00	2217.00
Floor Space Index (m2)	1.21	1.49	1.49	1.49	1.49	1.49	1.49	0.76
Lot Coverage (m2)	75.92	76.10	76.10	76.10	76.10	76.10	76.10	78.93
Landscape Space Rear (m²)	32.32	25.25	25.25	25.25	25.25	25.25	25.25	59.82
Landscaped Open Area (m²)	20.42	8.43	8.43	8.43	8.43	8.43	8.43	95.61
Total Landscape Area (m²)								410.25
BLOCK 6 (8 Units)								
Unit Number	39	40	41	42	43	44		
Lot Area (m²)	204.24	135.50	135.50	135.50	135.50	173.43		
Total Lot Area (m²)						919.67		
Lot Width (m)	9.19	5.00	5.00	5.00	5.00	6.40		
Gross Floor Area (ft²)	2164.00	2018.00	2018.00	2018.00	2018.00	2086.00		
Floor Space Index (m2)	0.98	1.38	1.38	1.38	1.38	1.12		
Lot Coverage (m2)	76.61	73.08	73.08	73.08	73.08	75.42		
Landscape Space Rear (m²)	48.10	35.28	35.28	35.28	35.25	45.12		
Landscaped Open Area (m²)	60.83	8.43	8.43	8.43	8.43	34.15		
Total Landscape Area (m²)								362.92
BLOCK 7 (8 Units)								
Unit Number	45	46	47	48	49	50		
Lot Area (m²)	173.40	135.54	135.50	135.50	135.71	231.82		
Total Lot Area (m²)						947.47		
Lot Width (m)	6.40	5.00	5.00	5.00	5.00	8.47		
Gross Floor Area (ft²)	2086.00	2018.00	2018.00	2018.00	2018.00	2164.00		
Floor Space Index (m2)	1.12	1.38	1.38	1.38	1.38	0.87		
Lot Coverage (m2)	75.53	73.06	73.06	73.06	73.06	76.62		
Landscape Space Rear (m²)	45.12	35.25	35.25	35.25	35.25	61.85		
Landscaped Open Area (m²)	34.19	8.42	8.42	8.42	8.42	74.56		
Total Land. Open Area (m²)								390.39
BLOCK 8 (9 Units)								
Unit Number	51	52	53	54	55	56	57	58
Lot Area (m²)	204.55	121.82	120.62	118.44	117.99	117.68	117.96	150.99
Total Lot Area (m²)								1069.75
Lot Width (m)	9.84	5.00	5.00	5.00	5.00	5.00	5.00	6.40
Gross Floor Area (ft²)	2133.00	1936.00	1936.00	1936.00	1936.00	1936.00	1936.00	2002.00
Floor Space Index (m2)	0.97	1.48	1.50	1.52	1.52	1.52	1.52	1.23
Lot Coverage (m2)	75.87	73.62	73.62	73.62	73.62	73.62	73.62	73.23
Landscape Space Rear (m²)	32.90	20.40	18.68	17.02	16.58	16.58	16.58	22.25
Landscaped Open Area (m²)	76.30	8.43	8.43	8.43	8.43	8.43	8.43	36.90
Total Landscape Area (m²)								324.77
BLOCK 9 (8 Units)								
Unit Number	59	60	61	62	63	64	65	66
Lot Area (m²)	151.02	118.00	118.00	118.00	118.00	118.00	118.00	151.04
Total Lot Area (m²)								1010.06
Lot Width (m)	6.40	5.00	5.00	5.00	5.00	5.00	5.00	6.40
Gross Floor Area (ft²)	2002.00	1936.00	1936.00	1936.00	1936.00	1936.00	1936.00	2002.00
Floor Space Index (m2)	1.23	1.52	1.52	1.52	1.52	1.52	1.52	1.23
Lot Coverage (m2)	73.18	73.67	73.67	73.67	73.67	73.67	73.67	73.23
Landscape Space Rear (m²)	22.25	20.26	20.25	20.25	20.25	20.25	20.25	22.25
Landscaped Open Area (m²)	36.19	8.42	8.42	8.43	8.43	8.43	8.43	36.18
Total Landscape Area (m²)								288.94
BLOCK 10 (8 Units)								
Unit Number	67	68	69	70	71	72	73	74
Lot Area (m²)	151.04	117.92	118.00	118.00	118.00	118.00	118.00	164.08
Total Lot Area (m²)								1057.04
Lot Width (m)	6.40	5.00	5.00	5.00	5.00	5.00	5.00	15.13
Gross Floor Area (ft²)	2002.00	1936.00	1936.00	1936.00	1936.00	1936.00	1936.00	2133.00
Floor Space Index (m2)	1.23	1.53	1.52	1.52	1.52	1.52	1.52	1.00
Lot Coverage (m2)	73.23	73.68	73.68	73.68	73.68	73.68	73.68	63.97
Landscape Space Rear (m²)	22.25	16.58	16.58	16.58	16.58	16.58	16.58	36.29
Landscaped Open Area (m²)	36.19	8.43	8.43	8.43	8.43	8.43	8.43	58.42
Total Landscape Area (m²)								303.21
BLOCK 11 (8 Units)								
Unit Number	75	76	77	78	79	80	81	82
Lot Area (m²)	204.38	135.56	137.75	135.61	135.84	135.66	135.40	173.51
Total Lot Area (m²)								1193.71
Lot Width (m)	9.88	5.00	5.00	5.00	5.00	5.00	5.00	6.40
Gross Floor Area (ft²)	2302.00	2018.00	2018.00	2018.00	2018.00	2018.00	2018.00	2086.00
Floor Space Index (m2)	1.05	1.38	1.36	1.38	1.38	1.38	1.38	1.12
Lot Coverage (m2)	75.69	73.07	73.07	73.07	73.07	73.07	73.07	75.33
Landscape Space Rear (m²)	48.83	35.25	35.23	35.23	35.23	35.20	35.23	45.12
Landscaped Open Area (m²)	61.15	8.43	8.43	8.43	8.43	8.43	8.43	34.35
Total Landscape Area (m²)								451.40
BLOCK 12 (3 Units)								
Unit Number	83	84	85					
Lot Area (m²)	221.75	173.21	230.45					
Total Lot Area (m²)			625.41					
Lot Width (m)	8.40	5.00	6.40					
Gross Floor Area (ft²)	2675.00	2696.00	2675.00					
Floor Space Index (m2)	1.12	1.40	1.08					
Lot Coverage (m2)	93.63	90.75	93.63					
Landscape Space Rear (m²)	70.72	58.25	79.33					
Landscaped Open Area (m²)	36.81	8.44	38.78					
Total Landscape Area (m²)			291.13					
BLOCK 13 (7 Units)								
Unit Number	86	87	88	89	90	91	92	
Lot Area (m²)	178.87	136.98	142.17	145.37	148.56	151.75	224.85	
Total Lot Area (m²)							1136.35	
Lot Width (m)	6.60	5.00	5.00	5.00	5.00	5.00	6.40	
Gross Floor Area (ft²)	2164.00	2018.00	2018.00	2018.00	2018.00	2018.00	2086.00	
Floor Space Index (m2)	1.12	1.35	1.32	1.29	1.26	1.24	0.86	
Lot Coverage (m2)	76.13	73.06	73.06	73.06	73.06	73.06	75.39	
Landscape Space Rear (m²)	46.53	35.25	35.25	35.25	35.25	35.25	70.87	
Landscaped Open Area (m²)	36.85	10.20	10.71	12.76	13.27	15.31	48.28	
Total Landscape Area (m²)							441.02	
BLOCK 14 (8 Units)								
Unit Number	93	94	95	96	97	98	99	100
Lot Area (m²)	184.01	134.82	135.35	135.99	136.21	136.63	137.06	230.63
Total Lot Area (m²)								1230.80
Lot Width (m)	6.40	5.00	5.00	5.00	5.00	5.00	5.00	6.40
Gross Floor Area (ft²)	1997.00	1858.00	1858.00	1858.00	1858.00	1858.00	1858.00	2675.00
Floor Space Index (m2)	1.01	1.28	1.28	1.27	1.27	1.28	1.28	1.08
Lot Coverage (m2)	71.40	68.06	68.06	68.06	68.06	68.06	68.06	93.62
Landscape Space Rear (m²)	42.01	35.24	35.25	35.25	35.25	35.25	35.25	70.72
Landscaped Open Area (m²)	49.82	10.25	10.31	10.59	10.66	10.93	11.00	43.44
Total Landscape Area (m²)								481.22
BLOCK 15 (8 Units)								
Unit Number	101	102	103	104	105	106	107	108
Lot Area (m²)	238.63	143.58	144.05	144.37	145.50	145.30	141.97	186.09
Total Lot Area (m²)								1289.50
Lot Width (m)	8.40	5.00	5.00	5.00	5.00	5.00	5.00	7.60
Gross Floor Area (ft²)	2675.00	2018.00	2018.00	2018.00	2018.00	2018.00	2018.00	1723.00
Floor Space Index (m2)	1.04	1.31	1.30	1.30	1.29	1.29	1.32	0.86
Lot Coverage (m2)	93.65	73.06	73.06	73.06	73.06	73.06	73.06	60.86
Landscape Space Rear (m²)	78.12	35.25	35.25	35.18	35.25	35.25	35.25	65.42
Landscaped Open Area (m²)	43.71	11.71	11.78	12.05	12.12	12.40	17.79	33.37
Total Landscape Area (m²)								509.90

STAMP AREA

SITE STATISTICS
NET SITE AREA = 21474.51

45 DUAL FRONT + 61 STD TOWNS = 106 UNITS TOTAL
(EXCLUDING SECONDARY SUITES)

AFFORDABLE UNITS:
REQUIRED: (108-50)* 10% = 6 UNITS
PROVIDED: 6 UNITS (SECONDARY SUITES IN LOTS 18, 23, 26, 30, 32, AND 36)

CONDO SITE:

NET CONDO SITE AREA = 21,474.51sm

TYPICAL LOT AREAS (INTERIOR UNITS):
14.0m TOWNHOUSE = 192.58sm
13.0M DUAL FRONT = 176.39sm
14.0M DUAL FRONT = 191.39sm

PRIVATE AMENITY SPACE
CEC TOWNHOUSES = 30sm/unit = 1800.00sm
CEC DUAL FRONT = 5.95sm/unit = 285.60sm
TOTAL = 2085.60sm

CHILDREN'S OUTDOOR AMENITY AREA = 590.25 sm
SECONDARY AMENITY AREA = 124.08 sm
TOTAL = 714.33 sm

PRIVATE ROAD LENGTH = 446.25m

VISITOR PARKING:
REQUIRED = 106 UNITS X 0.25 = 26.50
REQUIRD BARRIER FREE (4% OF TOTAL) =1.08
PROVIDED = 25 + 2 B.F. = 27

LAND FROM TOWN TO NATIONAL = 633.28sm
LAND FROM NATIONAL TO TOWN = 570.73sm

Client
NATIONAL HOMES (1240 BRITANNIA) INC.

Project Name
BRITANNIA ROAD
RESIDENTIAL DEVELOPMENT
CONDOMINIUM TOWNHOMES
CITY OF MISSISSAUGA

REGIONAL MUNICIPALITY OF PEEL
BRITANNIA ROAD, MISSISSAUGA
PART LOTS 1-3 CON 3, PLAN 43R-3248

Date: OCTOBER 13, 2020
Scale: 1 : 500
Drawn by: EK/AMM/EW
Checked by: AMM
Project No.: 2019-39
DWG. NO. A100 – SITEPLAN

Appendix B: Driveway Sight Distance Diagrams

GENERAL NOTES

1. DESCRIPTON
2. DESRIPTION

BA Group

BA Consulting Group Ltd.
300 - 45 St. Clair Ave. W.
Toronto ON M4V 1K9
TEL 416 961 7110
EMAIL bagroup@bagroup.com

MOVEMENT IN URBAN ENVIRONMENTS
BAGROUP.COM

1240 BRITANNIA ROAD

SITE CONTEXT

Date: March 25, 2020

Project No.: 6869-16

Scale: 1:500 0 5 10 15 20m

SD-01

Date Plotted: March 25, 2020 Filename: J:\6869-16\BA\Sight Distance\2020\1. March 24, 2020\BA-1240 Britannia Road-SD-R0-686916.dwg

GENERAL NOTES

1. DESCRIPTON
2. DESRIPTION

LEFT TURN
DESIGN SPEED = 60 km/h
STOPPING SIGHT DISTANCE = 85m
INTERSECTION SITE DISTANCE = 130m

*taken from TAC Geometric Design Guide for Canadian Roads Table 9.9.4

RIGHT TURN
DESIGN SPEED = 60 km/h
STOPPING SIGHT DISTANCE = 85m
INTERSECTION SIGHT DISTANCE = 110m

*taken from TAC Geometric Design Guide for Canadian Roads Table 9.9.6

BA Group

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300 - 45 St. Clair Ave. W.
Toronto ON M4V 1K9
TEL 416 961 7110
EMAIL bagroup@bagroup.com

MOVEMENT IN URBAN ENVIRONMENTS
BAGROUP.COM

1240 BRITANNIA ROAD

SIGHT DISTANCE AT PROPOSED DRIVEWAY

Date: March 25, 2020

Project No.: 6869-16

Scale: 1:400 0 2 4 6 8 10 20m

SD-02

Date Plotted: March 25, 2020 Filename: J:\6869-16\BA\Sight Distance\2020\1. March 24, 2020\BA-1240 Britannia Road-SD-R0-686916.dwg

Appendix C: Vehicle Manoeuvring Diagrams and Waste Collection Plan

ROUTE 1

BRITANNIA ROAD WEST

CABRERA CRESCENT

GALSEWAY BOULEVARD

EXISTING MULTI-USE TRAIL TO BE REMOVED

TO BE REMOVED

PREVIOUSLY PROPOSED PROPERTY LINE

ROAD WIDENING W/ 0.3m RESERVE

CUL-DE-SAC DIMENSIONS PER MISSISSAUGA STANDARD 2211.240

SITE ADDRESS MAP

EMERGENCY VEHICLE ACCESS ONLY

AMENITY DECK ABOVE (TYP.)

WASTE STORAGE (3M2) (TYP.)

WASTE STORAGE (15M2)

EXISTING TREES

WASTE STORAGE (12M2)

1-B.F. SPACE (TYPE 'B')

LOT 56

LOT 57

LOT 58

LOT 59

LOT 55

LOT 54

LOT 53

LOT 52

LOT 51

LOT 50

SHED

No. 5986 2 STOREY BRICK BUILDING

No. 5978 2 STOREY BRICK BUILDING

No. 5974 2 STOREY BRICK BUILDING

No. 5972 2 STOREY BRICK BUILDING

No. 5968 2 STOREY BRICK BUILDING

Nos. 5966 2 STOREY BRICK BUILDING

No. 5962 2 STOREY BRICK BUILDING

No. 5960 2 STOREY BRICK BUILDING

No. 5956 2 STOREY BRICK BUILDING

No. 5954 2 STOREY BRICK BUILDING

No. 5950 2 STOREY BRICK BUILDING

No. 5948 2 STOREY BRICK BUILDING

No. 5944 2 STOREY BRICK BUILDING

No. 5942 2 STOREY BRICK BUILDING

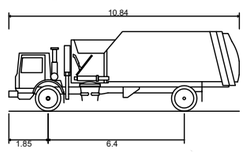
No. 5938 2 STOREY BRICK BUILDING

No. 5936 2 STOREY BRICK BUILDING

No. 5930 2 STOREY BRICK BUILDING

No. 5932 2 STOREY BRICK BUILDING

Design Vehicle
Peel Region Garbage - Side Loader



Peel Region Garbage - Side Loader	
Overall Length	10.840m
Overall Width	2.620m
Overall Body Height	3.746m
Curb to Curb Turning Radius	13.000m

LEGEND:

WASTE COLLECTION POINTS

Date Plotted: October 19, 2020 Filename: J:\6869-16\BA\VMD\20203. October 19, 2020\BA-1240 Britannia Road-VMD02-686916.dwg

BA Group

1240 Britannia Road

VEHICULAR MANOEUVRING DIAGRAM / WASTE COLLECTION PLAN

Peel Region Garbage - Side Loader

Project:	1240 Britannia Rd.
Project No.	6869-16
Date:	October 19, 2020
Revised:	--

Scale 1:750 (0, 15, 30m)

Drawing No. VMD-1

ROUTE 2

BRITANNIA ROAD WEST

CABRERA CRESCENT

GALSEWAY BOULEVARD

EXISTING MULTI-USE TRAIL TO BE REMOVED

TO BE REMOVED

PREVIOUSLY PROPOSED PROPERTY LINE

ROAD WIDENING W/ 0.3m RESERVE

CUL-DE-SAC DIMENSIONS PER MISSISSAUGA STANDARD 2211.240

SITE ADDRESS MAP

EMERGENCY VEHICLE ACCESS ONLY

ABOVE GRADE TRANSFORMER

WASTE PICK-UP LOCATION (TYP.)

EXISTING TREES

LOT 56

LOT 57

LOT 58

LOT 59

LOT 55

LOT 54

LOT 53

LOT 52

LOT 51

LOT 50

SHED

PREVIOUSLY PLANNED ROAD EXTENSION

1-B.F. SPACE (TYPE 'A')

WASTE STORAGE (12M2)

No. 5986 2 STOREY BRICK BUILDING

No. 5978 2 STOREY BRICK BUILDING

No. 5974 2 STOREY BRICK BUILDING

No. 5972 2 STOREY BRICK BUILDING

No. 5968 2 STOREY BRICK BUILDING

Nos. 5966 2 STOREY BRICK BUILDING

No. 5962 2 STOREY BRICK BUILDING

No. 5960 2 STOREY BRICK BUILDING

No. 5956 2 STOREY BRICK BUILDING

No. 5954 2 STOREY BRICK BUILDING

No. 5950 2 STOREY BRICK BUILDING

No. 5948 2 STOREY BRICK BUILDING

No. 5944 2 STOREY BRICK BUILDING

No. 5942 2 STOREY BRICK BUILDING

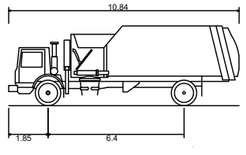
No. 5938 2 STOREY BRICK BUILDING

No. 5936 2 STOREY BRICK BUILDING

No. 5930 2 STOREY BRICK BUILDING

No. 5932 2 STOREY BRICK BUILDING

Design Vehicle
Peel Region Garbage - Side Loader



Peel Region Garbage - Side Loader	
Overall Length	10.840m
Overall Width	2.620m
Overall Body Height	3.746m
Curb to Curb Turning Radius	13.000m

LEGEND:

WASTE COLLECTION POINTS

Date Plotted: October 19, 2020 Filename: J:\6869-16\BA\VMD\202013. October 19, 2020\BA-1240 Britannia Road-VMD02-686916.dwg

BA Group

1240 Britannia Road

VEHICULAR MANOEUVRING DIAGRAM / WASTE COLLECTION PLAN

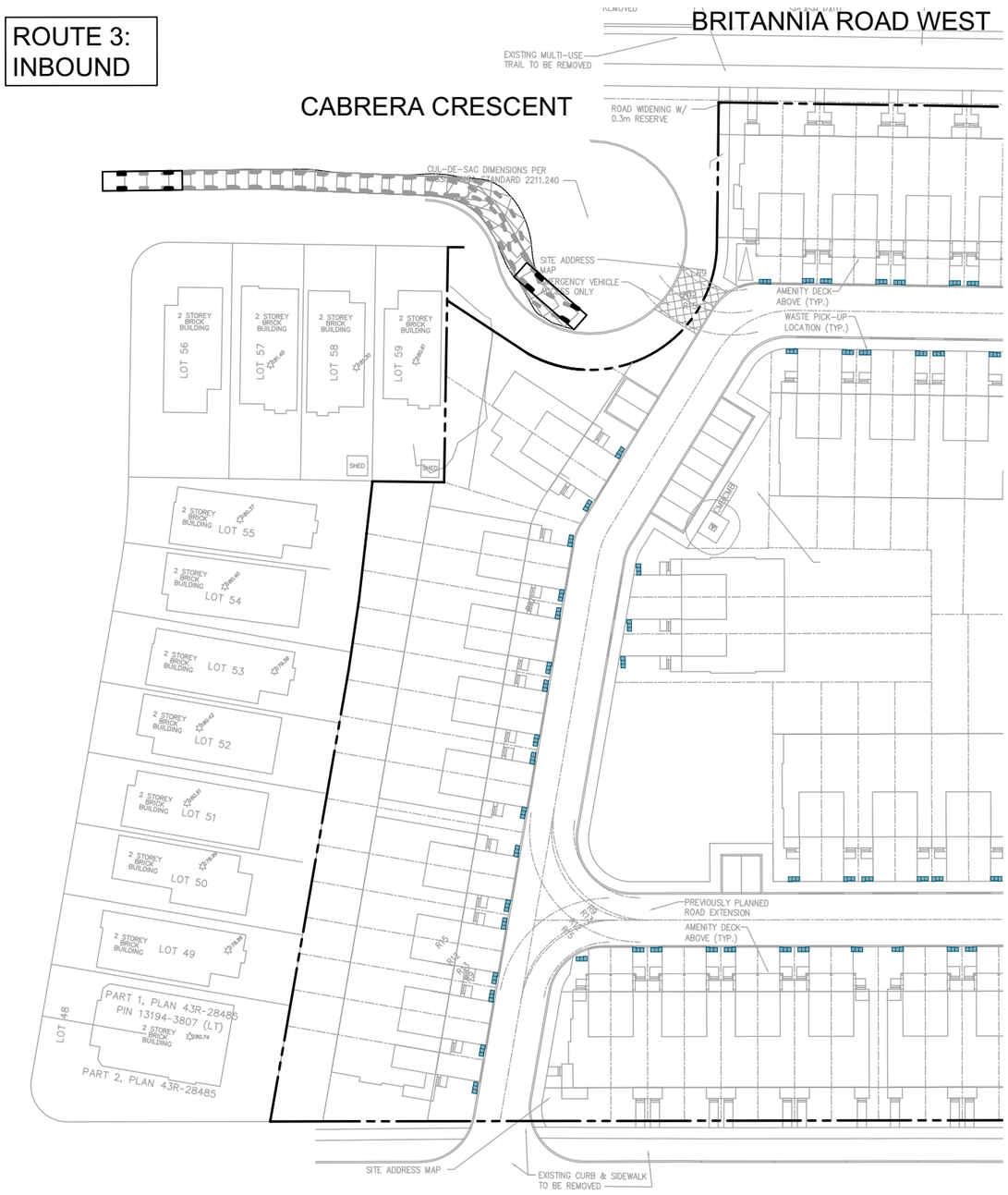
Peel Region Garbage - Side Loader

Project:	1240 Britannia Rd.
Project No.	6869-16
Date:	October 19, 2020
Revised:	--

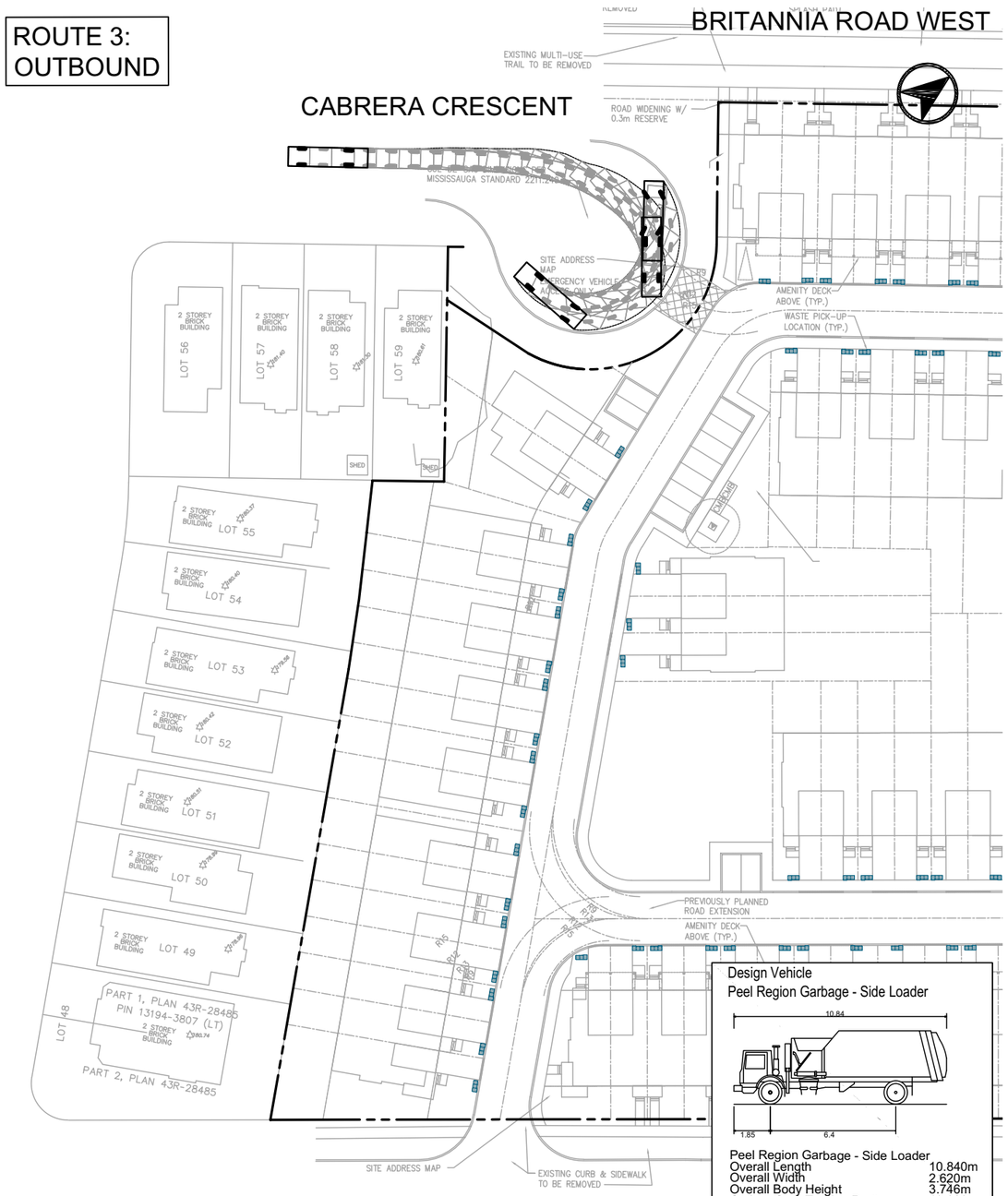
Scale 1:750 (0, 15, 30m)

