

Bistro 6 West

City of Barrie

Traffic Brief Update for Pratt Hansen Group Inc.

Type of Document:
Final Report

Project Number:
JDE – 1748

Date Submitted:
August 23rd, 2021



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1 Introduction

1.1 Background

Pratt Hansen Group Inc. [The Developer] is proposing to develop a high-density residential phase [subject site] of the Crisdawn Lands, located within Block 598 of the Hewitt's Gate Subdivision in the City of Barrie [City]. The Crisdawn Lands are located on the south side of Maplevue Drive between Yonge Street and 20th Sideroad (excerpt showing the Crisdawn Lands area provided in **Appendix A**). The subject site is located on the southwest corner of the future collector road [Kneeshaw Drive] within the Crisdawn Lands area. The subject site includes three residential apartment buildings with a total of 346 units.

The proposed development includes a full-movement access driveway onto the future collector road (Kneeshaw Drive) [Site Access] and a secondary access to the underground parking within Building C [Building C Access].

The Developer has retained **JD Northcote Engineering Inc.** [JD Engineering] to prepare this traffic brief update in support of the proposed phase of the residential development.

This study will serve as an update to the previously completed *Bistro 6 Traffic Impact Study* [Bistro 6 East TIS] by JD Northcote Engineering (June 12th, 2017), which was prepared in support of the proposed development within Block 613 of the Hewitt's Gate Subdivision [Bistro 6 East]. The Bistro 6 East TIS referenced work completed as part of the Hewitt's Transportation Study (LEA Consulting Ltd. February 2017) which has since been updated (February 2019).

This brief will build on and updates the findings of the Bistro 6 East TIS in consideration of the updated Hewitt's Transportation Study and other traffic projections in the local area.

1.2 Study Area

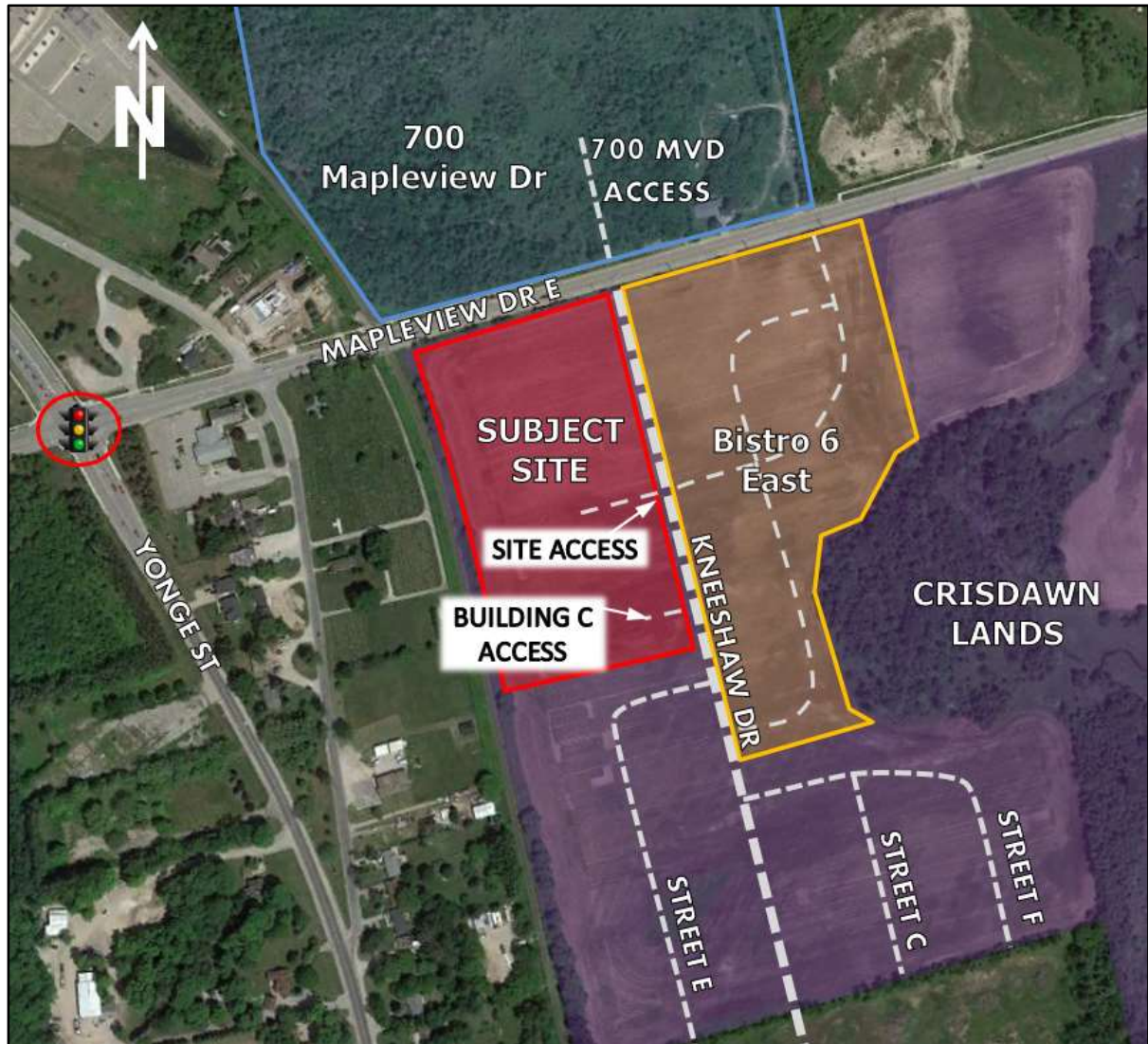
Figure 1 shows the location of the subject site and study area intersections in relation to the surrounding area. The Site Plan by Jones Consulting Group Limited is shown in **Appendix B**.

The subject site is bound by Maplevue Drive East to the north, existing Go Train railway to the west, future Kneeshaw Drive to the east and the undeveloped Crisdawn Lands to the south.

Through consultation with the City, the following intersections are included in the Traffic Brief:

- Maplevue Drive East / Kneeshaw Drive; and
- Site Access / Kneeshaw Drive.

Figure 1 – Proposed Site Location and Study Area



1.3 Study Scope and Objectives

The purpose of this study is to identify the potential impacts to traffic flow at the site access and on the surrounding roadway network. The study analysis includes the following tasks:

- Consult with the City to address any traffic-related issues or concerns they have with the proposed development;
- Estimate future traffic volumes through the study area based on the updated Hewitt's Transportation Study, the City's EMMÉ models and the most recent site plans;
- Complete level-of-service [LOS] analysis of horizon year (with the proposed development) traffic conditions and identify additional operational deficiencies;
- Identify improvement options to address operational deficiencies;
- Document findings and recommendations in a final report.

1.4 Horizon Year and Analysis Periods

The 2024 and 2031 horizon years were selected for analysis of traffic operations in the study area. The 2024 horizon was chosen to evaluate the need for temporary improvements on Mapleview Drive East, prior to the road widening which will be completed by the City between 2023 and 2026. The weekday morning [AM] and weekday afternoon [PM] peak hours have been selected as the analysis periods for this study.

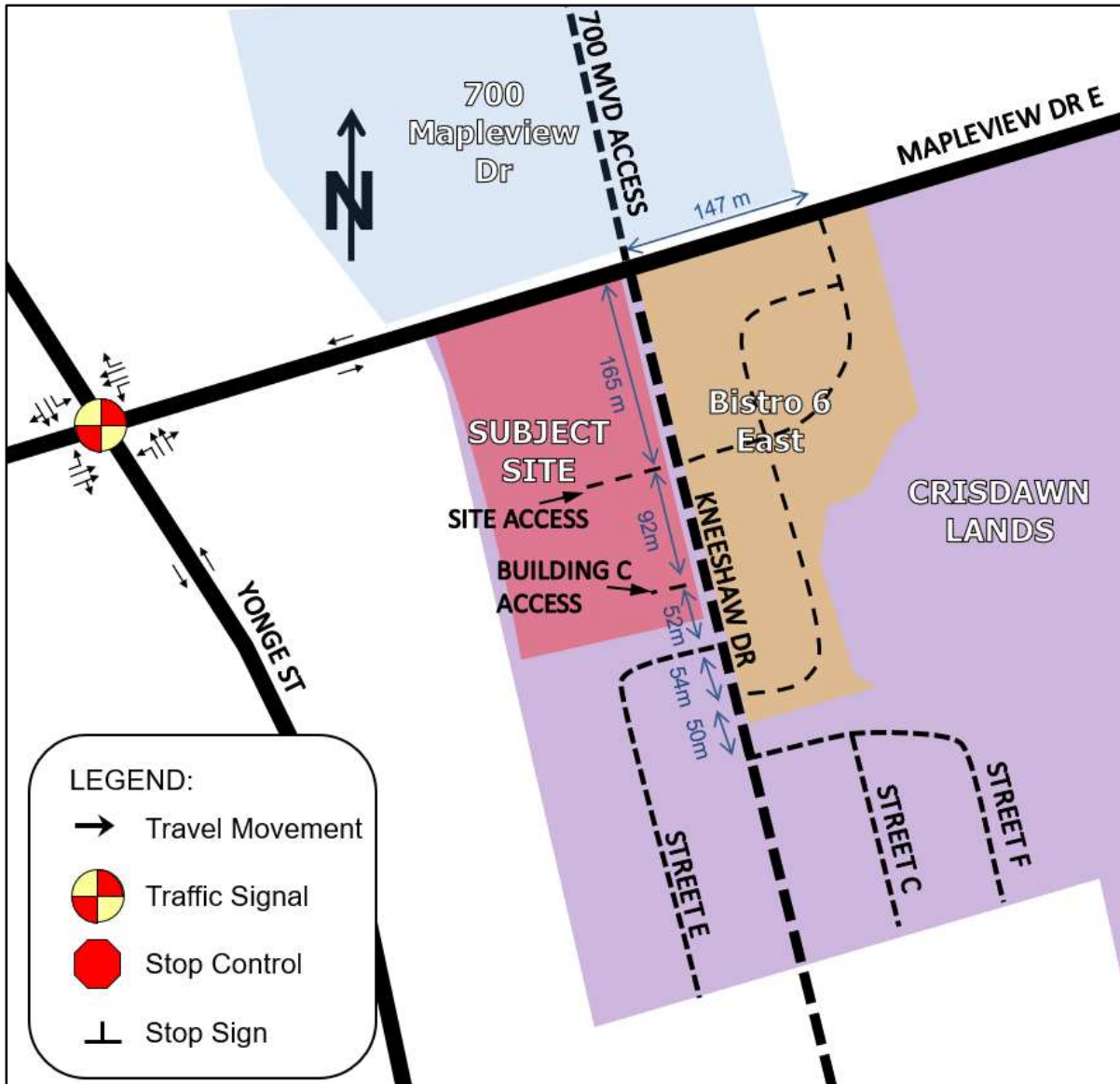
2 Information Gathering

2.1 Street and Intersection Characteristics

Mapleview Drive East is a two-lane major arterial road with painted bike lanes. Mapleview Drive East has an urban cross-section with a sidewalk on the north side of the road and a rural cross-section on the south side of the road, within the study area. Mapleview Drive East has a posted speed limit of 60km/h east of Kneeshaw Drive and a posted speed limit of 50km/h west of Kneeshaw Drive. The transition in speed limit occurs just east of Kneeshaw Drive. Mapleview Drive East is under the jurisdiction of the City within the study area.

The existing intersection spacing and lane configuration within the study area is illustrated in **Figure 2**.

Figure 2 – Existing (2021) Intersection Spacing and Lane Configuration with in Study Area



2.2 Local Transportation Infrastructure Improvements

In review of the City's Capital Project Detail Report, the following road improvements are anticipated within the study area:

- Mapleview Drive East (within study area)
 - Addition of one lane in both directions plus a two way left turn lane;
 - Buffered bike lanes;
 - Sidewalk on the south side of the road; and
 - Multi-use trail on the north side.

The City's Capital Project Detail Report allocates funds to the project between 2023 and 2025 indicating a completion date shortly thereafter.

2.3 Traffic Data

Detailed turning movement traffic and pedestrian counts were obtained at the intersection of Yonge Street / Mapleview Drive East conducted from 07:00-09:00 and 15:00-18:00 on Thursday June 28th, 2018. Detailed traffic count data can be found in **Appendix C**.

A review of the City's EMME model was completed to establish an appropriate growth rate for the 2024 horizon. A summary of the provided traffic data is provided in **Table 1**.

Table 1 – Traffic Data

| ROAD | Section | 2016 | | | | 2031 | | | |
|----------------|----------------------|------|-----|-----|-----|------|------|------|------|
| | | AM | | PM | | AM | | PM | |
| | | EB | WB | EB | WB | EB | WB | EB | WB |
| Mapleview Dr E | East of Yonge Street | 451 | 673 | 649 | 460 | 964 | 1622 | 1597 | 1183 |

In consideration of the above projections, an average growth rate of 6.0% per annum is anticipated on Mapleview Drive East, in the study area. It is noted that this growth rate is not expected to remain constant of the 15-year period. Rather, a lower rate is expected during the initial period (2016 – 2021) prior to heavy development within the Hewitt's Secondary Plan, with a significantly higher rate expected during the following years, as development occurs.

For the purpose of this study, a growth rate of 2.0% per has been utilized between 2018 and 2020 (where development was considered to be minimal through the study area), increasing to 6.0% per annum from 2020 to 2024.

3 Development Traffic Volumes

The following local developments have been considered in the establishment of anticipated traffic volumes at the study intersections;

- 700 Mapleview Dr E;
- Bistro 6 East Lands;
- Bistro 6 West Lands (Subject Site); and
- Bistro 6 Subdivision, Campbell Lands & Ballymore North Lands.

3.1 700 Mapleview Drive E

The 700 Mapleview Drive E development is located on the north side of Mapleview Drive East, adjacent the subject site. The development is anticipated to consist of mix of apartment, townhouse and condo dwellings, with a total of 1241 units and 750 m² (8,073 ft²) of mixed-use retail. The Conceptual Master Plan and updated Draft Pan of Subdivision is provided in **Appendix D**.

