

To: Mike Giampa (City of Ottawa)

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Project #: 60648711

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# Memorandum

Subject: **Traffic Impact Assessment Step 4 Update: Analysis for a Warehouse / Distribution Centre Located at 2625 Sheffield Road, Ottawa, Ontario**

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## 1. Introduction

AECOM was retained to undertake a traffic impact assessment (TIA) update for a warehouse / distribution centre located at 2625 Sheffield Road in Ottawa, Ontario. The purpose of this memorandum was to assess the alignment between the transportation elements of the proposed development and the City of Ottawa's city-building objectives and identifies any opportunities to improve alignment. This memorandum also evaluates the post-development performance of the planned transportation network based on the City's established performance measures and targets and identifies potential mitigation measures to off-set development impact. The analysis of the TIA in this memorandum has been prepared as per the City of Ottawa TIA Guidelines, 2017, and addresses Step 4 of the TIA review process. This memorandum was intended to cover nine modules:

1. Development Design;
2. Parking;
3. Boundary Streets;
4. Access Intersections;
5. Traffic Demand Management;
6. Neighborhood Traffic Management;
7. Transit;
8. Network Concept; and
9. Network Intersection.

## 1.1 Development Design

### 1.1.1 Design for Sustainable Modes

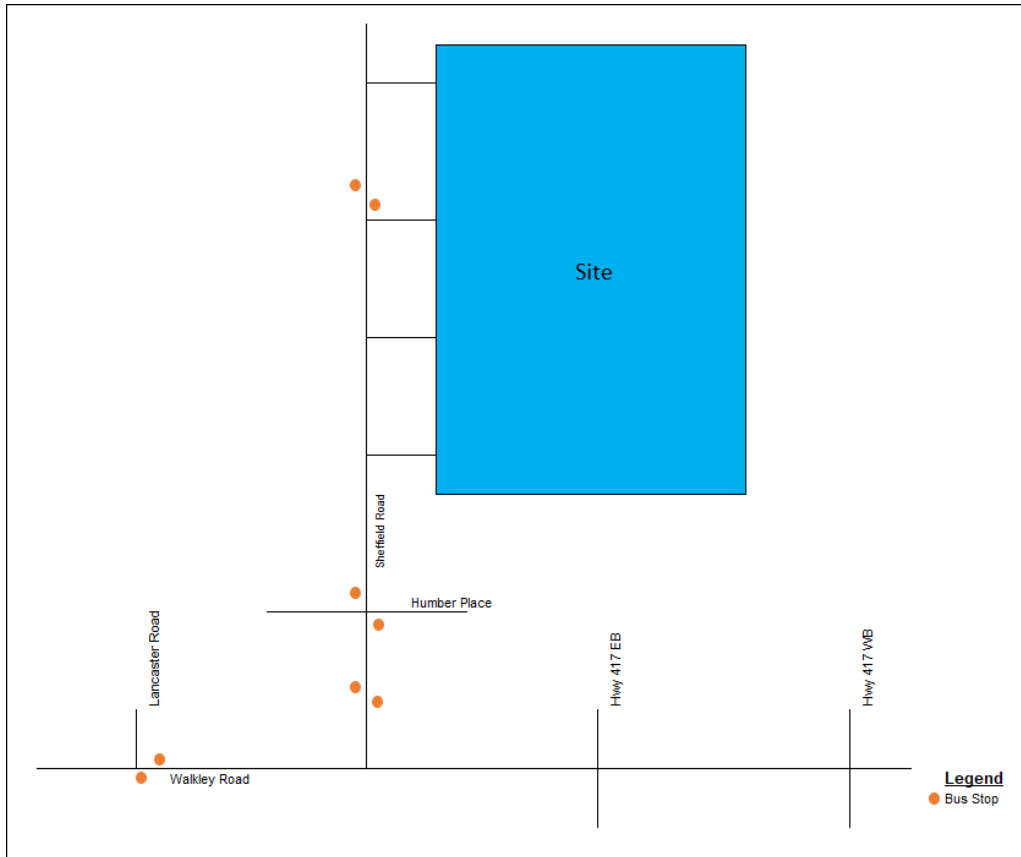
The site plan provides a total of 776 parking spaces including 225 auto spaces, of which 7 are accessible parking spaces, and 551 van spaces. The site also provides ten (10) loading docks for trucks. The locations of the proposed parking spaces are summarized in **Table 1**. The site plan is available in **Appendix A**.

**Table 1: Parking Space Summary**

| Type        | Number of Spaces                           | Location                        |
|-------------|--|---------------------------------|
| Auto Spaces | 225 (including 7 accessible parking space) | North-West Quadrant of the Site |
| Van Spaces  | 551  | North, and East of the Site     |
| Truck Docks | 10   | South of the Site               |

The site will provide a bike rack for 10 bicycles, which are located close to the entrance of the main building in a protected area. There are currently no designated cycling facilities in the vicinity of the study area.

OC Transpo bus route # 47 provides transit services in the vicinity of the site during the AM and PM peak periods Monday to Friday. Bus Route # 47 has multiple stops including at the intersection of Sheffield Road and the north-west access driveway, Sheffield Road and Humber Place, Sheffield Road and Bantree Street, Lancaster Road and Walkley Road. The locations of the bus stops are shown in **Figure 1**.



**Figure 1. Bus Stops in the Vicinity of the Site**

As per the City of Ottawa 2017 TIA guidelines, TDM - Supportive Development Design and Infrastructure Checklist for a Non-Residential Development is provided below.

## TDM-Supportive Development Design and Infrastructure Checklist:

*Non-Residential Developments (office, institutional, retail or industrial)*

| <b>Legend</b>   |  |
|-----------------|--|
| <b>REQUIRED</b> | The Official Plan or Zoning By-law provides related guidance that must be followed                             |
| <b>BASIC</b>    | The measure is generally feasible and effective, and in most cases would benefit the development and its users |
| <b>BETTER</b>   | The measure could maximize support for users of sustainable modes, and optimize development performance        |

| TDM-supportive design & infrastructure measures:<br><i>Non-residential developments</i> |   | Check if completed &<br>add descriptions, explanations<br>or plan/drawing references  |
|---|---|---|
| <b>1. WALKING &amp; CYCLING: ROUTES</b>   |   |   |
| <b>1.1 Building location &amp; access points</b>  |   |   |
| BASIC   | 1.1.1 Locate building close to the street, and do not locate parking areas between the street and building entrances  | <input type="checkbox"/> Some on-Site parking is located between the building and street  |
| BASIC   | 1.1.2 Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations  | <input checked="" type="checkbox"/> The building entrances are locate so they minimize walking distance to transit stops  |
| BASIC   | 1.1.3 Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort   | <input checked="" type="checkbox"/> Will conform  |
| <b>1.2 Facilities for walking &amp; cycling</b>   |   |   |
| REQUIRED  | 1.2.1 Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations ( <i>see Official Plan policy 4.3.3</i> )  | <input type="checkbox"/> N/A as the site is not within 60m of a major stop along a rapid transit route  |
| REQUIRED  | 1.2.2 Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible ( <i>see Official Plan policy 4.3.12</i> ) | <input checked="" type="checkbox"/> Designated walkways are provided from the building entrances to the adjacent street. A safe, attractive, and direct pedestrian route between the main building entrance and the Sheffield Road sidewalk will be provided. Public sidewalk on the east side of Sheffield Road along the site frontage to connect the northbound Sheffield Road bus stops will be provided. |

| TDM-supportive design & infrastructure measures:<br><i>Non-residential developments</i> |   | Check if completed &<br>add descriptions, explanations<br>or plan/drawing references |
|---|---|--|
| REQUIRED  | 1.2.3 Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks ( <i>see Official Plan policy 4.3.10</i> ) | <input type="checkbox"/>   |