Drawing No. VMD-2

ROUTE 3:
INBOUND



ROUTE 3:
OUTBOUND



BA Group

1240 Britannia Road

VEHICULAR MANOEUVRING DIAGRAM / WASTE COLLECTION PLAN

Peel Region Garbage - Side Loader

Project:	1240 Britannia Rd.
Project No.	6869-16
Date:	October 19, 2020
Revised:	--

Scale 1:750 (0, 15, 30m)

Drawing No. VMD-3

Appendix D: Synchro Capacity Analysis Output Sheets

HCM Signalized Intersection Capacity Analysis
1: Whitehorn Avenue/Bidwell Trail & Britannia Road W

03-19-2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	2660	65	30	815	15	90	40	140	70	45	30
Future Volume (vph)	25	2660	65	30	815	15	90	40	140	70	45	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.9	6.9		3.0	6.9	6.9	7.3	7.3		7.3	7.3	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.98	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.88		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1781	5166		1552	4948	1194	1657	1660		1747	1742	
Flt Permitted	0.32	1.00		0.05	1.00	1.00	0.71	1.00		0.48	1.00	
Satd. Flow (perm)	607	5166		81	4948	1194	1233	1660		874	1742	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	26	2742	67	31	840	15	93	41	144	72	46	31
RTOR Reduction (vph)	0	1	0	0	0	4	0	75	0	0	17	0
Lane Group Flow (vph)	26	2808	0	31	840	11	93	110	0	72	60	0
Confl. Peds. (#/hr)	3		6	6		3	15		2	2		15
Heavy Vehicles (%)	0%	1%	4%	15%	6%	25%	6%	5%	0%	2%	0%	6%
Bus Blockages (#/hr)	0	0	0	0	0	10	0	0	0	0	0	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	77.5	77.5		83.8	83.8	83.8	15.2	15.2		15.2	15.2	
Effective Green, g (s)	77.5	77.5		83.8	83.8	83.8	15.2	15.2		15.2	15.2	
Actuated g/C Ratio	0.68	0.68		0.74	0.74	0.74	0.13	0.13		0.13	0.13	
Clearance Time (s)	6.9	6.9		3.0	6.9	6.9	7.3	7.3		7.3	7.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	415	3536		102	3662	883	165	222		117	233	
v/s Ratio Prot		c0.54		c0.01	0.17			0.07			0.03	
v/s Ratio Perm	0.04			0.21		0.01	0.08			c0.08		
v/c Ratio	0.06	0.79		0.30	0.23	0.01	0.56	0.49		0.62	0.26	
Uniform Delay, d1	5.9	12.3		14.1	4.6	3.9	45.9	45.4		46.2	43.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	1.3		1.7	0.0	0.0	4.4	1.7		9.3	0.6	
Delay (s)	5.9	13.6		15.8	4.6	3.9	50.2	47.2		55.5	44.5	
Level of Service	A	B		B	A	A	D	D		E	D	
Approach Delay (s)		13.6			5.0			48.2			49.8	
Approach LOS		B			A			D			D	

Intersection Summary				
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	113.2	Sum of lost time (s)	17.2	
Intersection Capacity Utilization	91.0%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Brookhaven Way/Douguy Boulevard & Britannia Road W

03-19-2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	2770	20	5	750	25	25	25	55	30	20	85
Future Volume (vph)	80	2770	20	5	750	25	25	25	55	30	20	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.5	6.5		6.5	6.5	6.5	7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	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		0.99	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.90		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1681	5185		1785	4948	1311	1449	1701		1659	1605	
Flt Permitted	0.34	1.00		0.05	1.00	1.00	0.69	1.00		0.70	1.00	
Satd. Flow (perm)	604	5185		98	4948	1311	1047	1701		1227	1605	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	2916	21	5	789	26	26	26	58	32	21	89
RTOR Reduction (vph)	0	0	0	0	0	7	0	2	0	0	79	0
Lane Group Flow (vph)	84	2937	0	5	789	19	26	82	0	32	31	0
Confl. Peds. (#/hr)	3		2	2		3	2		8	8		2
Heavy Vehicles (%)	6%	1%	5%	0%	6%	14%	23%	0%	0%	7%	0%	5%
Bus Blockages (#/hr)	0	0	10	0	0	10	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	76.5	76.5		76.5	76.5	76.5	11.6	11.6		11.6	11.6	
Effective Green, g (s)	76.5	76.5		76.5	76.5	76.5	11.6	11.6		11.6	11.6	
Actuated g/C Ratio	0.75	0.75		0.75	0.75	0.75	0.11	0.11		0.11	0.11	
Clearance Time (s)	6.5	6.5		6.5	6.5	6.5	7.5	7.5		7.5	7.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	452	3884		73	3707	982	118	193		139	182	
v/s Ratio Prot		c0.57			0.16			c0.05			0.02	
v/s Ratio Perm	0.14			0.05		0.01	0.02			0.03		
v/c Ratio	0.19	0.76		0.07	0.21	0.02	0.22	0.43		0.23	0.17	
Uniform Delay, d1	3.7	7.4		3.4	3.8	3.3	41.1	42.1		41.2	40.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.9		0.4	0.0	0.0	0.9	1.5		0.8	0.4	
Delay (s)	3.9	8.3		3.8	3.8	3.3	42.1	43.7		42.0	41.4	
Level of Service	A	A		A	A	A	D	D		D	D	
Approach Delay (s)		8.2			3.8			43.3			41.5	
Approach LOS		A			A			D			D	

Intersection Summary				
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.71			
Actuated Cycle Length (s)	102.1	Sum of lost time (s)	14.0	
Intersection Capacity Utilization	92.1%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
3: Whitehorn Avenue & Galesway Boulevard

03-19-2020

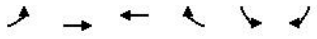
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	165	40	230	210	40	100
Future Volume (vph)	165	40	230	210	40	100
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	176	43	245	223	43	106

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	219	468	149
Volume Left (vph)	176	0	43
Volume Right (vph)	43	223	0
Hadj (s)	0.09	-0.27	0.12
Departure Headway (s)	5.4	4.5	5.2
Degree Utilization, x	0.33	0.58	0.22
Capacity (veh/h)	608	780	646
Control Delay (s)	11.1	13.5	9.6
Approach Delay (s)	11.1	13.5	9.6
Approach LOS	B	B	A

Intersection Summary			
Delay		12.2	
Level of Service		B	
Intersection Capacity Utilization		54.7%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
4: Galesway Boulevard & Cabrera Crescent

03-19-2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	245	190	0	5	15
Future Volume (Veh/h)	5	245	190	0	5	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	266	207	0	5	16
Pedestrians					2	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	209				485	209
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	209				485	209
tC, single (s)	4.3				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.3
p0 queue free %	100				99	98
cM capacity (veh/h)	1281				517	835

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	271	207	21
Volume Left	5	0	5
Volume Right	0	0	16
cSH	1281	1700	728
Volume to Capacity	0.00	0.12	0.03
Queue Length 95th (m)	0.1	0.0	0.7
Control Delay (s)	0.2	0.0	10.1
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	10.1
Approach LOS			B

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		26.9%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
5: Galesway Boulevard & Site Access

03-19-2020

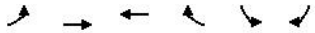
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	250	190	0	0	0
Future Volume (Veh/h)	0	250	190	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	272	207	0	0	0
Pedestrians					2	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	209				481	209
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	209				481	209
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1372				547	835

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	272	207	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1372	1700	1700
Volume to Capacity	0.00	0.12	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		16.5%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
6: Galesway Boulevard & Bandlebrook Court

03-19-2020

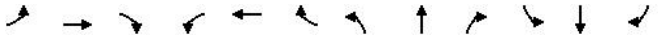


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	245	175	0	15	15
Future Volume (Veh/h)	5	245	175	0	15	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	5	255	182	0	16	16
Pedestrians		1	1		3	
Lane Width (m)		3.7	3.7		3.5	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		0	0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	185				451	186
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	185				451	186
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				97	98
cM capacity (veh/h)	1398				566	858

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	260	182	32
Volume Left	5	0	16
Volume Right	0	0	16
cSH	1398	1700	682
Volume to Capacity	0.00	0.11	0.05
Queue Length 95th (m)	0.1	0.0	1.2
Control Delay (s)	0.2	0.0	10.5
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	10.5
Approach LOS			B

Intersection Summary				
Average Delay		0.8		
Intersection Capacity Utilization		27.2%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
7: Prestonwood Crescent/Brookhaven Way & Galesway Boulevard 03-19-2020



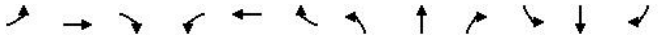
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	45	215	0	5	155	40	5	20	20	25	5	15
Future Volume (vph)	45	215	0	5	155	40	5	20	20	25	5	15
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	45	217	0	5	157	40	5	20	20	25	5	15

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	262	202	45	45
Volume Left (vph)	45	5	5	25
Volume Right (vph)	0	40	20	15
Hadj (s)	0.05	-0.01	-0.21	0.05
Departure Headway (s)	4.4	4.4	4.8	5.1
Degree Utilization, x	0.32	0.25	0.06	0.06
Capacity (veh/h)	795	784	674	640
Control Delay (s)	9.5	8.8	8.1	8.4
Approach Delay (s)	9.5	8.8	8.1	8.4
Approach LOS	A	A	A	A

Intersection Summary				
Delay		9.0		
Level of Service		A		
Intersection Capacity Utilization	43.9%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis
1: Whitehorn Avenue/Bidwell Trail & Britannia Road W

03-19-2020

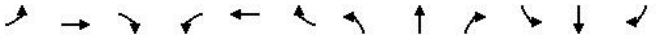


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	1235	90	125	1800	145	90	60	55	85	100	50
Future Volume (vph)	40	1235	90	125	1800	145	90	60	55	85	100	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.9	6.9		6.9	6.9	6.9	7.3	7.3		7.3	7.3	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.93		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1748	5132		1765	5193	1477	1764	1759		1775	1808	
Flt Permitted	0.08	1.00		0.17	1.00	1.00	0.66	1.00		0.68	1.00	
Satd. Flow (perm)	154	5132		307	5193	1477	1220	1759		1269	1808	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	1300	95	132	1895	153	95	63	58	89	105	53
RTOR Reduction (vph)	0	5	0	0	0	53	0	23	0	0	12	0
Lane Group Flow (vph)	42	1390	0	132	1895	100	95	98	0	89	146	0
Confl. Peds. (#/hr)	10		7	7		10	17		8	8		17
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	2%	1%	0%	1%	1%	0%	0%	0%	1%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	10	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	54.1	54.1		54.1	54.1	54.1	15.2	15.2		15.2	15.2	
Effective Green, g (s)	54.1	54.1		54.1	54.1	54.1	15.2	15.2		15.2	15.2	
Actuated g/C Ratio	0.65	0.65		0.65	0.65	0.65	0.18	0.18		0.18	0.18	
Clearance Time (s)	6.9	6.9		6.9	6.9	6.9	7.3	7.3		7.3	7.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	99	3325		198	3364	956	222	320		231	329	
v/s Ratio Prot		0.27			0.36			0.06			c0.08	
v/s Ratio Perm	0.27			c0.43		0.07	0.08			0.07		
v/c Ratio	0.42	0.42		0.67	0.56	0.10	0.43	0.31		0.39	0.44	
Uniform Delay, d1	7.1	7.1		9.1	8.2	5.6	30.3	29.6		30.0	30.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.9	0.1		8.2	0.2	0.0	1.3	0.5		1.1	1.0	
Delay (s)	10.1	7.2		17.3	8.4	5.6	31.6	30.1		31.1	31.3	
Level of Service	B	A		B	A	A	C	C		C	C	
Approach Delay (s)		7.3			8.7			30.8			31.3	
Approach LOS		A			A			C			C	

Intersection Summary				
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.62			
Actuated Cycle Length (s)	83.5	Sum of lost time (s)	14.2	
Intersection Capacity Utilization	90.6%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
2: Brookhaven Way/Douguy Boulevard & Britannia Road W

03-19-2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	1255	30	70	1980	65	20	20	15	45	35	70
Future Volume (vph)	90	1255	30	70	1980	65	20	20	15	45	35	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.5	6.5		6.5	6.5	6.5	7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.94		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1766	5171		1780	5245	1485	1767	1789		1743	1702	
Flt Permitted	0.08	1.00		0.19	1.00	1.00	0.69	1.00		0.73	1.00	
Satd. Flow (perm)	148	5171		354	5245	1485	1278	1789		1346	1702	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	93	1294	31	72	2041	67	21	21	15	46	36	72
RTOR Reduction (vph)	0	1	0	0	0	11	0	14	0	0	13	0
Lane Group Flow (vph)	93	1324	0	72	2041	56	21	22	0	46	95	0
Confl. Peds. (#/hr)	5		8	8		5	12		4	4		12
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	1%	1%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Bus Blockages (#/hr)	0	0	10	0	0	10	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	102.6	102.6		102.6	102.6	102.6	12.6	12.6		12.6	12.6	
Effective Green, g (s)	102.6	102.6		102.6	102.6	102.6	12.6	12.6		12.6	12.6	
Actuated g/C Ratio	0.79	0.79		0.79	0.79	0.79	0.10	0.10		0.10	0.10	
Clearance Time (s)	6.5	6.5		6.5	6.5	6.5	7.5	7.5		7.5	7.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	117	4106		281	4165	1179	124	174		131	165	
v/s Ratio Prot		0.26			0.39			0.01			c0.06	
v/s Ratio Perm	c0.63			0.20		0.04	0.02			0.03		
v/c Ratio	0.79	0.32		0.26	0.49	0.05	0.17	0.13		0.35	0.58	
Uniform Delay, d1	7.4	3.7		3.4	4.5	2.8	53.5	53.3		54.5	55.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	30.0	0.0		0.5	0.1	0.0	0.6	0.3		1.6	4.8	
Delay (s)	37.4	3.7		3.9	4.6	2.9	54.1	53.6		56.1	60.6	
Level of Service	D	A		A	A	A	D	D		E	E	
Approach Delay (s)		5.9			4.5			53.8			59.3	
Approach LOS		A			A			D			E	

Intersection Summary				
HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.77			
Actuated Cycle Length (s)	129.2	Sum of lost time (s)	14.0	
Intersection Capacity Utilization	82.5%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
3: Whitehorn Avenue & Galesway Boulevard

03-19-2020

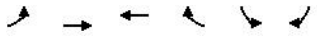
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	270	80	125	110	60	255
Future Volume (vph)	270	80	125	110	60	255
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	287	85	133	117	64	271

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	372	250	335
Volume Left (vph)	287	0	64
Volume Right (vph)	85	117	0
Hadj (s)	0.02	-0.28	0.04
Departure Headway (s)	5.5	5.3	5.4
Degree Utilization, x	0.56	0.37	0.51
Capacity (veh/h)	625	630	631
Control Delay (s)	15.3	11.2	13.8
Approach Delay (s)	15.3	11.2	13.8
Approach LOS	C	B	B

Intersection Summary			
Delay	13.7		
Level of Service	B		
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Galesway Boulevard & Cabrera Crescent

03-19-2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	160	345	10	5	5
Future Volume (Veh/h)	10	160	345	10	5	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	11	172	371	11	5	5
Pedestrians					3	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	385				574	380
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	385				574	380
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	99
cM capacity (veh/h)	1182				478	670

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	183	382	10
Volume Left	11	0	5
Volume Right	0	11	5
cSH	1182	1700	558
Volume to Capacity	0.01	0.22	0.02
Queue Length 95th (m)	0.2	0.0	0.4
Control Delay (s)	0.6	0.0	11.6
Lane LOS	A		B
Approach Delay (s)	0.6	0.0	11.6
Approach LOS			B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	28.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
5: Galesway Boulevard & Site Access

03-19-2020

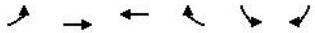
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	165	355	0	0	0
Future Volume (Veh/h)	0	165	355	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	177	382	0	0	0
Pedestrians					3	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	385				562	385
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	385				562	385
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1182				490	666

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	177	382	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1182	1700	1700
Volume to Capacity	0.00	0.22	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		22.0%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
6: Galesway Boulevard & Bandlebrook Court

03-19-2020

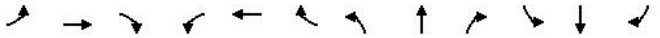


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	160	355	15	10	0
Future Volume (Veh/h)	5	160	355	15	10	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	174	386	16	11	0
Pedestrians		2			4	
Lane Width (m)		3.7			3.5	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	406				582	400
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	406				582	400
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	100
cM capacity (veh/h)	1160				475	651

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	179	402	11
Volume Left	5	0	11
Volume Right	0	16	0
cSH	1160	1700	475
Volume to Capacity	0.00	0.24	0.02
Queue Length 95th (m)	0.1	0.0	0.6
Control Delay (s)	0.3	0.0	12.8
Lane LOS	A		B
Approach Delay (s)	0.3	0.0	12.8
Approach LOS			B

Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization		30.3%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
7: Prestonwood Crescent/Brookhaven Way & Galesway Boulevard 03-19-2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	15	155	0	15	300	35	0	5	15	40	25	70
Future Volume (vph)	15	155	0	15	300	35	0	5	15	40	25	70
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	16	170	0	16	330	38	0	5	16	44	27	77

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	186	384	21	148
Volume Left (vph)	16	16	0	44
Volume Right (vph)	0	38	16	77
Hadj (s)	0.02	-0.05	-0.46	-0.25
Departure Headway (s)	4.8	4.5	5.0	5.0
Degree Utilization, x	0.25	0.48	0.03	0.21
Capacity (veh/h)	703	766	609	647
Control Delay (s)	9.4	11.7	8.2	9.3
Approach Delay (s)	9.4	11.7	8.2	9.3
Approach LOS	A	B	A	A

Intersection Summary				
Delay		10.5		
Level of Service		B		
Intersection Capacity Utilization		43.0%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Signalized Intersection Capacity Analysis
1: Whitehorn Avenue/Bidwell Trail & Britannia Road W

03-19-2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	2735	65	30	845	15	90	40	140	70	45	30
Future Volume (vph)	25	2735	65	30	845	15	90	40	140	70	45	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.9	6.9		3.0	6.9	6.9	7.3	7.3		7.3	7.3	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.98	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.88		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1781	5167		1552	4948	1194	1656	1659		1747	1741	
Flt Permitted	0.31	1.00		0.05	1.00	1.00	0.71	1.00		0.46	1.00	
Satd. Flow (perm)	588	5167		78	4948	1194	1233	1659		842	1741	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	26	2820	67	31	871	15	93	41	144	72	46	31
RTOR Reduction (vph)	0	1	0	0	0	4	0	76	0	0	17	0
Lane Group Flow (vph)	26	2886	0	31	871	11	93	109	0	72	60	0
Confl. Peds. (#/hr)	3		6	6		3	15		2	2		15
Heavy Vehicles (%)	0%	1%	4%	15%	6%	25%	6%	5%	0%	2%	0%	6%
Bus Blockages (#/hr)	0	0	0	0	0	10	0	0	0	0	0	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	81.1	81.1		87.4	87.4	87.4	15.2	15.2		15.2	15.2	
Effective Green, g (s)	81.1	81.1		87.4	87.4	87.4	15.2	15.2		15.2	15.2	
Actuated g/C Ratio	0.69	0.69		0.75	0.75	0.75	0.13	0.13		0.13	0.13	
Clearance Time (s)	6.9	6.9		3.0	6.9	6.9	7.3	7.3		7.3	7.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	408	3587		100	3702	893	160	215		109	226	
v/s Ratio Prot		c0.56		c0.01	0.18			0.07			0.03	
v/s Ratio Perm	0.04			0.22		0.01	0.08			c0.09		
v/c Ratio	0.06	0.80		0.31	0.24	0.01	0.58	0.51		0.66	0.26	
Uniform Delay, d1	5.7	12.4		15.2	4.5	3.7	47.8	47.3		48.3	45.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	1.4		1.8	0.0	0.0	5.3	1.9		14.0	0.6	
Delay (s)	5.8	13.7		17.0	4.5	3.7	53.1	49.2		62.4	46.4	
Level of Service	A	B		B	A	A	D	D		E	D	
Approach Delay (s)		13.7			4.9			50.5			54.1	
Approach LOS		B			A			D			D	

Intersection Summary				
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.77			
Actuated Cycle Length (s)	116.8	Sum of lost time (s)	17.2	
Intersection Capacity Utilization	92.4%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Brookhaven Way/Douguy Boulevard & Britannia Road W

03-19-2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	2845	20	5	780	25	25	25	55	30	20	85
Future Volume (vph)	80	2845	20	5	780	25	25	25	55	30	20	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.5	6.5		6.5	6.5	6.5	7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	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		0.99	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.90		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1681	5185		1785	4948	1311	1449	1700		1659	1605	
Flt Permitted	0.33	1.00		0.05	1.00	1.00	0.69	1.00		0.70	1.00	
Satd. Flow (perm)	584	5185		93	4948	1311	1047	1700		1226	1605	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	2995	21	5	821	26	26	26	58	32	21	89
RTOR Reduction (vph)	0	0	0	0	0	6	0	1	0	0	79	0
Lane Group Flow (vph)	84	3016	0	5	821	20	26	83	0	32	31	0
Confl. Peds. (#/hr)	3		2	2		3	2		8	8		2
Heavy Vehicles (%)	6%	1%	5%	0%	6%	14%	23%	0%	0%	7%	0%	5%
Bus Blockages (#/hr)	0	0	10	0	0	10	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	80.8	80.8		80.8	80.8	80.8	11.6	11.6		11.6	11.6	
Effective Green, g (s)	80.8	80.8		80.8	80.8	80.8	11.6	11.6		11.6	11.6	
Actuated g/C Ratio	0.76	0.76		0.76	0.76	0.76	0.11	0.11		0.11	0.11	
Clearance Time (s)	6.5	6.5		6.5	6.5	6.5	7.5	7.5		7.5	7.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	443	3937		70	3757	995	114	185		133	174	
v/s Ratio Prot		c0.58			0.17			c0.05			0.02	
v/s Ratio Perm	0.14			0.05		0.02	0.02			0.03		
v/c Ratio	0.19	0.77		0.07	0.22	0.02	0.23	0.45		0.24	0.18	
Uniform Delay, d1	3.6	7.4		3.3	3.7	3.1	43.3	44.4		43.4	43.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.9		0.4	0.0	0.0	1.0	1.7		0.9	0.5	
Delay (s)	3.8	8.3		3.7	3.7	3.1	44.3	46.1		44.3	43.5	
Level of Service	A	A		A	A	A	D	D		D	D	
Approach Delay (s)		8.2			3.7			45.7			43.7	
Approach LOS		A			A			D			D	

Intersection Summary				
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	106.4	Sum of lost time (s)	14.0	
Intersection Capacity Utilization	92.1%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
3: Whitehorn Avenue & Galesway Boulevard

03-19-2020

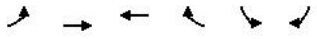
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	165	40	230	210	40	100
Future Volume (vph)	165	40	230	210	40	100
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	176	43	245	223	43	106

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	219	468	149
Volume Left (vph)	176	0	43
Volume Right (vph)	43	223	0
Hadj (s)	0.09	-0.27	0.12
Departure Headway (s)	5.4	4.5	5.2
Degree Utilization, x	0.33	0.58	0.22
Capacity (veh/h)	608	780	646
Control Delay (s)	11.1	13.5	9.6
Approach Delay (s)	11.1	13.5	9.6
Approach LOS	B	B	A

Intersection Summary			
Delay		12.2	
Level of Service		B	
Intersection Capacity Utilization		54.7%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
4: Galesway Boulevard & Cabrera Crescent

03-19-2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	245	190	0	5	15
Future Volume (Veh/h)	5	245	190	0	5	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	266	207	0	5	16
Pedestrians					2	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	209				485	209
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	209				485	209
tC, single (s)	4.3				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.3
p0 queue free %	100				99	98
cM capacity (veh/h)	1281				517	835

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	271	207	21
Volume Left	5	0	5
Volume Right	0	0	16
cSH	1281	1700	728
Volume to Capacity	0.00	0.12	0.03
Queue Length 95th (m)	0.1	0.0	0.7
Control Delay (s)	0.2	0.0	10.1
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	10.1
Approach LOS			B

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		26.9%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
5: Galesway Boulevard & Site Access

03-19-2020

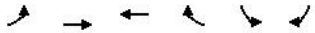
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	250	190	0	0	0
Future Volume (Veh/h)	0	250	190	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	272	207	0	0	0
Pedestrians					2	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	209				481	209
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	209				481	209
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1372				547	835

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	272	207	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1372	1700	1700
Volume to Capacity	0.00	0.12	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		16.5%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
6: Galesway Boulevard & Bandlebrook Court

03-19-2020

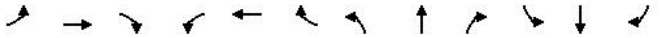


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	245	175	0	15	15
Future Volume (Veh/h)	5	245	175	0	15	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	5	255	182	0	16	16
Pedestrians		1	1		3	
Lane Width (m)		3.7	3.7		3.5	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		0	0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	185				451	186
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	185				451	186
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				97	98
cM capacity (veh/h)	1398				566	858