The traffic generation for the 700 Mapleview Drive E development has been based on proxy site survey trip rates as utilized in the Hewitt's Transportation Study in addition to rates published in the ITE Trip Generation Manual. Based on our review of the available documentation, it is our understanding that Block 6 and Block 8 are currently under the technical review process. For the

purpose of this study, we have assumed that Phase 1 of Block 6 (comprised of 118 Townhouse units) will be built and occupied by the 2024 horizon year. Full build-out is anticipated by the 2031 horizon year.

The trip rates for and the estimated trip generation of the proposed development is illustrated below in **Table 2**.

Table 2 – Development Traffic Volumes – 700 Mapleview Drive E

| Horizon Year / Rate | Size | AM Peak Hour | | | PM Peak Hour | | |
|---------------------------------|----------------------------------|--------------|------|-------|--------------|------|-------|
| | | IN | OUT | TOTAL | IN | OUT | TOTAL |
| Crisdawn Lands - FDR Proxy Site | - | 0.14 | 0.34 | 0.48 | 0.41 | 0.25 | 0.66 |
| ITE 820 – Shopping Centre | - | 0.58 | 0.36 | 0.94 | 1.83 | 1.98 | 3.81 |
| 700 Mapleview Dr E (2024) | 118 units | 17 | 40 | 57 | 48 | 30 | 78 |
| 700 Mapleview Dr E (2031) | 1241 units + Retail ¹ | 178 | 424 | 602 | 520 | 322 | 842 |

¹A 25% reduction has been utilized for the retail trips, in consideration of the anticipated internal capture within the development.

The assignment of traffic volumes through the study area has been assumed to follow the same distribution utilized in the Bistro 6 East TIS. The distribution illustrated in **Table 3**.

Table 3 – Distribution of Traffic from the Proposed Development

| Peak Hour | Ingress Traffic Direction | | Egress Traffic Direction | |
|-----------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| | Eastbound via Mapleview Drive East | Westbound via Mapleview Drive East | Eastbound via Mapleview Drive East | Westbound via Mapleview Drive East |
| AM | 97.2% | 2.8% | 0.6% | 99.4% |
| PM | 98.9% | 1.1% | 2.5% | 97.5% |

3.2 Bistro 6 East Lands

The Bistro 6 East development is located on the south east corner of the Mapleview Drive East / Kneeshaw Drive intersection. The development will consist of 440 apartment units with access via full-movement access onto Mapleview Drive East and two full-movement driveways onto Kneeshaw Drive. Upon the construction of the Mapleview Drive improvements, the full-movement access onto Mapleview Drive will be restricted to a right-in, right-out driveway. The development is anticipated to be fully built-out by 2024.

Traffic volumes and assignment for the development has been established based on the Bistro 6 East TIS. Excerpts of which are provided in **Appendix D**.

3.3 Bistro 6 West Lands

As previously mentioned, the Bistro 6 West Lands are located on the southwest corner of the Mapleview Drive / Kneeshaw Drive intersection. The development will consist of 3 apartment buildings with a total of 346 units. The proposed development includes a full-movement access driveway onto Kneeshaw Drive and a secondary access to the underground parking within Building C. The development is anticipated to be 50% and 100% occupied during the 2024 and 2031 horizon years, respectively. The Site Plan is provided in **Appendix B**.

The traffic generation for the Bistro 6 West development has been based on proxy site survey trip rates as utilized in the Hewitt's Transportation Study. The trip rates for and the estimated trip generation of the proposed development is illustrated below in **Table 4**.

Table 4 – Development Traffic Volumes – Bistro 6 West

| Horizon Year | Size | AM Peak Hour | | | PM Peak Hour | | |
|---------------------------------|------------|--------------|------|-------|--------------|------|-------|
| | | IN | OUT | TOTAL | IN | OUT | TOTAL |
| Crisdawn Lands - FDR Proxy Site | - | 0.14 | 0.34 | 0.48 | 0.41 | 0.25 | 0.66 |
| Bistro 6 West (2024) | 174 units* | 24 | 59 | 84 | 71 | 44 | 115 |
| Bistro 6 West (2031) | 348 units* | 49 | 118 | 167 | 143 | 87 | 230 |

* The trip generation values in the table are based on a previous design that included 348 apartment units. The overall traffic generation for the previous design is slightly more conservative than the proposed design, consequently we have not adjusted the previous values for the purposes of our analysis. No material change to the traffic operation is anticipated for the traffic generation from the proposed development.

The assignment of traffic volumes through the study area has been assumed to follow the same distribution utilized in the Bistro 6 East study, provided in **Table 3**.

3.4 Bistro 6 Subdivision, Campbell & Ballymore North Lands

The Bistro 6 Subdivision, Campbell Lands and Ballymore North Lands encompass the remaining development within Phase 1 of the Hewitt's Secondary Plan that will access Mapleview Drive East via Kneeshaw Drive. The proposed unit count of 263 units (mix of singles and townhouses) has been established based on the latest Pavement Marking and Signage Plan by Jones Consulting Group Ltd (provided in **Appendix D**). The development is assumed to have no occupancy during the 2024 horizon year with full occupancy occurring by the 2031 horizon year.

The traffic generation for the Bistro 6 West development has been based on proxy site survey trip rates as utilized in the Hewitt's Transportation Study. The trip rates for and the estimated trip generation of the proposed development is illustrated below in **Table 5**.

Table 5 – Development Traffic Volumes – Bistro 6 Subdivision, Campbell Lands & Ballymore North Lands

| Horizon Year | Size | AM Peak Hour | | | PM Peak Hour | | |
|---------------------------------|-----------|--------------|------|-------|--------------|------|-------|
| | | IN | OUT | TOTAL | IN | OUT | TOTAL |
| Crisdawn Lands - FDR Proxy Site | - | 0.14 | 0.34 | 0.48 | 0.41 | 0.25 | 0.66 |
| 2031 | 263 units | 37 | 89 | 126 | 108 | 66 | 174 |

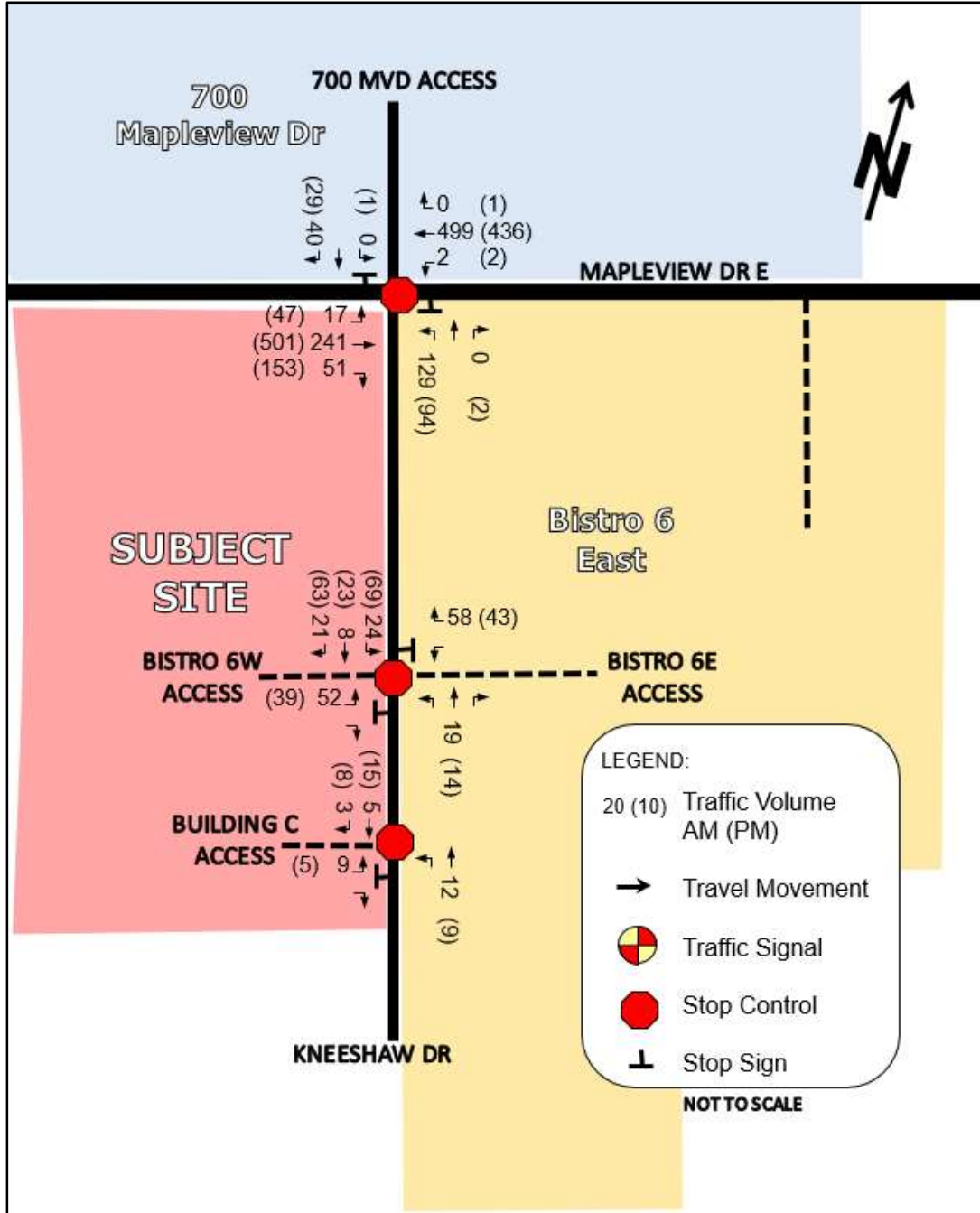
4 Horizon Year Traffic Volumes

4.1.1 2024 Horizon Year

Traffic volumes for the 2024 horizon year were established based on the 2018 intersection counts and adjusted to reflect the annual background growth rates of 2% (2018 to 2020) and 6% (2020 to 2024). The east-west volumes at the east leg of the Yonge Street / Mapleview Drive East have been carried east to reflect the volumes entering/existing the west leg of the Mapleview Drive East / Kneeshaw Drive intersection. Turning movements at the Mapleview Drive East / Kneeshaw reflect the anticipated development volumes as noted in Sections 3.1 through 3.4.

Figure 3 illustrates the 2024 AM and PM peak hour traffic volumes within the study area.

Figure 3 –2024 Horizon Year Traffic Volumes



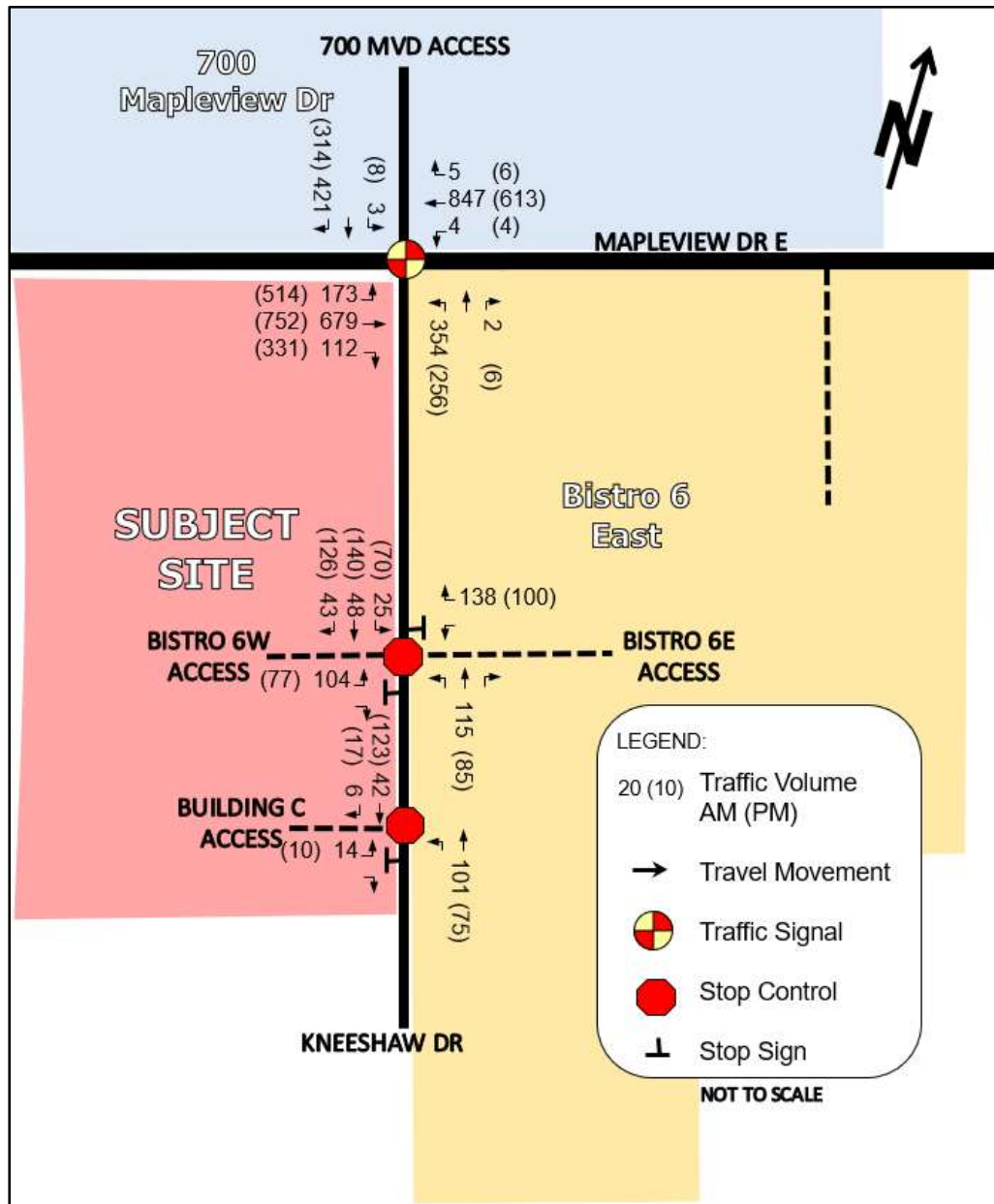
4.1.2 2031 Horizon Year

Traffic volumes for the 2031 horizon year were established based on the 2031 EMME model volumes for Maplevue Drive (as provided in **Table 1**) in consideration with the anticipated development volumes.