|  |   |   |
|--|---|---|
| <b>REQUIRED</b>                                | 1.2.4 Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps (see <i>Official Plan policy 4.3.10</i> )   | <input checked="" type="checkbox"/> N/A. The site does not encompass sidewalks. There is a public sidewalk in the vicinity of the site along Sheffield Road.<br><input checked="" type="checkbox"/> All open space areas easily accessible. Curb ramps complete with TWSIs will be provided at accessible parking aisles and at internal crossings of drive aisles. |
| <b>REQUIRED</b>                                | 1.2.5 Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on-road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians (see <i>Official Plan policy 4.3.11</i> ) | <input checked="" type="checkbox"/> Pedestrian connections between the building and the adjacent street are provided.<br><input type="checkbox"/> There are currently no designated cycling facilities in the vicinity of the site.   |
| <b>BASIC</b>                                   | 1.2.6 Provide safe, direct and attractive walking routes from building entrances to nearby transit stops  | <input checked="" type="checkbox"/> Transit stops are available on Sheffield Road. Safe and attractive pedestrian connections between the building and Sheffield Road are provided.   |
| <b>BASIC</b>                                   | 1.2.7 Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible   | <input type="checkbox"/> Existing sidewalk is secure and visible, but is not well lit.  |
| <b>BASIC</b>                                   | 1.2.8 Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility   | <input type="checkbox"/> N/A. The site does not encompass public roads  |
| <b>1.3 Amenities for walking &amp; cycling</b> |   |   |
| <b>BASIC</b>                                   | 1.3.1 Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails   | <input checked="" type="checkbox"/> Landscaping will be provided between the building entrances   |
| <b>BASIC</b>                                   | 1.3.2 Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)   | <input checked="" type="checkbox"/> Wayfinding signage for site access will be provided   |

| TDM-supportive design & infrastructure measures:<br><i>Non-residential developments</i> |  | Check if completed &<br>add descriptions, explanations<br>or plan/drawing references               |
|---|--|--|
| <b>2. WALKING &amp; CYCLING: END-OF-TRIP FACILITIES</b>                                 |  |  |
| <b>2.1 Bicycle parking</b>  |  |  |
| <b>REQUIRED</b>   | 2.1.1 Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible (see <i>Official Plan policy 4.3.6</i> ) | <input checked="" type="checkbox"/> There will be a bicycle parking close to the building entrance |

|   |   |   |
|---|---|---|
| REQUIRED                                  | 2.1.2 Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas (see <i>Zoning By-law Section 111</i> )   | ■ The number of bicycle spaces will conform to City of Ottawa By-laws   |
| REQUIRED                                  | 2.1.3 Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored (see <i>Zoning By-law Section 111</i> )   | ■ The minimum dimensions of bicycle spaces will conform to City of Ottawa By-laws   |
| BASIC                                     | 2.1.4 Provide bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met), plus the expected peak number of customer/visitor cyclists   | ■ The number of bicycle spaces will meet the expected demand  |
| BETTER                                    | 2.1.5 Provide bicycle parking spaces equivalent to the expected number of commuter and customer/visitor cyclists, plus an additional buffer (e.g. 25 percent extra) to encourage other cyclists and ensure adequate capacity in peak cycling season                       | ■ A bike rack for 10 bicycles will be provided at the site. The number of cycling commuters is anticipated to be low due to the nature of the site. |
| <b>2.2 Secure bicycle parking</b>         |   |   |
| REQUIRED                                  | 2.2.1 Where more than 50 bicycle parking spaces are provided for a single office building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers (see <i>Zoning By-law Section 111</i> ) | <input type="checkbox"/> N/A  |
| BETTER                                    | 2.2.2 Provide secure bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met)  | ■ Bicycle spaces are located in a secure protected area within close proximity of the building entrance   |
| <b>2.3 Shower &amp; change facilities</b> |   |   |
| BASIC                                     | 2.3.1 Provide shower and change facilities for the use of active commuters  | <input type="checkbox"/>  |
| BETTER                                    | 2.3.2 In addition to shower and change facilities, provide dedicated lockers, grooming stations, drying racks and laundry facilities for the use of active commuters  | <input type="checkbox"/>  |
| <b>2.4 Bicycle repair station</b>         |   |   |
| BETTER                                    | 2.4.1 Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)  | <input type="checkbox"/>  |

|  |   |   |
|--|---|---|
| <b>TDM-supportive design &amp; infrastructure measures:<br/>Non-residential developments</b> |   | <b>Check if completed &amp;<br/>add descriptions, explanations<br/>or plan/drawing references</b> |
| <b>3. TRANSIT</b>  |   |   |
| <b>3.1 Customer amenities</b>  |   |   |
| BASIC  | 3.1.1 Provide shelters, lighting and benches at any on-site transit stops | ■ Bus stop infrastructure will be improved to an accessible standard, including the addition of   |

|  |   |   |
|--|---|---|
|  |   | shelter pads where space is available in the public ROW   |
| <b>BASIC</b>                                 | 3.1.2 Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter | <input type="checkbox"/>  |
| <b>BETTER</b>                                | 3.1.3 Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building   | <input type="checkbox"/> There are no on-site transit stops   |
| <b>4. RIDESHARING</b>                        |   |   |
| <b>4.1 Pick-up &amp; drop-off facilities</b> |   |   |
| <b>BASIC</b>                                 | 4.1.1 Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones        | <input checked="" type="checkbox"/> An area at the proximity of the major entrance is designated for ridesharing and passenger pick up or drop off. |
| <b>4.2 Carpool parking</b>                   |   |   |
| <b>BASIC</b>                                 | 4.2.1 Provide signed parking spaces for carpools in a priority location close to a major building entrance, sufficient in number to accommodate the mode share target for carpools      | <input type="checkbox"/>  |
| <b>BETTER</b>                                | 4.2.2 At large developments, provide spaces for carpools in a separate, access-controlled parking area to simplify enforcement  | <input type="checkbox"/>  |
| <b>5. CARSHARING &amp; BIKESHARING</b>       |   |   |
| <b>5.1 Carshare parking spaces</b>           |   |   |
| <b>BETTER</b>                                | 5.1.1 Provide carshare parking spaces in permitted non-residential zones, occupying either required or provided parking spaces (see Zoning By-law Section 94)                           | <input type="checkbox"/>  |
| <b>5.2 Bikeshare station location</b>        |   |   |
| <b>BETTER</b>                                | 5.2.1 Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection                                     | <input type="checkbox"/>  |

|  |   |
|--|---|
| <b>TDM-supportive design &amp; infrastructure measures:<br/>Non-residential developments</b> | <b>Check if completed &amp;<br/>add descriptions, explanations<br/>or plan/drawing references</b> |
|--|---|

|                                     |  |   |
|-------------------------------------|--|---|
| <b>6. PARKING</b>                   |  |   |
| <b>6.1 Number of parking spaces</b> |  |   |
| <b>REQUIRED</b>                     | 6.1.1 Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for                                       | <input checked="" type="checkbox"/> Parking supply meets the parking needs of the site given the site operational characteristics.  |
| <b>BASIC</b>                        | 6.1.2 Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking | <input checked="" type="checkbox"/> There are parking spaces for the employees and customers in the north-west quadrant of the site |

|  |  |                              |
|--|--|------------------------------|
| BASIC  | 6.1.3 Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly (see Zoning By-law Section 104)   | <input type="checkbox"/> N/A |
| BETTER   | 6.1.4 Reduce the minimum number of parking spaces required by zoning by one space for each 13 square meters of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking (see Zoning By-law Section 111) | <input type="checkbox"/>     |
| <b>6.2 Separate long-term &amp; short-term parking areas</b> |  |                              |
| BETTER   | 6.2.1 Separate short-term and long-term parking areas using signage or physical barriers, to permit access controls and simplify enforcement (i.e. to discourage employees from parking in visitor spaces, and vice versa)   | <input type="checkbox"/>     |
| <b>7. OTHER</b>  |  |                              |
| <b>7.1 On-site amenities to minimize off-site trips</b>      |  |                              |
| BETTER   | 7.1.1 Provide on-site amenities to minimize mid-day or mid-commute errands   | <input type="checkbox"/>     |

**1.1.2 Circulation and Access**

The proposed site will have six accesses. These will be four accesses on Sheffield Road and two accesses from Humber Place. The most northerly access driveway will provide access to vans/personal vehicles and the two middle access driveways will provide access to site staff (i.e., managers and associates from / to the site to Sheffield Road. The most southern access driveway also provides access to trucks. The two access driveways on Humber Place will provide access to delivery vans from / to the site. The site consists of one delivery station building.