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	260	182	32
Volume Left	5	0	16
Volume Right	0	0	16
cSH	1398	1700	682
Volume to Capacity	0.00	0.11	0.05
Queue Length 95th (m)	0.1	0.0	1.2
Control Delay (s)	0.2	0.0	10.5
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	10.5
Approach LOS			B

Intersection Summary				
Average Delay		0.8		
Intersection Capacity Utilization		27.2%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
7: Prestonwood Crescent/Brookhaven Way & Galesway Boulevard 03-19-2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	45	215	0	5	155	40	5	20	20	25	5	15
Future Volume (vph)	45	215	0	5	155	40	5	20	20	25	5	15
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	45	217	0	5	157	40	5	20	20	25	5	15

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	262	202	45	45
Volume Left (vph)	45	5	5	25
Volume Right (vph)	0	40	20	15
Hadj (s)	0.05	-0.01	-0.21	0.05
Departure Headway (s)	4.4	4.4	4.8	5.1
Degree Utilization, x	0.32	0.25	0.06	0.06
Capacity (veh/h)	795	784	674	640
Control Delay (s)	9.5	8.8	8.1	8.4
Approach Delay (s)	9.5	8.8	8.1	8.4
Approach LOS	A	A	A	A

Intersection Summary				
Delay		9.0		
Level of Service		A		
Intersection Capacity Utilization		43.9%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Signalized Intersection Capacity Analysis
1: Whitehorn Avenue/Bidwell Trail & Britannia Road W

03-19-2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	1305	90	125	1885	145	95	60	55	85	100	50
Future Volume (vph)	40	1305	90	125	1885	145	95	60	55	85	100	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.9	6.9		6.9	6.9	6.9	7.3	7.3		7.3	7.3	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.93		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1748	5135		1765	5193	1473	1761	1758		1773	1807	
Flt Permitted	0.08	1.00		0.15	1.00	1.00	0.65	1.00		0.68	1.00	
Satd. Flow (perm)	139	5135		281	5193	1473	1197	1758		1268	1807	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	1374	95	132	1984	153	100	63	58	89	105	53
RTOR Reduction (vph)	0	5	0	0	0	46	0	23	0	0	12	0
Lane Group Flow (vph)	42	1464	0	132	1984	107	100	98	0	89	146	0
Confl. Peds. (#/hr)	10		7	7		10	17		8	8		17
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	2%	1%	0%	1%	1%	0%	0%	0%	1%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	10	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	64.6	64.6		64.6	64.6	64.6	16.6	16.6		16.6	16.6	
Effective Green, g (s)	64.6	64.6		64.6	64.6	64.6	16.6	16.6		16.6	16.6	
Actuated g/C Ratio	0.68	0.68		0.68	0.68	0.68	0.17	0.17		0.17	0.17	
Clearance Time (s)	6.9	6.9		6.9	6.9	6.9	7.3	7.3		7.3	7.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	94	3477		190	3516	997	208	305		220	314	
v/s Ratio Prot		0.29			0.38			0.06			0.08	
v/s Ratio Perm	0.30			c0.47		0.07	c0.08			0.07		
v/c Ratio	0.45	0.42		0.69	0.56	0.11	0.48	0.32		0.40	0.46	
Uniform Delay, d1	7.1	7.0		9.4	8.0	5.4	35.5	34.5		35.0	35.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.4	0.1		10.5	0.2	0.0	1.7	0.6		1.2	1.1	
Delay (s)	10.5	7.0		19.9	8.3	5.4	37.3	35.1		36.2	36.5	
Level of Service	B	A		B	A	A	D	D		D	D	
Approach Delay (s)		7.1			8.7			36.1			36.4	
Approach LOS		A			A			D			D	

Intersection Summary				
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.65			
Actuated Cycle Length (s)	95.4	Sum of lost time (s)	14.2	
Intersection Capacity Utilization	92.2%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
2: Brookhaven Way/Douguy Boulevard & Britannia Road W

03-19-2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	1325	30	70	2065	65	20	20	15	45	35	70
Future Volume (vph)	90	1325	30	70	2065	65	20	20	15	45	35	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.5	6.5		6.5	6.5	6.5	7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.94		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1766	5172		1781	5245	1485	1767	1789		1743	1702	
Flt Permitted	0.07	1.00		0.17	1.00	1.00	0.69	1.00		0.73	1.00	
Satd. Flow (perm)	132	5172		325	5245	1485	1278	1789		1346	1702	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	93	1366	31	72	2129	67	21	21	15	46	36	72
RTOR Reduction (vph)	0	1	0	0	0	11	0	14	0	0	10	0
Lane Group Flow (vph)	93	1396	0	72	2129	56	21	22	0	46	98	0
Confl. Peds. (#/hr)	5		8	8		5	12		4	4		12
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	1%	1%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Bus Blockages (#/hr)	0	0	10	0	0	10	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	102.6	102.6		102.6	102.6	102.6	12.7	12.7		12.7	12.7	
Effective Green, g (s)	102.6	102.6		102.6	102.6	102.6	12.7	12.7		12.7	12.7	
Actuated g/C Ratio	0.79	0.79		0.79	0.79	0.79	0.10	0.10		0.10	0.10	
Clearance Time (s)	6.5	6.5		6.5	6.5	6.5	7.5	7.5		7.5	7.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	104	4104		257	4161	1178	125	175		132	167	
v/s Ratio Prot		0.27			0.41			0.01			c0.06	
v/s Ratio Perm	c0.70			0.22		0.04	0.02			0.03		
v/c Ratio	0.89	0.34		0.28	0.51	0.05	0.17	0.13		0.35	0.59	
Uniform Delay, d1	9.5	3.8		3.5	4.6	2.9	53.5	53.2		54.4	55.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	55.6	0.0		0.6	0.1	0.0	0.6	0.3		1.6	5.2	
Delay (s)	65.1	3.8		4.1	4.7	2.9	54.1	53.6		56.0	61.0	
Level of Service	E	A		A	A	A	D	D		E	E	
Approach Delay (s)		7.7			4.7			53.8			59.5	
Approach LOS		A			A			D			E	

Intersection Summary				
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.85			
Actuated Cycle Length (s)	129.3	Sum of lost time (s)	14.0	
Intersection Capacity Utilization	84.1%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
3: Whitehorn Avenue & Galesway Boulevard

03-19-2020

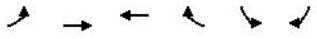
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	270	85	125	115	60	255
Future Volume (vph)	270	85	125	115	60	255
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	287	90	133	122	64	271

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	377	255	335
Volume Left (vph)	287	0	64
Volume Right (vph)	90	122	0
Hadj (s)	0.01	-0.29	0.04
Departure Headway (s)	5.5	5.3	5.5
Degree Utilization, x	0.57	0.37	0.51
Capacity (veh/h)	624	629	628
Control Delay (s)	15.6	11.4	14.0
Approach Delay (s)	15.6	11.4	14.0
Approach LOS	C	B	B

Intersection Summary			
Delay		13.9	
Level of Service		B	
Intersection Capacity Utilization		60.9%	ICU Level of Service B
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
4: Galesway Boulevard & Cabrera Crescent

03-19-2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	165	350	10	5	5
Future Volume (Veh/h)	10	165	350	10	5	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	11	177	376	11	5	5
Pedestrians					3	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	390				584	384
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	390				584	384
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	99
cM capacity (veh/h)	1177				472	666

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	188	387	10
Volume Left	11	0	5
Volume Right	0	11	5
cSH	1177	1700	552
Volume to Capacity	0.01	0.23	0.02
Queue Length 95th (m)	0.2	0.0	0.4
Control Delay (s)	0.6	0.0	11.6
Lane LOS	A		B
Approach Delay (s)	0.6	0.0	11.6
Approach LOS			B

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		29.0%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
5: Galesway Boulevard & Site Access

03-19-2020

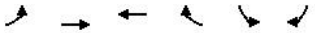
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	170	360	0	0	0
Future Volume (Veh/h)	0	170	360	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	183	387	0	0	0
Pedestrians					3	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	390				573	390
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	390				573	390
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1177				483	661

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	183	387	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1177	1700	1700
Volume to Capacity	0.00	0.23	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		22.3%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
6: Galesway Boulevard & Bandlebrook Court

03-19-2020

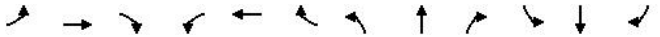


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	165	360	15	10	0
Future Volume (Veh/h)	5	165	360	15	10	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	179	391	16	11	0
Pedestrians		2			4	
Lane Width (m)		3.7			3.5	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	411				592	405
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	411				592	405
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	100
cM capacity (veh/h)	1155				469	647

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	184	407	11
Volume Left	5	0	11
Volume Right	0	16	0
cSH	1155	1700	469
Volume to Capacity	0.00	0.24	0.02
Queue Length 95th (m)	0.1	0.0	0.6
Control Delay (s)	0.3	0.0	12.9
Lane LOS	A		B
Approach Delay (s)	0.3	0.0	12.9
Approach LOS			B

Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization		30.5%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
7: Prestonwood Crescent/Brookhaven Way & Galesway Boulevard 03-19-2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	15	160	0	15	305	35	0	5	15	40	25	70
Future Volume (vph)	15	160	0	15	305	35	0	5	15	40	25	70
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	16	176	0	16	335	38	0	5	16	44	27	77

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	192	389	21	148
Volume Left (vph)	16	16	0	44
Volume Right (vph)	0	38	16	77
Hadj (s)	0.02	-0.05	-0.46	-0.25
Departure Headway (s)	4.8	4.5	5.0	5.0
Degree Utilization, x	0.26	0.49	0.03	0.21
Capacity (veh/h)	702	765	604	643
Control Delay (s)	9.5	11.8	8.2	9.3
Approach Delay (s)	9.5	11.8	8.2	9.3
Approach LOS	A	B	A	A

Intersection Summary				
Delay		10.6		
Level of Service		B		
Intersection Capacity Utilization		43.4%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Signalized Intersection Capacity Analysis
1: Whitehorn Avenue/Bidwell Trail & Britannia Road W

03-20-2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	2735	70	30	845	15	100	45	140	70	45	30
Future Volume (vph)	25	2735	70	30	845	15	100	45	140	70	45	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.9	6.9		3.0	6.9	6.9	7.3	7.3		7.3	7.3	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.98	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.89		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1781	5165		1552	4948	1193	1656	1664		1747	1741	
Flt Permitted	0.31	1.00		0.05	1.00	1.00	0.71	1.00		0.45	1.00	
Satd. Flow (perm)	588	5165		77	4948	1193	1232	1664		829	1741	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	26	2820	72	31	871	15	103	46	144	72	46	31
RTOR Reduction (vph)	0	1	0	0	0	4	0	75	0	0	17	0
Lane Group Flow (vph)	26	2891	0	31	871	11	103	115	0	72	60	0
Confl. Peds. (#/hr)	3		6	6		3	15		2	2		15
Heavy Vehicles (%)	0%	1%	4%	15%	6%	25%	6%	5%	0%	2%	0%	6%
Bus Blockages (#/hr)	0	0	0	0	0	10	0	0	0	0	0	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	82.1	82.1		88.4	88.4	88.4	16.4	16.4		16.4	16.4	
Effective Green, g (s)	82.1	82.1		88.4	88.4	88.4	16.4	16.4		16.4	16.4	
Actuated g/C Ratio	0.69	0.69		0.74	0.74	0.74	0.14	0.14		0.14	0.14	
Clearance Time (s)	6.9	6.9		3.0	6.9	6.9	7.3	7.3		7.3	7.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	405	3563		98	3675	886	169	229		114	239	
v/s Ratio Prot		c0.56		c0.01	0.18			0.07			0.03	
v/s Ratio Perm	0.04			0.23		0.01	0.08			c0.09		
v/c Ratio	0.06	0.81		0.32	0.24	0.01	0.61	0.50		0.63	0.25	
Uniform Delay, d1	6.0	13.0		16.1	4.8	4.0	48.3	47.5		48.4	45.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	1.5		1.9	0.0	0.0	6.1	1.7		10.9	0.6	
Delay (s)	6.1	14.5		18.0	4.8	4.0	54.4	49.2		59.3	46.4	
Level of Service	A	B		B	A	A	D	D		E	D	
Approach Delay (s)		14.4			5.2			51.1			52.6	
Approach LOS		B			A			D			D	

Intersection Summary					
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B		
HCM 2000 Volume to Capacity ratio	0.77				
Actuated Cycle Length (s)	119.0	Sum of lost time (s)	17.2		
Intersection Capacity Utilization	92.6%	ICU Level of Service	F		
Analysis Period (min)	15				

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Brookhaven Way/Douguy Boulevard & Britannia Road W

03-20-2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	2845	20	10	780	25	25	25	75	30	20	85
Future Volume (vph)	80	2845	20	10	780	25	25	25	75	30	20	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.5	6.5		6.5	6.5	6.5	7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	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		0.99	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.89		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1681	5185		1785	4948	1311	1449	1681		1659	1604	
Flt Permitted	0.33	1.00		0.05	1.00	1.00	0.69	1.00		0.69	1.00	
Satd. Flow (perm)	584	5185		92	4948	1311	1047	1681		1203	1604	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	2995	21	11	821	26	26	26	79	32	21	89
RTOR Reduction (vph)	0	0	0	0	0	7	0	1	0	0	78	0
Lane Group Flow (vph)	84	3016	0	11	821	19	26	104	0	32	32	0
Confl. Peds. (#/hr)	3		2	2		3	2		8	8		2
Heavy Vehicles (%)	6%	1%	5%	0%	6%	14%	23%	0%	0%	7%	0%	5%
Bus Blockages (#/hr)	0	0	10	0	0	10	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	81.3	81.3		81.3	81.3	81.3	13.2	13.2		13.2	13.2	
Effective Green, g (s)	81.3	81.3		81.3	81.3	81.3	13.2	13.2		13.2	13.2	
Actuated g/C Ratio	0.75	0.75		0.75	0.75	0.75	0.12	0.12		0.12	0.12	
Clearance Time (s)	6.5	6.5		6.5	6.5	6.5	7.5	7.5		7.5	7.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	437	3885		68	3707	982	127	204		146	195	
v/s Ratio Prot		c0.58			0.17			c0.06			0.02	
v/s Ratio Perm	0.14			0.12		0.01	0.02			0.03		
v/c Ratio	0.19	0.78		0.16	0.22	0.02	0.20	0.51		0.22	0.16	
Uniform Delay, d1	4.0	8.1		3.9	4.1	3.5	42.9	44.6		43.0	42.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	1.0		1.1	0.0	0.0	0.8	2.1		0.8	0.4	
Delay (s)	4.2	9.2		5.0	4.1	3.5	43.7	46.8		43.8	43.1	
Level of Service	A	A		A	A	A	D	D		D	D	
Approach Delay (s)		9.0			4.1			46.2			43.2	
Approach LOS		A			A			D			D	

Intersection Summary					
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B		
HCM 2000 Volume to Capacity ratio	0.74				
Actuated Cycle Length (s)	108.5	Sum of lost time (s)	14.0		
Intersection Capacity Utilization	92.1%	ICU Level of Service	F		
Analysis Period (min)	15				

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
3: Whitehorn Avenue & Galesway Boulevard

03-20-2020

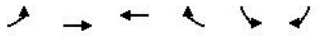
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	175	55	230	210	45	100
Future Volume (vph)	175	55	230	210	45	100
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	186	59	245	223	48	106

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	245	468	154
Volume Left (vph)	186	0	48
Volume Right (vph)	59	223	0
Hadj (s)	0.05	-0.27	0.12
Departure Headway (s)	5.4	4.6	5.3
Degree Utilization, x	0.37	0.59	0.23
Capacity (veh/h)	611	754	632
Control Delay (s)	11.6	14.0	9.9
Approach Delay (s)	11.6	14.0	9.9
Approach LOS	B	B	A

Intersection Summary			
Delay	12.6		
Level of Service	B		
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Galesway Boulevard & Cabrera Crescent

03-20-2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	250	215	0	5	15
Future Volume (Veh/h)	5	250	215	0	5	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	272	234	0	5	16
Pedestrians					2	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	236				518	236
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	236				518	236
tC, single (s)	4.3				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.3
p0 queue free %	100				99	98
cM capacity (veh/h)	1251				494	807

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	277	234	21
Volume Left	5	0	5
Volume Right	0	0	16
cSH	1251	1700	701
Volume to Capacity	0.00	0.14	0.03
Queue Length 95th (m)	0.1	0.0	0.7
Control Delay (s)	0.2	0.0	10.3
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	10.3
Approach LOS			B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	27.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
5: Galesway Boulevard & Site Access

03-20-2020

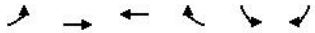
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	250	190	10	30	25
Future Volume (Veh/h)	5	250	190	10	30	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	272	207	11	33	27
Pedestrians					2	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	220				496	214
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	220				496	214
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				94	97
cM capacity (veh/h)	1359				534	829

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	277	218	60
Volume Left	5	0	33
Volume Right	0	11	27
cSH	1359	1700	636
Volume to Capacity	0.00	0.13	0.09
Queue Length 95th (m)	0.1	0.0	2.5
Control Delay (s)	0.2	0.0	11.3
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	11.3
Approach LOS			B

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	27.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
6: Galesway Boulevard & Bandlebrook Court

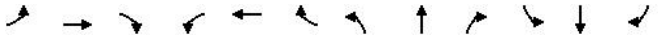
03-20-2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	275	185	0	15	15
Future Volume (Veh/h)	5	275	185	0	15	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	5	286	193	0	16	16
Pedestrians		1	1		3	
Lane Width (m)		3.7	3.7		3.5	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		0	0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	196				493	197
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	196				493	197
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				97	98
cM capacity (veh/h)	1386				535	847

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	291	193	32
Volume Left	5	0	16
Volume Right	0	0	16
cSH	1386	1700	656
Volume to Capacity	0.00	0.11	0.05
Queue Length 95th (m)	0.1	0.0	1.2
Control Delay (s)	0.2	0.0	10.8
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	10.8
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	28.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	65	225	0	5	160	40	5	20	20	25	5	20
Future Volume (vph)	65	225	0	5	160	40	5	20	20	25	5	20
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	66	227	0	5	162	40	5	20	20	25	5	20

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	293	207	45	50
Volume Left (vph)	66	5	5	25
Volume Right (vph)	0	40	20	20
Hadj (s)	0.07	-0.01	-0.21	-0.01
Departure Headway (s)	4.4	4.5	4.9	5.1
Degree Utilization, x	0.36	0.26	0.06	0.07
Capacity (veh/h)	789	774	657	632
Control Delay (s)	9.9	9.0	8.2	8.5
Approach Delay (s)	9.9	9.0	8.2	8.5
Approach LOS	A	A	A	A

Intersection Summary				
Delay		9.4		
Level of Service		A		
Intersection Capacity Utilization		46.0%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Signalized Intersection Capacity Analysis
1: Whitehorn Avenue/Bidwell Trail & Britannia Road W

03-19-2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	1305	95	125	1885	145	100	65	55	85	105	50
Future Volume (vph)	40	1305	95	125	1885	145	100	65	55	85	105	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.9	6.9		6.9	6.9	6.9	7.3	7.3		7.3	7.3	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.93		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1748	5132		1765	5193	1473	1761	1764		1773	1811	
Flt Permitted	0.08	1.00		0.15	1.00	1.00	0.62	1.00		0.68	1.00	
Satd. Flow (perm)	139	5132		279	5193	1473	1158	1764		1262	1811	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	1374	100	132	1984	153	105	68	58	89	111	53
RTOR Reduction (vph)	0	5	0	0	0	46	0	21	0	0	12	0
Lane Group Flow (vph)	42	1469	0	132	1984	107	105	105	0	89	152	0
Confl. Peds. (#/hr)	10		7	7		10	17		8	8		17
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	2%	1%	0%	1%	1%	0%	0%	0%	1%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	10	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	66.0	66.0		66.0	66.0	66.0	16.9	16.9		16.9	16.9	
Effective Green, g (s)	66.0	66.0		66.0	66.0	66.0	16.9	16.9		16.9	16.9	
Actuated g/C Ratio	0.68	0.68		0.68	0.68	0.68	0.17	0.17		0.17	0.17	
Clearance Time (s)	6.9	6.9		6.9	6.9	6.9	7.3	7.3		7.3	7.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	94	3488		189	3529	1001	201	307		219	315	
v/s Ratio Prot		0.29			0.38			0.06			0.08	
v/s Ratio Perm	0.30			c0.47		0.07	c0.09			0.07		
v/c Ratio	0.45	0.42		0.70	0.56	0.11	0.52	0.34		0.41	0.48	
Uniform Delay, d1	7.2	7.0		9.5	8.1	5.4	36.4	35.2		35.6	36.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.4	0.1		10.7	0.2	0.0	2.4	0.7		1.2	1.2	
Delay (s)	10.5	7.1		20.2	8.3	5.4	38.9	35.9		36.9	37.3	
Level of Service	B	A		C	A	A	D	D		D	D	
Approach Delay (s)		7.2			8.8			37.2			37.2	
Approach LOS		A			A			D			D	

Intersection Summary				
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	97.1	Sum of lost time (s)	14.2	
Intersection Capacity Utilization	92.4%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
2: Brookhaven Way/Douguy Boulevard & Britannia Road W

03-19-2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	1325	30	95	2065	65	20	20	30	45	35	70
Future Volume (vph)	90	1325	30	95	2065	65	20	20	30	45	35	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.5	6.5		6.5	6.5	6.5	7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.91		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1766	5172		1781	5245	1485	1767	1733		1744	1702	
Flt Permitted	0.07	1.00		0.17	1.00	1.00	0.69	1.00		0.72	1.00	
Satd. Flow (perm)	132	5172		325	5245	1485	1278	1733		1327	1702	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	93	1366	31	98	2129	67	21	21	31	46	36	72
RTOR Reduction (vph)	0	1	0	0	0	11	0	28	0	0	10	0
Lane Group Flow (vph)	93	1396	0	98	2129	56	21	24	0	46	98	0
Confl. Peds. (#/hr)	5		8	8		5	12		4	4		12
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	1%	1%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Bus Blockages (#/hr)	0	0	10	0	0	10	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	102.6	102.6		102.6	102.6	102.6	12.7	12.7		12.7	12.7	
Effective Green, g (s)	102.6	102.6		102.6	102.6	102.6	12.7	12.7		12.7	12.7	
Actuated g/C Ratio	0.79	0.79		0.79	0.79	0.79	0.10	0.10		0.10	0.10	
Clearance Time (s)	6.5	6.5		6.5	6.5	6.5	7.5	7.5		7.5	7.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	104	4104		257	4161	1178	125	170		130	167	
v/s Ratio Prot		0.27			0.41			0.01			c0.06	
v/s Ratio Perm	c0.70			0.30		0.04	0.02			0.03		
v/c Ratio	0.89	0.34		0.38	0.51	0.05	0.17	0.14		0.35	0.59	
Uniform Delay, d1	9.5	3.8		4.0	4.6	2.9	53.5	53.3		54.5	55.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	55.6	0.0		0.9	0.1	0.0	0.6	0.4		1.7	5.2	
Delay (s)	65.1	3.8		4.9	4.7	2.9	54.1	53.7		56.1	61.0	
Level of Service	E	A		A	A	A	D	D		E	E	
Approach Delay (s)		7.7			4.7			53.8			59.5	
Approach LOS		A			A			D			E	

Intersection Summary				
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.85			
Actuated Cycle Length (s)	129.3	Sum of lost time (s)	14.0	
Intersection Capacity Utilization	84.1%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
3: Whitehorn Avenue & Galesway Boulevard

03-19-2020

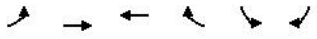
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	275	95	125	125	70	255
Future Volume (vph)	275	95	125	125	70	255
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	293	101	133	133	74	271

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	394	266	345
Volume Left (vph)	293	0	74
Volume Right (vph)	101	133	0
Hadj (s)	-0.01	-0.30	0.04
Departure Headway (s)	5.5	5.4	5.6
Degree Utilization, x	0.61	0.40	0.53
Capacity (veh/h)	619	620	616
Control Delay (s)	16.7	11.8	14.7
Approach Delay (s)	16.7	11.8	14.7
Approach LOS	C	B	B

Intersection Summary			
Delay	14.7		
Level of Service	B		
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Galesway Boulevard & Cabrera Crescent

03-19-2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	185	365	10	5	5
Future Volume (Veh/h)	10	185	365	10	5	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	11	199	392	11	5	5
Pedestrians					3	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	406				622	400
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	406				622	400
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	99
cM capacity (veh/h)	1161				449	652

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	210	403	10
Volume Left	11	0	5
Volume Right	0	11	5
cSH	1161	1700	532
Volume to Capacity	0.01	0.24	0.02
Queue Length 95th (m)	0.2	0.0	0.5
Control Delay (s)	0.5	0.0	11.9
Lane LOS	A		B
Approach Delay (s)	0.5	0.0	11.9
Approach LOS			B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	29.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
5: Galesway Boulevard & Site Access

03-19-2020

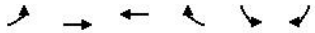
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	170	360	40	20	15
Future Volume (Veh/h)	20	170	360	40	20	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	22	183	387	43	22	16
Pedestrians					3	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	433				638	412
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	433				638	412
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				95	98
cM capacity (veh/h)	1135				434	643

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	205	430	38
Volume Left	22	0	22
Volume Right	0	43	16
cSH	1135	1700	503
Volume to Capacity	0.02	0.25	0.08
Queue Length 95th (m)	0.5	0.0	2.0
Control Delay (s)	1.0	0.0	12.7
Lane LOS	A		B
Approach Delay (s)	1.0	0.0	12.7
Approach LOS			B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
6: Galesway Boulevard & Bandlebrook Court

03-19-2020

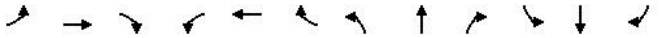


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	185	400	15	10	0
Future Volume (Veh/h)	5	185	400	15	10	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	201	435	16	11	0
Pedestrians		2			4	
Lane Width (m)		3.7			3.5	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	455				658	449
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	455				658	449
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				97	100
cM capacity (veh/h)	1113				429	611