The east-west volumes at the west leg of the Maplevue Drive East / Kneeshaw Drive intersection reflect the 2031 EMME model volumes. Turning movements at the Maplevue Drive East / Kneeshaw Drive intersection reflect the anticipated development volumes as noted in Sections 3.1 through 3.4.

Figure 4 illustrates the 2031 AM and PM peak hour traffic volumes within the study area.

Figure 4 – 2031 Horizon Year Traffic Volumes



5 Intersection Operation with Proposed Development

5.1 Introduction

Traffic operations within the study area were evaluated using the horizon year traffic volumes with the existing road configuration and traffic control. The intersection performance was measured using the traffic analysis software, Synchro 10, a deterministic model that employs Highway Capacity Manual and Intersection Capacity Utilization methodologies for analyzing intersection operations. These procedures are accepted by provincial and municipal agencies throughout North America.

Synchro 10 enables the study area to be graphically defined in terms of streets and intersections, along with their geometric and traffic control characteristics. The user is able to evaluate both signalized and unsignalized intersections in relation to each other, thus not only providing level of service for the individual intersections, but also enabling an assessment of the impact the various intersections in a network have on each other in terms of spacing, traffic congestion, delay, and queuing.

Individual turning movements with a volume-to-capacity [V/C] ratio of 0.85 or greater are considered to be critical movements and have been highlighted in the LOS tables.

The intersection operations were also evaluated in terms of the LOS. LOS is a common measure of the quality of performance at an intersection and is defined in terms of vehicular delay. This delay includes deceleration delay, queue move-up time, stopped delay, and acceleration delay. LOS is expressed on a scale of A through F, where LOS A represents very little delay (i.e. less than 10 seconds per vehicle) and LOS F represents very high delay (i.e. greater than 50 seconds per vehicle for a stop sign controlled intersection and greater than 80 seconds per vehicle for a signalized intersection).

The LOS criteria for signalized and stop sign controlled intersections are shown in **Table 6**. A description of traffic performance characteristics is included for each LOS.

Table 6 – Level of Service Criteria for Intersections

| LOS | LOS Description | Control Delay (seconds per vehicle) | |
|-----|---|-------------------------------------|-------------------------------|
| | | Signalized Intersections | Stop Controlled Intersections |
| A | Very low delay; most vehicles do not stop (Excellent) | less than 10.0 | less than 10.0 |
| B | Higher delay; more vehicles stop (Very Good) | between 10.0 and 20.0 | between 10.0 and 15.0 |
| C | Higher level of congestion; number of vehicles stopping is significant, although many still pass through intersection without stopping (Good) | between 20.0 and 35.0 | between 15.0 and 25.0 |
| D | Congestion becomes noticeable; vehicles must sometimes wait through more than one red light; many vehicles stop (Satisfactory) | between 35.0 and 55.0 | between 25.0 and 35.0 |
| E | Vehicles must often wait through more than one red light; considered by many agencies to be the limit of acceptable delay | between 55.0 and 80.0 | between 35.0 and 50.0 |
| F | This level is considered to be unacceptable to most drivers; occurs when arrival flow rates exceed the capacity of the intersection (Unacceptable) | greater than 80.0 | greater than 50.0 |

5.2 Total (2024) Intersection Operation

The results of the LOS analysis under 2024 horizon year traffic volumes during the AM and PM peak hour can be found below in **Table 7**. The interim intersection geometry and traffic control from the Hewitt Transportation Study has been utilized for this scenario with the exception of Kneeshaw Drive, which has been analyzed as a single lane approach. Detailed output of the Synchro analysis can be found in **Appendix E**.

Table 7 – 2024 LOS

| Location (E-W Street / N-S Street) | Weekday AM Peak Hour | | | Weekday PM Peak Hour | | |
|--|----------------------|-----------|-----|----------------------|-----------|-----|
| | V/C | Delay (s) | LOS | V/C | Delay (s) | LOS |
| Mapleview Drive East / Kneeshaw Drive & 700 MVD Access | - | 6.3 | A | - | 7.2 | E |
| EB | 0.02 | 0.6 | A | 0.05 | 1.2 | A |
| WB | 0.00 | 0.0 | A | 0.00 | 0.1 | A |
| NB | 0.61 | 42.4 | E | 0.74 | 81.9 | F |
| SBL | 0.00 | 0.0 | A | 0.01 | 28.7 | D |
| SBTR | 0.08 | 12.2 | B | 0.05 | 11.5 | B |
| Bistro 6W Access & Bistro 6E Access / Kneeshaw Drive | - | 6.6 | A | - | 5.3 | A |
| EB | 0.08 | 10.2 | B | 0.07 | 11.1 | B |
| WB | 0.06 | 8.6 | A | 0.04 | 8.5 | A |
| NB | 0.00 | 0.0 | A | 0.00 | 0.0 | A |
| SB | 0.02 | 3.3 | A | 0.05 | 3.5 | A |

The results of the LOS analysis indicate that all intersections are operating within the typical design limits noted in Section 4.1. One exception occurs during the PM peak hour where the north bound left turn movements at Mapleview Drive is expected to experience a LOS F.

While traffic signals would address the operating conditions, such are not considered necessary given that the delay only occurs during the PM peak hour and the approach will continue to operate well below capacity ($v/c = 0.74$). It is further noted that the intersection volumes do not warrant the implementation of traffic signals (Ontario Traffic Manual Book 12 *Signal Justification* results provided in **Appendix F**). Furthermore, the control delay at this intersection is heavily influenced by the northbound left turn movement control delay. As the control delay at the intersection increases, it is anticipated that a portion of motorists from the Bistro 6 East development will divert it's full-movement access onto Mapleview Drive East to avoid the delay. This redistribution of traffic will improve the control delay at the study intersection.

An analysis was completed for left turn movements at Mapleview Drive East / Kneeshaw Drive & 700 MVD Access. A westbound left turn lane is not warrant to support the proposed development. An eastbound left turn lane is expected to be warranted during the PM peak hour to support the 700 Mapleview Drive East development. Timing and design of such should be confirmed through additional analysis of the 700 Mapleview Drive development.

The criterion outlined in Section E.7 of the MTO GDSOH (60vph minimum right turn volume warrant) has been used to assess whether an auxiliary right turn lane is required at any unsignalized study area intersections. The eastbound right-turn volume in the PM peak hour at the Mapleview Drive East / Kneeshaw Drive intersection exceeds the minimum volume threshold; however, this infrastructure improvement is not recommended based on the excellent LOS for this movement at this intersection. Furthermore, the planned Mapleview Drive East road widening includes two eastbound lanes which will provide additional eastbound capacity for through movements on Mapleview Drive East. No additional right turn lanes are warranted at any of the other study area intersections.

No infrastructure improvements are recommended within the study area.

5.3 Total (2031) Intersection Operation

The results of the LOS analysis under 2031 horizon year traffic volumes during the AM and PM peak hour can be found below in **Table 8**. The ultimate intersection geometry and traffic control from the Hewitt Transportation Study has been utilized for this scenario, including optimized signal timings. Detailed output of the Synchro analysis can be found in **Appendix E**.

Table 8 – 2031 LOS

| Location (E-W Street / N-S Street) | Weekday AM Peak Hour | | | Weekday PM Peak Hour | | |
|---|----------------------|-----------|-----|----------------------|-----------|-----|
| | V/C | Delay (s) | LOS | V/C | Delay (s) | LOS |
| Mapleview Drive East / Kneeshaw Drive & 700 MVD Access | 0.90 | 38.7 | D | 0.98 | 26.4 | C |
| EBL | 0.84 | 49.3 | D | 0.87 | 32.0 | C |
| EBTR | 0.58 | 21.6 | C | 0.55 | 10.3 | B |
| WBL | 0.02 | 22.6 | C | 0.04 | 22.6 | C |
| WBTR | 0.88 | 40.8 | D | 0.74 | 31.9 | C |
| NBL | 0.84 | 33.8 | C | 0.92 | 59.4 | E |
| NBTR | 0.00 | 13.5 | B | 0.00 | 22.3 | C |
| SBL | 0.01 | 28.9 | C | 0.08 | 33.7 | C |
| SBTR | 0.92 | 66.9 | E | 0.21 | 34.6 | C |
| Bistro 6W Access & Bistro 6E Access / Kneeshaw Drive | - | 6.6 | A | - | 4.9 | A |
| EB | 0.25 | 15.4 | C | 0.23 | 17.7 | C |
| WB | 0.16 | 9.6 | A | 0.11 | 9.2 | A |
| NB | 0.00 | 0.0 | A | 0.00 | 0.0 | A |
| SB | 0.02 | 1.7 | A | 0.05 | 1.9 | A |

The results of the LOS analysis indicate that all intersections are operating within capacity and the control delay is thing the typical design limits noted in Section 5.1.

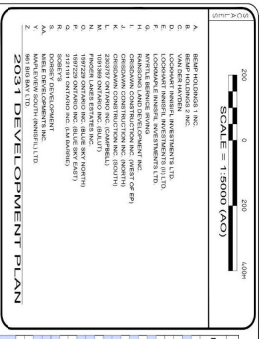
No additional infrastructure improvements are recommended within the study area.

6 Summary

Pratt Hansen Group Inc. retained **JD Engineering** to prepare this traffic brief in support of the high-density residential phase of the Crisdawn Lands located within Block 598 of the Hewitt's Gate Subdivision in the City of Barrie. The proposed Site Plan is shown in **Appendix B**. This chapter summarizes the conclusions and recommendations from the study.

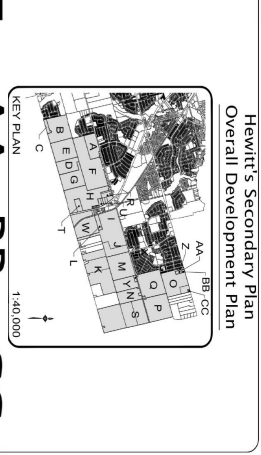
1. The subject site includes three residential apartment buildings with a total of 346 units.
2. The proposed development is expected to generate a total of 167 AM and 230 PM peak hour primary trips.
3. Detailed intersection counts were obtained at the intersection of Mapleview Drive East / Yonge Street, conducted conducted from 07:00-09:00 and 15:00-18:00 on Thursday June 28th, 2018
4. The 2024 and 2031 horizon year volumes were development based on the obtained counts, City EMM model volumes and anticipated development volumes in the study area.
5. An intersection operation analysis was completed under the 2024 and 2031 horizon year traffic volumes with the anticipated developments operational at the study area intersections. No infrastructure improvements are recommended.
6. In summary, the proposed development will not cause any operational issues and will not add significant delay or congestion to the local roadway network.

Appendix A – Crisdawn Lands Functional Design Review and Hewitt Transportation Study Excerpts



Phase 1-3 Participating Landowner Unit Counts/Estimates

| Map ID | Ownership Map # | Land Owner | Total Area (sq. ft.) | Area within 2031 Boundary (sq. ft.) | Total Area within 2031 Boundary (sq. ft.) | Developable Area within 2031 Boundary (sq. ft.) | Phase 1 | Phase 2 | Phase 3 | Phase 4 | Total | Estimated Occupancy | Estimated Occupancy | Estimated Occupancy | Estimated Occupancy | Estimated Occupancy | Estimated Occupancy |
|--------------|-----------------|--------------------------------|----------------------|-------------------------------------|---|---|----------|----------|----------|----------|---------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| A | 51 | BBB Holdings 1 LLC | 38,520 | 0.00 | 38,520 | 0 | 0 | 0 | 0 | 0 | 38,520 | 0 | 0 | 0 | 0 | 0 | 0 |
| B | 52 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| C | 53 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| D | 54 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| E | 55 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| F | 56 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| G | 57 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| H | 58 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| I | 59 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| J | 60 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| K | 61 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| L | 62 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| M | 63 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| N | 64 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| O | 65 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| P | 66 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| Q | 67 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| R | 68 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| S | 69 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| T | 70 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| U | 71 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| V | 72 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| W | 73 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| X | 74 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| Y | 75 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| Z | 76 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| AA | 77 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| BB | 78 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| CC | 79 | Van der Tuin Investments, Ltd. | 13,170 | 0.00 | 13,170 | 0 | 0 | 0 | 0 | 0 | 13,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | | | 47,860 | 0.00 | 47,860 | 0.00 | 0 | 0 | 0 | 0 | 47,860 | 0 | 0 | 0 | 0 | 0 | 0 |



JONES ENGINEERING & CONSULTANTS
 10000 West 111th Street, Suite 100
 Overland Park, KS 66204
 Phone: 913.241.1118
 Fax: 913.241.1119
 Project No.: EDC-11118
 Project Name: Crisdrawn Lands
 Drawing Name: EDC-11118-Crisdrawn-16-11-18.dwg
 Date Issued: November 16, 2018
 Drawn By: RB
 Checked By: RB

Phase 1-3 Non-Participating Landowner Unit Counts/Estimates

| Map ID | Ownership Map # | Total Area (sq. ft.) | Area within 2031 Boundary (sq. ft.) | Total Area within 2031 Boundary (sq. ft.) | Developable Area within 2031 Boundary (sq. ft.) | Phase 1 | Phase 2 | Phase 3 | Phase 4 | Total |
|--------------|-----------------|----------------------|-------------------------------------|---|---|----------------|--------------|--------------|----------|----------------|
| T | 1 | 4,770 | 0.00 | 4,770 | 0 | 0 | 0 | 0 | 0 | 4,770 |
| U | 2 | 1,140 | 0.00 | 1,140 | 0 | 0 | 0 | 0 | 0 | 1,140 |
| V | 3 | 1,140 | 0.00 | 1,140 | 0 | 0 | 0 | 0 | 0 | 1,140 |
| W | 4 | 26,180 | 2,271 | 26,180 | 10,441 | 56,255 | 0 | 0 | 0 | 10,442 |
| X | 5 | 1,010 | 1,010 | 1,010 | 1,010 | 0 | 0 | 0 | 0 | 1,010 |
| Y | 6 | 0.40 | 0.40 | 0.40 | 0.40 | 0 | 0 | 0 | 0 | 0.40 |
| CC | 7 | 0.40 | 0.40 | 0.40 | 0.40 | 0 | 0 | 0 | 0 | 0.40 |
| TOTAL | | 47,860 | 7,722 | 47,860 | 31,922 | 259,255 | 793.5 | 897.6 | 0 | 2040.35 |