**1.1.3 New Street Networks**

As per the City of Ottawa 2017 TIA guidelines, this section is not required for applications involving site plans. In addition, as document in the Scoping memo, this section is exempted as no new street network is considered.

**1.2 Parking**

**1.2.1 Parking Supply**

The approximate building size is 263,500 sf and the lot size is 18.2 acres. Based on the parking requirement for this particular zoning (0.8/100 m<sup>2</sup> for first 5000 m<sup>2</sup> of GFA and 0.4/100 m<sup>2</sup> above 5000 m<sup>2</sup> GFA) the site requires 118 parking spots. However, given the site operational characteristic and client’s parking requirements, the parking supply was increased to 776 spaces in total, which is a surplus and exceeds the city of Ottawa parking by-law requirement in order to accommodate site operational requirements. **Table 2** provides a parking supply summary.



**Table 2: Parking Review Summary**

| <b>Parking</b>           | <b>Proposed On-Site</b> | <b>Proposed Off-Site</b> |
|--------------------------|-------------------------|--------------------------|
| Associates               | 147                     | -                        |
| Manager Spaces           | 15                      | -                        |
| Van Personal Vehicles    | 60                      | -                        |
| Guest Pickup             | 3                       | -                        |
| <b>Total Auto Spaces</b> | 225                     | -                        |
| Van Personal Vehicle     | 120                     | -                        |
| Van Parking              | 371                     | -                        |
| Van Loading              | 60                      | -                        |
| <b>Total Van Spaces</b>  | 551                     | -                        |
| <b>Total Parking</b>     | 776                     |                          |

The zoning requires spaces for 10 bicycles. The site plan will be providing 10 bicycles rack, which will be located in a secure protected area close to the main entrance to the building.

**1.2.2 Spillover Parking**

As document in the Scoping memo, this section is exempted as the parking supply is above the unconstrained demand.

**1.3 Boundary Street Design**

**1.3.1 Midblock Multi Modal Level of Service**

The multi-modal level of service (MMLOS) was evaluated for Sheffield Road, Lancaster Road and Walkley Road to assist with developing a design concept that maximizes the achievement of the MMLOS objectives. The MMLOS then was compared to the MMLOS targets for pedestrians, bicycles, transit and trucks. The LOS targets were obtained from Exhibit 22 of the Multi-Modal Level of Service (MMLOS) Guidelines.

**1.3.1.1 Pedestrian Level of Service (PLOS)**

**Table 3.** examines the pedestrian level of services for the street segments adjacent to the site and compares it against the target level of service.

**Table 3: Pedestrian Level of Service**

| <b>Street</b>  | <b>Segment</b>                          | <b>Level of Service (LOS)</b> | <b>Target Level of Service (LOS)</b> |
|----------------|---|-------------------------------|--------------------------------------|
| Sheffield Road | Between Bantree Street and Walkley Road | C                             | C                                    |

**1.3.1.2 Bicycle Level of Service (BLOS)**

**Table 4.** examines the Bicycle level of services for the street segments adjacent to the site and compares it against the target level of service.

**Table 4: Bicycle Level of Service**

| Street         | Segment                                 | Level of Service (LOS) | Target Level of Service (LOS) |
|----------------|---|------------------------|-------------------------------|
| Sheffield Road | Between Bantree Street and Walkley Road | B                      | C                             |

**1.3.1.3 Transit Level of Service (TLOS)**

**Table 5.** examines the Transit level of services for the street segments adjacent to the site and compares it against the target level of service. 2030 future horizon year was used to calculate the transit delay for the purpose of transit LOS evaluation.

**Table 5: Transit Level of Service**

| Street         | Segment                                 | Level of Service (LOS) | Target Level of Service (LOS) |
|----------------|---|------------------------|-------------------------------|
| Sheffield Road | Between Bantree Street and Walkley Road | D                      | D                             |

**1.3.1.4 Truck Level of Service (TrLOS)**

**Table 6.** examines the Truck level of services for the street segments adjacent to the site and compares it against the target level of service.

**Table 6: Truck Level of Service**

| Street         | Segment                                 | Level of Service (LOS) | Target Level of Service (LOS) |
|----------------|---|------------------------|-------------------------------|
| Sheffield Road | Between Bantree Street and Walkley Road | C                      | D                             |

**1.4 Access Intersection Design**

**1.4.1 Location and Design of Access**

The proposed site will have six accesses. These will be four accesses on Sheffield Road and two accesses from Humber Place. The most northerly access driveway will provide access to vans/personal vehicles, and the two middle access driveways will provide access to site staff (i.e., managers and associates from / to the site to Sheffield Road. The most southern access driveway also provides access to trucks. The two access driveways on Humber Place will provide access to delivery vans from / to the site. The site consists of one delivery station building.

### 1.4.2 Intersection Control

Intersection control for all adjacent intersections and site access driveway are summarized in **Table 7**.

**Table 7. Intersection and Site Access Traffic Control Device Type**

| Intersection / Access                | Type of Traffic Control                                    |
|--------------------------------------|--|
| Sheffield Road and Walkley Road      | Traffic Signal   |
| Lancaster Road and Walkley Road      | Traffic Signal   |
| Sheffield Road and Humber Place      | Stop control on the minor street                           |
| Sheffield Road and Bantree Street    | Stop control on the minor street                           |
| North-west access and Sheffield Road | Stop control from the site and free flow on the major road |
| West access and Sheffield Road       | Stop control from the site and free flow on the major road |
| West access and Sheffield Road       | Stop control from the site and free flow on the major road |
| South-west Access and Sheffield Road | No egress from the site and free flow on the major road    |

### 1.4.3 Intersection Design

#### 1.4.3.1 Intersection Multi-Modal Level of Service (MMLOS)

A multimodal level of service analysis was completed for all of the intersection within the study area. This includes a level of service assessment for pedestrians, cyclists, transit, and trucks. The level of service of trucks, transit services and active transportation users was assessed based on the methodologies outlined in the City of Ottawa’s Multi-Modal Level of Service Guidelines (2015) and is based on existing infrastructure available to accommodate these modes of transportation. **Table 8**. examines the MMLOS for the site access driveway and adjacent intersections to the site.

**Table 8. Intersection and Site Access Multi-Modal Level of Service**

| Intersection / Access           | Pedestrian | Bicycle | Transit | Truck |
|---------------------------------|------------|---------|---------|-------|
| Sheffield Road and Walkley Road | D          | F       | D       | E     |
| Lancaster Road and Walkley Road | D          | F       | D       | E     |

#### 1.4.3.2 Intersection Capacity Analysis in Existing Conditions (2022)

In line with the City’s TIA Guidelines, traffic operations at the study area intersections were assessed using Synchro software and the methodology outlined in the Highway Capacity Manual (HCM). The performance metrics used to illustrate the assessment findings are average delay per vehicle, level of service (LOS), and volume-to-capacity (V/C) ratio for each of the study area intersections both at the intersection level and the turning movement level.

LOS is intended to describe the quality of service of a transportation facility, i.e., an intersection in this case. As shown in **Table 9**, City of Ottawa defines six levels of service, ranging from LOS ‘A’ to LOS ‘F’, for signalized and unsignalized intersections. Levels of service are defined based on vehicle volume to lane/road capacity ratio. LOS ‘A’ represents the best operating conditions from the traveller’s perspective and LOS ‘F’ represents the worst. The V/C ratio represents the capability of a transportation facility, an intersection in this case, to accommodate demand for travel on the facility. As V/C ratio approaches 1.00, there is an increased possibility of delays and queuing.