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	206	451	11
Volume Left	5	0	11
Volume Right	0	16	0
cSH	1113	1700	429
Volume to Capacity	0.00	0.27	0.03
Queue Length 95th (m)	0.1	0.0	0.6
Control Delay (s)	0.2	0.0	13.6
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	13.6
Approach LOS			B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
7: Prestonwood Crescent/Brookhaven Way & Galesway Boulevard 03-19-2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	30	165	0	15	320	35	0	5	15	40	25	95
Future Volume (vph)	30	165	0	15	320	35	0	5	15	40	25	95
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	33	181	0	16	352	38	0	5	16	44	27	104

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	214	406	21	175
Volume Left (vph)	33	16	0	44
Volume Right (vph)	0	38	16	104
Hadj (s)	0.03	-0.05	-0.46	-0.31
Departure Headway (s)	5.0	4.7	5.3	5.1
Degree Utilization, x	0.30	0.53	0.03	0.25
Capacity (veh/h)	682	744	573	635
Control Delay (s)	10.0	12.7	8.4	9.8
Approach Delay (s)	10.0	12.7	8.4	9.8
Approach LOS	B	B	A	A

Intersection Summary				
Delay		11.3		
Level of Service		B		
Intersection Capacity Utilization		44.5%	ICU Level of Service	A
Analysis Period (min)		15		

Appendix E: Existing Turning Movement Count (TMC) Data

Turning Movement Count (1 . BRITANNIA RD W & BIDWELL TR / WHITEHORN AVE) CustID: 00303738 MioID: 758381

Start Time	N Approach BIDWELL TR						E Approach BRITANNIA RD W						S Approach WHITEHORN AVE						W Approach BRITANNIA RD W						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:00:00	6	0	6	0	0	12	3	129	10	0	0	142	26	1	6	0	1	33	7	465	7	0	0	479	666	
07:15:00	9	2	9	0	1	20	0	147	8	0	0	155	30	9	9	0	0	48	9	534	1	0	6	544	767	
07:30:00	4	6	16	0	1	26	3	172	7	0	1	182	37	4	25	0	0	66	8	698	2	0	4	708	982	
07:45:00	7	4	13	0	0	24	1	217	7	1	0	226	23	4	12	0	4	39	11	646	5	0	4	662	951	3366
08:00:00	7	16	20	0	1	43	4	232	8	0	0	244	38	5	25	0	1	68	9	652	6	1	4	668	1023	3723
08:15:00	13	9	23	0	1	45	8	196	10	0	1	214	42	6	28	0	1	76	17	644	10	0	3	671	1006	3962
08:30:00	9	11	13	0	0	33	6	220	4	0	0	230	33	9	26	0	1	68	15	604	4	0	2	623	954	3934
08:45:00	4	8	21	0	1	33	7	184	10	0	0	201	46	9	22	0	1	77	14	534	9	1	1	558	869	3852
BREAK																										
16:00:00	9	15	18	0	7	42	30	440	33	0	7	503	20	7	25	0	1	52	14	238	17	1	1	270	867	
16:15:00	15	31	26	0	3	72	33	403	26	0	2	462	22	17	24	0	0	63	18	270	11	0	7	299	896	
16:30:00	6	18	17	0	0	41	24	437	23	0	0	484	12	7	19	0	0	38	13	267	11	2	4	293	856	
16:45:00	10	22	22	0	4	54	39	471	28	0	3	538	20	11	27	0	4	58	17	288	4	0	2	309	959	3578
17:00:00	13	28	23	0	2	64	24	404	29	0	2	457	12	17	25	0	0	54	18	282	15	0	5	315	890	3601
17:15:00	10	23	20	0	1	53	35	466	32	1	1	534	13	9	14	0	3	36	23	347	8	2	2	380	1003	3708
17:30:00	19	27	18	0	3	64	45	457	37	0	2	539	10	14	23	0	0	47	18	265	12	0	8	295	945	3797
17:45:00	13	26	25	0	2	64	18	394	25	0	1	437	17	13	19	0	3	49	38	303	12	0	4	353	903	3741
Grand Total	154	246	290	0	27	690	280	4969	297	2	20	5548	401	142	329	0	20	872	249	7037	134	7	57	7427	**14537**	-
Approach%	22.3%	35.7%	42%	0%		-	5%	89.6%	5.4%	0%		-	46%	16.3%	37.7%	0%		-	3.4%	94.7%	1.8%	0.1%		-	-	-
Totals %	1.1%	1.7%	2%	0%		4.7%	1.9%	34.2%	2%	0%		38.2%	2.8%	1%	2.3%	0%		6%	1.7%	48.4%	0.9%	0%		51.1%	-	-
Heavy	2	0	4	0		-	5	135	11	0		-	6	2	9	0		-	7	121	3	0		-	-	-
Heavy %	1.3%	0%	1.4%	0%		-	1.8%	2.7%	3.7%	0%		-	1.5%	1.4%	2.7%	0%		-	2.8%	1.7%	2.2%	0%		-	-	-
Bicycles	0	0	0	0		-	0	1	0	0		-	0	1	0	0		-	0	0	0	0		-	-	-
Bicycle %	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0.7%	0%	0%		-	0%	0%	0%	0%		-	-	-

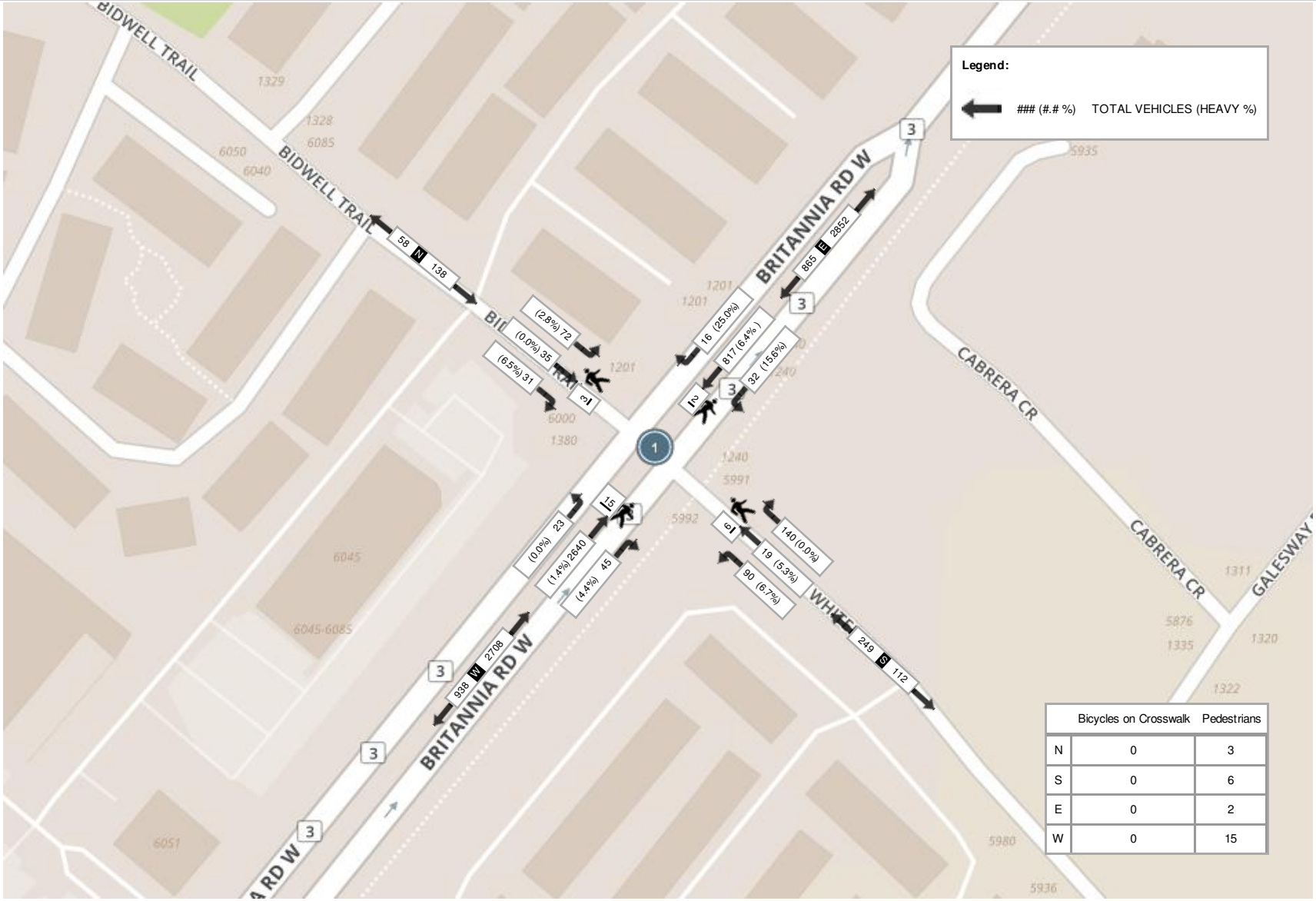
Peak Hour: 07:30 AM - 08:30 AM Weather: Scattered Clouds (-3.14 °C)

Start Time	N Approach BIDWELL TR						E Approach BRITANNIA RD W						S Approach WHITEHORN AVE						W Approach BRITANNIA RD W						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
07:30:00	4	6	16	0	1	26	3	172	7	0	1	182	37	4	25	0	0	66	8	698	2	0	4	708	982
07:45:00	7	4	13	0	0	24	1	217	7	1	0	226	23	4	12	0	4	39	11	646	5	0	4	662	951
08:00:00	7	16	20	0	1	43	4	232	8	0	0	244	38	5	25	0	1	68	9	652	6	1	4	668	1023
08:15:00	13	9	23	0	1	45	8	196	10	0	1	214	42	6	28	0	1	76	17	644	10	0	3	671	1006
Grand Total	31	35	72	0	3	138	16	817	32	1	2	866	140	19	90	0	6	249	45	2640	23	1	15	2709	**3962**
Approach%	22.5%	25.4%	52.2%	0%		-	1.8%	94.3%	3.7%	0.1%		-	56.2%	7.6%	36.1%	0%		-	1.7%	97.5%	0.8%	0%		-	**-**
Totals %	0.8%	0.9%	1.8%	0%		3.5%	0.4%	20.6%	0.8%	0%		21.9%	3.5%	0.5%	2.3%	0%		6.3%	1.1%	66.6%	0.6%	0%		68.4%	**-**
PHF	0.6	0.55	0.78	0		0.77	0.5	0.88	0.8	0.25		0.89	0.83	0.79	0.8	0		0.82	0.66	0.95	0.58	0.25		0.96	**-**
Heavy	2	0	2	0		4	4	52	5	0		61	0	1	6	0		7	2	36	0	0		38	**-**
Heavy %	6.5%	0%	2.8%	0%		2.9%	25%	6.4%	15.6%	0%		7%	0%	5.3%	6.7%	0%		2.8%	4.4%	1.4%	0%	0%		1.4%	**-**
Lights	29	35	70	0		134	12	765	27	1		805	140	18	84	0		242	43	2604	23	1		2671	**-**
Lights %	93.5%	100%	97.2%	0%		97.1%	75%	93.6%	84.4%	100%		93%	100%	94.7%	93.3%	0%		97.2%	95.6%	98.6%	100%	100%		98.6%	**-**
Single-Unit Trucks	1	0	1	0		2	2	19	1	0		22	0	0	0	0		0	0	13	0	0		13	**-**
Single-Unit Trucks %	3.2%	0%	1.4%	0%		1.4%	12.5%	2.3%	3.1%	0%		2.5%	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.5%	**-**
Buses	1	0	1	0		2	0	31	4	0		35	0	1	6	0		7	2	17	0	0		19	**-**
Buses %	3.2%	0%	1.4%	0%		1.4%	0%	3.8%	12.5%	0%		4%	0%	5.3%	6.7%	0%		2.8%	4.4%	0.6%	0%	0%		0.7%	**-**
Articulated Trucks	0	0	0	0		0	2	2	0	0		4	0	0	0	0		0	0	6	0	0		6	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	12.5%	0.2%	0%	0%		0.5%	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.2%	**-**
Pedestrians	-	-	-	-	3	-	-	-	-	-	2	-	-	-	-	-	6	-	-	-	-	-	15	-	**-**
Pedestrians%	-	-	-	-	11.5%		-	-	-	-	7.7%		-	-	-	-	23.1%		-	-	-	-	57.7%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 04:45 PM - 05:45 PM Weather: Broken Clouds (3.3 °C)

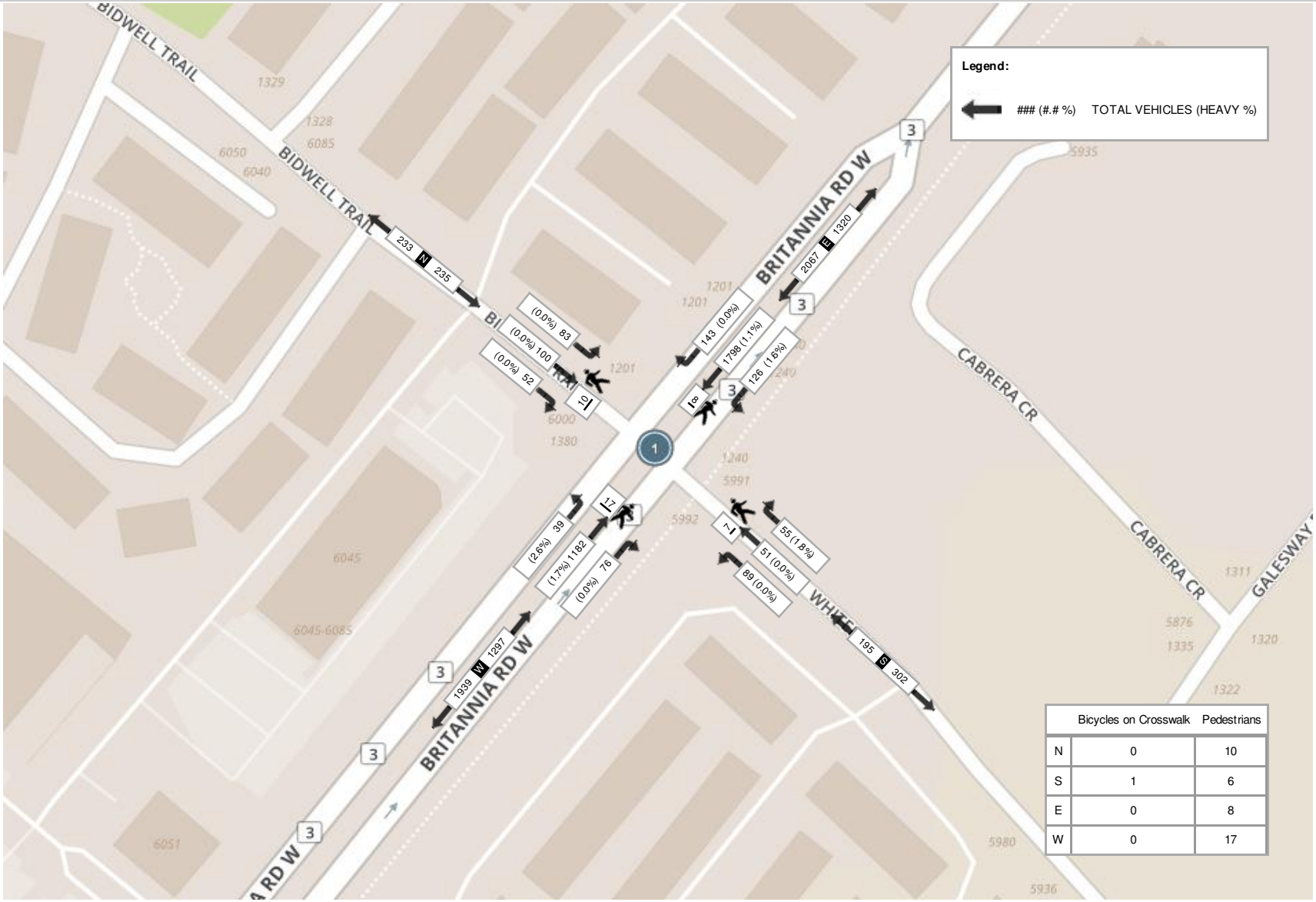
Start Time	N Approach BIDWELL TR						E Approach BRITANNIA RD W						S Approach WHITEHORN AVE						W Approach BRITANNIA RD W						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
16:45:00	10	22	22	0	4	54	39	471	28	0	3	538	20	11	27	0	4	58	17	288	4	0	2	309	959
17:00:00	13	28	23	0	2	64	24	404	29	0	2	457	12	17	25	0	0	54	18	282	15	0	5	315	890
17:15:00	10	23	20	0	1	53	35	466	32	1	1	534	13	9	14	0	3	36	23	347	8	2	2	380	1003
17:30:00	19	27	18	0	3	64	45	457	37	0	2	539	10	14	23	0	0	47	18	265	12	0	8	295	945
Grand Total	52	100	83	0	10	235	143	1798	126	1	8	2068	55	51	89	0	7	195	76	1182	39	2	17	1299	**3797**
Approach%	22.1%	42.6%	35.3%	0%		-	6.9%	86.9%	6.1%	0%		-	28.2%	26.2%	45.6%	0%		-	5.9%	91%	3%	0.2%		-	**-**
Totals %	1.4%	2.6%	2.2%	0%		6.2%	3.8%	47.4%	3.3%	0%		54.5%	1.4%	1.3%	2.3%	0%		5.1%	2%	31.1%	1%	0.1%		34.2%	**-**
PHF	0.68	0.89	0.9	0		0.92	0.79	0.95	0.85	0.25		0.96	0.69	0.75	0.82	0		0.84	0.83	0.85	0.65	0.25		0.85	**-**
Heavy	0	0	0	0		0	0	19	2	0		21	1	0	0	0		1	0	20	1	0		21	**-**
Heavy %	0%	0%	0%	0%		0%	0%	1.1%	1.6%	0%		1%	1.8%	0%	0%	0%		0.5%	0%	1.7%	2.6%	0%		1.6%	**-**
Lights	52	100	83	0		235	143	1779	124	1		2047	54	51	89	0		194	76	1162	38	2		1278	**-**
Lights %	100%	100%	100%	0%		100%	100%	98.9%	98.4%	100%		99%	98.2%	100%	100%	0%		99.5%	100%	98.3%	97.4%	100%		98.4%	**-**
Single-Unit Trucks	0	0	0	0		0	0	5	1	0		6	1	0	0	0		1	0	10	1	0		11	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0.3%	0.8%	0%		0.3%	1.8%	0%	0%	0%		0.5%	0%	0.8%	2.6%	0%		0.8%	**-**
Buses	0	0	0	0		0	0	8	1	0		9	0	0	0	0		0	0	6	0	0		6	**-**
Buses %	0%	0%	0%	0%		0%	0%	0.4%	0.8%	0%		0.4%	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.5%	**-**
Articulated Trucks	0	0	0	0		0	0	6	0	0		6	0	0	0	0		0	0	4	0	0		4	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	**-**
Pedestrians	-	-	-	-	10	-	-	-	-	-	8	-	-	-	-	-	6	-	-	-	-	-	17	-	**-**
Pedestrians%	-	-	-	-	23.8%		-	-	-	-	19%		-	-	-	-	14.3%		-	-	-	-	40.5%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	2.4%		-	-	-	-	0%		**-**
Bicycles on Road	0	0	0	0	0	-	0	1	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 07:30 AM - 08:30 AM Weather: Scattered Clouds (-3.14 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	3
S	0	6
E	0	2
W	0	15

Peak Hour: 04:45 PM - 05:45 PM Weather: Broken Clouds (3.3 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	10
S	1	6
E	0	8
W	0	17

Turning Movement Count (2 . BRITANNIA RD W & BROOKHAVEN WAY / DOUGUY BLVD) CustID: 00303298 MioID: 758383

Start Time	N Approach DOUGUY BLVD						E Approach BRITANNIA RD W						S Approach BROOKHAVEN WAY						W Approach BRITANNIA RD W						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:00:00	12	0	1	0	0	13	0	126	3	0	1	129	7	0	0	0	2	7	2	494	8	0	2	504	653	
07:15:00	21	1	4	0	2	26	3	135	4	0	5	142	8	0	5	0	2	13	1	540	13	0	1	554	735	
07:30:00	18	0	5	0	1	23	4	150	1	0	6	155	13	5	11	0	1	29	5	723	10	0	0	738	945	
07:45:00	23	4	9	0	2	36	5	193	2	0	1	200	13	1	4	0	0	18	2	649	17	0	2	668	922	3255
08:00:00	24	1	7	0	0	32	10	215	0	0	0	225	18	3	6	0	1	27	4	705	23	0	0	732	1016	3618
08:15:00	21	3	7	0	0	31	8	182	2	0	1	192	10	9	5	0	0	24	7	693	32	0	0	732	979	3862
08:30:00	32	7	7	0	1	46	11	190	4	0	1	205	11	5	7	0	0	23	1	597	29	1	0	628	902	3819
08:45:00	23	2	12	0	1	37	28	178	3	0	1	209	13	11	5	0	1	29	6	599	31	0	0	636	911	3808
BREAK																										
16:00:00	18	5	4	0	4	27	11	430	12	0	3	453	6	5	2	0	4	13	6	229	18	0	2	253	746	
16:15:00	13	5	10	0	1	28	14	459	21	1	0	495	5	7	3	0	2	15	6	309	32	0	1	347	885	
16:30:00	19	10	5	0	1	34	14	441	9	0	2	464	3	3	8	0	1	14	8	268	15	0	0	291	803	
16:45:00	12	2	17	0	5	31	17	492	13	0	0	522	3	3	4	0	3	10	7	287	13	0	6	307	870	3304
17:00:00	10	7	10	0	1	27	19	506	20	0	0	545	2	6	5	0	2	13	5	314	22	0	4	341	926	3484
17:15:00	17	14	9	0	2	40	19	429	22	0	1	470	5	7	5	0	2	17	8	352	17	0	3	377	904	3503
17:30:00	26	4	10	0	0	40	14	501	19	0	3	534	4	3	8	0	1	15	9	265	17	1	0	292	881	3581
17:45:00	17	9	16	0	2	42	13	446	11	0	0	470	4	3	3	0	3	10	9	323	32	0	5	364	886	3597
Grand Total	306	74	133	0	23	513	190	5073	146	1	25	5410	125	71	81	0	25	277	86	7347	329	2	26	7764	**13964**	-
Approach%	59.6%	14.4%	25.9%	0%		-	3.5%	93.8%	2.7%	0%		-	45.1%	25.6%	29.2%	0%		-	1.1%	94.6%	4.2%	0%		-	-	-
Totals %	2.2%	0.5%	1%	0%		3.7%	1.4%	36.3%	1%	0%		38.7%	0.9%	0.5%	0.6%	0%		2%	0.6%	52.6%	2.4%	0%		55.6%	-	-
Heavy	8	4	7	0		-	5	132	1	0		-	2	3	8	0		-	2	119	12	0		-	-	-
Heavy %	2.6%	5.4%	5.3%	0%		-	2.6%	2.6%	0.7%	0%		-	1.6%	4.2%	9.9%	0%		-	2.3%	1.6%	3.6%	0%		-	-	-
Bicycles	0	0	0	0		-	0	1	0	0		-	0	0	0	0		-	0	0	0	0		-	-	-
Bicycle %	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	-	-

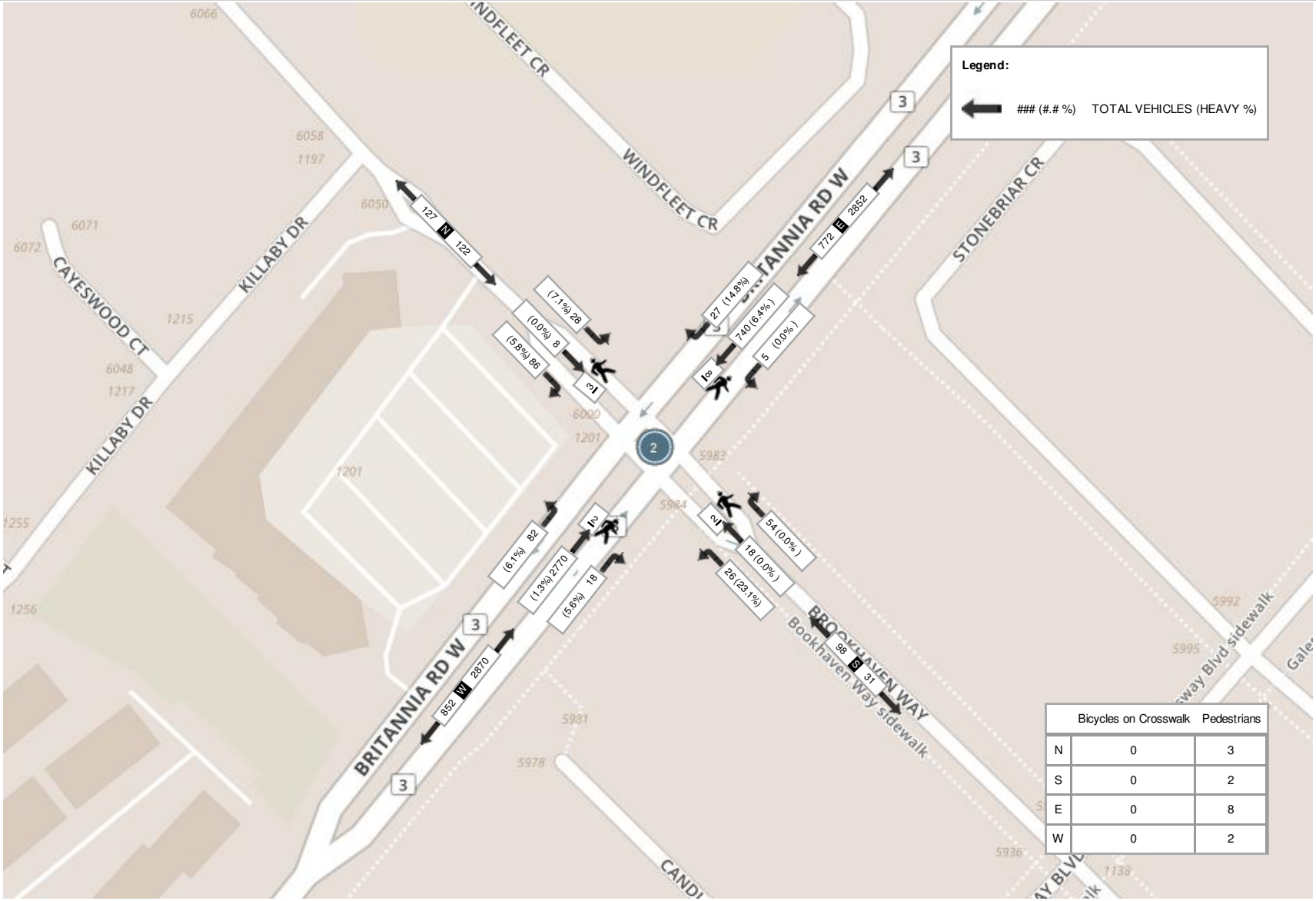
Peak Hour: 07:30 AM - 08:30 AM Weather: Scattered Clouds (-3.14 °C)