- City of Harris Secondary Plan 2031 Boundary
- Natural Heritage System Including Buffer
- Phase 1-3 Non-Participating Landowners
- Phase Line and Number
- Phase 1 Properties Expected to Immediately Proceed
- Unit Count is an estimate only based on Secondary Plan Density permissions

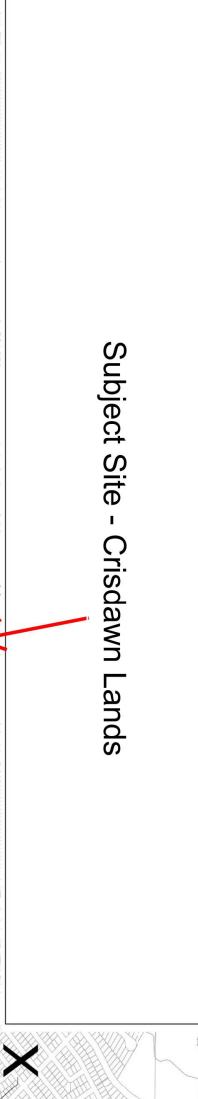
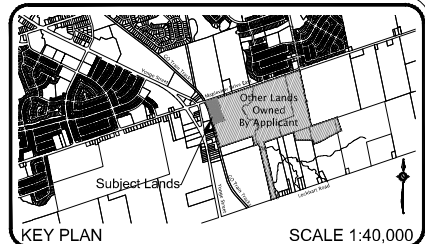


Figure 1-2
 Subject Site Location within the Hewitt Secondary Plan
 Crisdrawn Construction Inc. - Functional Design Review



Appendix B – Site Plan

(PROPOSED BLOCK 597 & RESIDENTIAL LOTS ON HEWITT'S GATE DRAFT PLAN OF SUBDIVISION)



Elements Condominium Plan
 (Proposed Block 598 on Hewitt's Gate Draft Plan)
 Part of Lot 16, Concession 12
 City of Barrie, County of Simcoe, 2021

SITE PLAN STATISTICS

| | | |
|---------------------------------------|----------------------------|--|
| Site Plan Area | 3,15 ha. | |
| Unit Count: | | |
| 1 @ 94 Unit Apartment (6 Storey 'A') | 94 Units | |
| 1 @ 156 Unit Apartment (6 Storey 'B') | 156 Units | |
| 1 @ 96 Unit Apartment (6 Storey 'C') | 96 Units | |
| Total | 346 Units (110 UPH) | |

| | REQUIRED | PROPOSED |
|----------------------|----------------------|-------------------|
| Total Holdings | RM3 | RM3 |
| Site Plan Area | 3.15 ha. | 3.15 ha. |
| Frontage | 24.0 m | 123.2 m |
| Front Yard | 3.0 m | 15.6 m |
| Interior Side Yard | 5.0 m | 30.0 m |
| Exterior Side Yard | 2.0 m | 7.3 m |
| Rear Yard | 5.0 m | 6.6 m |
| Lot Coverage | max 50 % (1.57 ha.) | 20 % (0.64 ha.) |
| Accessory Structures | max 10 % (0.31 ha.) | 0.00 % (0.00 ha.) |
| Landscape Open Space | min 25 % (0.79 ha.) | 53 % (1.68 ha.) |
| Parking Coverage | max 40 % (1.26 ha.) | 26 % (0.83 ha.) |
| Gross Floor Area | max 200 % (6.30 ha.) | 110 % (3.43 ha.) |

| | | |
|---------------------|-----|--------------------------|
| Building A | GFA | 9,468.24 m ² |
| • Height in Stories | 6 | |
| • Units | 94 | |
| Building B | GFA | 15,398.28 m ² |
| • Height in Stories | 6 | |
| • Units | 156 | |
| Building C | GFA | 9,468.24 m ² |
| • Height in Stories | 6 | |
| • Units | 96 | |

Parking Calculations

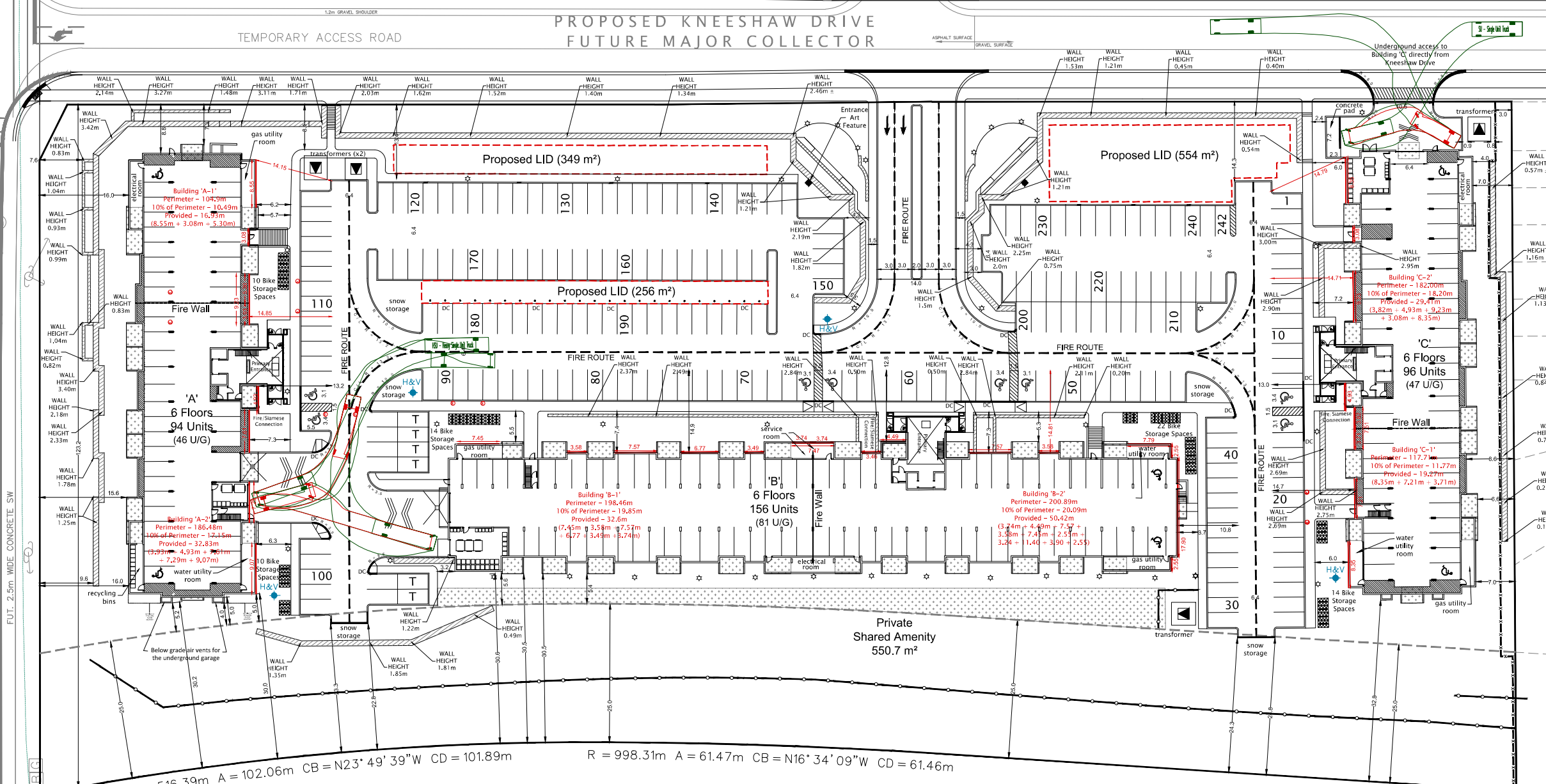
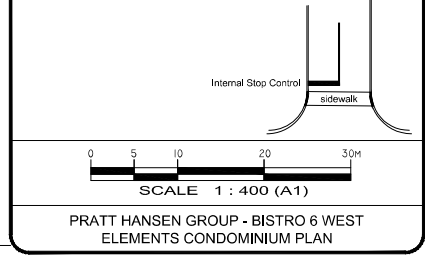
| | | |
|--|--------------------|-------------|
| Required Parking (346 x 1.2) | 416 Spaces | *416 Spaces |
| *Parking Breakdown | | |
| Typical Surface Parking Spaces | 234 Spaces | |
| Surface Barrier Free Parking Spaces | 8 Spaces | |
| Typical Underground Parking Spaces | 168 Spaces | |
| Underground Barrier Free Parking Spaces | 6 Spaces | |
| Total | 416 Spaces* | |
| Tandem Parking Spaces | 6 Spaces | |
| Total Including Tandem Spaces | 422 Spaces | |
| Barrier Free spaces calculated at 1 + (416 x 3%) = 14 required (3.4 + 1.5 & 3.1 + 1.5 per barrier free space/shared aisle) | | |
| Bicycle Rack Storage (2 x 346) | 70 Required | 70 Provided |

General Amenity Area (10m²/unit) 3,460 m² **4,619.90 m²

****Amenity Area Breakdown**

| | |
|--|-------------------------------|
| Shared Surface Amenity Area | 550.7 m ² |
| Private Balcony Area: | |
| - Building A | 1,141.20 m ² |
| - Building B | 1,865.40 m ² |
| - Building C | 1,062.60 m ² |
| - Private Balcony Area Total | 4,069.20 m ² |
| Combined General Amenity Area Total | 4,619.90 m² |

- Fire Route
- Retaining Walls
- Light Standard (nts)
- EV Charger Station (nts)
- Hydro Transformer (nts)
- Hydrant
- Timber Bollards (BSD-1217)
- Acoustic Fencing (BSD-1200)
- Board on Board Fence (BSD-1205)



R = 516.39m A = 102.06m CB = N23° 49' 39" W CD = 101.89m
 R = 998.31m A = 61.47m CB = N16° 34' 09" W CD = 61.46m

EXISTING GO TRAIN RAILWAY

EXISTING CEMETARY

NOTE - RED TRUCK TURNING LINEWORK INDICATES REVERSE MOTION
 GREEN TRUCK TURNING LINEWORK INDICATES FORWARD MOTION

SCHEDULE OF REVISIONS

| DATE | DESCRIPTION | DRAWN |
|----------------|--|--------|
| FEB. 12, 2021 | SITE PLAN SUBMISSION | m.c.r. |
| FEB. 16, 2021 | WIDEN BUILDING 'C' RAMP TO 6.4m / SITE PLAN SUBMISSION | m.c.r. |
| APRIL 16, 2021 | CHANGES AS PER CITY COMMENTS | m.c.r. |
| APRIL 20, 2021 | CHANGES TO BDG 'C' RAMP DESIGN | m.c.r. |
| APRIL 21, 2021 | CHANGES TO BDG 'C' RAMP DESIGN | m.c.r. |
| APRIL 29, 2021 | UPDATE PLAN WITH NEW ARCH BUILDING FOOTPRINTS | m.c.r. |
| MAY 10, 2021 | CHANGES TO BDG 'C' RAMP AREA | m.c.r. |
| MAY 13, 2021 | CHANGES AS PER ENG COMMENTS | m.c.r. |
| MAY 14, 2021 | CHANGES AS PER ENG COMMENTS | m.c.r. |
| JULY 6, 2021 | NEW BDG 'A' ARCH FOOTPRINT | m.c.r. |
| AUG. 16, 2021 | NEW BDG 'B' ARCH FOOTPRINT/UPDATE ENG DETAILS/SITE PLAN SUBMISSION | m.c.r. |
| AUG. 17, 2021 | ADDITIONAL ENG DETAILS ADDED | m.c.r. |
| AUG. 20, 2021 | ADD DIMENSIONING TO SP | m.c.r. |
| SEPT. 2, 2021 | NEW TRANSFORMER LOCATIONS FROM ENG. x2 | m.c.r. |

Date Issued: APRIL 30, 2020
 Checked By: RD
 Project No.: PRA-19078
 Drawn By: m.c.r.
 Drawing Name: PRA-19078-HD-W-SP-11.dwg

PRATT HANSEN GROUP - BISTRO 6 WEST
 CITY OF BARRIE

C:\Planning Drawings\19078-B6-West\Submitted\Sept 2021\19078-HD-W-SP-11.dwg Layout: ECP Plotted: Sep 02, 2021 @ 5:21pm by mcrhards@thejonesconsultinggroup.com

Appendix C – Traffic Data



Turning Movement Count Diagram

Intersection: Yonge Street & Mapleview Drive
 Municipality: Barrie, Ontario

Intersection ID:
 Date: Thursday June 28, 2018

AM Peak Hour: 7:45 to 8:45

MD Peak Hour: 12:45 to 13:45

| | | | | Yonge Street | | | | | | | |
|-----------------|----------|----------|-----------|--------------|---|---|----------------|-----------------|-----|--|--|
| North Total | 694 | | | | | | East Total | 747 | | | |
| North Entering | 339 | Cyclists | 0 0 0 | | | | East Entering | 511 | | | |
| North Receiving | 355 | Truck | 3 14 3 | | | | East Receiving | 236 | | | |
| North Peds | 0 | Cars | 14 271 34 | | | | East Peds | 1 | | | |
| | | | | ← | ↓ | → | | | | | |
| Mapleview Drive | 0 5 26 | ↑ | | | | | ← | 77 4 1 | | | |
| | 0 21 160 | → | | | | | ← | 314 11 0 | | | |
| | 0 3 58 | ↓ | | | | | ← | 100 4 0 | | | |
| | | | | ← | ↑ | → | | | | | |
| West Total | 659 | | | 40 231 17 | | | | South Total | 754 | | |
| West Entering | 273 | | | 4 11 1 | | | | South Entering | 304 | | |
| West Receiving | 386 | | | 0 0 0 | | | | South Receiving | 450 | | |
| West Peds | 0 | | | | | | South Peds | 0 | | | |

| | | | | Yonge Street | | | | | | | |
|-----------------|----------|----------|-----------|--------------|---|---|----------------|-----------------|-----|--|--|
| North Total | 854 | | | | | | East Total | 635 | | | |
| North Entering | 421 | Cyclists | 0 1 0 | | | | East Entering | 331 | | | |
| North Receiving | 433 | Truck | 4 5 3 | | | | East Receiving | 304 | | | |
| North Peds | 0 | Cars | 43 304 61 | | | | East Peds | 0 | | | |
| | | | | ← | ↓ | → | | | | | |
| Mapleview Drive | 0 4 65 | ↑ | | | | | ← | 67 3 0 | | | |
| | 0 17 208 | → | | | | | ← | 201 16 0 | | | |
| | 0 0 57 | ↓ | | | | | ← | 42 2 0 | | | |
| | | | | ← | ↑ | → | | | | | |
| West Total | 667 | | | 51 285 15 | | | | South Total | 772 | | |
| West Entering | 351 | | | 1 9 0 | | | | South Entering | 361 | | |
| West Receiving | 316 | | | 0 0 0 | | | | South Receiving | 411 | | |
| West Peds | 0 | | | | | | South Peds | 0 | | | |