The different LOS as per city of Ottawa MMLOS guideline is shown in **Table 9**. Once V/C ratio exceeds 1.00, excessive delays and queues are expected.

**Table 9: Description of Levels of Service as per city of Ottawa MMLOS Guidelines**

| Level of Service | Volume to capacity ratio |
|------------------|--------------------------|
| <b>A</b>         | 0 – 0.60                 |
| <b>B</b>         | 0.61 – 0.70              |
| <b>C</b>         | 0.71 – 0.80              |
| <b>D</b>         | 0.81 – 0.90              |
| <b>E</b>         | 0.91 – 1.00              |
| <b>F</b>         | >1.00                    |

**Table 10** summarizes the traffic analysis findings for the Existing Conditions during both the AM and PM peak hours. The related Synchro outputs are presented in **Appendix B**. In undertaking the Existing Conditions assessment, the following steps were taken:

- The Synchro models were developed to replicate the Existing Conditions (e.g., the lane configurations, traffic control devices, etc.) at the study area intersections during the weekday AM and PM peak hours;
- The weekday AM and PM peak hour turning movement volumes;
- The signal timing plans were provided by the City and input into the Synchro models;
- Peak Hour Factor and Heavy Vehicle Percentages were calculated based on data from the most recent traffic counts provided by the City for the following intersections:
  - Walkley Road and Lancaster Road;
  - Walkley Road and Sheffield Road;
  - Sheffield Road and Humber Place; and
  - Highway 417 at Walkley Road.
- For the intersections where peak hour factor and heavy vehicle percentage data was not available, the following were assumed:
  - Peak Hour Factor of 0.90 was considered for all turning movement volumes; and
  - The Synchro default Heavy Vehicle Percentage of 2% were considered all turning movement volumes, except for the northeast access driveway, which will mainly be used by trucks, where 100% Heavy Vehicle Percentage was considered.
- The Bus Blockages were also inputted into the model as the calculated number of blockages caused by stops made by Routes #47 buses. The Bus Blockages were input into the model only for the specific turning movement volumes that are directly impacted due to stops made by OC Transpo buses;
- The saturation flow rate of 1,800 vehicles per hour per lane was considered for all approaches.
- For all other parameters, the Synchro default values were used, i.e., lane utilization factors, etc.

The individual turning movements that were found to operate at “critical” levels, i.e., at LOS ‘E’ and / or with V/C ratio of greater than 0.85 are bolded in **Table 10**. The key findings of the Existing Conditions analysis are summarized as follows:

- The intersection of Walkley Road & Lancaster Road operates at LOS ‘B’ overall and LOS ‘C’ or better for individual movements in the AM peak hour. In the PM peak hour, the intersection of Walkley Road & Lancaster Road operates at LOS ‘C’ overall with individual movements operating at LOS ‘D’ or better
- The intersection of Walkley Road & Sheffield Road operates well overall at LOS ‘D’ and at LOS ‘E’ or better at the intersection movement level in the AM hour, except for in the WB movements which operate at LOS ‘E’. In the PM peak hour, the intersection of Walkley Road & Sheffield Road operates overall in acceptable

conditions; i.e., at LOS 'C' and at the movement level in acceptable conditions; i.e., at LOS 'C' or better with reserve capacity available.

- The intersection of Walkley Road & SB Highway 417 operates at LOS 'A' overall and at LOS 'B' or better for individual movements for both AM and PM peak hours.
- The intersection of Walkley Road & NB Highway 417 operates at LOS 'A' overall for AM and at LOS 'D' or better for individual movements for AM peak hours and LOS 'B' overall for PM and LOS 'D' or better for individual movements in PM peak hours.
- The intersection of Humber Place & Sheffield Road operates at LOS 'A' overall for AM and at LOS 'A' or better for individual movements for AM peak hours and LOS 'B' overall for PM and LOS 'A' or better for individual movements in PM peak hours.

**Table 10: Summary of the Traffic Analysis Findings for the Existing Conditions**

| Intersection                                 | Movements | AM Peak Hour |             |          |                | PM Peak Hour |           |     |                |
|--|-----------|--------------|-------------|----------|----------------|--------------|-----------|-----|----------------|
|  |           | V/C          | Delay (s)   | LOS      | 95th Queue (m) | V/C          | Delay (s) | LOS | 95th Queue (m) |
| Walkley Road & Lancaster Road (Signalized)   | EBL       | 0.57         | 24.6        | A        | 73.7           | 0.29         | 8.4       | A   | 35.9           |
|  | EBT       | 0.31         | 5.2         | A        | 52.6           | 0.76         | 12.0      | C   | 79.4           |
|  | WBT       | 0.71         | 10.6        | C        | 79.7           | 0.55         | 17.4      | A   | 72.6           |
|  | WBR       | 0.44         | 11.8        | A        | 83.9           | 0.12         | 25.9      | A   | 9.9            |
|  | SBL       | 0.19         | 56.3        | A        | 37.4           | 0.89         | 64.6      | D   | 108.2          |
|  | SBR       | 0.12         | 55.9        | A        | 22.6           | 0.39         | 51.7      | A   | 53.8           |
| Walkley Road & Sheffield Road (Signalized)   | EBL       | 0.85         | 64.6        | D        | 116.0          | 0.43         | 6.2       | A   | 45.0           |
|  | EBT       | 0.18         | 3.5         | A        | 40.3           | 0.75         | 7.3       | C   | 126.9          |
|  | WBT       | <b>0.92</b>  | <b>34.1</b> | <b>E</b> | <b>220.6</b>   | 0.38         | 14.5      | A   | 66.0           |
|  | WBR       | 0.27         | 16.5        | A        | 50.9           | 0.08         | 11.6      | A   | 30.6           |
|  | SBL       | 0.16         | 57.7        | A        | 31.1           | 0.60         | 55.9      | A   | 70.7           |
|  | SBR       | 0.20         | 59.7        | A        | 81.6           | 0.28         | 51.0      | A   | 50.8           |
| Walkley Road & Highway 417 SB (Unsignalized) | EBT       | 0.13         | 0.0         | A        | 0.0            | 0.48         | 0.0       | A   | 2.0            |
|  | WBT       | 0.29         | 0.0         | A        | 7.2            | 0.08         | 0.0       | A   | 0.7            |
|  | SBL       | 0.13         | 28.2        | A        | 14.0           | 0.69         | 45.3      | B   | 147.6          |
| Walkley Road & Highway 417 NB (Unsignalized) | EBTR      | 0.27         | 0.0         | A        | 0.0            | 0.82         | 0.0       | D   | 2.7            |
|  | WBT       | 0.18         | 0.0         | A        | 1.4            | 0.02         | 0.0       | A   | 0.0            |
|  | NBLR      | 0.88         | 58.5        | D        | 71.5           | 0.89         | 51.7      | D   | 28.3           |

|   |       |      |      |   |       |      |      |   |      |
|---|-------|------|------|---|-------|------|------|---|------|
| <b>Humber Place &amp; Sheffield Road (Unsignalized)</b> | EBLTR | 0.23 | 15.7 | A | 23.3  | 0.36 | 17.4 | A | 25.3 |
|   | WBLTR | 0.04 | 23.8 | A | 11.8  | 0.03 | 39.2 | A | 6.8  |
|   | NBLTR | 0.13 | 3.3  | A | 160.5 | 0.07 | 2.2  | A | 56.2 |
|   | SBLTR | 0.00 | 0.1  | A | 73.7  | 0.00 | 0.0  | A | 7.8  |

**1.4.3.3 Intersection Capacity Analysis in Future Background Conditions (2025 and 2030)**

**Table 11** and **Table 12** summarize the traffic analysis findings under the Future Background Conditions in 2025 and 2030, respectively, during both the AM and PM adjacent street peak hours. The adjacent street peak hours are from 7:00 AM to 8:00 AM in the morning, and from 4:00 PM to 5:00 PM in the afternoon. **Table 13** and **Table 14** summarize the traffic analysis findings under the Future Background Conditions in 2025 and 2030, respectively, during both the AM and PM site peak hours. The site peak hours are from 10:00 AM to 11:00 AM in the morning and from 8:00 PM to 9:00 PM in the evening. The related Synchro outputs are presented in **Appendix B**. In undertaking the Future Background Conditions scenario assessment, the existing signal timing plans were used at the intersections of Walkley Road & Sheffield Road, Walkley Road & Lancaster Road.