Start Time	N Approach DOUGUY BLVD						E Approach BRITANNIA RD W						S Approach BROOKHAVEN WAY						W Approach BRITANNIA RD W						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
07:30:00	18	0	5	0	1	23	4	150	1	0	6	155	13	5	11	0	1	29	5	723	10	0	0	738	945
07:45:00	23	4	9	0	2	36	5	193	2	0	1	200	13	1	4	0	0	18	2	649	17	0	2	668	922
08:00:00	24	1	7	0	0	32	10	215	0	0	0	225	18	3	6	0	1	27	4	705	23	0	0	732	1016
08:15:00	21	3	7	0	0	31	8	182	2	0	1	192	10	9	5	0	0	24	7	693	32	0	0	732	979
Grand Total	86	8	28	0	3	122	27	740	5	0	8	772	54	18	26	0	2	98	18	2770	82	0	2	2870	**3862**
Approach%	70.5%	6.6%	23%	0%		-	3.5%	95.9%	0.6%	0%		-	55.1%	18.4%	26.5%	0%		-	0.6%	96.5%	2.9%	0%		-	-
Totals %	2.2%	0.2%	0.7%	0%		3.2%	0.7%	19.2%	0.1%	0%		20%	1.4%	0.5%	0.7%	0%		2.5%	0.5%	71.7%	2.1%	0%		74.3%	-
PHF	0.9	0.5	0.78	0		0.85	0.68	0.86	0.63	0		0.86	0.75	0.5	0.59	0		0.84	0.64	0.96	0.64	0		0.97	-
Heavy	5	0	2	0		7	4	47	0	0		51	0	0	6	0		6	1	37	5	0		43	-
Heavy %	5.8%	0%	7.1%	0%		5.7%	14.8%	6.4%	0%	0%		6.6%	0%	0%	23.1%	0%		6.1%	5.6%	1.3%	6.1%	0%		1.5%	-
Lights	81	8	26	0		115	23	693	5	0		721	54	18	20	0		92	17	2733	77	0		2827	-
Lights %	94.2%	100%	92.9%	0%		94.3%	85.2%	93.6%	100%	0%		93.4%	100%	100%	76.9%	0%		93.9%	94.4%	98.7%	93.9%	0%		98.5%	-
Single-Unit Trucks	0	0	0	0		0	1	20	0	0		21	0	0	0	0		0	0	17	1	0		18	-
Single-Unit Trucks %	0%	0%	0%	0%		0%	3.7%	2.7%	0%	0%		2.7%	0%	0%	0%	0%		0%	0%	0.6%	1.2%	0%		0.6%	-
Buses	5	0	2	0		7	3	23	0	0		26	0	0	6	0		6	1	14	4	0		19	-
Buses %	5.8%	0%	7.1%	0%		5.7%	11.1%	3.1%	0%	0%		3.4%	0%	0%	23.1%	0%		6.1%	5.6%	0.5%	4.9%	0%		0.7%	-
Articulated Trucks	0	0	0	0		0	0	4	0	0		4	0	0	0	0		0	0	6	0	0		6	-
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.5%	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.2%	-
Pedestrians	-	-	-	-	3	-	-	-	-	-	8	-	-	-	-	-	2	-	-	-	-	-	2	-	-
Pedestrians%	-	-	-	-	20%		-	-	-	-	53.3%		-	-	-	-	13.3%		-	-	-	-	13.3%		-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	-
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

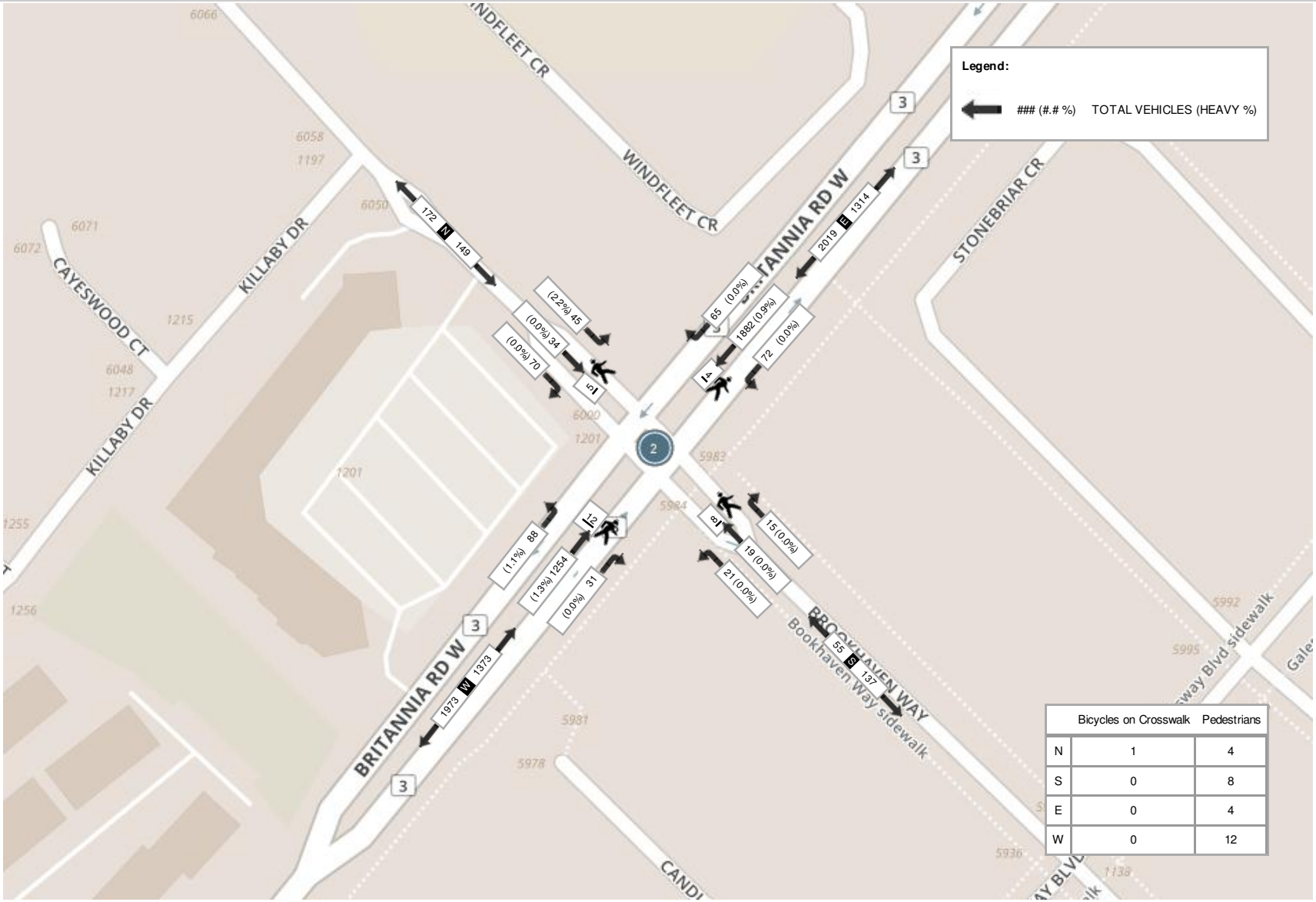
Peak Hour: 05:00 PM - 06:00 PM Weather: Broken Clouds (3.3 °C)

Start Time	N Approach DOUGUY BLVD						E Approach BRITANNIA RD W						S Approach BROOKHAVEN WAY						W Approach BRITANNIA RD W						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
17:00:00	10	7	10	0	1	27	19	506	20	0	0	545	2	6	5	0	2	13	5	314	22	0	4	341	926
17:15:00	17	14	9	0	2	40	19	429	22	0	1	470	5	7	5	0	2	17	8	352	17	0	3	377	904
17:30:00	26	4	10	0	0	40	14	501	19	0	3	534	4	3	8	0	1	15	9	265	17	1	0	292	881
17:45:00	17	9	16	0	2	42	13	446	11	0	0	470	4	3	3	0	3	10	9	323	32	0	5	364	886
Grand Total	70	34	45	0	5	149	65	1882	72	0	4	2019	15	19	21	0	8	55	31	1254	88	1	12	1374	**3597**
Approach%	47%	22.8%	30.2%	0%		-	3.2%	93.2%	3.6%	0%		-	27.3%	34.5%	38.2%	0%		-	2.3%	91.3%	6.4%	0.1%		-	**-**
Totals %	1.9%	0.9%	1.3%	0%		4.1%	1.8%	52.3%	2%	0%		56.1%	0.4%	0.5%	0.6%	0%		1.5%	0.9%	34.9%	2.4%	0%		38.2%	**-**
PHF	0.67	0.61	0.7	0		0.89	0.86	0.93	0.82	0		0.93	0.75	0.68	0.66	0		0.81	0.86	0.89	0.69	0.25		0.91	**-**
Heavy	0	0	1	0		1	0	17	0	0		17	0	0	0	0		0	0	16	1	0		17	**-**
Heavy %	0%	0%	2.2%	0%		0.7%	0%	0.9%	0%	0%		0.8%	0%	0%	0%	0%		0%	0%	1.3%	1.1%	0%		1.2%	**-**
Lights	70	34	44	0		148	65	1865	72	0		2002	15	19	21	0		55	31	1238	87	1		1357	**-**
Lights %	100%	100%	97.8%	0%		99.3%	100%	99.1%	100%	0%		99.2%	100%	100%	100%	0%		100%	100%	98.7%	98.9%	100%		98.8%	**-**
Single-Unit Trucks	0	0	1	0		1	0	7	0	0		7	0	0	0	0		0	0	5	1	0		6	**-**
Single-Unit Trucks %	0%	0%	2.2%	0%		0.7%	0%	0.4%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0.4%	1.1%	0%		0.4%	**-**
Buses	0	0	0	0		0	0	6	0	0		6	0	0	0	0		0	0	6	0	0		6	**-**
Buses %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.4%	**-**
Articulated Trucks	0	0	0	0		0	0	4	0	0		4	0	0	0	0		0	0	5	0	0		5	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0.4%	0%	0%		0.4%	**-**
Pedestrians	-	-	-	-	4	-	-	-	-	-	4	-	-	-	-	-	8	-	-	-	-	-	12	-	**-**
Pedestrians%	-	-	-	-	13.8%		-	-	-	-	13.8%		-	-	-	-	27.6%		-	-	-	-	41.4%		**-**
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	3.4%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Road	0	0	0	0	0	-	0	1	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 07:30 AM - 08:30 AM Weather: Scattered Clouds (-3.14 °C)



Peak Hour: 05:00 PM - 06:00 PM Weather: Broken Clouds (3.3 °C)



	Bicycles on Crosswalk	Pedestrians
N	1	4
S	0	8
E	0	4
W	0	12

Turning Movement Count (6 . GALESWAY BLVD & BROOKHAVEN WAY)

Start Time	N Approach BROOKHAVEN WAY						E Approach GALESWAY BLVD						S Approach BROOKHAVEN WAY						W Approach GALESWAY BLVD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:00:00	1	0	2	0	0	3	0	14	2	0	0	16	3	1	0	0	0	4	0	12	4	0	0	16	39	
07:15:00	6	2	1	0	2	9	4	12	4	0	2	20	3	2	0	0	1	5	0	21	8	0	3	29	63	
07:30:00	1	0	4	0	0	5	9	20	1	0	1	30	5	8	0	0	1	13	0	34	10	0	1	44	92	
07:45:00	2	0	8	0	2	10	5	34	2	0	1	41	2	3	0	0	1	5	0	51	9	0	0	60	116	310
08:00:00	2	0	3	0	1	5	10	32	1	0	11	43	5	7	4	0	5	16	1	61	9	0	2	71	135	406
08:15:00	3	0	9	0	0	12	6	38	0	0	1	44	4	4	0	0	0	8	0	57	16	0	0	73	137	480
08:30:00	7	4	6	0	2	17	11	31	2	0	0	44	7	3	2	0	3	12	1	52	9	0	0	62	135	523
08:45:00	4	1	9	0	0	14	11	44	3	0	0	58	6	5	1	0	0	12	0	42	11	0	0	53	137	544
BREAK																										
16:00:00	10	4	9	0	3	23	11	64	8	0	3	83	1	1	0	0	1	2	0	18	4	0	1	22	130	
16:15:00	20	2	8	0	0	30	6	77	1	0	0	84	3	3	0	0	0	6	0	29	4	0	1	33	153	
16:30:00	14	5	10	0	0	29	9	66	9	0	0	84	1	4	1	0	2	6	0	32	1	0	1	33	152	
16:45:00	11	5	8	0	1	24	6	83	4	0	1	93	6	2	0	0	5	8	1	37	5	0	5	43	168	603
17:00:00	15	2	12	0	4	29	10	78	4	0	1	92	5	0	0	0	1	5	0	29	2	0	1	31	157	630
17:15:00	25	8	12	0	1	45	9	79	5	0	1	93	3	3	0	0	0	6	1	40	6	0	0	47	191	668
17:30:00	17	5	10	0	1	32	11	78	4	0	0	93	3	0	0	0	0	3	0	50	3	0	1	53	181	697
17:45:00	12	4	11	0	3	27	8	75	9	0	0	92	1	3	0	0	2	4	1	38	2	0	3	41	164	693
Grand Total	150	42	122	0	20	314	126	825	59	0	22	1010	58	49	8	0	22	115	5	603	103	0	19	711	**2150**	-
Approach%	47.8%	13.4%	38.9%	0%		-	12.5%	81.7%	5.8%	0%		-	50.4%	42.6%	7%	0%		-	0.7%	84.8%	14.5%	0%		-	-	-
Totals %	7%	2%	5.7%	0%		14.6%	5.9%	38.4%	2.7%	0%		47%	2.7%	2.3%	0.4%	0%		5.3%	0.2%	28%	4.8%	0%		33.1%	-	-
Heavy	2	2	3	0		-	8	11	1	0		-	0	3	0	0		-	0	5	2	0		-	-	-
Heavy %	1.3%	4.8%	2.5%	0%		-	6.3%	1.3%	1.7%	0%		-	0%	6.1%	0%	0%		-	0%	0.8%	1.9%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

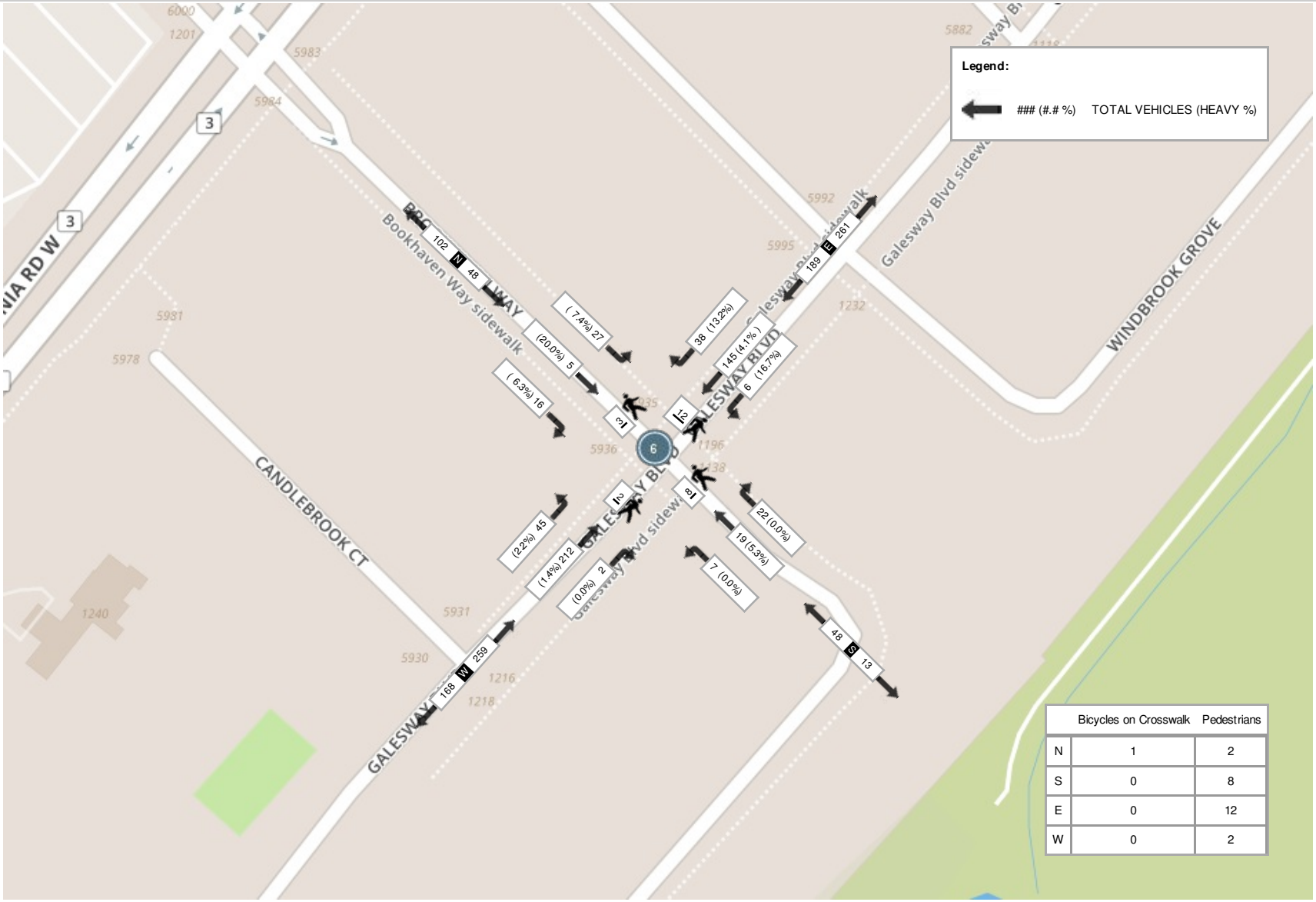
Peak Hour: 08:00 AM - 09:00 AM Weather: Scattered Clouds (-3.14 °C)

Start Time	N Approach BROOKHAVEN WAY						E Approach GALESWAY BLVD						S Approach BROOKHAVEN WAY						W Approach GALESWAY BLVD						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
08:00:00	2	0	3	0	1	5	10	32	1	0	11	43	5	7	4	0	5	16	1	61	9	0	2	71	135
08:15:00	3	0	9	0	0	12	6	38	0	0	1	44	4	4	0	0	0	8	0	57	16	0	0	73	137
08:30:00	7	4	6	0	2	17	11	31	2	0	0	44	7	3	2	0	3	12	1	52	9	0	0	62	135
08:45:00	4	1	9	0	0	14	11	44	3	0	0	58	6	5	1	0	0	12	0	42	11	0	0	53	137
Grand Total	16	5	27	0	3	48	38	145	6	0	12	189	22	19	7	0	8	48	2	212	45	0	2	259	**544**
Approach%	33.3%	10.4%	56.3%	0%		-	20.1%	76.7%	3.2%	0%		-	45.8%	39.6%	14.6%	0%		-	0.8%	81.9%	17.4%	0%		-	-
Totals %	2.9%	0.9%	5%	0%		8.8%	7%	26.7%	1.1%	0%		34.7%	4%	3.5%	1.3%	0%		8.8%	0.4%	39%	8.3%	0%		47.6%	-
PHF	0.57	0.31	0.75	0		0.71	0.86	0.82	0.5	0		0.81	0.79	0.68	0.44	0		0.75	0.5	0.87	0.7	0		0.89	-
Heavy	1	1	2	0		4	5	6	1	0		12	0	1	0	0		1	0	3	1	0		4	-
Heavy %	6.3%	20%	7.4%	0%		8.3%	13.2%	4.1%	16.7%	0%		6.3%	0%	5.3%	0%	0%		2.1%	0%	1.4%	2.2%	0%		1.5%	-
Lights	15	4	25	0		44	33	139	5	0		177	22	18	7	0		47	2	209	44	0		255	-
Lights %	93.8%	80%	92.6%	0%		91.7%	86.8%	95.9%	83.3%	0%		93.7%	100%	94.7%	100%	0%		97.9%	100%	98.6%	97.8%	0%		98.5%	-
Single-Unit Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	-
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.4%	-
Buses	1	1	2	0		4	5	6	1	0		12	0	1	0	0		1	0	2	1	0		3	-
Buses %	6.3%	20%	7.4%	0%		8.3%	13.2%	4.1%	16.7%	0%		6.3%	0%	5.3%	0%	0%		2.1%	0%	0.9%	2.2%	0%		1.2%	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	12	-	-	-	-	-	8	-	-	-	-	-	2	-	-
Pedestrians%	-	-	-	-	8%		-	-	-	-	48%		-	-	-	-	32%		-	-	-	-	8%		-
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	4%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

Peak Hour: 04:45 PM - 05:45 PM Weather: Broken Clouds (3.3 °C)

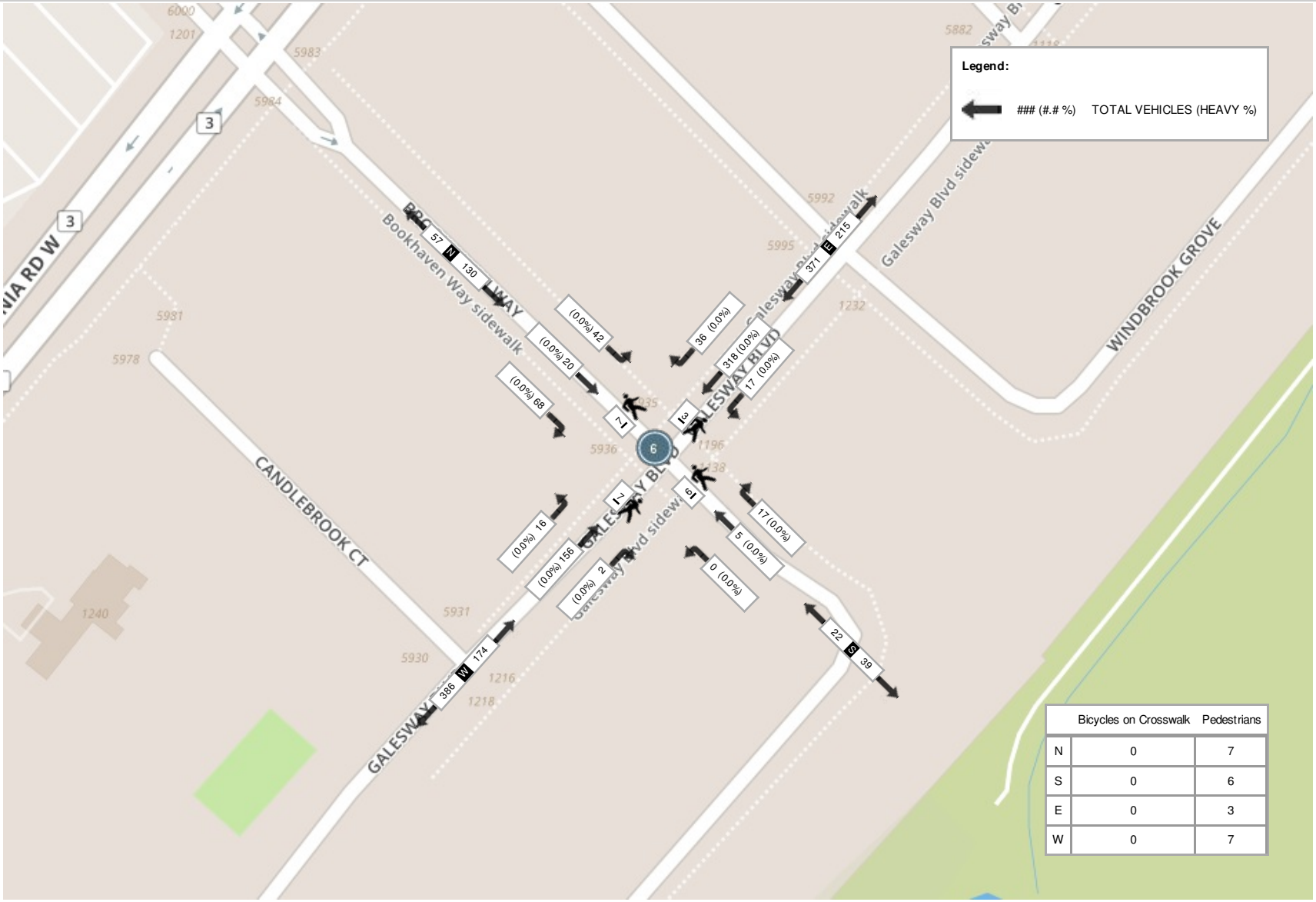
Start Time	N Approach BROOKHAVEN WAY						E Approach GALESWAY BLVD						S Approach BROOKHAVEN WAY						W Approach GALESWAY BLVD						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
16:45:00	11	5	8	0	1	24	6	83	4	0	1	93	6	2	0	0	5	8	1	37	5	0	5	43	168
17:00:00	15	2	12	0	4	29	10	78	4	0	1	92	5	0	0	0	1	5	0	29	2	0	1	31	157
17:15:00	25	8	12	0	1	45	9	79	5	0	1	93	3	3	0	0	0	6	1	40	6	0	0	47	191
17:30:00	17	5	10	0	1	32	11	78	4	0	0	93	3	0	0	0	0	3	0	50	3	0	1	53	181
Grand Total	68	20	42	0	7	130	36	318	17	0	3	371	17	5	0	0	6	22	2	156	16	0	7	174	**697**
Approach%	52.3%	15.4%	32.3%	0%		-	9.7%	85.7%	4.6%	0%		-	77.3%	22.7%	0%	0%		-	1.1%	89.7%	9.2%	0%		-	**-**
Totals %	9.8%	2.9%	6%	0%		18.7%	5.2%	45.6%	2.4%	0%		53.2%	2.4%	0.7%	0%	0%		3.2%	0.3%	22.4%	2.3%	0%		25%	**-**
PHF	0.68	0.63	0.88	0		0.72	0.82	0.96	0.85	0		1	0.71	0.42	0	0		0.69	0.5	0.78	0.67	0		0.82	**-**
Heavy	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Heavy %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Lights	68	20	42	0		130	36	318	17	0		371	17	5	0	0		22	2	156	16	0		174	**-**
Lights %	100%	100%	100%	0%		100%	100%	100%	100%	0%		100%	100%	100%	0%	0%		100%	100%	100%	100%	0%		100%	**-**
Single-Unit Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	7	-	-	-	-	-	3	-	-	-	-	-	6	-	-	-	-	-	7	-	**-**
Pedestrians%	-	-	-	-	30.4%		-	-	-	-	13%		-	-	-	-	26.1%		-	-	-	-	30.4%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 08:00 AM - 09:00 AM Weather: Scattered Clouds (-3.14 °C)