PM Peak Hour: 17:00 to 18:00

Total 8-Hour Count

| | | | | Yonge Street | | | | | | | |
|-----------------|---------|----------|------------|--------------|---|---|----------------|-----------------|------|--|--|
| North Total | 1359 | | | | | | East Total | 962 | | | |
| North Entering | 617 | Cyclists | 0 1 0 | | | | East Entering | 427 | | | |
| North Receiving | 742 | Truck | 2 6 2 | | | | East Receiving | 535 | | | |
| North Peds | 0 | Cars | 84 402 120 | | | | East Peds | 0 | | | |
| | | | | ← | ↓ | → | | | | | |
| Mapleview Drive | 0 2 100 | ↑ | | | | | ← | 121 2 0 | | | |
| | 0 3 386 | → | | | | | ← | 233 4 0 | | | |
| | 0 2 53 | ↓ | | | | | ← | 63 4 0 | | | |
| | | | | ← | ↑ | → | | | | | |
| West Total | 945 | | | 74 513 24 | | | | South Total | 1148 | | |
| West Entering | 546 | | | 2 4 0 | | | | South Entering | 617 | | |
| West Receiving | 399 | | | 0 0 0 | | | | South Receiving | 531 | | |
| West Peds | 0 | | | | | | South Peds | 0 | | | |

| | | | | Yonge Street | | | | | | | |
|-----------------|------------|----------|--------------|--------------|---|---|----------------|-----------------|------|--|--|
| North Total | 7187 | | | | | | East Total | 5645 | | | |
| North Entering | 3479 | Cyclists | 0 2 0 | | | | East Entering | 3076 | | | |
| North Receiving | 3708 | Truck | 35 60 27 | | | | East Receiving | 2569 | | | |
| North Peds | 1 | Cars | 338 2536 481 | | | | East Peds | 1 | | | |
| | | | | ← | ↓ | → | | | | | |
| Mapleview Drive | 0 33 454 | ↑ | | | | | ← | 537 28 1 | | | |
| | 0 101 1810 | → | | | | | ← | 1878 85 2 | | | |
| | 0 12 409 | ↓ | | | | | ← | 527 18 0 | | | |
| | | | | ← | ↑ | → | | | | | |
| West Total | 5662 | | | 481 2580 142 | | | | South Total | 6874 | | |
| West Entering | 2819 | | | 24 75 8 | | | | South Entering | 3310 | | |
| West Receiving | 2843 | | | 0 0 0 | | | | South Receiving | 3564 | | |
| West Peds | 2 | | | | | | South Peds | 0 | | | |

Appendix D – Development Excerpts

| PARKING STATISTICS | | | | | AMENITY STATISTICS | | | |
|-----------------------|----------|----------|-----------------|----------|--------------------|----------|----------|---------|
| NO. OF UNIT | BLOCK 1 | | BLOCK 8 (CONDD) | | BLOCK 6 | | | BLOCK 8 |
| | REQUIRED | PROVIDED | REQUIRED | PROVIDED | PROVIDED | PROVIDED | PROVIDED | |
| VISITOR PARKING (NO.) | 32.90 | 79 | 62 | 62 | 10.2 | 25 | | |
| SPECIAL UNIT | 0.10 | 0.24 | 0.25 | 0.25 | 0.10 | 0.25 | | |
| COMMERCIAL PARKING | 2 | 2 | | | | | | |

| AMENITY AREA PER UNIT (M2) | BLOCK 1 | | | BLOCK 6 | | | BLOCK 8 | | |
|----------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | PROVIDED | PROVIDED | PROVIDED | PROVIDED | PROVIDED | PROVIDED | PROVIDED | PROVIDED | PROVIDED |
| NO. OF UNITS | 329 | 312 | 199 | | | | | | |
| TOTAL AMENITY AREA (M2) | 3039.00 | 6232.57 | 668.60 | | | | | | |
| AMENITY AREA 'A' | 216.52 | 5896.62 | 257.90 | | | | | | |
| AMENITY AREA 'C' | 1093.37 | 325.75 | 411.60 | | | | | | |
| AMENITY AREA 'D' | 698.56 | | | | | | | | |
| AMENITY AREA 'E' | 490.37 | | | | | | | | |
| AMENITY AREA 'F' | 540.25 | | | | | | | | |

| | WALK-UP APT | BLOCK TH 6.5 M FRONT | STREET TH 6 M FRONT | BACK 2 BACK TH | CONDO TH/LANE BASED |
|----------------------|-----------------|-------------------------|------------------------------------|------------------------------------|---------------------------|
| LOT AREA (MIN) | 450 M2 | 140 M2 | 150 M2 | 90 M2 | 90 M2 |
| LOT FRONTAGE (MIN) | 21 M | 6.5M | 6 M | 6 M | 4.5 M |
| FRONT SETBACK | 3 M | 3 M | 4 M TO BUILDING/6M TO GARAGE | 4 M TO BUILDING/6M TO GARAGE | 3 M |
| INT. SIDE YARD | 0 M | 1.2M | 1.2 M | 1.2 | 1.2 M |
| EXT. SIDE YARD | 1.2 | 1.2M | 3M | 1.2 | 1.2M |
| REAR YARD | 0 M | 0M | 6M | 0M | 0 M |
| LANDSCAPE OPEN SPACE | 10% | 10% | 25% | 10% | 10% |
| COVERAGE | 85% | 80% | 55% | 70% | 85% |
| GFA | 300% | 150% | 150% | 180% | 150% |
| MAX HEIGHT | 15 M - 4 FLOORS | 15 M - 4 FLOORS | 12M | 12M | 12M |



| PROPERTY | OWNER | ADDRESS | PHONE | EMAIL |
|----------------------|----------------------|----------------------|-------|-------|
| 1000 MAPLEVIEW DRIVE | 1000 MAPLEVIEW DRIVE | 1000 MAPLEVIEW DRIVE | | |
| 700 MAPLEVIEW DRIVE | 700 MAPLEVIEW DRIVE | 700 MAPLEVIEW DRIVE | | |
| 86 AVENUE RD | 86 AVENUE RD | 86 AVENUE RD | | |

| PROPERTY | OWNER | ADDRESS | PHONE | EMAIL |
|----------------------|----------------------|----------------------|-------|-------|
| 1000 MAPLEVIEW DRIVE | 1000 MAPLEVIEW DRIVE | 1000 MAPLEVIEW DRIVE | | |
| 700 MAPLEVIEW DRIVE | 700 MAPLEVIEW DRIVE | 700 MAPLEVIEW DRIVE | | |
| 86 AVENUE RD | 86 AVENUE RD | 86 AVENUE RD | | |

| | |
|--|----------------------|
| TOTAL SITE AREA | 173713 M2 / 17.37 HA |
| Total Units in Development | 849 |
| OVERALL DENSITY | 49 UPH |
| BLOCK 6 | |
| AREA | 57859 M2 / 5.79 HA |
| DENSITY | 54 UPH |
| BACK 2 BACK TH | 196 |
| BLOCK TH - 6.5m FRONT | 64 |
| CONDO TH | 52 |
| TOTAL | 312 |
| BLOCKS 2,3,4,5&7 | |
| AREA | 19175 M2 / 1.92 HA |
| DENSITY | 55 UPH |
| STREET TH - 6M FRONT | 106 |
| BLOCK 8 | |
| AREA | 11952 M2 / 1.20 HA |
| DENSITY | 85 UPH |
| WALK-UP APT. | 102 |
| TOTAL | 102 |
| BLOCK 1 | |
| AREA | 46821 M2 / 4.68 HA |
| DENSITY | 69 UPH |
| WALK-UP APT. | 321 |
| TOTAL | 321 |
| MIXED USE (BLOCK 1) | |
| RESIDENTIAL APT. | 8 |
| RETAIL | 750 M2 |
| COMMERCIAL PARKING (1 per 24m2) | 32 |
| INTERNAL ROADS/LANES | |
| BLOCK 6 (CONDD) | 1019 |
| BLOCK 1 (CONDD) | 964 |
| BLOCK 8 (CONDD) | 319 |
| INTERSECTION OF MAPLEVIEW RD YONGE STREET | |
| WITHIN 500 M CIRCLE, | 120.7 UPH / MAX 818 |
| MAX DENSITY | UNITS |
| PROVIDED | 62.07 UPH |

PACE DEVELOPMENT

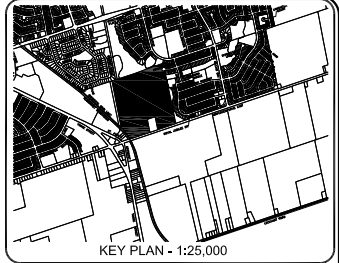
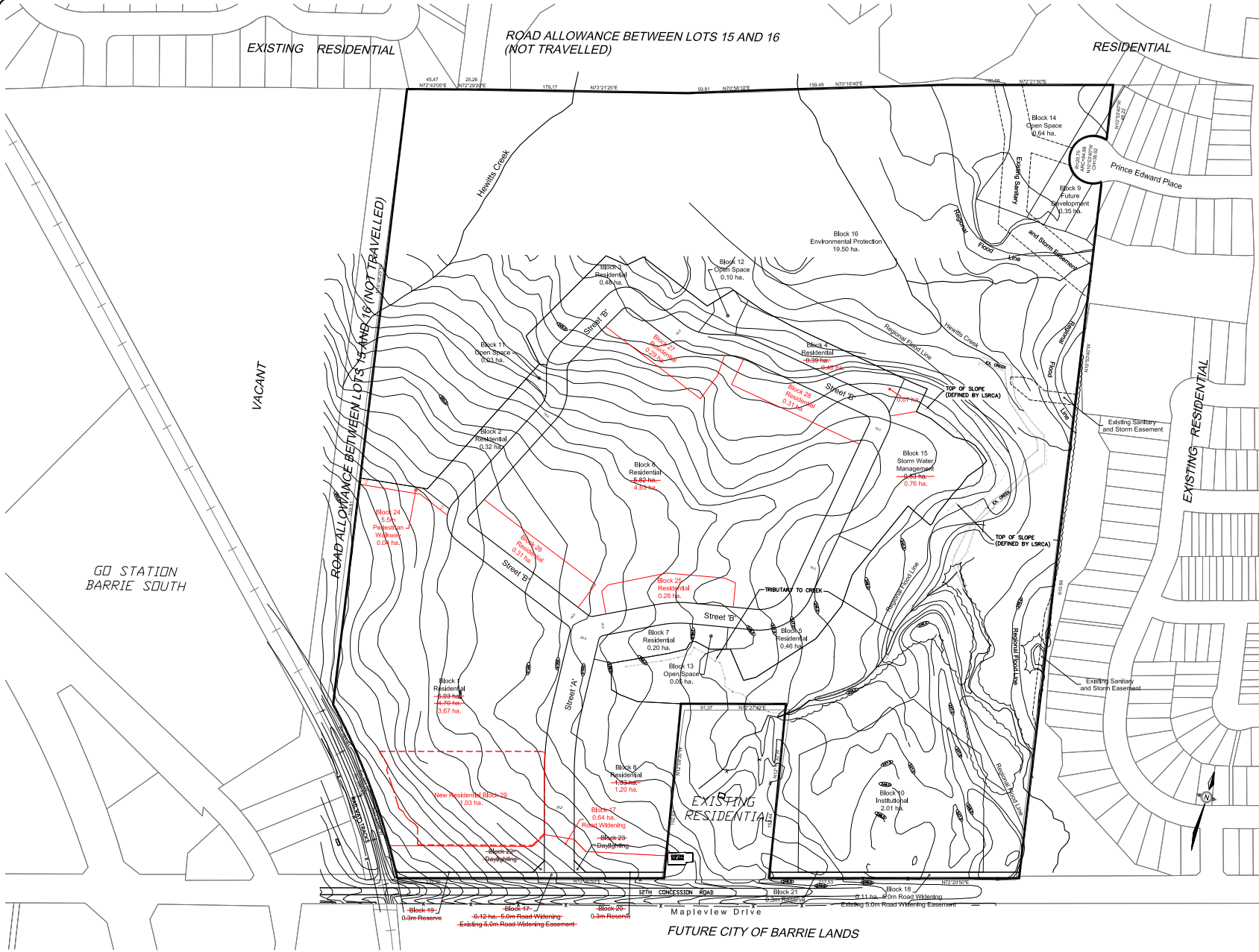
700 MAPLEVIEW DRIVE
BARRE

CONCEPTUAL MASTER PLAN

DATE: SEP-20-2017
DRAWN BY: RP
PROJECT NO: 16116

SCALE: 1:1000
DATE: 08-20-17
BY: SH

SCALE: 1:1000
DATE: 08-20-17
BY: SH



Draft Plan of Subdivision
 Part of South Half of Lot 16, Concession 12
 FORMERLY IN THE
 Township of Innisfil
 NOW IN THE
City of Barrie
 County of Simcoe
 2012

OWNER'S CERTIFICATE
 I, THE UNDERSIGNED, BEING THE REGISTERED OWNER OF THE SUBJECT LANDS, HEREBY AUTHORIZE THE JONES CONSULTING GROUP LTD. TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND TO SUBMIT SAME TO THE CITY OF BARRIE FOR APPROVAL.