**Opening Year of 2025 – Adjacent Streets Peak Hour:**

The individual turning movements that are found to operate at “critical” levels; i.e., at LOS ‘E’ and / or with V/C ratio of greater than 0.85 in the interim horizon year of 2025 are bolded in **Table 11**. The key findings of the traffic analysis for the Future Background Conditions in the interim horizon year of 2022 are summarized as follows:

- The intersection of Walkley Road & Lancaster Road operates at LOS ‘C’ overall and LOS ‘D’ or better for individual movements in the AM peak hour. In the PM peak hour, the intersection of Walkley Road & Lancaster Road operates at LOS ‘C’ overall with individual movements operating at LOS ‘D’ or better, except for the SBL turn movement, which was found to operate at LOS ‘E’
- The intersection of Walkley Road & Sheffield Road operates well overall at LOS ‘D’ and at LOS ‘D’ or better at the intersection movement level in the AM hour, except for in the WBT movement which operates at LOS ‘E’. In the PM peak hour, the intersection of Walkley Road & Sheffield Road operates overall in acceptable conditions; i.e., at LOS ‘C’ and at the movement level in acceptable conditions; i.e., at LOS ‘C’ or better with reserve capacity available.
- The intersection of Walkley Road & SB Highway 417 operates at LOS ‘A’ overall for AM and LOS ‘B’ for PM with LOS ‘C’ or better for individual movements for PM peak hours.
- The intersection of Walkley Road & NB Highway 417 operates at LOS ‘A’ in the AM and LOS ‘C’ in PM overall and at the movement level with the exception of the northbound approach NBLR, which was found to operate at LOS ‘F’ in both AM and PM peak hours.
- The intersection of Humber Place & Sheffield Road operates at LOS ‘B’ in the AM and LOS ‘C’ in the PM overall, and at the LOS ‘A’ or better for individual movements during both AM and PM peak hours.

**Table 11: Summary of the Traffic Analysis Findings under the Future Background Conditions in the Opening Year of 2025 – Adjacent Streets Peak Hour**

| Intersection                                 | Movements | AM Peak Hour |             |          |                | PM Peak Hour |              |          |                |
|--|-----------|--------------|-------------|----------|----------------|--------------|--------------|----------|----------------|
|  |           | V/C          | Delay (s)   | LOS      | 95th Queue (m) | V/C          | Delay (s)    | LOS      | 95th Queue (m) |
| Walkley Road & Lancaster Road (Signalized)   | EBL       | 0.62         | 33.7        | B        | 50.8           | 0.31         | 9.2          | A        | 13.2           |
|  | EBT       | 0.33         | 5.2         | A        | 38.1           | 0.80         | 13.1         | C        | 175.3          |
|  | WBT       | 0.74         | 11.3        | C        | 67.3           | 0.58         | 17.9         | A        | 122.0          |
|  | WBR       | 0.47         | 12.5        | A        | 20.7           | 0.13         | 25.7         | A        | 19.6           |
|  | SBL       | 0.20         | 56.4        | A        | 21.9           | <b>0.93</b>  | <b>75.6</b>  | <b>E</b> | <b>102.6</b>   |
|  | SBR       | 0.13         | 56.0        | A        | 22.0           | 0.43         | 52.8         | A        | 48.1           |
| Walkley Road & Sheffield Road (Signalized)   | EBL       | 0.89         | 70.5        | D        | 118.7          | 0.46         | 6.7          | A        | 17.9           |
|  | EBT       | 0.19         | 3.6         | A        | 18.0           | 0.77         | 8.1          | C        | 120.1          |
|  | WBT       | <b>0.96</b>  | <b>42.7</b> | <b>E</b> | <b>331.2</b>   | 0.39         | 14.7         | A        | 62.8           |
|  | WBR       | 0.29         | 16.8        | A        | 45.7           | 0.08         | 11.6         | A        | 7.1            |
|  | SBL       | 0.16         | 57.8        | A        | 14.2           | 0.63         | 56.5         | B        | 55.5           |
|  | SBR       | 0.21         | 59.9        | A        | 27.9           | 0.36         | 53.1         | A        | 39.4           |
| Walkley Road & Highway 417 SB (Unsignalized) | EBT       | 0.14         | 0.0         | A        | 0.0            | 0.48         | 0.0          | A        | 0.0            |
|  | WBTR      | 0.30         | 0.0         | A        | 0.0            | 0.06         | 0.0          | A        | 0.0            |
|  | SBL       | 0.15         | 30.7        | A        | 3.8            | 0.77         | 56.9         | C        | 42.1           |
| Walkley Road & Highway 417 NB (Unsignalized) | EBTR      | 0.02         | 0.0         | A        | 0.0            | 0.26         | 0.0          | A        | 0.0            |
|  | WBT       | 0.19         | 0.0         | A        | 0.0            | 0.02         | 0.0          | A        | 0.0            |
|  | NBLR      | <b>1.06</b>  | <b>92.1</b> | <b>F</b> | <b>112.4</b>   | <b>1.12</b>  | <b>162.7</b> | <b>F</b> | <b>72.9</b>    |
| Humber Place & Sheffield Road (Unsignalized) | EBLTR     | 0.25         | 16.9        | A        | 7.6            | 0.43         | 20.4         | A        | 15.9           |
|  | WBLTR     | 0.05         | 26.3        | A        | 1.1            | 0.04         | 50.6         | A        | 0.9            |
|  | NBLTR     | 0.14         | 3.4         | A        | 3.6            | 0.08         | 2.3          | A        | 1.9            |
|  | SBLTR     | 0.00         | 0.1         | A        | 0.1            | 0.00         | 0.0          | A        | 0.0            |

**Ultimate Horizon Year of 2030 - Adjacent Streets Peak Hour:**

The individual turning movements that are found to operate at “critical” levels; i.e., at LOS ‘E’ and / or with V/C ratio of greater than 0.85 in the ultimate horizon year of 2030 are bolded in **Table 12**. The key findings of the traffic analysis for the Future Background Conditions in the ultimate horizon year of 2027 are summarized as follows:

- The intersection of Walkley Road & Lancaster Road operates at LOS 'C' overall and LOS 'C' or better for individual movements in the AM peak hour, In the PM peak hour, the intersection of Walkley Road & Lancaster Road operates at LOS 'C' overall with individual movements operating at LOS 'D' or better, except for the SBL turn movement, which was found to operate at LOS 'E'
- The intersection of Walkley Road & Sheffield Road operates well overall at LOS 'E' and at LOS 'E' or better at the intersection movement level in the AM hour, except for in the WBT movement which operates at LOS 'F'. In the PM peak hour, the intersection of Walkley Road & Sheffield Road operates overall in acceptable conditions; i.e., at LOS 'C' and at the movement level in acceptable conditions; i.e., at LOS 'D' or better with reserve capacity available.
- The intersection of Walkley Road & SB Highway 417 operates at LOS 'B' overall and at LOS 'D' or better for individual movements for both AM and PM peak hours. Except for SBL which operates at LOS 'E' at PM peak hour.
- The intersection of Walkley Road & NB Highway 417 operates at LOS 'A' in the AM and LOS 'C' in the PM overall and at the movement level with the exception of the northbound approach NBLR, which was found to operate at LOS 'F' in both AM and PM peak hours.
- The intersection of Humber Place & Sheffield Road operates at LOS 'B' in the AM and LOS 'C' in the PM overall, and at the LOS 'A' or better for individual movements during both AM and PM peak hours.