	Bicycles on Crosswalk	Pedestrians
N	1	2
S	0	8
E	0	12
W	0	2

Peak Hour: 04:45 PM - 05:45 PM Weather: Broken Clouds (3.3 °C)



Turning Movement Count (4 . GALESWAY BLVD & CABRERA CRES)

Start Time	N Approach CABRERA CRES					E Approach GALESWAY BLVD					W Approach GALESWAY BLVD					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	U-Turn E:E	Peds E:	Approach Total	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:00:00	0	0	0	0	0	0	16	0	0	16	16	0	0	0	16	32	
07:15:00	1	4	0	2	5	0	18	0	0	18	25	1	0	0	26	49	
07:30:00	3	2	0	0	5	0	25	0	0	25	36	1	0	1	37	67	
07:45:00	2	2	0	0	4	0	31	0	0	31	54	0	0	0	54	89	237
08:00:00	6	1	0	0	7	0	47	0	0	47	66	2	0	0	68	122	327
08:15:00	2	2	0	1	4	2	46	0	0	48	71	2	0	0	73	125	403
08:30:00	4	1	0	1	5	0	37	0	0	37	52	2	0	0	54	96	432
08:45:00	1	3	0	0	4	0	57	0	0	57	57	0	0	0	57	118	461
BREAK																	
16:00:00	1	1	0	0	2	1	64	0	0	65	23	1	0	0	24	91	
16:15:00	0	3	0	0	3	3	88	1	0	92	32	2	0	0	34	129	
16:30:00	4	2	0	1	6	1	82	0	0	83	29	1	0	0	30	119	
16:45:00	1	1	0	1	2	1	87	0	0	88	37	0	0	0	37	127	466
17:00:00	2	0	0	2	2	5	82	0	0	87	34	4	0	0	38	127	502
17:15:00	0	3	0	0	3	2	96	0	0	98	44	0	0	0	44	145	518
17:30:00	2	3	0	0	5	3	82	0	0	85	46	4	0	0	50	140	539
17:45:00	2	0	0	3	2	5	77	0	0	82	39	2	0	0	41	125	537
Grand Total	31	28	0	11	59	23	935	1	0	959	661	22	0	1	683	**1701**	-
Approach%	52.5%	47.5%	0%		-	2.4%	97.5%	0.1%		-	96.8%	3.2%	0%		-	**-**	-
Totals %	1.8%	1.6%	0%		3.5%	1.4%	55%	0.1%		56.4%	38.9%	1.3%	0%		40.2%	**-**	-
Heavy	0	1	0		-	0	13	0		-	6	1	0		-	**-**	-
Heavy %	0%	3.6%	0%		-	0%	1.4%	0%		-	0.9%	4.5%	0%		-	**-**	-
Bicycles	0	0	0		-	0	0	0		-	1	0	0		-	**-**	-
Bicycle %	0%	0%	0%		-	0%	0%	0%		-	0.2%	0%	0%		-	**-**	-

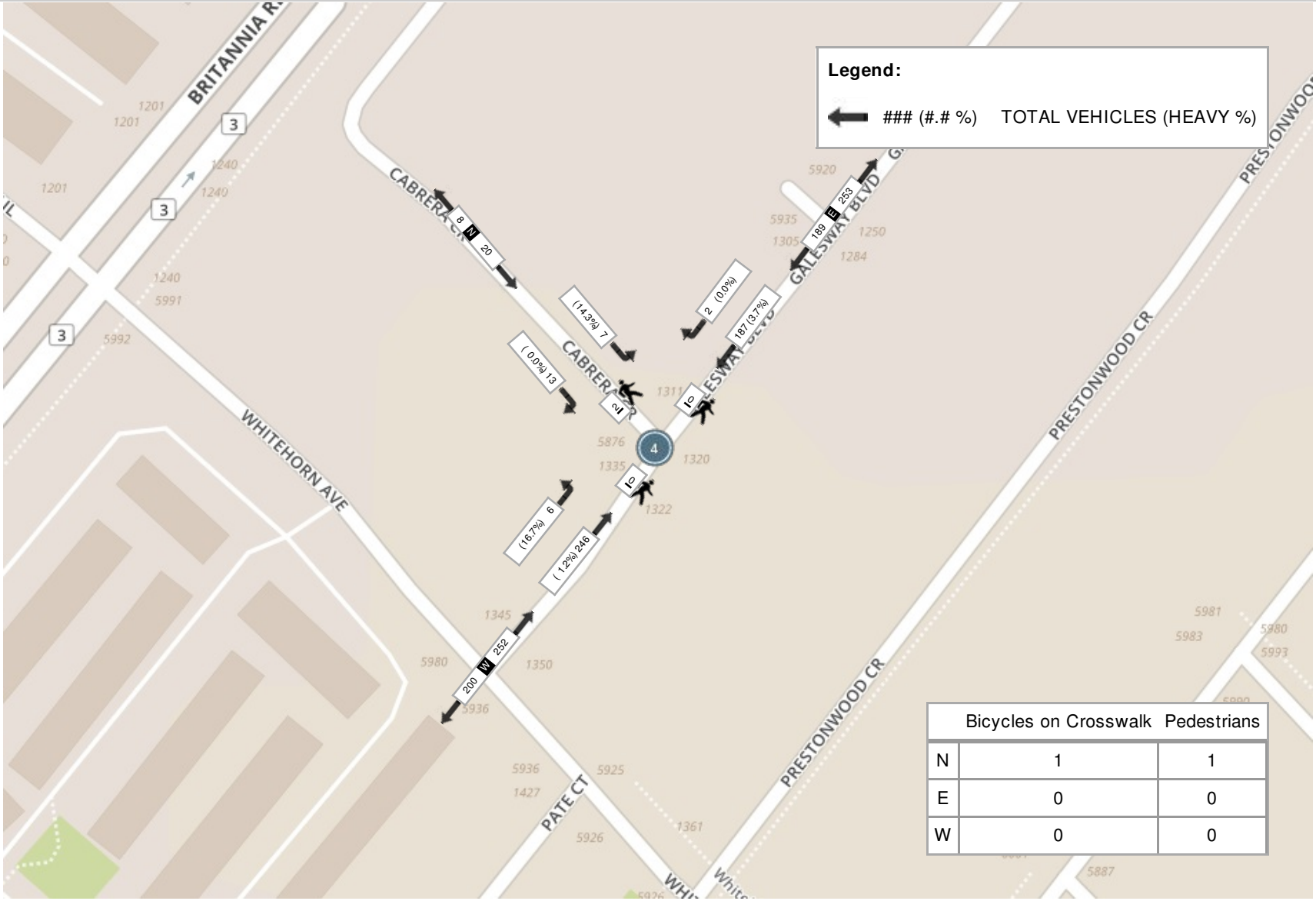
Peak Hour: 08:00 AM - 09:00 AM Weather: Scattered Clouds (-3.14 °C)

Start Time	N Approach CABRERA CRES					E Approach GALESWAY BLVD					W Approach GALESWAY BLVD					Int. Total (15 min)
	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	Thru	Left	U-Turn	Peds	Approach Total	
08:00:00	6	1	0	0	7	0	47	0	0	47	66	2	0	0	68	122
08:15:00	2	2	0	1	4	2	46	0	0	48	71	2	0	0	73	125
08:30:00	4	1	0	1	5	0	37	0	0	37	52	2	0	0	54	96
08:45:00	1	3	0	0	4	0	57	0	0	57	57	0	0	0	57	118
Grand Total	13	7	0	2	20	2	187	0	0	189	246	6	0	0	252	**461**
Approach%	65%	35%	0%		-	1.1%	98.9%	0%		-	97.6%	2.4%	0%		-	-
Totals %	2.8%	1.5%	0%		4.3%	0.4%	40.6%	0%		41%	53.4%	1.3%	0%		54.7%	-
PHF	0.54	0.58	0		0.71	0.25	0.82	0		0.83	0.87	0.75	0		0.86	-
Heavy	0	1	0		1	0	7	0		7	3	1	0		4	-
Heavy %	0%	14.3%	0%		5%	0%	3.7%	0%		3.7%	1.2%	16.7%	0%		1.6%	-
Lights	13	6	0		19	2	180	0		182	243	5	0		248	-
Lights %	100%	85.7%	0%		95%	100%	96.3%	0%		96.3%	98.8%	83.3%	0%		98.4%	-
Single-Unit Trucks	0	1	0		1	0	0	0		0	0	1	0		1	-
Single-Unit Trucks %	0%	14.3%	0%		5%	0%	0%	0%		0%	0%	16.7%	0%		0.4%	-
Buses	0	0	0		0	0	7	0		7	3	0	0		3	-
Buses %	0%	0%	0%		0%	0%	3.7%	0%		3.7%	1.2%	0%	0%		1.2%	-
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
Pedestrians%	-	-	-	50%		-	-	-	0%		-	-	-	0%		-
Bicycles on Crosswalk	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	50%		-	-	-	0%		-	-	-	0%		-
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	-
Bicycles on Road%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-

Peak Hour: 04:45 PM - 05:45 PM Weather: Broken Clouds (3.3 °C)

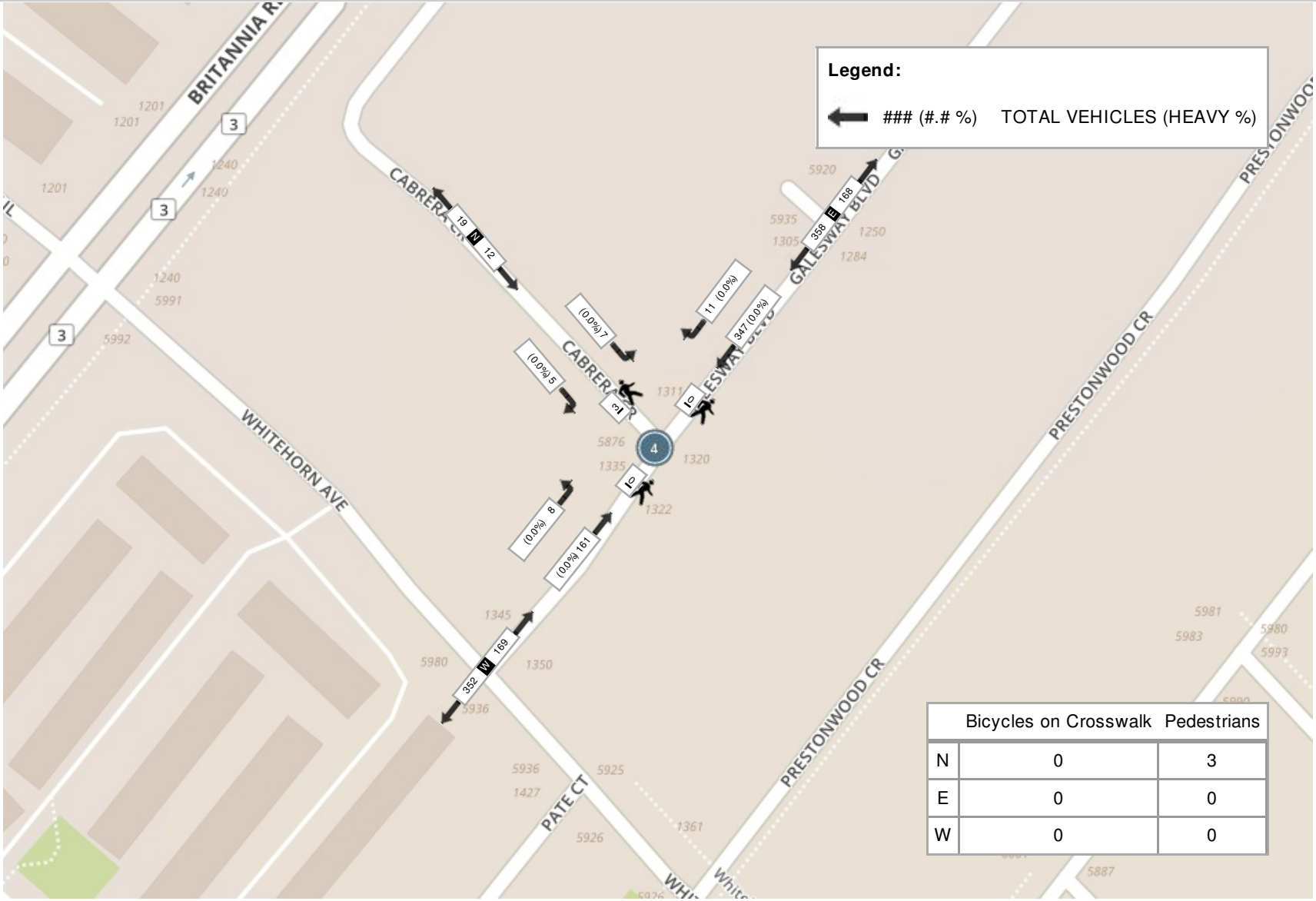
Start Time	N Approach CABRERA CRES					E Approach GALESWAY BLVD					W Approach GALESWAY BLVD					Int. Total (15 min)
	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	Thru	Left	U-Turn	Peds	Approach Total	
16:45:00	1	1	0	1	2	1	87	0	0	88	37	0	0	0	37	127
17:00:00	2	0	0	2	2	5	82	0	0	87	34	4	0	0	38	127
17:15:00	0	3	0	0	3	2	96	0	0	98	44	0	0	0	44	145
17:30:00	2	3	0	0	5	3	82	0	0	85	46	4	0	0	50	140
Grand Total	5	7	0	3	12	11	347	0	0	358	161	8	0	0	169	**539**
Approach%	41.7%	58.3%	0%		-	3.1%	96.9%	0%		-	95.3%	4.7%	0%		-	-
Totals %	0.9%	1.3%	0%		2.2%	2%	64.4%	0%		66.4%	29.9%	1.5%	0%		31.4%	-
PHF	0.63	0.58	0		0.6	0.55	0.9	0		0.91	0.88	0.5	0		0.85	-
Heavy	0	0	0		0	0	0	0		0	0	0	0		0	-
Heavy %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Lights	5	7	0		12	11	347	0		358	161	8	0		169	-
Lights %	100%	100%	0%		100%	100%	100%	0%		100%	100%	100%	0%		100%	-
Single-Unit Trucks	0	0	0		0	0	0	0		0	0	0	0		0	-
Single-Unit Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Buses	0	0	0		0	0	0	0		0	0	0	0		0	-
Buses %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	3	-	-	-	-	0	-	-	-	-	0	-	-
Pedestrians%	-	-	-	100%		-	-	-	0%		-	-	-	0%		-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	-
Bicycles on Road%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-

Peak Hour: 08:00 AM - 09:00 AM Weather: Scattered Clouds (-3.14 °C)



	Bicycles on Crosswalk	Pedestrians
N	1	1
E	0	0
W	0	0

Peak Hour: 04:45 PM - 05:45 PM Weather: Broken Clouds (3.3 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	3
E	0	0
W	0	0

Turning Movement Count (5 . GALESWAY BLVD & CANDLEBROOK CT)

Start Time	N Approach CANDLEBROOK CT					E Approach GALESWAY BLVD					W Approach GALESWAY BLVD					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	U-Turn E:E	Peds E:	Approach Total	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:00:00	1	0	0	0	1	0	15	0	0	15	17	0	0	0	17	33	
07:15:00	0	3	0	1	3	2	16	0	0	18	26	2	0	0	28	49	
07:30:00	4	3	0	0	7	1	20	0	0	21	40	0	0	0	40	68	
07:45:00	0	2	0	1	2	0	37	0	0	37	58	0	0	0	58	97	247
08:00:00	6	4	0	0	10	1	37	0	0	38	65	1	0	0	66	114	328
08:15:00	2	4	0	0	6	1	29	0	0	30	71	3	0	0	74	110	389
08:30:00	1	3	0	2	4	0	40	0	1	40	55	0	0	1	55	99	420
08:45:00	4	2	0	1	6	0	50	0	0	50	55	2	0	0	57	113	436
BREAK																	
16:00:00	0	0	0	1	0	3	70	0	0	73	21	2	0	0	23	96	
16:15:00	0	0	0	0	0	3	93	0	1	96	35	2	0	0	37	133	
16:30:00	1	0	0	1	1	3	76	0	1	79	29	1	0	0	30	110	
16:45:00	0	3	0	1	3	0	96	0	0	96	40	0	0	0	40	139	478
17:00:00	1	2	0	1	3	6	85	0	0	91	32	2	0	2	34	128	510
17:15:00	0	3	0	1	3	4	99	0	0	103	45	1	0	0	46	152	529
17:30:00	0	2	0	1	2	4	88	0	0	92	48	1	0	0	49	143	562
17:45:00	1	4	0	4	5	4	85	0	0	89	39	0	0	1	39	133	556
Grand Total	21	35	0	15	56	32	936	0	3	968	676	17	0	4	693	**1717**	-
Approach%	37.5%	62.5%	0%		-	3.3%	96.7%	0%		-	97.5%	2.5%	0%		-	-	-
Totals %	1.2%	2%	0%		3.3%	1.9%	54.5%	0%		56.4%	39.4%	1%	0%		40.4%	-	-
Heavy	0	0	0		-	0	13	0		-	8	0	0		-	-	-
Heavy %	0%	0%	0%		-	0%	1.4%	0%		-	1.2%	0%	0%		-	-	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	-	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	-	-

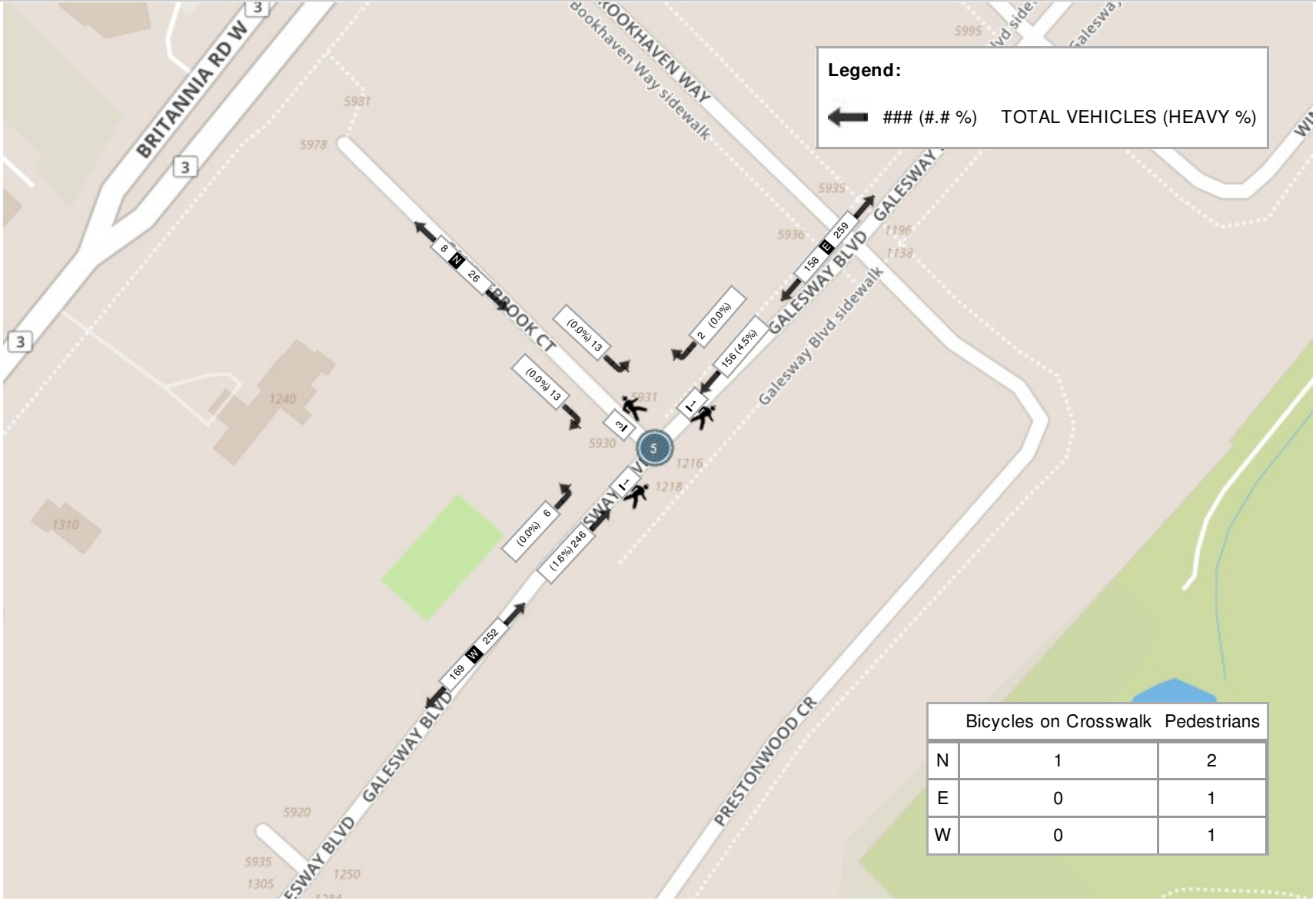
Peak Hour: 08:00 AM - 09:00 AM Weather: Scattered Clouds (-3.14 °C)

Start Time	N Approach CANDLEBROOK CT					E Approach GALESWAY BLVD					W Approach GALESWAY BLVD					Int. Total (15 min)
	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	Thru	Left	U-Turn	Peds	Approach Total	
08:00:00	6	4	0	0	10	1	37	0	0	38	65	1	0	0	66	114
08:15:00	2	4	0	0	6	1	29	0	0	30	71	3	0	0	74	110
08:30:00	1	3	0	2	4	0	40	0	1	40	55	0	0	1	55	99
08:45:00	4	2	0	1	6	0	50	0	0	50	55	2	0	0	57	113
Grand Total	13	13	0	3	26	2	156	0	1	158	246	6	0	1	252	**436**
Approach%	50%	50%	0%		-	1.3%	98.7%	0%		-	97.6%	2.4%	0%		-	-
Totals %	3%	3%	0%		6%	0.5%	35.8%	0%		36.2%	56.4%	1.4%	0%		57.8%	-
PHF	0.54	0.81	0		0.65	0.5	0.78	0		0.79	0.87	0.5	0		0.85	-
Heavy	0	0	0		0	0	7	0		7	4	0	0		4	-
Heavy %	0%	0%	0%		0%	0%	4.5%	0%		4.4%	1.6%	0%	0%		1.6%	-
Lights	13	13	0		26	2	149	0		151	242	6	0		248	-
Lights %	100%	100%	0%		100%	100%	95.5%	0%		95.6%	98.4%	100%	0%		98.4%	-
Single-Unit Trucks	0	0	0		0	0	0	0		0	1	0	0		1	-
Single-Unit Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0.4%	0%	0%		0.4%	-
Buses	0	0	0		0	0	7	0		7	3	0	0		3	-
Buses %	0%	0%	0%		0%	0%	4.5%	0%		4.4%	1.2%	0%	0%		1.2%	-
Pedestrians	-	-	-	2	-	-	-	-	1	-	-	-	-	1	-	-
Pedestrians%	-	-	-	40%		-	-	-	20%		-	-	-	20%		-
Bicycles on Crosswalk	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	20%		-	-	-	0%		-	-	-	0%		-

Peak Hour: 04:45 PM - 05:45 PM Weather: Broken Clouds (3.3 °C)