DATE 2131059 ONTARIO INC.
SURVEYOR'S CERTIFICATE
 I CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE CHRIS MACDONALD, OLS
ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT
 a) SHOWN ON DRAFT PLAN
 b) SHOWN ON DRAFT PLAN
 c) SHOWN ON KEY PLAN
 d) RESIDENTIAL, SWM, EP, INSTITUTIONAL
 e) SHOWN ON DRAFT PLAN
 f) SHOWN ON DRAFT PLAN
 g) SHOWN ON DRAFT PLAN
 h) MUNICIPAL PIPED WATER TO BE PROVIDED
 i) SAND
 j) SHOWN ON DRAFT PLAN
 k) ALL MUNICIPAL SERVICES TO BE PROVIDED
 l) NONE

| STATISTICS | 13.64 ha. | 1,241 units |
|---|------------------|--------------------|
| RESIDENTIAL (BLOCKS 1-8 & 25-26) | -14.09 ha. | |
| FUTURE DEVELOPMENT (BLOCK 10) | 0.35 ha. | 4 units |
| INSTITUTIONAL (BLOCK 10) | 2.01 ha. | |
| OPEN SPACE (BLOCKS 11 & 14) | 0.82 ha. | |
| STORM WATER MANAGEMENT (BLOCK 15) | 0.76 ha. | |
| ENVIRONMENTAL PROTECTION (BLOCK 16) | -0.88 ha. | |
| ROADS (STREETS A & B) | 2.29 ha. | |
| ROAD WIDENING (BLOCKS 17 & 18) | -2.67 ha. | |
| RESERVES AND DAYLIGHTING (BLOCKS 19-24) | 0.00 ha. | |
| 5.5m PEDESTRIAN WALKWAY (BLOCK 24) | -0.02 ha. | |
| TOTAL | 40.16 ha. | 1,245 units |

| SCHEDULE OF REVISIONS | | |
|-----------------------|-------------|-------|
| DATE | DESCRIPTION | DRAWN |
| | | |

SCALE 1 : 1500 (A1)
 BAYWOOD HOMES
 DRAFT PLAN OF SUBDIVISION

Professional Seal: R.P.P. (Registered Professional Planner)

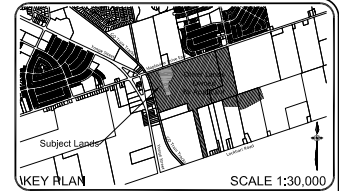
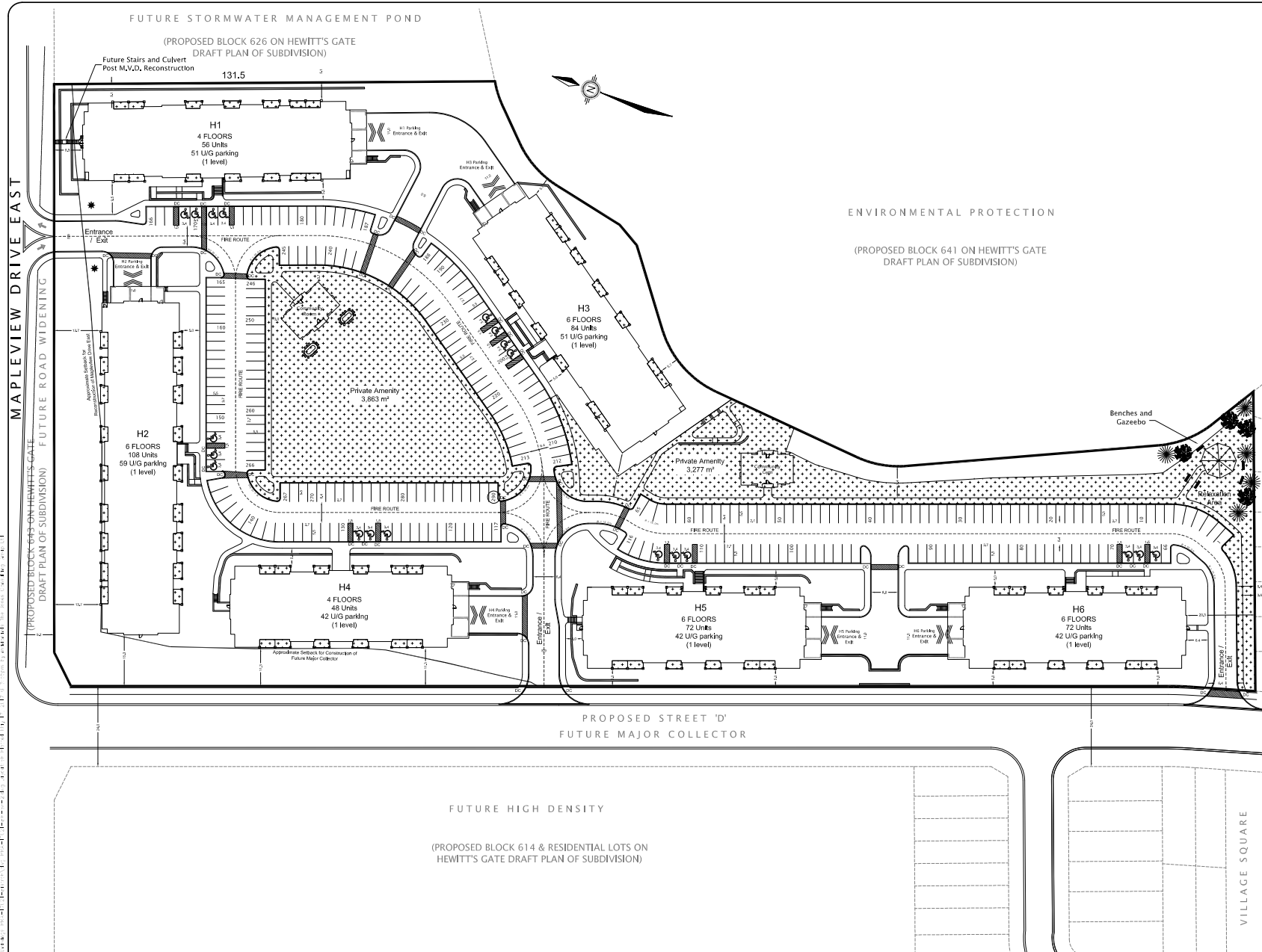
Date Issued: Oct-2, 2013

Checked By: BC
Project No.: BAY-09369
Drawn By: m.c.r.
Drawing Name: BAY-09369-DP7.dwg

JONES CONSULTING GROUP LTD.
 PLANNERS AND ENGINEERS
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DRAFT PLAN OF SUBDIVISION
CITY OF BARRIE

SEPTEMBER 3, 2020
 SEPTEMBER 17, 2018
 UPDATED BY KLM PLANNING PARTNERS INC.



Site Plan
(Proposed Block 613 on Hewitt's Gate Draft Plan)
Part of Lot 4, Concession 12
City of Barrie, County of Simcoe, 2017

SITE PLAN STATISTICS

| Unit Counts | 4.41 ha |
|--|------------------|
| 2 @ 72 Unit Apartment (6 Storey H5 & H6) | 144 Units |
| 1 @ 84 Unit Apartment (6 Storey H3) | 84 Units |
| 1 @ 56 Unit Apartment (4 Storey H1) | 56 Units |
| 1 @ 108 Unit Apartment (6 Storey H2) | 108 Units |
| 1 @ 48 Unit Apartment (4 Storey H4) | 48 Units |
| Total | 440 Units |

| | REQUIRED | PROPOSED |
|----------------------|---------------------|------------------|
| Total Holdings | RM3 | RM3 |
| Site Plan Area | - | 4.41 ha |
| Lot Frontage | 24.0 m | 179 m |
| Front Yard | 3.0 m | 8.0 m |
| Interior Side Yard | 5.0 m | 5.0 m |
| Exterior Side Yard | 2.0 m | 5.0 m |
| Rear Yard | 5.0 m | 20.3 m |
| Lot Coverage | max 50 % (2,20 ha) | 22 % (0,96 ha) |
| Accessory Structures | max 10 % (0,44 ha) | 0,01 % (0,02 ha) |
| Landscape Open Space | min 25 % (1,10 ha) | 52 % (2,31 ha) |
| Parking Coverage | max 40 % (1,76 ha) | 25 % (1,12 ha) |
| Gross Floor Area | max 200 % (8,82 ha) | 116 % (5,12 ha) |

| Building | Area |
|---------------------|-----------------------|
| Building H1 | 6,688 m ² |
| • GFA | 4 |
| • Height In Stories | 56 |
| • Units | |
| Building H2 | 12,354 m ² |
| • GFA | 6 |
| • Height In Stories | 108 |
| • Units | |
| Building H3 | 10,032 m ² |
| • GFA | 8 |
| • Height In Stories | 84 |
| • Units | |
| Building H4 | 5,540 m ² |
| • GFA | 4 |
| • Height In Stories | 48 |
| • Units | |
| Building H5 | 8,310 m ² |
| • GFA | 9 |
| • Height In Stories | 72 |
| • Units | |
| Building H6 | 8,310 m ² |
| • GFA | 6 |
| • Height In Stories | 72 |
| • Units | |

Parking Calculations

| | | |
|--------------------------------|------------|--------------|
| Required Parking (440 x 1.5) | 660 spaces | 577 spaces |
| *Provided Parking (440 x 1,3*) | 572 spaces | 577 spaces** |

****Parking Breakdown**

| | |
|---|-------------------|
| Typical Surface Parking Spaces | 270 Spaces |
| Surface Barrier Free Parking Spaces | 20 Spaces |
| Typical Underground Parking Spaces | 281 Spaces |
| Underground Barrier Free Parking Spaces | 6 Spaces |
| Total | 577 Spaces |

Barrier Free spaces calculated at 660 x 3% = 20 required (3,4 x 1,5 per barrier free space)

General Amenity Area (10m²/unit) 4,400 m² 8,026 m²

Fire Route - - - - -

Relating Walls - - - - -

Curb Depressions ∞

See Landscape Plan for Entrance Feature Details *

* Special Zoning Provision Required

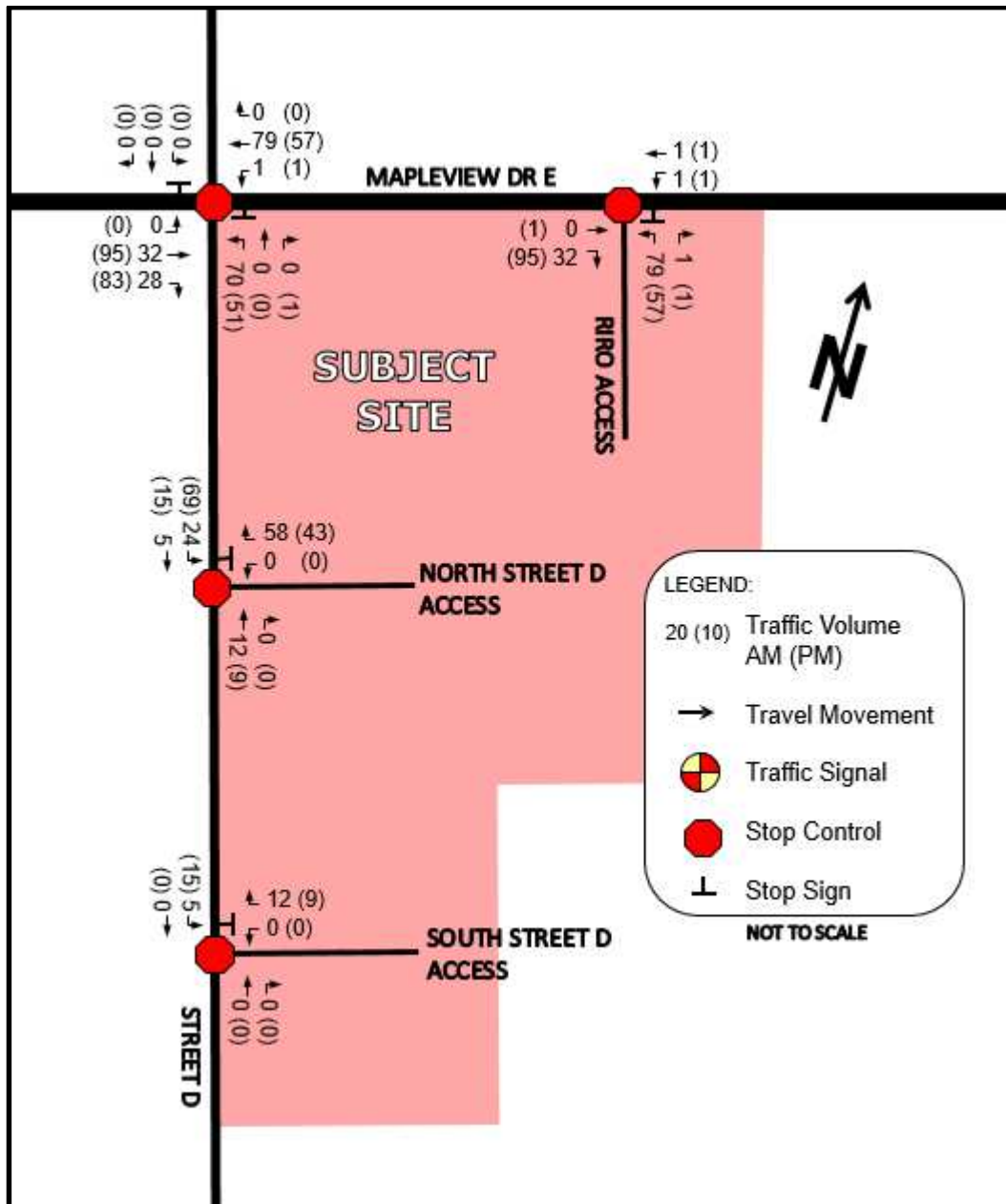
SCALE = 1:5000 (A1)

PRATT HANSEN GROUP - BISTRO 6

SITE PLAN

Date Issued: MAY 10, 2017
 Checked By: RD
 Project No.: PRA-17021
 Drawn By: m.c.r.
 Drawing Name: PRA-17021-BE-SH-2.dwg



















Figure 7 – Subject Site Traffic Assignment (2021)



Appendix E – Synchro Analysis Output –


















HCM Unsignalized Intersection Capacity Analysis
 1: Kneeshaw Dr/700 MVD Access & Mapleview Dr E