**Table 12: Summary of the Traffic Analysis Findings under the Future Background Conditions in the Horizon Year of 2030 - Adjacent Streets Peak Hour**

| Intersection                               | Movements | AM Peak Hour |             |          |                | PM Peak Hour |             |          |                |
|--|-----------|--------------|-------------|----------|----------------|--------------|-------------|----------|----------------|
|  |           | V/C          | Delay (s)   | LOS      | 95th Queue (m) | V/C          | Delay (s)   | LOS      | 95th Queue (m) |
| Walkley Road & Lancaster Road (Signalized) | EBL       | 0.72         | 48.9        | C        | 65.9           | 0.35         | 10.6        | A        | 14.1           |
|  | EBT       | 0.35         | 5.4         | A        | 41.7           | 0.85         | 15.6        | D        | 211.5          |
|  | WBT       | 0.79         | 12.3        | C        | 68.0           | 0.62         | 18.6        | B        | 134.2          |
|  | WBR       | 0.52         | 12.6        | A        | 21.2           | 0.14         | 25.4        | A        | 17.5           |
|  | SBL       | 0.22         | 56.6        | A        | 23.2           | <b>0.99</b>  | <b>89.1</b> | <b>E</b> | <b>114.1</b>   |
|  | SBR       | 0.14         | 56.2        | A        | 22.7           | 0.49         | 54.7        | A        | 53.8           |
| Walkley Road & Sheffield Road (Signalized) | EBL       | <b>0.95</b>  | <b>83.9</b> | <b>E</b> | <b>133.1</b>   | 0.51         | 7.7         | A        | 17.8           |
|  | EBT       | 0.21         | 3.6         | A        | 19.2           | 0.83         | 9.9         | D        | 199.2          |
|  | WBT       | <b>1.03</b>  | <b>59.5</b> | <b>F</b> | <b>374.3</b>   | 0.42         | 15.1        | A        | 68.3           |
|  | WBR       | 0.31         | 17.1        | A        | 50.0           | 0.09         | 11.7        | A        | 7.3            |
|  | SBL       | 0.17         | 58.0        | A        | 15.0           | 0.67         | 58.1        | B        | 59.2           |
|  | SBR       | 0.22         | 60.3        | A        | 29.4           | 0.57         | 60.4        | A        | 69.0           |
| Walkley Road & Highway 417                 | EBT       | 0.15         | 0.0         | A        | 0.0            | 0.51         | 0.0         | A        | 0.0            |
|  | WBTR      | 0.32         | 0.0         | A        | 0.0            | 0.06         | 0.0         | A        | 0.0            |



|   |       |             |              |          |              |             |              |          |             |
|---|-------|-------------|--------------|----------|--------------|-------------|--------------|----------|-------------|
| <b>SB (Unsignalized)</b>                                | SBL   | 0.18        | 35.7         | A        | 4.9          | <b>0.92</b> | <b>87.9</b>  | E        | <b>57.3</b> |
| <b>Walkley Road &amp; Highway 417 NB (Unsignalized)</b> | EBTR  | 0.02        | 0.0          | A        | 0.0          | 0.28        | 0.0          | A        | 0.0         |
|   | WBT   | 0.21        | 0.0          | A        | 0.0          | 0.02        | 0.0          | A        | 0.0         |
|   | NBLR  | <b>1.21</b> | <b>146.8</b> | <b>F</b> | <b>151.1</b> | <b>1.37</b> | <b>265.4</b> | <b>F</b> | <b>95.3</b> |
| <b>Humber Place &amp; Sheffield Road (Unsignalized)</b> | EBLTR | 0.29        | 18.6         | A        | 9.2          | 0.49        | 23.4         | A        | 19.8        |
|   | WBLTR | 0.05        | 29.7         | A        | 1.2          | 0.05        | 62.2         | A        | 1.1         |
|   | NBLTR | 0.15        | 3.6          | A        | 3.9          | 0.08        | 2.4          | A        | 2.1         |
|   | SBLTR | 0.00        | 0.1          | A        | 0.1          | 0.00        | 0.0          | A        | 0.0         |

**Opening Year of 2025 – Site Peak Hour:**

The individual turning movements that are found to operate at “critical” levels; i.e., at LOS ‘E’ and / or with V/C ratio of greater than 0.85 in the interim horizon year of 2025 are bolded in **Table 13**. The key findings of the traffic analysis for the Future Background Conditions in the interim horizon year of 2025 are summarized as follows:

- The intersection of Walkley Road & Lancaster Road operates at LOS ‘B’ overall and LOS ‘C’ or better for individual movements in the AM peak hour. In the PM peak hour, the intersection of Walkley Road & Lancaster Road operates at LOS ‘A’ overall with individual movements operating at LOS ‘B’ or better.
- The intersection of Walkley Road & Sheffield Road operates well overall at LOS ‘D’ and at LOS ‘D’ or better at the intersection movement level in the AM hour. Except for WBT which operates at LOS ‘E’ at AM peak hour. In the PM peak hour, the intersection of Walkley Road & Sheffield Road operates overall in acceptable conditions; i.e., at LOS ‘A’ and at the movement level in acceptable conditions; i.e., at LOS ‘A’ or better with reserve capacity available.
- The intersection of Walkley Road & SB Highway 417 operates at LOS ‘A’ overall and at LOS ‘A’ or better for individual movements for both AM and PM peak hours.
- The intersection of Walkley Road & NB Highway 417 operates at LOS ‘A’ overall and at LOS ‘A’ or better for individual movements for both AM and PM peak hours. Except for NBLR which operates at LOS ‘F’ at AM peak hour.
- The intersection of Humber Place & Sheffield Road operates at LOS ‘A’ overall, and at the LOS ‘A’ or better for individual movements during both AM and PM peak hours.

**Table 13: Summary of the Traffic Analysis Findings under the Future Background Conditions in the Opening Year of 2025 – Site Peak Hour**

| Intersection  | Movements | AM Peak Hour |           |     |                | PM Peak Hour |           |     |                |
|---|-----------|--------------|-----------|-----|----------------|--------------|-----------|-----|----------------|
|   |           | V/C          | Delay (s) | LOS | 95th Queue (m) | V/C          | Delay (s) | LOS | 95th Queue (m) |
| <b>Walkley Road &amp; Lancaster Road (Signalized)</b> | EBL       | 0.59         | 27.5      | A   | 44.3           | 0.19         | 6.1       | A   | 10.1           |
|   | EBT       | 0.32         | 5.2       | A   | 36.7           | 0.59         | 8.5       | A   | 93.3           |