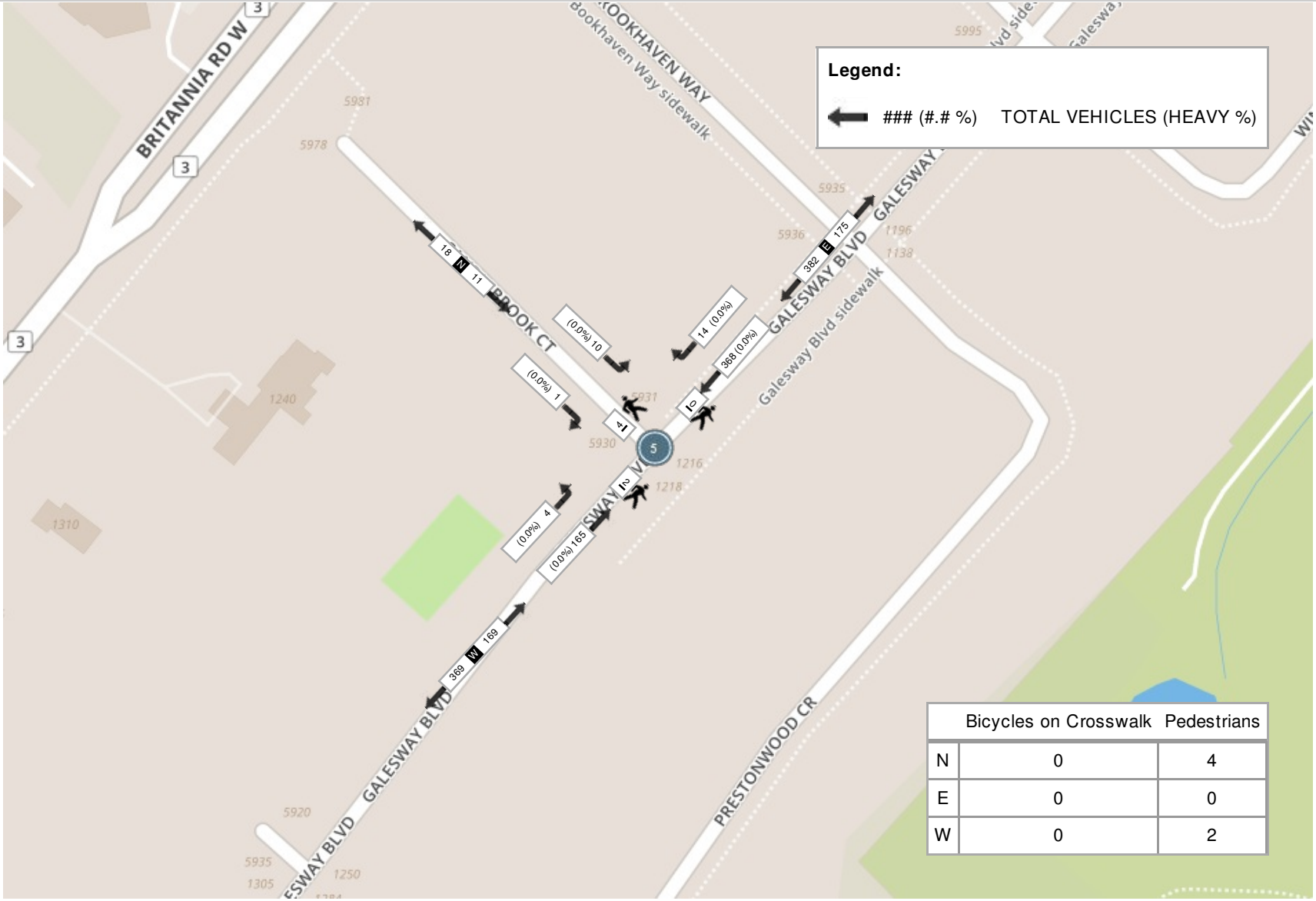
Start Time	N Approach CANDLEBROOK CT					E Approach GALESWAY BLVD					W Approach GALESWAY BLVD					Int. Total (15 min)
	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	Thru	Left	U-Turn	Peds	Approach Total	
16:45:00	0	3	0	1	3	0	96	0	0	96	40	0	0	0	40	139
17:00:00	1	2	0	1	3	6	85	0	0	91	32	2	0	2	34	128
17:15:00	0	3	0	1	3	4	99	0	0	103	45	1	0	0	46	152
17:30:00	0	2	0	1	2	4	88	0	0	92	48	1	0	0	49	143
Grand Total	1	10	0	4	11	14	368	0	0	382	165	4	0	2	169	**562**
Approach%	9.1%	90.9%	0%		-	3.7%	96.3%	0%		-	97.6%	2.4%	0%		-	-
Totals %	0.2%	1.8%	0%		2%	2.5%	65.5%	0%		68%	29.4%	0.7%	0%		30.1%	-
PHF	0.25	0.83	0		0.92	0.58	0.93	0		0.93	0.86	0.5	0		0.86	-
Heavy	0	0	0		0	0	0	0		0	0	0	0		0	-
Heavy %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Lights	1	10	0		11	14	368	0		382	165	4	0		169	-
Lights %	100%	100%	0%		100%	100%	100%	0%		100%	100%	100%	0%		100%	-
Single-Unit Trucks	0	0	0		0	0	0	0		0	0	0	0		0	-
Single-Unit Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Buses	0	0	0		0	0	0	0		0	0	0	0		0	-
Buses %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	4	-	-	-	-	0	-	-	-	-	2	-	-
Pedestrians%	-	-	-	66.7%		-	-	-	0%		-	-	-	33.3%		-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-

Peak Hour: 08:00 AM - 09:00 AM Weather: Scattered Clouds (-3.14 °C)



	Bicycles on Crosswalk	Pedestrians
N	1	2
E	0	1
W	0	1

Peak Hour: 04:45 PM - 05:45 PM Weather: Broken Clouds (3.3 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	4
E	0	0
W	0	2

Turning Movement Count (3 . GALESWAY BLVD & WHITEHORN AVE)

Start Time	N Approach WHITEHORN AVE					E Approach GALESWAY BLVD					S Approach WHITEHORN AVE					Int. Total (15 min)	Int. Total (1 hr)
	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	U-Turn S:S	Peds S:	Approach Total		
07:00:00	15	1	0	0	16	5	12	0	0	17	15	26	0	0	41	74	
07:15:00	12	7	0	3	19	2	17	0	3	19	19	46	0	1	65	103	
07:30:00	21	5	0	0	26	10	21	0	1	31	33	51	0	3	84	141	
07:45:00	15	10	0	1	25	5	29	0	0	34	44	41	0	0	85	144	462
08:00:00	42	11	0	0	53	9	46	0	0	55	53	57	0	1	110	218	606
08:15:00	29	13	0	4	42	15	33	0	1	48	60	58	0	0	118	208	711
08:30:00	30	8	0	1	38	8	31	0	1	39	46	61	0	0	107	184	754
08:45:00	26	8	0	0	34	6	54	0	4	60	49	64	0	0	113	207	817
BREAK																	
16:00:00	46	8	0	0	54	20	46	0	3	66	15	40	0	0	55	175	
16:15:00	63	9	0	0	72	24	60	0	3	84	26	29	0	1	55	211	
16:30:00	48	8	0	1	56	18	66	0	2	84	20	23	0	2	43	183	
16:45:00	55	8	0	0	63	34	57	0	0	91	29	35	0	0	64	218	787
17:00:00	59	13	0	2	72	22	64	0	2	86	28	28	0	0	56	214	826
17:15:00	59	14	0	0	73	19	71	0	2	90	29	23	0	0	52	215	830
17:30:00	68	15	0	1	83	19	70	0	0	89	35	30	0	0	65	237	884
17:45:00	69	16	0	0	85	12	64	0	3	76	26	35	0	0	61	222	888
Grand Total	657	154	0	13	811	228	741	0	25	969	527	647	0	8	1174	**2954**	-
Approach%	81%	19%	0%		-	23.5%	76.5%	0%		-	44.9%	55.1%	0%		-	-	-
Totals %	22.2%	5.2%	0%		27.5%	7.7%	25.1%	0%		32.8%	17.8%	21.9%	0%		39.7%	-	-
Heavy	14	3	0		-	2	11	0		-	4	14	0		-	-	-
Heavy %	2.1%	1.9%	0%		-	0.9%	1.5%	0%		-	0.8%	2.2%	0%		-	-	-
Bicycles	0	0	0		-	0	0	0		-	1	0	0		-	-	-
Bicycle %	0%	0%	0%		-	0%	0%	0%		-	0.2%	0%	0%		-	-	-

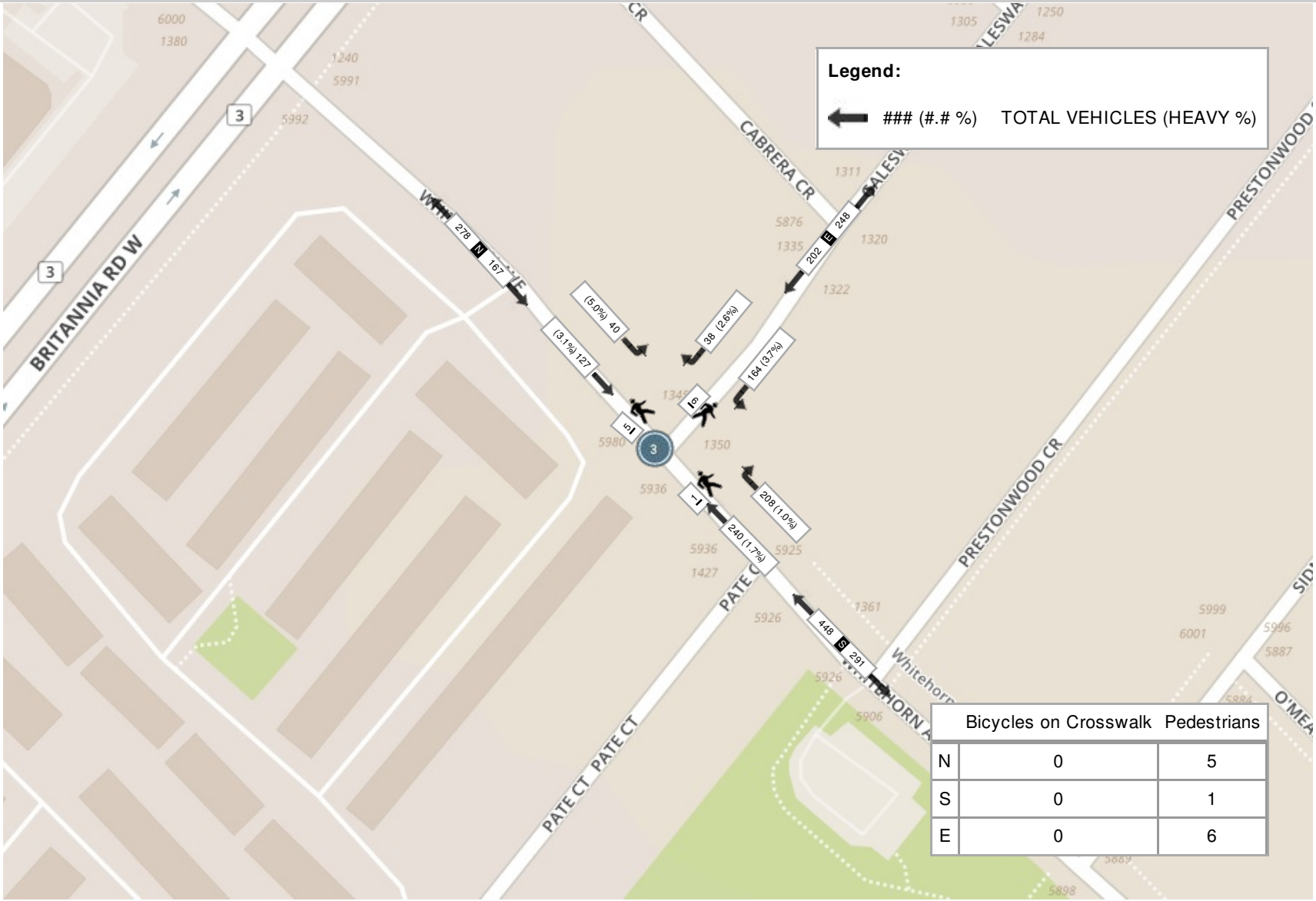
Peak Hour: 08:00 AM - 09:00 AM Weather: Scattered Clouds (-3.14 °C)

Start Time	N Approach WHITEHORN AVE					E Approach GALESWAY BLVD					S Approach WHITEHORN AVE					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
08:00:00	42	11	0	0	53	9	46	0	0	55	53	57	0	1	110	218
08:15:00	29	13	0	4	42	15	33	0	1	48	60	58	0	0	118	208
08:30:00	30	8	0	1	38	8	31	0	1	39	46	61	0	0	107	184
08:45:00	26	8	0	0	34	6	54	0	4	60	49	64	0	0	113	207
Grand Total	127	40	0	5	167	38	164	0	6	202	208	240	0	1	448	**817**
Approach%	76%	24%	0%		-	18.8%	81.2%	0%		-	46.4%	53.6%	0%		-	-
Totals %	15.5%	4.9%	0%		20.4%	4.7%	20.1%	0%		24.7%	25.5%	29.4%	0%		54.8%	-
PHF	0.76	0.77	0		0.79	0.63	0.76	0		0.84	0.87	0.94	0		0.95	-
Heavy	4	2	0		6	1	6	0		7	2	4	0		6	-
Heavy %	3.1%	5%	0%		3.6%	2.6%	3.7%	0%		3.5%	1%	1.7%	0%		1.3%	-
Lights	123	38	0		161	37	158	0		195	206	236	0		442	-
Lights %	96.9%	95%	0%		96.4%	97.4%	96.3%	0%		96.5%	99%	98.3%	0%		98.7%	-
Single-Unit Trucks	1	1	0		2	0	0	0		0	0	1	0		1	-
Single-Unit Trucks %	0.8%	2.5%	0%		1.2%	0%	0%	0%		0%	0%	0.4%	0%		0.2%	-
Buses	3	1	0		4	1	6	0		7	2	3	0		5	-
Buses %	2.4%	2.5%	0%		2.4%	2.6%	3.7%	0%		3.5%	1%	1.3%	0%		1.1%	-
Pedestrians	-	-	-	5	-	-	-	-	6	-	-	-	-	1	-	-
Pedestrians%	-	-	-	41.7%		-	-	-	50%		-	-	-	8.3%		-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	-
Bicycles on Road%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-

Peak Hour: 05:00 PM - 06:00 PM Weather: Broken Clouds (3.3 °C)

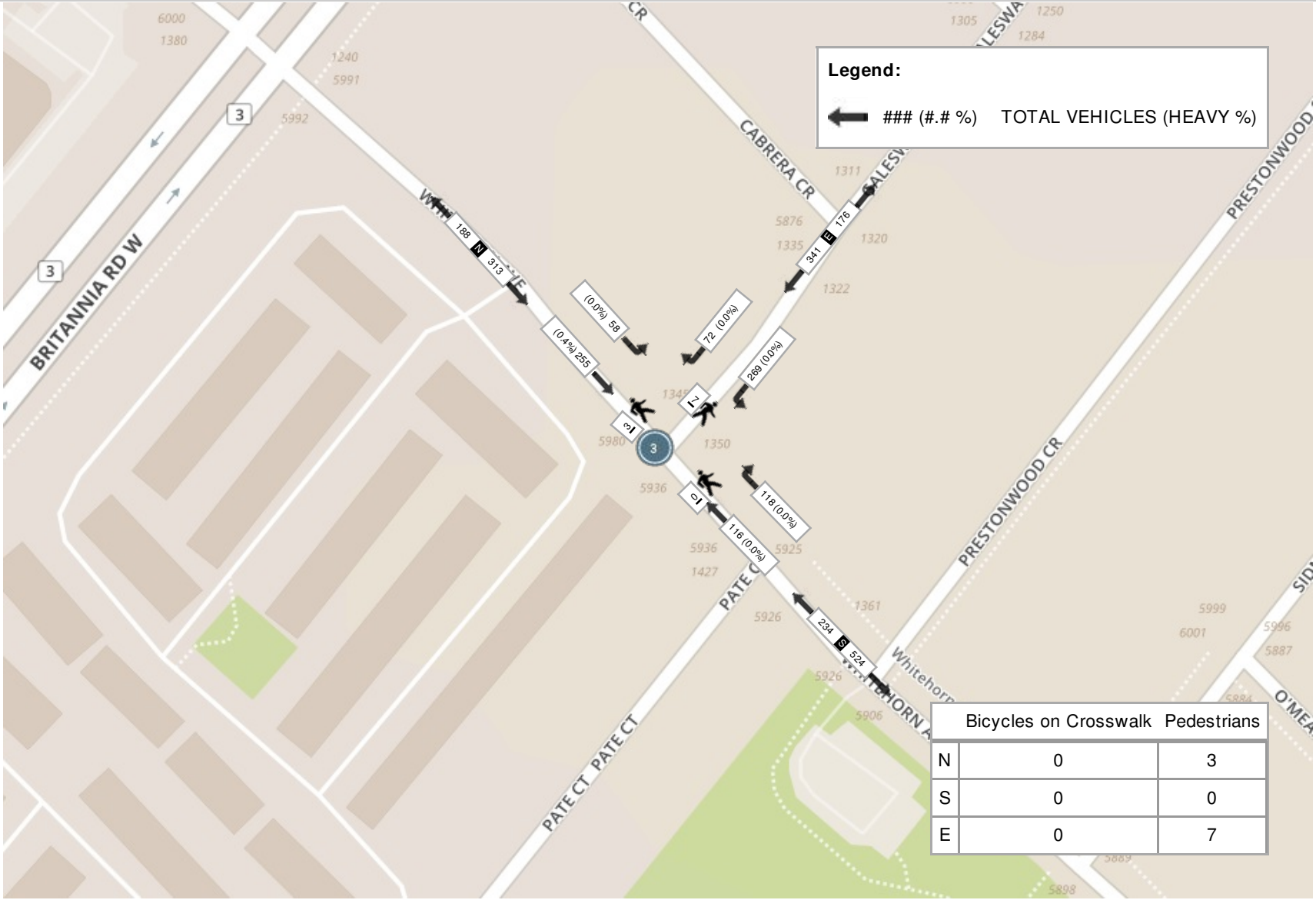
Start Time	N Approach WHITEHORN AVE					E Approach GALESWAY BLVD					S Approach WHITEHORN AVE					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
17:00:00	59	13	0	2	72	22	64	0	2	86	28	28	0	0	56	214
17:15:00	59	14	0	0	73	19	71	0	2	90	29	23	0	0	52	215
17:30:00	68	15	0	1	83	19	70	0	0	89	35	30	0	0	65	237
17:45:00	69	16	0	0	85	12	64	0	3	76	26	35	0	0	61	222
Grand Total	255	58	0	3	313	72	269	0	7	341	118	116	0	0	234	**888**
Approach%	81.5%	18.5%	0%		-	21.1%	78.9%	0%		-	50.4%	49.6%	0%		-	**-**
Totals %	28.7%	6.5%	0%		35.2%	8.1%	30.3%	0%		38.4%	13.3%	13.1%	0%		26.4%	**-**
PHF	0.92	0.91	0		0.92	0.82	0.95	0		0.95	0.84	0.83	0		0.9	**-**
Heavy	1	0	0		1	0	0	0		0	0	0	0		0	**-**
Heavy %	0.4%	0%	0%		0.3%	0%	0%	0%		0%	0%	0%	0%		0%	**-**
Lights	254	58	0		312	72	269	0		341	118	116	0		234	**-**
Lights %	99.6%	100%	0%		99.7%	100%	100%	0%		100%	100%	100%	0%		100%	**-**
Single-Unit Trucks	1	0	0		1	0	0	0		0	0	0	0		0	**-**
Single-Unit Trucks %	0.4%	0%	0%		0.3%	0%	0%	0%		0%	0%	0%	0%		0%	**-**
Buses	0	0	0		0	0	0	0		0	0	0	0		0	**-**
Buses %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	3	-	-	-	-	7	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	30%		-	-	-	70%		-	-	-	0%		**-**
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	0%		-	-	-	0%		**-**
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	**-**
Bicycles on Road%	-	-	-	0%		-	-	-	0%		-	-	-	0%		**-**

Peak Hour: 08:00 AM - 09:00 AM Weather: Scattered Clouds (-3.14 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	5
S	0	1
E	0	6

Peak Hour: 05:00 PM - 06:00 PM Weather: Broken Clouds (3.3 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	3
S	0	0
E	0	7

Appendix F: Correspondence with City and Region Staff

From:	Ryan A. Sankar
To:	"Barnes, Catherine"
Cc:	Yougendran Thiyagarajah; Christie Jeong; Hamdani, Hashim; Lalingo, Anthony
Subject:	RE: 1240 Britannia Road W - Rezoning and Plan of Subdivision Application - Regional Road Property Requirements
Date:	October 16, 2020 6:21:57 PM
Attachments:	image001.gif image002.jpg 1240 Britannia Road W - Regional Road ROW Property Dedication Rationale - Oct 17 2020.pdf

Hi Catherine,

Hope all's well on your end. Please find attached our justification letter for the proposed Britannia ROW widening associated with the 1240 Britannia Road development application. Note that the Draft Plan and site plan illustrated in the appended drawings are current as of today and reflect what will be submitted as part of the forthcoming revised application re-submission.

I trust that this will suffice to secure approval from the Region regarding the Britannia ROW property requirements and streetscaping arrangements along the site's frontage.

Thanks and I hope you have a good weekend!

Ryan

From: Barnes, Catherine <catherine.barnes@peelregion.ca>
Sent: September 25, 2020 9:20 AM
To: Ryan A. Sankar <sankar@bagroup.com>
Cc: Yougendran Thiyagarajah <ythiyagarajah@nationalhomes.com>; Christie Jeong <Christie.Jeong@bagroup.com>; Hamdani, Hashim <hashimali.hamdani@peelregion.ca>; Lalingo, Anthony <anthony.lalingo@peelregion.ca>
Subject: RE: 1240 Britannia Road W - Rezoning and Plan of Subdivision Application - Regional Road Property Requirements

Good morning Ryan,

The Region has reviewed the below email and would like to have it submitted in a formal Justification letter (PDF) that we can circulate to our internal staff for a Reduction of ROW circulation process. With that being said the Traffic Development team find the below rationale to be satisfactory and are wiling to circulate for a reduction of ROW. Please note this process can take a couple of weeks. The Region needs the draft plan that was attached to be revised to properly show the 0.3 metre reserve which should be behind the property line. Feel free to contact me with any questions or concerns,

Catherine Barnes
Region of Peel
Technical Analyst

Traffic Development & Permits
10 Peel Centre Drive Suite B, 4th Floor
Brampton, ON L6T 4B9
905-791-7800 x 7569
(Cell) 1 905-460-4206

P **Please consider the environment before printing this email.**

From: Ryan A. Sankar <sankar@bagroup.com>
Sent: September 17, 2020 6:02 PM
To: Lalingo, Anthony <anthony.lalingo@peelregion.ca>; Barnes, Catherine <catherine.barnes@peelregion.ca>; Hamdani, Hashim <hashimali.hamdani@peelregion.ca>
Cc: Yougendran Thiyagarajah <ythiyagarajah@nationalhomes.com>; Christie Jeong <Christie.Jeong@bagroup.com>
Subject: RE: 1240 Britannia Road W - Rezoning and Plan of Subdivision Application - Regional Road Property Requirements

Hi Anthony, Catherine and Hashim,

Hope you're all well. Since we last spoke, the development team has done a bit of refining on the 1240 Britannia site plan, particularly with respect to the site's Britannia Road frontage. Given that the amount of lands required for the ROW dedication will significantly affect the site design, we wanted to run the current plan by you before another formal development application submission is made. See attached draft plan (CP-01 and CP-02) for discussion.

Based on the functional design analysis we've conducted, we're proposing a to dedicate lands along the site's Britannia Road frontage to achieve a **22m from centreline ROW**, exclusive of the required 0.3m-wide reserve. This reflects a conveyance of lands ranging between approximately 2.32m in width at the west of the site to 2.71m in width at the east end of the site (again, exclusive of the 0.3m-wide reserve).

This recommendation is made considering the following:

- Given that the north side of the ROW is 23.0m (taken from the centreline of the road allowance), 22.0m on the south side would achieve a 45.0m ROW width, consistent with the Region's OP.
- As illustrated in the attached plan and cross-section, the following streetscape elements can be delivered within this public ROW:
    - A 3.0m-wide multi-use path, aligning with the existing path east and west of the site (i.e. shifted south from its current curbside location)
    - A 1.0m-wide splash pad (including the top of curb) adjacent to the roadway
    - A 4.1m-wide landscaping strip between the MUP and the splash pad
    - A buffer zone of 2.3m to 2.7m between the MUP and the south ROW limit
    - 12.0m of pavement between the curb face and centreline of road allowance – note that no changes to the existing curb or its alignment are proposed
- This dedication and proposed streetscape is consistent with what currently exists directly east and west of the site.

Assuming that the Region finds this plan to be acceptable in concept, we would include an updated version of these functional drawings and an accompanying rationale as part of the forthcoming revised submission.

As always, your consideration is greatly appreciated. Please let me know your thoughts and if you have any questions. Perhaps we can set a meeting time next week to discuss?

Thanks.

Ryan A. Sankar, P.Eng.
Associate

BA Consulting Group Ltd.
300 - 45 St. Clair Ave. W.
Toronto, ON M4V 1K9

TEL 416 961 7110 x163
CELL 416 317 5845
EMAIL sankar@bagroup.com

BA Consulting Group Ltd

From: Ryan A. Sankar
Sent: August 18, 2020 12:57 PM
To: 'Lalingo, Anthony' <anthony.lalingo@peelregion.ca>; Christie Jeong <Christie.Jeong@bagroup.com>; Yougendran Thiyagarajah <ythiyagarajah@nationalhomes.com>
Cc: Hamdani, Hashim <hashimali.hamdani@peelregion.ca>; Barnes, Catherine <catherine.barnes@peelregion.ca>
Subject: RE: 1240 Britannia Road W - Rezoning and Plan of Subdivision Application - Regional Road Property Requirements

Thanks, Anthony. It was nice speaking with you all today. We'll touch base soon for your input once our revised plans have been further developed.