Bistro 6 West
 2024 - AM

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | |  |  |  |
| Traffic Volume (veh/h) | 17 | 241 | 51 | 2 | 499 | 1 | 129 | 0 | 0 | 0 | 0 | 40 |
| Future Volume (Veh/h) | 17 | 241 | 51 | 2 | 499 | 1 | 129 | 0 | 0 | 0 | 0 | 40 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 18 | 262 | 55 | 2 | 542 | 1 | 140 | 0 | 0 | 0 | 0 | 43 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 543 | | | 317 | | | 915 | 872 | 290 | 872 | 900 | 542 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 543 | | | 317 | | | 915 | 872 | 290 | 872 | 900 | 542 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 98 | | | 100 | | | 39 | 100 | 100 | 100 | 100 | 92 |
| cM capacity (veh/h) | 1026 | | | 1243 | | | 230 | 283 | 750 | 267 | 273 | 540 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | SB 2 | | | | | | | |
| Volume Total | 335 | 545 | 140 | 0 | 43 | | | | | | | |
| Volume Left | 18 | 2 | 140 | 0 | 0 | | | | | | | |
| Volume Right | 55 | 1 | 0 | 0 | 43 | | | | | | | |
| cSH | 1026 | 1243 | 230 | 1700 | 540 | | | | | | | |
| Volume to Capacity | 0.02 | 0.00 | 0.61 | 0.00 | 0.08 | | | | | | | |
| Queue Length 95th (m) | 0.4 | 0.0 | 27.0 | 0.0 | 2.0 | | | | | | | |
| Control Delay (s) | 0.6 | 0.0 | 42.4 | 0.0 | 12.2 | | | | | | | |
| Lane LOS | A | A | E | A | B | | | | | | | |
| Approach Delay (s) | 0.6 | 0.0 | 42.4 | 12.2 | | | | | | | | |
| Approach LOS | | | E | B | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 6.3 | | | | | | | | | |
| Intersection Capacity Utilization | | | 49.0% | | ICU Level of Service | | | | A | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |


















HCM Unsignalized Intersection Capacity Analysis
 2: Kneeshaw Dr & Bistro 6W Access/Bistro 6E Access

Bistro 6 West
 2024 - AM

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | | |  | | |  | | | |  |
| Traffic Volume (veh/h) | 52 | 0 | 0 | 0 | 0 | 58 | 0 | 19 | 0 | 24 | 8 | 21 |
| Future Volume (Veh/h) | 52 | 0 | 0 | 0 | 0 | 58 | 0 | 19 | 0 | 24 | 8 | 21 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 57 | 0 | 0 | 0 | 0 | 63 | 0 | 21 | 0 | 26 | 9 | 23 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 156 | 94 | 20 | 94 | 105 | 21 | 32 | | | 21 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 156 | 94 | 20 | 94 | 105 | 21 | 32 | | | 21 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 92 | 100 | 100 | 100 | 100 | 94 | 100 | | | 98 | | |
| cM capacity (veh/h) | 752 | 784 | 1057 | 879 | 772 | 1056 | 1580 | | | 1595 | | |
| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | SB 1 | | | | | | | |
| Volume Total | 57 | 0 | 63 | 21 | 58 | | | | | | | |
| Volume Left | 57 | 0 | 0 | 0 | 26 | | | | | | | |
| Volume Right | 0 | 0 | 63 | 0 | 23 | | | | | | | |
| cSH | 752 | 1700 | 1056 | 1580 | 1595 | | | | | | | |
| Volume to Capacity | 0.08 | 0.00 | 0.06 | 0.00 | 0.02 | | | | | | | |
| Queue Length 95th (m) | 1.9 | 0.0 | 1.4 | 0.0 | 0.4 | | | | | | | |
| Control Delay (s) | 10.2 | 0.0 | 8.6 | 0.0 | 3.3 | | | | | | | |
| Lane LOS | B | A | A | | A | | | | | | | |
| Approach Delay (s) | 10.2 | | 8.6 | 0.0 | 3.3 | | | | | | | |
| Approach LOS | B | | A | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 6.6 | | | | | | | | | |
| Intersection Capacity Utilization | | | 25.9% | | ICU Level of Service | | | | | A | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |


















HCM Unsignalized Intersection Capacity Analysis
 1: Kneeshaw Dr/700 MVD Access & Mapleview Dr E

Bistro 6 West
 2024 - PM

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | |  |  | |
| Traffic Volume (veh/h) | 47 | 501 | 153 | 2 | 436 | 1 | 94 | 0 | 2 | 1 | 0 | 29 |
| Future Volume (Veh/h) | 47 | 501 | 153 | 2 | 436 | 1 | 94 | 0 | 2 | 1 | 0 | 29 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 51 | 545 | 166 | 2 | 474 | 1 | 102 | 0 | 2 | 1 | 0 | 32 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 475 | | | 711 | | | 1240 | 1209 | 628 | 1210 | 1292 | 474 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 475 | | | 711 | | | 1240 | 1209 | 628 | 1210 | 1292 | 474 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 95 | | | 100 | | | 26 | 100 | 100 | 99 | 100 | 95 |
| cM capacity (veh/h) | 1087 | | | 888 | | | 138 | 174 | 483 | 153 | 155 | 590 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | SB 2 | | | | | | | |
| Volume Total | 762 | 477 | 104 | 1 | 32 | | | | | | | |
| Volume Left | 51 | 2 | 102 | 1 | 0 | | | | | | | |
| Volume Right | 166 | 1 | 2 | 0 | 32 | | | | | | | |
| cSH | 1087 | 888 | 140 | 153 | 590 | | | | | | | |
| Volume to Capacity | 0.05 | 0.00 | 0.74 | 0.01 | 0.05 | | | | | | | |
| Queue Length 95th (m) | 1.1 | 0.1 | 33.3 | 0.2 | 1.3 | | | | | | | |
| Control Delay (s) | 1.2 | 0.1 | 81.9 | 28.7 | 11.5 | | | | | | | |
| Lane LOS | A | A | F | D | B | | | | | | | |
| Approach Delay (s) | 1.2 | 0.1 | 81.9 | 12.0 | | | | | | | | |
| Approach LOS | | | F | B | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 7.2 | | | | | | | | | |
| Intersection Capacity Utilization | | | 83.4% | | ICU Level of Service | | | | E | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

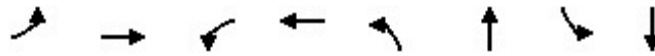
HCM Unsignalized Intersection Capacity Analysis
 2: Kneeshaw Dr & Bistro 6W Access/Bistro 6E Access

Bistro 6 West
 2024 - PM

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | | |  | | |  | | | |  |
| Traffic Volume (veh/h) | 39 | 0 | 0 | 0 | 0 | 43 | 0 | 14 | 0 | 69 | 23 | 63 |
| Future Volume (Veh/h) | 39 | 0 | 0 | 0 | 0 | 43 | 0 | 14 | 0 | 69 | 23 | 63 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 42 | 0 | 0 | 0 | 0 | 47 | 0 | 15 | 0 | 75 | 25 | 68 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | | | | | |
| | | | | | | | | None | | | None | |
| Median storage veh | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 271 | 224 | 59 | 224 | 258 | 15 | 93 | | | 15 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 271 | 224 | 59 | 224 | 258 | 15 | 93 | | | 15 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 93 | 100 | 100 | 100 | 100 | 96 | 100 | | | 95 | | |
| cM capacity (veh/h) | 628 | 643 | 1007 | 705 | 616 | 1065 | 1501 | | | 1603 | | |
| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | SB 1 | | | | | | | |
| Volume Total | 42 | 0 | 47 | 15 | 168 | | | | | | | |
| Volume Left | 42 | 0 | 0 | 0 | 75 | | | | | | | |
| Volume Right | 0 | 0 | 47 | 0 | 68 | | | | | | | |
| cSH | 628 | 1700 | 1065 | 1501 | 1603 | | | | | | | |
| Volume to Capacity | 0.07 | 0.00 | 0.04 | 0.00 | 0.05 | | | | | | | |
| Queue Length 95th (m) | 1.6 | 0.0 | 1.1 | 0.0 | 1.1 | | | | | | | |
| Control Delay (s) | 11.1 | 0.0 | 8.5 | 0.0 | 3.5 | | | | | | | |
| Lane LOS | B | A | A | | A | | | | | | | |
| Approach Delay (s) | 11.1 | | 8.5 | 0.0 | 3.5 | | | | | | | |
| Approach LOS | B | | A | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 5.3 | | | | | | | | | |
| Intersection Capacity Utilization | | | 31.0% | ICU Level of Service | | A | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Queues

1: Kneeshaw Dr/700 MVD Access & Mapleview Dr E



| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
|------------------------|-------|-------|-------|--------|-------|-------|-------|--------|
| Lane Configurations | ↖ | ↕ | ↖ | ↕ | ↖ | ↕ | ↖ | ↕ |
| Traffic Volume (vph) | 173 | 679 | 4 | 847 | 354 | 0 | 3 | 0 |
| Future Volume (vph) | 173 | 679 | 4 | 847 | 354 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 188 | 860 | 4 | 926 | 385 | 5 | 3 | 458 |
| Turn Type | pm+pt | NA | Perm | NA | pm+pt | NA | Perm | NA |
| Protected Phases | 7 | 4 | | 8 | 5 | 2 | | 6 |
| Permitted Phases | 4 | | 8 | | 2 | | 6 | |
| Detector Phase | 7 | 4 | 8 | 8 | 5 | 2 | 6 | 6 |
| Switch Phase | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Minimum Split (s) | 11.0 | 24.0 | 24.0 | 24.0 | 11.0 | 24.0 | 24.0 | 24.0 |
| Total Split (s) | 11.0 | 43.0 | 32.0 | 32.0 | 23.0 | 47.0 | 24.0 | 24.0 |
| Total Split (%) | 12.2% | 47.8% | 35.6% | 35.6% | 25.6% | 52.2% | 26.7% | 26.7% |
| Yellow Time (s) | 3.0 | 4.0 | 4.0 | 4.0 | 3.0 | 4.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 2.0 | 2.0 | 2.0 | 1.0 | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.0 | 6.0 | 6.0 | 6.0 | 4.0 | 6.0 | 6.0 | 6.0 |
| Lead/Lag | Lead | | Lag | Lag | Lead | | Lag | Lag |
| Lead-Lag Optimize? | Yes | | Yes | Yes | Yes | | Yes | Yes |
| Recall Mode | Max | Max | Max | Max | None | None | None | None |
| v/c Ratio | 0.81 | 0.58 | 0.02 | 0.88 | 0.83 | 0.01 | 0.01 | 0.95 |
| Control Delay | 45.8 | 21.5 | 23.5 | 41.9 | 35.5 | 0.0 | 29.0 | 51.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 45.8 | 21.5 | 23.5 | 41.9 | 35.5 | 0.0 | 29.0 | 51.4 |
| Queue Length 50th (m) | 19.9 | 57.6 | 0.5 | 80.4 | 44.5 | 0.0 | 0.4 | 44.2 |
| Queue Length 95th (m) | #50.6 | 76.2 | 2.9 | #115.4 | #89.4 | 0.0 | 2.7 | #102.5 |
| Internal Link Dist (m) | | 311.7 | | 291.4 | | 115.5 | | 149.9 |
| Turn Bay Length (m) | | | | | 110.0 | | | |
| Base Capacity (vph) | 231 | 1474 | 178 | 1047 | 474 | 794 | 288 | 493 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.81 | 0.58 | 0.02 | 0.88 | 0.81 | 0.01 | 0.01 | 0.93 |

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 88.8

Natural Cycle: 90

Control Type: Semi Act-Uncoord

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

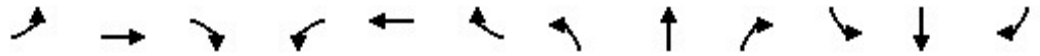
Queue shown is maximum after two cycles.

Splits and Phases: 1: Kneeshaw Dr/700 MVD Access & Mapleview Dr E



HCM Signalized Intersection Capacity Analysis
 1: Kneeshaw Dr/700 MVD Access & Mapleview Dr E

Bistro 6 West
 2031 - AM




















| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-------|------|------|------|------|------|-------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 173 | 679 | 112 | 4 | 847 | 5 | 354 | 0 | 5 | 3 | 0 | 421 |
| Future Volume (vph) | 173 | 679 | 112 | 4 | 847 | 5 | 354 | 0 | 5 | 3 | 0 | 421 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | | 6.0 | 6.0 | | 4.0 | 6.0 | | 6.0 | 6.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 | 0.85 | | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1789 | 3502 | | 1789 | 3576 | | 1789 | 1601 | | 1789 | 1601 | |
| Flt Permitted | 0.13 | 1.00 | | 0.32 | 1.00 | | 0.19 | 1.00 | | 0.75 | 1.00 | |
| Satd. Flow (perm) | 251 | 3502 | | 611 | 3576 | | 354 | 1601 | | 1421 | 1601 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 188 | 738 | 122 | 4 | 921 | 5 | 385 | 0 | 5 | 3 | 0 | 458 |
| RTOR Reduction (vph) | 0 | 15 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 171 | 0 |
| Lane Group Flow (vph) | 188 | 845 | 0 | 4 | 925 | 0 | 385 | 2 | 0 | 3 | 287 | 0 |
| Turn Type | pm+pt | NA | | Perm | NA | | pm+pt | NA | | Perm | NA | |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 37.0 | 37.0 | | 26.0 | 26.0 | | 39.8 | 39.8 | | 17.3 | 17.3 | |
| Effective Green, g (s) | 37.0 | 37.0 | | 26.0 | 26.0 | | 39.8 | 39.8 | | 17.3 | 17.3 | |
| Actuated g/C Ratio | 0.42 | 0.42 | | 0.29 | 0.29 | | 0.45 | 0.45 | | 0.19 | 0.19 | |
| Clearance Time (s) | 4.0 | 6.0 | | 6.0 | 6.0 | | 4.0 | 6.0 | | 6.0 | 6.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 225 | 1459 | | 178 | 1047 | | 457 | 717 | | 276 | 311 | |
| v/s Ratio Prot | c0.07 | 0.24 | | | 0.26 | | c0.18 | 0.00 | | | 0.18 | |
| v/s Ratio Perm | c0.28 | | | 0.01 | | | c0.20 | | | 0.00 | | |
| v/c Ratio | 0.84 | 0.58 | | 0.02 | 0.88 | | 0.84 | 0.00 | | 0.01 | 0.92 | |
| Uniform Delay, d1 | 20.1 | 19.9 | | 22.4 | 30.0 | | 20.6 | 13.5 | | 28.8 | 35.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 29.2 | 1.7 | | 0.2 | 10.8 | | 13.2 | 0.0 | | 0.0 | 31.8 | |
| Delay (s) | 49.3 | 21.6 | | 22.6 | 40.8 | | 33.8 | 13.5 | | 28.9 | 66.9 | |
| Level of Service | D | C | | C | D | | C | B | | C | E | |
| Approach Delay (s) | | 26.6 | | | 40.7 | | | 33.5 | | | 66.6 | |
| Approach LOS | | C | | | D | | | C | | | E | |

| Intersection Summary | | |
|-----------------------------------|-------|---------------------------|
| HCM 2000 Control Delay | 38.7 | HCM 2000 Level of Service |
| HCM 2000 Volume to Capacity ratio | 0.90 | D |
| Actuated Cycle Length (s) | 88.8 | Sum of lost time (s) |
| Intersection Capacity Utilization | 95.5% | 20.0 |
| Analysis Period (min) | 15 | ICU Level of Service |
| | | F |

c Critical Lane Group

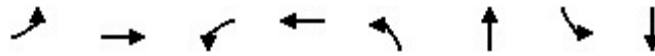
HCM Unsignalized Intersection Capacity Analysis
 2: Kneeshaw Dr & Bistro 6W Access/Bistro 6E Access