|  |       |             |             |          |              |      |      |   |      |
|--|-------|-------------|-------------|----------|--------------|------|------|---|------|
|  | WBT   | 0.72        | 10.9        | C        | 67.2         | 0.43 | 14.9 | A | 78.8 |
|  | WBR   | 0.45        | 12.2        | A        | 20.5         | 0.10 | 24.8 | A | 16.5 |
|  | SBL   | 0.20        | 56.3        | A        | 21.4         | 0.69 | 56.6 | B | 67.1 |
|  | SBR   | 0.12        | 55.9        | A        | 21.3         | 0.21 | 47.5 | A | 27.7 |
| Walkley Road & Sheffield Road (Signalized)   | EBL   | 0.86        | 66.0        | D        | 112.3        | 0.29 | 4.5  | A | 10.9 |
|  | EBT   | 0.19        | 3.5         | A        | 17.6         | 0.57 | 5.1  | A | 57.0 |
|  | WBT   | <b>0.93</b> | <b>38.3</b> | <b>E</b> | <b>291.1</b> | 0.29 | 13.4 | A | 44.4 |
|  | WBR   | 0.28        | 16.6        | A        | 43.6         | 0.06 | 11.4 | A | 6.2  |
|  | SBL   | 0.16        | 57.7        | A        | 13.8         | 0.46 | 52.4 | A | 41.7 |
|  | SBR   | 0.20        | 59.8        | A        | 27.4         | 0.22 | 49.6 | A | 26.9 |
| Walkley Road & Highway 417 SB (Unsignalized) | EBT   | 0.13        | 0.0         | A        | 0.0          | 0.35 | 0.0  | A | 0.0  |
|  | WBTR  | 0.29        | 0.0         | A        | 0.0          | 0.04 | 0.0  | A | 0.0  |
|  | SBL   | 0.13        | 28.9        | A        | 3.4          | 0.39 | 21.6 | A | 13.6 |
| Walkley Road & Highway 417 NB (Unsignalized) | EBTR  | 0.02        | 0.0         | A        | 0.0          | 0.19 | 0.0  | A | 0.0  |
|  | WBT   | 0.19        | 0.0         | A        | 0.0          | 0.02 | 0.0  | A | 0.0  |
|  | NBLR  | <b>1.00</b> | <b>74.6</b> | <b>F</b> | <b>98.3</b>  | 0.51 | 31.4 | A | 20.2 |
| Humber Place & Sheffield Road (Unsignalized) | EBLTR | 0.24        | 16.2        | A        | 6.9          | 0.24 | 13.9 | A | 7.1  |
|  | WBLTR | 0.04        | 25.0        | A        | 1.0          | 0.01 | 26.4 | A | 0.3  |
|  | NBLTR | 0.13        | 3.3         | A        | 3.4          | 0.05 | 1.9  | A | 1.2  |
|  | SBLTR | 0.00        | 0.1         | A        | 0.1          | 0.00 | 0.0  | A | 0.0  |

**Ultimate Horizon Year of 2030 - Site Peak Hour:**

The individual turning movements that are found to operate at “critical” levels; i.e., at LOS ‘E’ and / or with V/C ratio of greater than 0.85 in the ultimate horizon year of 2030 are bolded in **Table 14**. The key findings of the traffic analysis for the Future Background Conditions in the ultimate horizon year of 2030 are summarized as follows:

- The intersection of Walkley Road & Lancaster Road operates at LOS ‘C’ overall and LOS ‘C’ or better for individual movements in the AM peak hour. In the PM peak hour, the intersection of Walkley Road & Lancaster Road operates at LOS ‘B’ overall with individual movements operating at LOS ‘C’ or better.
- The intersection of Walkley Road & Sheffield Road operates well overall at LOS ‘D’ and at LOS ‘E’ or better at the intersection movement level in the AM hour. Except WBT which operates at LOS ‘F’. In the PM peak hour, the intersection of Walkley Road & Sheffield Road operates overall in acceptable conditions; i.e., at LOS ‘B’ and at the movement level in acceptable conditions; i.e., at LOS ‘B’ or better with reserve capacity available.
- The intersection of Walkley Road & SB Highway 417 operates at LOS ‘A’ overall and at LOS ‘A’ or better for individual movements for both AM and PM peak hours.

- The intersection of Walkley Road & NB Highway 417 operates at LOS 'A' overall and at LOS 'B' or better for individual movements for both AM and PM peak hours. Except NBLR which operates at LOS 'F' in the AM peak hour.
- The intersection of Humber Place & Sheffield Road operates at LOS 'B' in the AM and LOS 'A' in the PM peak hours overall, and at the LOS 'A' or better for individual movements during both AM and PM peak hours.

**Table 14: Summary of the Traffic Analysis Findings under the Future Background Conditions in the Horizon Year of 2030 - Site Peak Hour**

| Intersection                                 | Movements | AM Peak Hour |              |          |                | PM Peak Hour |           |     |                |
|--|-----------|--------------|--------------|----------|----------------|--------------|-----------|-----|----------------|
|  |           | V/C          | Delay (s)    | LOS      | 95th Queue (m) | V/C          | Delay (s) | LOS | 95th Queue (m) |
| Walkley Road & Lancaster Road (Signalized)   | EBL       | 0.67         | 42.0         | B        | 59.2           | 0.21         | 6.6       | A   | 10.8           |
|  | EBT       | 0.34         | 5.3          | A        | 40.1           | 0.63         | 9.2       | B   | 105.9          |
|  | WBT       | 0.77         | 12.0         | C        | 67.6           | 0.46         | 15.4      | A   | 86.3           |
|  | WBR       | 0.50         | 12.8         | A        | 21.0           | 0.10         | 25.3      | A   | 17.2           |
|  | SBL       | 0.21         | 56.6         | A        | 22.7           | 0.73         | 58.7      | C   | 71.8           |
|  | SBR       | 0.13         | 56.1         | A        | 22.3           | 0.25         | 48.3      | A   | 31.0           |
| Walkley Road & Sheffield Road (Signalized)   | EBL       | <b>0.92</b>  | <b>77.6</b>  | <b>E</b> | <b>127.2</b>   | 0.32         | 4.7       | A   | 11.5           |
|  | EBT       | 0.20         | 3.6          | A        | 18.7           | 0.61         | 5.4       | B   | 63.3           |
|  | WBT       | <b>1.00</b>  | <b>51.2</b>  | <b>F</b> | <b>354.8</b>   | 0.31         | 13.7      | A   | 48.0           |
|  | WBR       | 0.30         | 16.9         | A        | 48.1           | 0.07         | 11.4      | A   | 6.4            |
|  | SBL       | 0.17         | 57.9         | A        | 14.5           | 0.50         | 53.1      | A   | 44.5           |
|  | SBR       | 0.22         | 60.1         | A        | 28.9           | 0.23         | 49.9      | A   | 28.2           |
| Walkley Road & Highway 417 SB (Unsignalized) | EBT       | 0.14         | 0.0          | A        | 0.0            | 0.38         | 0.0       | A   | 0.0            |
|  | WBTR      | 0.31         | 0.0          | A        | 0.0            | 0.04         | 0.0       | A   | 0.0            |
|  | SBL       | 0.16         | 33.3         | A        | 4.3            | 0.45         | 24.7      | A   | 16.7           |
| Walkley Road & Highway 417 NB (Unsignalized) | EBTR      | 0.02         | 0.0          | A        | 0.0            | 0.21         | 0.0       | A   | 0.0            |
|  | WBT       | 0.20         | 0.0          | A        | 0.0            | 0.02         | 0.0       | A   | 0.0            |
|  | NBLR      | <b>1.15</b>  | <b>121.4</b> | <b>F</b> | <b>134.1</b>   | 0.61         | 40.2      | B   | 27.0           |
| Humber Place & Sheffield Road (Unsignalized) | EBLTR     | 0.27         | 17.6         | A        | 8.3            | 0.27         | 14.8      | A   | 8.2            |
|  | WBLTR     | 0.05         | 28.1         | A        | 1.2            | 0.01         | 29.5      | A   | 0.3            |
|  | NBLTR     | 0.14         | 3.5          | A        | 3.8            | 0.05         | 1.9       | A   | 1.3            |
|  | SBLTR     | 0.00         | 0.1          | A        | 0.1            | 0.00         | 0.0       | A   | 0.0            |

**1.4.3.4 Intersection Capacity Analysis in Future Total Conditions (2025 and 2030)**

**Table 15** and **Table 16** summarize the traffic analysis findings under the Future Total Conditions in 2025 and 2030 horizon years, respectively, during both the AM and PM peak hours of the adjacent street. **Table 17** and **Table 18** summarize the traffic analysis findings under the Future Total Conditions in 2025 and 2030 horizon years, respectively, during both the AM and PM peak hours of the site. The related Synchro outputs are presented in **Appendix B**.

**Opening Year of 2025 – Adjacent Streets Peak Hour:**

The Future Total Conditions when compared with the Future Background Conditions in 2025, the proposed Future Site is found to improve operations of some of the individual movements at the study area intersections.