Ryan

From: Lalingo, Anthony <anthony.lalingo@peelregion.ca>
Sent: August 18, 2020 11:31 AM
To: Ryan A. Sankar <sankar@bagroup.com>; Christie Jeong <Christie.Jeong@bagroup.com>; Yougendran Thiyagarajah <ythiyagarajah@nationalhomes.com>
Cc: Hamdani, Hashim <hashimali.hamdani@peelregion.ca>; Barnes, Catherine <catherine.barnes@peelregion.ca>
Subject: RE: 1240 Britannia Road W - Rezoning and Plan of Subdivision Application - Regional Road Property Requirements

Hi Ryan,

As discussed, if you want to pursue a reduction in ROW requirements you will have to submit a Functional Design Plan and Justification Letter to rationalize the reduction. This will undergo review and circulation within our Traffic department and they will ultimately decide whether to accept the proposed reduction or not. As Hashim pointed out you can forward us a draft of the Functional Design Plan in advance of the submission to obtain their input.

Hashim and Catherine are cc'd on this email, please copy me on any correspondence with them.

Regards,

Anthony Lalingo
Junior Planner, Planning & Performance
Region of Peel
Development Services – Public Works
10 Peel Centre Drive, 4th Floor Suite B
E: anthony.lalingo@peelregion.ca

ROP-email

From: Ryan A. Sankar <sankar@bagroup.com>
Sent: August 12, 2020 3:26 PM
To: Barnes, Catherine <catherine.barnes@peelregion.ca>
Cc: Lalingo, Anthony <anthony.lalingo@peelregion.ca>; Christie Jeong <Christie.Jeong@bagroup.com>
Subject: 1240 Britannia Road W - Rezoning and Plan of Subdivision Application - Regional Road Property Requirements

Hi Catherine,

Hope you're well. As per Anthony's advice, I'm reaching out to you regarding the 1240 Britannia Road West development application being made by National Homes.

To refresh your memory, what's being proposed is 109 townhouse units (excluding secondary suites) with vehicle access from the City's road only (Galesway Boulevard). A number of the units will have frontage on Britannia. I've attached the submitted architectural site plan for reference.

Comments regarding the March 2020 ZBA/Plan of Subdivision application were received from the Region in an e-mail from Anthony in May. I've also attached these comments for reference. These comments speak to the dedication of lands required to meet the Official Plan right-of-way (ROW) width for Britannia Road within the segment adjacent to the site:

> *'The Region will require the gratuitous dedication of lands to meet the Official Plan requirement for Regional Rd 3 (Britannia Road), which has a right-of-way requirement of a 45 metres, 25 metres from centreline of the road allowance. And an additional 5.5 metres (for a total Right of Way of 50.5 metres, 25.25 metres from the centreline of the road allowance) will be required within 245 metres of intersection to protect for the provision of, but no limited to; utilities, multiuse pathways and transit bay/shelters.'*

We've done a bit of analysis regarding the ROW width of the relevant section of Britannia based on topographical survey information and property plan data we had available. This is summarized in the attached plan dated August 12, 2020. A few key observations that I'd like to bring to your attention are summarized below:

- Schedule F of the Region's Official Plan identifies the mid-block right-of-way width requirement of Britannia Road adjacent to the site to be **45 metres**.
- Official Plan Policy 5.9.4.2.5 states that an additional **5.5m** (extra to the 45m) is required within 245m of a Regional Road intersection for 'a single left turn configuration, right turn lanes, multi-purpose pathways or transit-related improvements'.
- The existing ROW width north of the roadway centreline is **23m**.
- The adjacent development to the west of the site – a fully built-out residential subdivision – was required to convey lands to achieve a distance of approximately 22.5m from the roadway

centreline.

- The adjacent development to the east of the site – also a fully built-out residential subdivision – was required to convey lands to achieve a distance of approximately 23.7m from the roadway centreline.
- The adjacent signalized intersections on Britannia Road W (Brookhaven Way / Douguy Blvd and Whitehorn Ave / Bidwell Trail) appear to provide access solely to residential neighbourhoods north and south of the arterial road that are mostly built out.

Given the above, I'd like to discuss with you what the most appropriate land dedication from the site would be in order to be consistent with the policies of the Official Plan. I understand that the application of these requirements are subject to the discretion of Region staff. Essentially, there are two items that I'm seeking clarification on.

The first is regarding the land required to achieve the 45m ROW width specified in the OP. Given that the width of the roadway is 23 metres north of its centreline, would the site not be required to achieve a 22m from centreline ROW width (as opposed to 22.5m)?

Secondly, I'm unsure of the practicality in providing the additional 5.5m of ROW in this midblock location given that: a) this requirement does not seem to be applied to the fully built-out adjacent properties to the north, east and west, limiting the Region's ability to utilize this additional property for roadway/intersection improvements; and b) there does not appear to be a need (or reasonably expected future need) for any improvements along Britannia that would require these additional lands.

Once you've had a chance to review, would it be worthwhile to set up a conference call to discuss? The development team is currently working towards a second submission to address input from the City and Region and would like to receive clarification on this issue before revising the site plans, as the amount of land dedication required will be significantly impactful to the design of the site.

Thanks for your consideration and looking forward to hearing from you.

Ryan A. Sankar, P.Eng.
Associate

BA Consulting Group Ltd.
300 - 45 St. Clair Ave. W.
Toronto, ON M4V 1K9

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CELL 416 317 5845
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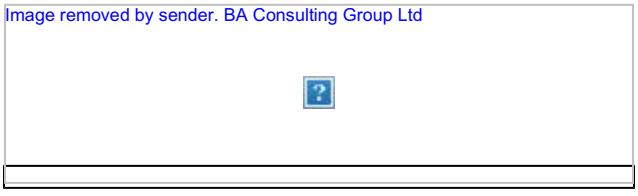

From: Lalingo, Anthony <anthony.lalingo@peelregion.ca>
Sent: February 28, 2020 2:40 PM
To: Ryan A. Sankar <sankar@bagroup.com>; lahini.senthil-kumaran@mississauga.ca
Cc: Andrew T. Pasco <pasco@bagroup.com>
Subject: RE: 1240 Britannia Road W - Rezoning and Plan of Subdivision Application - TIS Terms of Reference

Hi Ryan,

Thanks for reaching out. The Terms of Reference looks satisfactory. Looks like you have a good start. If any questions arise related to the TIS or required property dedication, feel free to reach out to our Traffic Analyst reviewing the file:

Catherine Barnes
catherine.barnes@peelregion.ca
905-791-7800 ext. 7569

FYI, I passed your email along to her and she said it looks good.

Regards,

Anthony Lalingo
Junior Planner, Growth Management
Region of Peel
Development Services – Public Works
10 Peel Centre Drive, 4th Floor Suite B
T: (905) 791-7800 ext. 4612
E: anthony.lalingo@peelregion.ca

ROP-email

From: Ryan A. Sankar <sankar@bagroup.com>
Sent: February 28, 2020 10:34 AM
To: Lalingo, Anthony <anthony.lalingo@peelregion.ca>; lahini.senthil-kumaran@mississauga.ca
Cc: Andrew T. Pasco <pasco@bagroup.com>
Subject: 1240 Britannia Road W - Rezoning and Plan of Subdivision Application - TIS Terms of Reference

YOU DO NOT TRUST.

Hi Anthony and Lahini,

Following up on our DARC meeting regarding the proposed Rezoning and Plan of Subdivision for 1240 Britannia Road West to permit a residential townhouse development, I'd like to confirm that the following scope of work for the Traffic Impact Study I will be preparing is acceptable.

I've attached the DARC final comments and submission requirements for reference.

To recap, what's proposed is a 112-unit townhouse development on the south side of Britannia Road West, midblock between Whitehorn Avenue/Bidwell Trail and Brookhaven Way/Douguy Blvd. The site today is occupied by what appears to be two single-family homes. I've attached a sketch illustrating the site's location. Vehicular access to the site is proposed on Galesway Boulevard. No access to Britannia Road West is proposed.

The traffic impact study will consider the following:

- AM/PM weekday peak hour traffic capacity analyses at the following intersections:
    - Britannia Rd W / Bidwell Tr / Whitehorn Ave
    - Britannia Rd W / Brookhaven Way / Douguy Blvd
    - Whitehorn Ave / Galesway Blvd
    - Galesway Blvd / Brookhaven Way / Prestonwood Cres
    - Galesway Blvd / Cabrera Cres
    - Galesway Blvd / Candlebrook Ct
    - Galesway Blvd / Proposed Site Driveway
- Traffic allowances made for background developments identified using the City of Mississauga's Planning Information Hub.
- General background corridor traffic growth along Britannia Rd W based on historical traffic count information.
- New site-generated vehicle trips forecast based on relevant proxy site survey data and the ITE Trip Generation Manual (10^{th} Ed).
- A review of the vehicle and bicycle parking requirements for the development as proposed compared to the prevailing zoning by-law requirement.
- A functional review of the proposed new internal roads with particular respect to fire route requirements and waste collection vehicle routing and manoeuvres.
- A sightline analysis of the proposed site driveway.

The study will conform to the Region's TIS Guidelines (https://www.peelregion.ca/pw/transportation/business/traffic-impact-study.asp) and the City's Guidelines (http://www.mississauga.ca/file/COM/Traffic-Impact-Study-Guidelines.pdf).

Please let me know if I've missed anything that you'd like to see covered. Looking forward to your response.

Thanks.

Ryan A. Sankar, P.Eng.
Associate

BA Consulting Group Ltd.
300 - 45 St. Clair Ave. W.
Toronto, ON M4V 1K9

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CELL 416 317 5845
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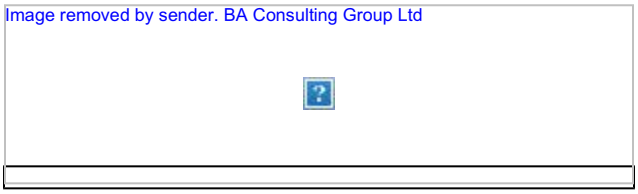

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Memorandum

TO:
Catherine Barnes
Technical Analyst
Region of Peel, Traffic Development & Permits
10 Peel Centre Drive Suite B, 4th Floor
Brampton, ON L6T 4B9
905-791-7800 x 7569
c: 905-460-4206
Catherine.Barnes@peelregion.ca

FROM:	**PROJECT:**	**DATE:**
Ryan A. Sankar	6869-16 1240 Britannia Road West	October 16, 2020

SUBJECT: 1240 BRITANNIA ROAD WEST – PROPOSED BRITANNIA ROAD RIGHT-OF-WAY WIDENING

Dear Catherine,

In March 2020, National Homes submitted a Zoning By-law Amendment and Plan of Subdivision application for a townhouse condominium development located at 1240 Britannia Road West in the City of Mississauga. The architectural site plans submitted as part of this application illustrated 109 new townhouse units with vehicular access from Galesway Boulevard only.

Comments regarding the March 2020 ZBA/Plan of Subdivision application were received from the Region in an e-mail from Development Services in May 2020. These comments speak to the dedication of lands required to meet the Official Plan Right-of-way (ROW) width for Britannia Road West within the segment adjacent to the site:

> *'The Region will require the gratuitous dedication of lands to meet the Official Plan requirement for Regional Rd 3 (Britannia Road), which has a right-of-way requirement of a 45 metres, 25 metres from centreline of the road allowance. And an additional 5.5 metres (for a total Right of Way of 50.5 metres, 25.25 metres from the centreline of the road allowance) will be required within 245 metres of intersection to protect for the provision of, but no limited to; utilities, multiuse pathways and transit bay/shelters.'*

In response to this comment, BA Group has conducted an analysis regarding the ROW width of the relevant section of Britannia Road based on topographical survey information and property plan data.

Key observations made based on this analysis are summarized below, with reference to the attached **Drawing CP-01**:

- Schedule F of the Region's Official Plan identifies the mid-block right-of-way width requirement of Britannia Road adjacent to the site to be 45 metres.
- Official Plan Policy 5.9.4.2.5 states that an additional 5.5m (extra to the 45m) is required within 245m of a Regional Road intersection for 'a single left turn configuration, right turn lanes, multi-purpose pathways or transit-related improvements'.
- The existing ROW width north of the roadway centreline is 23m.
- The adjacent development to the west of the site – a fully built-out residential subdivision – was required to convey lands to achieve a distance of approximately 22.5m from the roadway centreline.
- The adjacent development to the east of the site – also a fully built-out residential subdivision – was required to convey lands to achieve a distance of approximately 23.7m from the roadway centreline.
- The adjacent signalized intersections on Britannia Road W (Brookhaven Way / Douguy Blvd and Whitehorn Ave / Bidwell Trail) appear to provide access solely to residential neighbourhoods north and south of the arterial road that are mostly built out.

Considering above, the revised Draft Plan of Subdivision and site plan, which will be formally re-submitted in October 2020, proposes to dedicate lands along the site's Britannia Road frontage to achieve a 22m from centreline ROW, exclusive of the required 0.3m-wide reserve (as opposed to the 25.25m from centreline ROW requested by the Region as noted above). This reflects a conveyance of lands ranging between approximately 2.32m in width at the west of the site to 2.71m in width at the east end of the site (again, exclusive of the 0.3m-wide reserve).

The attached **Drawing CP-01** illustrates the current Draft Plan of Subdivision (which has been prepared by Glen Schnarr & Associates Inc. and will be formally submitted to the City and Region in October 2020) and the proposed ROW conveyances along the property's frontage.

The attached **Drawing CP-02** illustrates the current architectural site plans (which has been prepared by Cassidy + Company Residential Design Consultants and will be formally submitted to the City and Region in October 2020) and the proposed Britannia Road streetscape section adjacent to the property. It is noted the revised site plan now proposes 106 new townhouse units, as opposed to the previously considered 109 units.

The recommended ROW dedication is made based on the following:

- Given that the north side of the ROW is 23.0m (taken from the centreline of the road allowance), 22.0m on the south side would achieve a 45.0m ROW width, consistent with the Region's OP.
- As illustrated in **Drawing CP-02**, the following streetscape elements can be delivered within this public ROW:
    - A 3.0m-wide multi-use path, aligning with the existing path east and west of the site (i.e. shifted south from its current curbside location);
    - A 1.0m-wide splash pad (including the top of curb) adjacent to the roadway;
    - A 4.1m-wide landscaping strip between the MUP and the splash pad;
    - A buffer zone of 2.3m to 2.7m between the MUP and the south ROW limit; and
    - 12.0m of pavement between the curb face and centreline of road allowance (note that no changes to the existing curb or its alignment are proposed).

- This dedication and proposed streetscape is consistent with what currently exists directly east and west of the site.
- The proposed streetscape elements and arrangement along the site's frontage are also consistent with the Region's requirements specified in their May 2020 development application comments.
- The additional 5.5m of ROW requested by the Region in this midblock location does not seem to be applied to the fully built-out adjacent properties to the north, east and west, limiting the Region's ability to utilize this additional property for roadway/intersection improvements. Furthermore, there does not appear to be a need (or reasonably expected future need) for any improvements along Britannia that would require these additional lands.

We understand that the Region's Traffic Development team has reviewed the proposed ROW dedication arrangements and have deemed them satisfactory. This rationale is now being formally submitted to the Region of Peel for approval as supporting material to the forthcoming October 2020 Plan of Subdivision and Zoning By-law Amendment application re-submission.

I trust that the foregoing is acceptable and provides an appropriate justification for the proposed Britannia Road ROW dedication and streetscape frontage associated with the 1240 Britannia Road West development. Please feel free to contact me directly if you have any questions or comments regarding this material.

Sincerely,
BA Consulting Group Ltd.

Ryan A. Sankar, P.Eng.
Associate

cc.
Christie Jeong, BA Consulting Group Ltd.
Anthony Lalingo, Region of Peel

Attachment 1:

Drawing CP-01 – 1240 Britannia Road West Draft Plan of Subdivision and Proposed Britannia Road ROW

EXISTING RESIDENTIAL

NORTH SIDE ROADWAY BOUNDARY

BRITANNIA ROAD WEST
(45m ULTIMATE WIDTH)

C/L OF ROAD ALLOWANCE

BLOCK
ROAD WIDE ING
0.03ha (0.0 ac)

BLOCK 3
0.3m RESERVE
0.01ha (0.02ac)

PIN 13211-000 (LT)

PART 1, PLAN 43R-7848

PART 4, PLAN 43R-3248

PART 8, PLAN 43R-1331 (LT)

22.46m FROM ADJACENT SITE PROPERTY LINE TO ROADWAY C/L

19.68m EXISTING DISTANCE TO ROADWAY C/L

23.00m FROM ROADWAY C/L

45.00m ROW

22.00m FROM ROADWAY C/L

19.29m EXISTING DISTANCE TO ROADWAY C/L

23.73m FROM ADJACENT SITE PROPERTY LINE TO ROADWAY C/L

2.32m

2.52m

2.71m

PROPOSED ROADWAY WIDENING

0.3m RESERVE LINE

PART 1, PLAN 43R-33320
PIN 13194-3865 (LT)

EXISTING SITE BOUNDARY

PART 1
PIN 13194-3855 (LT)

PART 2
PIN 13194-3856 (LT)

PART 1, PLAN 43R-25193
PIN 13194-3683 (LT)

PART 2, PLAN 43R-251
PIN 13194-3682 (LT)

PART 3, PLAN 43R-251
PIN 13194-3726 (LT)

PLAN 43R-29674

STREET 'A'
(CABRERA CRESCENT)

CRESCENT

SIDEWALK
CONCRETE
ASPHALT
CURB
SICB
SIB
SSIB
LS
H
WV
CB
TMH
STM MH
SAN MH
HP

N38°15'50"E (P4) (MEAS) (P4&SET)

N38°05'30"E (P5)

(P1,P5&MEAS)

(P4&MEAS)

(P3,P4,MEAS)

(P1&MEAS)

(P4,P5&CALC)

NOTES:

1. Draft Plan of Subdivision provided by GSAI dated October 13, 2020

Date Plotted: October 16, 2020 Filename: J:\6869-16\BA\SPR6. October 15, 2020\BA-1240 Britannia Road-SPR1-686916.dwg

BA Group

1240 BRITANNIA RD W. - DRAFT PLAN OF SUBDIVISION

BRITANNIA ROAD WIDENING

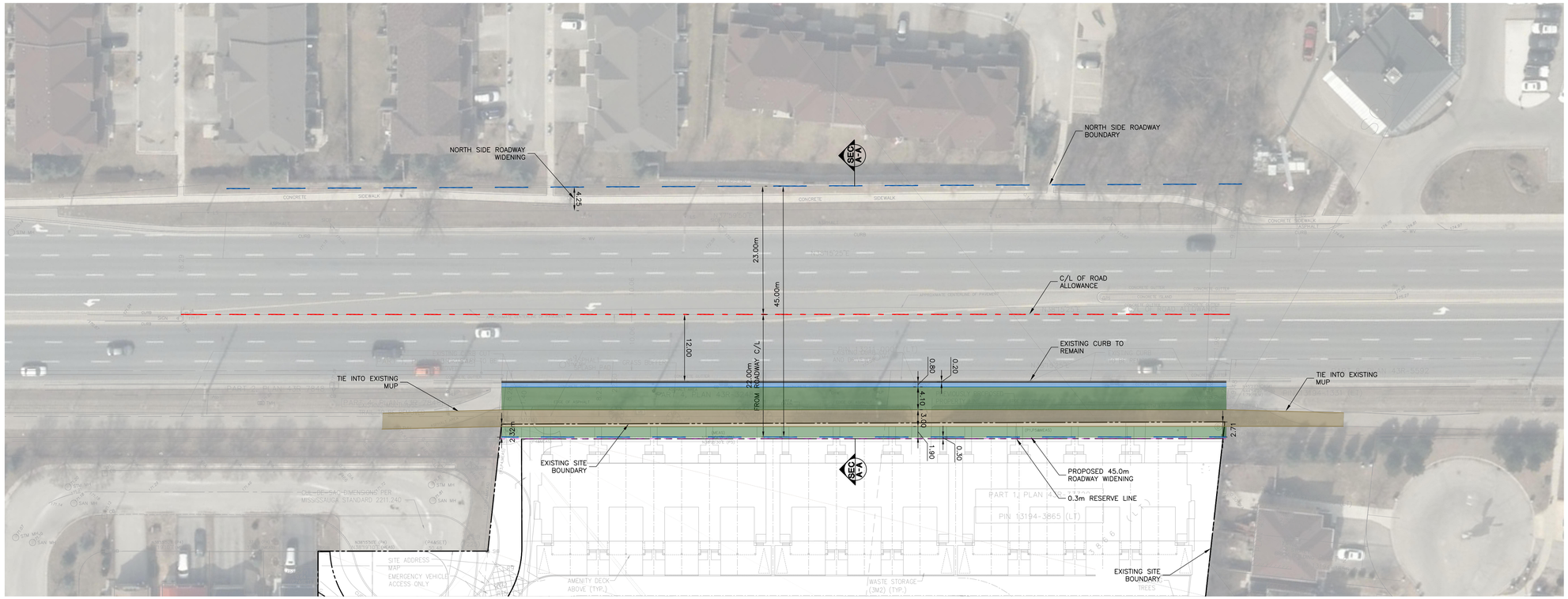
Project:	1240 Britannia Rd. W.
Project No.	6869-16
Date:	October 16, 2020
Revised:	--

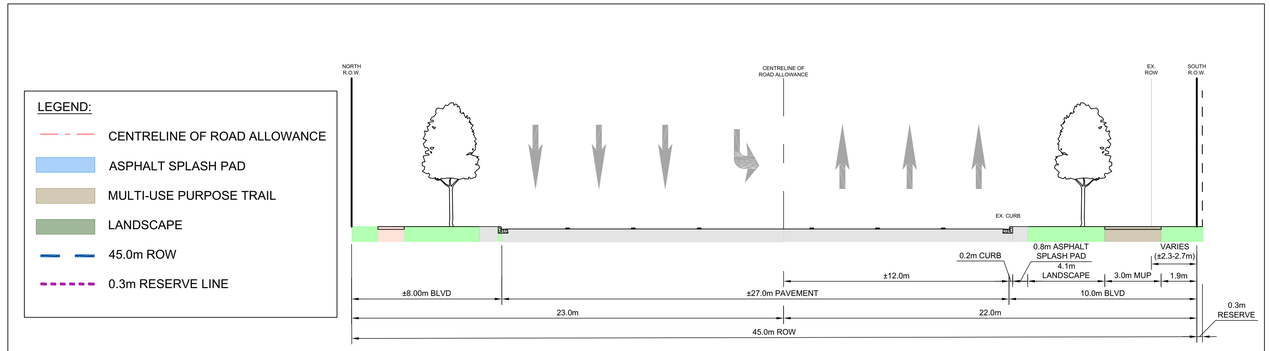
Scale 1:500 (0 5 10 15 20m)

Drawing No. CP-01

Attachment 2:

Drawing CP-02 – 1240 Britannia Road West Architectural Site Plan and Proposed Britannia Road Streetscape





SECTION A-A
BRITANNIA ROAD EXPANSION
(45.0m R.O.W.)
1:150

NOTES:

1. Site Plan provided by Cassidy Co. Architects dated October 13, 2020
2. Draft Plan of Subdivision provided by GSAI dated October 13, 2020

03	10-16-20	CJJ	ISSUED TO REGION
02	09-16-20	CJJ	REVISED ARCH PLANS
01	09-10-20	CJJ	NEW ARCH BASE PLANS

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MOVEMENT IN URBAN ENVIRONMENTS
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1240 BRITANNIA ROAD WEST - SITE PLAN

BRITANNIA ROAD WIDENING

Date: September 03, 2020

Project No.: 7385-10

Scale: 1:400 (0 2 4 6 8 10 20m)

CP-02

From:	Lahini Senthil-kumaran
To:	Ryan A. Sankar; Don Casey
Cc:	Christie Jeong; Lin Rogers; Ryan Au; Yougendran Thiyagarajah
Subject:	RE: National Homes (1240 Britannia) - Emergency Access
Date:	September 21, 2020 12:00:06 PM
Attachments:	image001.png

Thanks Ryan, we will review and get back to you.

Regards,

Lahini Senthil-Kumaran, B.Eng
Traffic Planning Technologist
T 905-615-3200 ext.5798
lahini.senthil-kumaran@mississauga.ca |

City of Mississauga |

From: Ryan A. Sankar [mailto:sankar@bagroup.com]
Sent: Friday, September 18, 2020 4:01 PM
To: Lahini Senthil-kumaran; Don Casey
Cc: Christie Jeong; Lin Rogers; Ryan Au; Yougendran Thiyagarajah
Subject: RE: National Homes (1240 Britannia) - Emergency Access

Hi Lahini, Don and Ryan,

As follow-up to our meeting on Monday, I thought I'd summarize what I believe to be the consensus we arrived at regarding the secondary access for the 1240 Britannia application:

- We were all in agreement that an extension of Street 'C' (the eastern N-S private road) to meet Galesway Boulevard was not necessary from an emergency access perspective, assuming secondary access could be provided from the Cabrera Crescent cul-de-sac (which would be reconstructed to the appropriate City standard as part of the redevelopment).
- Ryan Au stated his preference for this secondary site driveway on Cabrera Crescent to be publicly accessible (i.e. not gated). Ryan Sankar commented that current Cabrera Crescent residents may be concerned about traffic infiltration that could result as a consequence of the driveway being open and available for public use. Ryan Sankar to discuss with the development team the feasibility of making this secondary driveway publicly accessible.
- Don confirmed that the fire department are accepting of the emergency secondary access point being provided from the Cabrera Crescent cul-de-sac. Either a gated or open driveway would be acceptable.
- All of the above discussion outcomes are predicated on the successful transfer of lands held in escrow for the previously planned extension of Cabrera Crescent to Galesway Boulevard. Formal comments regarding the revised development plan will be provided in response to the forthcoming revised development application submission.

Please let me know if you agree with my interpretation of the outcome of our discussion or if you have anything to add. Thanks again for meeting with us on this.

Have a great weekend.

Ryan A. Sankar, P.Eng.
Associate

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-----Original Appointment-----
From: Ryan A. Sankar **On Behalf Of** Lahini Senthil-kumaran
Sent: September 14, 2020 11:07 AM
To: Christie Jeong
Subject: FW: National Homes (1240 Britannia) - Emergency Access
When: September 14, 2020 1:00 PM-1:30 PM (UTC-05:00) Eastern Time (US & Canada).
Where: N/A