Bistro 6 West
 2031 - AM

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | | |  | | |  | | | |  |
| Traffic Volume (veh/h) | 104 | 0 | 0 | 0 | 0 | 138 | 0 | 115 | 0 | 25 | 48 | 43 |
| Future Volume (Veh/h) | 104 | 0 | 0 | 0 | 0 | 138 | 0 | 115 | 0 | 25 | 48 | 43 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 113 | 0 | 0 | 0 | 0 | 150 | 0 | 125 | 0 | 27 | 52 | 47 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | 140 | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 404 | 254 | 76 | 254 | 278 | 125 | 99 | | | 125 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 404 | 254 | 76 | 254 | 278 | 125 | 99 | | | 125 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 75 | 100 | 100 | 100 | 100 | 84 | 100 | | | 98 | | |
| cM capacity (veh/h) | 460 | 637 | 986 | 689 | 618 | 926 | 1494 | | | 1462 | | |
| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | SB 1 | | | | | | | |
| Volume Total | 113 | 0 | 150 | 125 | 126 | | | | | | | |
| Volume Left | 113 | 0 | 0 | 0 | 27 | | | | | | | |
| Volume Right | 0 | 0 | 150 | 0 | 47 | | | | | | | |
| cSH | 460 | 1700 | 926 | 1494 | 1462 | | | | | | | |
| Volume to Capacity | 0.25 | 0.00 | 0.16 | 0.00 | 0.02 | | | | | | | |
| Queue Length 95th (m) | 7.3 | 0.0 | 4.4 | 0.0 | 0.4 | | | | | | | |
| Control Delay (s) | 15.4 | 0.0 | 9.6 | 0.0 | 1.7 | | | | | | | |
| Lane LOS | C | A | A | | A | | | | | | | |
| Approach Delay (s) | 15.4 | | 9.6 | 0.0 | 1.7 | | | | | | | |
| Approach LOS | C | | A | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 6.6 | | | | | | | | | |
| Intersection Capacity Utilization | | | 37.5% | | ICU Level of Service | | | | | A | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Queues

1: Kneeshaw Dr/700 MVD Access & Mapleview Dr E



| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
|------------------------|--------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | ↖ | ↗ | ↖ | ↗ | ↖ | ↗ | ↖ | ↗ |
| Traffic Volume (vph) | 514 | 752 | 5 | 613 | 256 | 0 | 8 | 0 |
| Future Volume (vph) | 514 | 752 | 5 | 613 | 256 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 559 | 1177 | 5 | 673 | 278 | 7 | 9 | 341 |
| Turn Type | pm+pt | NA | Perm | NA | pm+pt | NA | Perm | NA |
| Protected Phases | 7 | 4 | | 8 | 5 | 2 | | 6 |
| Permitted Phases | 4 | | 8 | | 2 | | 6 | |
| Detector Phase | 7 | 4 | 8 | 8 | 5 | 2 | 6 | 6 |
| Switch Phase | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Minimum Split (s) | 11.0 | 24.0 | 24.0 | 24.0 | 11.0 | 24.0 | 24.0 | 24.0 |
| Total Split (s) | 27.0 | 53.0 | 26.0 | 26.0 | 13.0 | 37.0 | 24.0 | 24.0 |
| Total Split (%) | 30.0% | 58.9% | 28.9% | 28.9% | 14.4% | 41.1% | 26.7% | 26.7% |
| Yellow Time (s) | 3.0 | 4.0 | 4.0 | 4.0 | 3.0 | 4.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 2.0 | 2.0 | 2.0 | 1.0 | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.0 | 6.0 | 6.0 | 6.0 | 4.0 | 6.0 | 6.0 | 6.0 |
| Lead/Lag | Lead | | Lag | Lag | Lead | | Lag | Lag |
| Lead-Lag Optimize? | Yes | | Yes | Yes | Yes | | Yes | Yes |
| Recall Mode | Max | Max | Max | Max | None | None | None | None |
| v/c Ratio | 0.86 | 0.56 | 0.04 | 0.74 | 0.87 | 0.01 | 0.08 | 0.56 |
| Control Delay | 30.6 | 9.6 | 23.6 | 32.3 | 53.2 | 0.0 | 35.0 | 3.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 30.6 | 9.6 | 23.6 | 32.3 | 53.2 | 0.0 | 35.0 | 3.7 |
| Queue Length 50th (m) | 54.9 | 43.6 | 0.6 | 47.7 | 35.5 | 0.0 | 1.3 | 0.0 |
| Queue Length 95th (m) | #114.0 | 62.1 | 3.2 | 67.4 | #76.2 | 0.0 | 5.4 | 0.0 |
| Internal Link Dist (m) | | 311.7 | | 291.4 | | 115.5 | | 149.9 |
| Turn Bay Length (m) | | | | | 110.0 | | | |
| Base Capacity (vph) | 648 | 2100 | 115 | 915 | 321 | 719 | 326 | 771 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.86 | 0.56 | 0.04 | 0.74 | 0.87 | 0.01 | 0.03 | 0.44 |

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 78.1

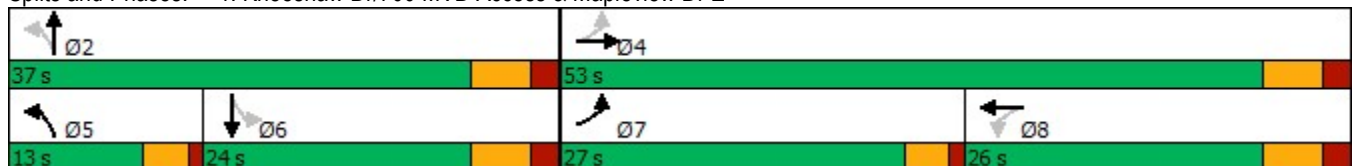
Natural Cycle: 90

Control Type: Semi Act-Uncoord

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Kneeshaw Dr/700 MVD Access & Mapleview Dr E



HCM Signalized Intersection Capacity Analysis
 1: Kneeshaw Dr/700 MVD Access & Mapleview Dr E


















Bistro 6 West
 2031 - PM

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
|-----------------------------------|-------|------|-------|------|------|------|-------|------|------|------|------|---------------------------|------|
| Lane Configurations | | | | | | | | | | | | | |
| Traffic Volume (vph) | 514 | 752 | 331 | 5 | 613 | 6 | 256 | 0 | 6 | 8 | 0 | 314 | |
| Future Volume (vph) | 514 | 752 | 331 | 5 | 613 | 6 | 256 | 0 | 6 | 8 | 0 | 314 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Total Lost time (s) | 4.0 | 6.0 | | 6.0 | 6.0 | | 4.0 | 6.0 | | 6.0 | 6.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | | |
| Frt | 1.00 | 0.95 | | 1.00 | 1.00 | | 1.00 | 0.85 | | 1.00 | 0.85 | | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | |
| Satd. Flow (prot) | 1789 | 3414 | | 1789 | 3573 | | 1789 | 1601 | | 1789 | 1601 | | |
| Flt Permitted | 0.19 | 1.00 | | 0.24 | 1.00 | | 0.40 | 1.00 | | 0.75 | 1.00 | | |
| Satd. Flow (perm) | 365 | 3414 | | 452 | 3573 | | 746 | 1601 | | 1418 | 1601 | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Adj. Flow (vph) | 559 | 817 | 360 | 5 | 666 | 7 | 278 | 0 | 7 | 9 | 0 | 341 | |
| RTOR Reduction (vph) | 0 | 46 | 0 | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 314 | 0 | |
| Lane Group Flow (vph) | 559 | 1131 | 0 | 5 | 672 | 0 | 278 | 2 | 0 | 9 | 27 | 0 | |
| Turn Type | pm+pt | NA | | Perm | NA | | pm+pt | NA | | Perm | NA | | |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | | | 6 | | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | | |
| Actuated Green, G (s) | 47.0 | 47.0 | | 20.0 | 20.0 | | 19.1 | 19.1 | | 6.1 | 6.1 | | |
| Effective Green, g (s) | 47.0 | 47.0 | | 20.0 | 20.0 | | 19.1 | 19.1 | | 6.1 | 6.1 | | |
| Actuated g/C Ratio | 0.60 | 0.60 | | 0.26 | 0.26 | | 0.24 | 0.24 | | 0.08 | 0.08 | | |
| Clearance Time (s) | 4.0 | 6.0 | | 6.0 | 6.0 | | 4.0 | 6.0 | | 6.0 | 6.0 | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | |
| Lane Grp Cap (vph) | 639 | 2054 | | 115 | 914 | | 302 | 391 | | 110 | 125 | | |
| v/s Ratio Prot | c0.26 | 0.33 | | | 0.19 | | c0.11 | 0.00 | | | 0.02 | | |
| v/s Ratio Perm | c0.27 | | | 0.01 | | | c0.12 | | | 0.01 | | | |
| v/c Ratio | 0.87 | 0.55 | | 0.04 | 0.74 | | 0.92 | 0.00 | | 0.08 | 0.21 | | |
| Uniform Delay, d1 | 16.5 | 9.3 | | 21.9 | 26.6 | | 27.6 | 22.3 | | 33.4 | 33.7 | | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | |
| Incremental Delay, d2 | 15.4 | 1.1 | | 0.7 | 5.2 | | 31.8 | 0.0 | | 0.3 | 0.9 | | |
| Delay (s) | 32.0 | 10.3 | | 22.6 | 31.9 | | 59.4 | 22.3 | | 33.7 | 34.6 | | |
| Level of Service | C | B | | C | C | | E | C | | C | C | | |
| Approach Delay (s) | | 17.3 | | | 31.8 | | | 58.5 | | | 34.6 | | |
| Approach LOS | | B | | | C | | | E | | | C | | |
| Intersection Summary | | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 26.4 | | | | | | | | | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | | | 0.98 | | | | | | | | | | |
| Actuated Cycle Length (s) | | | 78.1 | | | | | | | | | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | | | 95.9% | | | | | | | | | ICU Level of Service | F |
| Analysis Period (min) | | | 15 | | | | | | | | | | |

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 2: Kneeshaw Dr & Bistro 6W Access/Bistro 6E Access

Bistro 6 West
 2031 - PM

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | | |  | | |  | | | |  |
| Traffic Volume (veh/h) | 77 | 0 | 0 | 0 | 0 | 100 | 0 | 84 | 0 | 70 | 140 | 126 |
| Future Volume (Veh/h) | 77 | 0 | 0 | 0 | 0 | 100 | 0 | 84 | 0 | 70 | 140 | 126 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 84 | 0 | 0 | 0 | 0 | 109 | 0 | 91 | 0 | 76 | 152 | 137 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | | | | | |
| | | | | | | | | None | | | | None |
| Median storage veh | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| | | | | | | | | | | | | 140 |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 572 | 464 | 220 | 464 | 532 | 91 | 289 | | | 91 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 572 | 464 | 220 | 464 | 532 | 91 | 289 | | | 91 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 77 | 100 | 100 | 100 | 100 | 89 | 100 | | | 95 | | |
| cM capacity (veh/h) | 367 | 471 | 819 | 489 | 430 | 967 | 1273 | | | 1504 | | |
| Direction, Lane # | | | | | | | | | | | | |
| | EB 1 | EB 2 | WB 1 | NB 1 | SB 1 | | | | | | | |
| Volume Total | 84 | 0 | 109 | 91 | 365 | | | | | | | |
| Volume Left | 84 | 0 | 0 | 0 | 76 | | | | | | | |
| Volume Right | 0 | 0 | 109 | 0 | 137 | | | | | | | |
| cSH | 367 | 1700 | 967 | 1273 | 1504 | | | | | | | |
| Volume to Capacity | 0.23 | 0.00 | 0.11 | 0.00 | 0.05 | | | | | | | |
| Queue Length 95th (m) | 6.6 | 0.0 | 2.9 | 0.0 | 1.2 | | | | | | | |
| Control Delay (s) | 17.7 | 0.0 | 9.2 | 0.0 | 1.9 | | | | | | | |
| Lane LOS | C | A | A | | A | | | | | | | |
| Approach Delay (s) | 17.7 | | 9.2 | 0.0 | 1.9 | | | | | | | |
| Approach LOS | C | | A | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 4.9 | | | | | | | | | |
| Intersection Capacity Utilization | | | 43.2% | | ICU Level of Service | | | | | A | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Appendix F – OTM Signal Justification Sheets

Justification No. 7 - Total (2024) Traffic

Mapleview Drive E / Kneeshaw Drive & 700 MVD Access

| Justification | Description | Compliance | | | | Signal Warrant | Underground Provisions Warrant |
|-----------------------------|---|------------|-----------|-----|----------|----------------|--------------------------------|
| | | Rest. Flow | Sectional | | Entire % | | |
| | | | Numerical | % | | | |
| 1. Minimum Vehicular Volume | A. Vehicle volume, all approaches (average hour) | 720 | 561 | 78% | 29% | NO | NO |
| | B. Vehicle volume, along minor streets (average hour) | 170 | 74 | 43% | | NO | NO |
| 2. Delay to cross traffic | A. Vehicle volume, major street (average hour) | 720 | 436 | 61% | 40% | NO | NO |
| | B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour) | 75 | 56 | 75% | | NO | NO |