- The intersection of Walkley Road & Lancaster Road operates at LOS ‘B’ overall and LOS ‘C’ or better for individual movements in the AM peak hour. In the PM peak hour, the intersection of Walkley Road & Lancaster Road operates at LOS ‘C’ overall with individual movements operating at LOS ‘C’ or better, except for the SBL turn movement, which was found to operate at LOS ‘E’.
- The intersection of Walkley Road & Sheffield Road operates well overall at LOS ‘E’ and at LOS ‘D’ or better at the intersection movement level in the AM hour, except for in the WBT movement which operates at LOS ‘E’. In the PM peak hour, the intersection of Walkley Road & Sheffield Road operates overall in acceptable conditions; i.e., at LOS ‘D’ and at the movement level in acceptable conditions; i.e., at LOS ‘C’ or better with reserve capacity available.
- The intersection of Walkley Road & SB Highway 417 operates at LOS ‘B’ overall and at LOS ‘A’ or better for individual movements for AM peak hours. And at LOS ‘C’ or better for individual movements for PM peak hours.
- The intersection of Walkley Road & NB Highway 417 operates at LOS ‘A’ for AM and LOS ‘C’ for PM overall and LOS ‘A’ at the movement level with the exception of the northbound approach NBLR, which was found to operate at LOS ‘F’ in both AM and PM peak hours.
- The intersection of Humber Place & Sheffield Road operates at LOS ‘A’ in the AM and LOS ‘C’ in the PM overall, and at the LOS ‘A’ or better for individual movements during both AM and PM peak hours.

**Table 15: Summary of the Traffic Analysis Findings under the Future Total Scenario in the Opening Year of 2025 – Adjacent Streets Peak Hour**

| Intersection                               | Movements | AM Peak Hour |           |     |                | PM Peak Hour |             |          |                |
|--|-----------|--------------|-----------|-----|----------------|--------------|-------------|----------|----------------|
|  |           | V/C          | Delay (s) | LOS | 95th Queue (m) | V/C          | Delay (s)   | LOS      | 95th Queue (m) |
| Walkley Road & Lancaster Road (Signalized) | EBL       | 0.62         | 33.2      | B   | 50.3           | 0.31         | 9.2         | A        | 13.2           |
|  | EBT       | 0.32         | 5.2       | A   | 37.4           | 0.80         | 13.2        | C        | 177.4          |
|  | WBT       | 0.74         | 11.3      | C   | 66.9           | 0.58         | 17.9        | A        | 121.7          |
|  | WBR       | 0.47         | 12.6      | A   | 20.7           | 0.13         | 25.8        | A        | 19.9           |
|  | SBL       | 0.20         | 56.4      | A   | 21.9           | <b>0.93</b>  | <b>75.6</b> | <b>E</b> | <b>102.6</b>   |

|  |  |             |             |          |              |             |              |          |             |
|--|--|-------------|-------------|----------|--------------|-------------|--------------|----------|-------------|
|  | SBR  | 0.13        | 56.0        | A        | 22.0         | 0.43        | 52.8         | A        | 48.1        |
| Walkley Road & Sheffield Road<br>(Signalized)      | EBL  | 0.86        | 65.9        | D        | 111.9        | 0.47        | 6.9          | A        | 18.7        |
|  | EBT  | 0.19        | 3.6         | A        | 18.2         | 0.77        | 8.1          | C        | 122.8       |
|  | WBT  | <b>0.96</b> | <b>42.7</b> | <b>E</b> | <b>331.2</b> | 0.39        | 14.7         | A        | 62.8        |
|  | WBR  | 0.26        | 16.3        | A        | 40.5         | 0.10        | 11.8         | A        | 7.8         |
|  | SBL  | 0.13        | 57.3        | A        | 11.9         | 0.60        | 55.7         | A        | 52.9        |
|  | SBR  | 0.20        | 59.8        | A        | 27.3         | 0.34        | 52.6         | A        | 37.4        |
|  | Walkley Road & Highway 417<br>SB<br>(Unsignalized) | EBT         | 0.13        | 0.0      | A            | 0.0         | 0.47         | 0.0      | A           |
| WBTR   |  | 0.30        | 0.0         | A        | 0.0          | 0.06        | 0.0          | A        | 0.0         |
| SBL  |  | 0.14        | 29.8        | A        | 3.7          | 0.76        | 55.6         | C        | 41.5        |
| Walkley Road & Highway 417<br>NB<br>(Unsignalized) | EBTR   | 0.02        | 0.0         | A        | 0.0          | 0.26        | 0.0          | A        | 0.0         |
|  | WBT  | 0.19        | 0.0         | A        | 0.0          | 0.02        | 0.0          | A        | 0.0         |
|  | NBLR   | <b>1.01</b> | <b>78.5</b> | <b>F</b> | <b>100.5</b> | <b>1.16</b> | <b>174.4</b> | <b>F</b> | <b>78.4</b> |
| Humber Place & Sheffield<br>Road<br>(Unsignalized) | EBLTR  | 0.24        | 15.9        | A        | 6.9          | 0.42        | 20.0         | A        | 15.5        |
|  | WBLTR  | 0.05        | 0.0         | A        | 0.0          | 0.00        | 0.0          | A        | 0.0         |
|  | NBLTR  | 0.13        | 3.4         | A        | 3.5          | 0.07        | 2.2          | A        | 1.8         |
|  | SBLTR  | 0.00        | 0.0         | A        | 0.0          | 0.00        | 0.0          | A        | 0.0         |

**Ultimate Horizon Year of 2030 – Adjacent Streets Peak Hour:**

Traffic operations at the study area intersections in the Future Site scenario were found to slightly improve when compared with the Future BAU scenario in 2030. The following provides a quick summary of traffic operations:

- The intersection of Walkley Road & Lancaster Road operates at LOS 'C' overall and LOS 'C' or better for individual movements in the AM peak hour. In the PM peak hour, the intersection of Walkley Road & Lancaster Road operates at LOS 'C' overall with individual movements operating at LOS 'D' or better, except for the SBL turn movement, which was found to operate at LOS 'E'
- The intersection of Walkley Road & Sheffield Road operates well overall at LOS 'D' and at LOS 'E' or better at the intersection movement level in the AM hour, except for in the WBT movement which operates at LOS 'F'. In the PM peak hour, the intersection of Walkley Road & Sheffield Road operates overall in acceptable conditions; i.e., at LOS 'C' and at the movement level in acceptable conditions; i.e., at LOS 'D' or better with reserve capacity available.
- The intersection of Walkley Road & SB Highway 417 operates at LOS 'B' overall and at LOS 'A' or better for individual movements for both AM and PM peak hours. Except for SBL which operates at LOS 'E' in the PM peak hour.
- The intersection of Walkley Road & NB Highway 417 operates at LOS 'A' in the AM and LOS 'C' in the PM overall and LOS 'A' at the movement level with the exception of the northbound approach NBLR, which was found to operate at LOS 'F' in both AM and PM peak hours.

- The intersection of Humber Place & Sheffield Road operates at LOS 'B' in the AM and LOS 'C' in the PM overall, and at the LOS 'A' or better for individual movements during both AM and PM peak hours

**Table 16: Summary of the Traffic Analysis Findings under the Future Site Scenario in the Ultimate Horizon Year of 2030 – Adjacent Street Peak Hour**

| Intersection                                 | Movements | AM Peak Hour |              |          |                | PM Peak Hour |              |          |                |
|--|-----------|--------------|--------------|----------|----------------|--------------|--------------|----------|----------------|
|  |           | V/C          | Delay (s)    | LOS      | 95th Queue (m) | V/C          | Delay (s)    | LOS      | 95th Queue (m) |
| Walkley Road & Lancaster Road (Signalized)   | EBL       | 0.72         | 48.5         | C        | 65.7           | 0.35         | 10.5         | A        | 14.1           |
|  | EBT       | 0.35         | 5.4          | A        | 40.8           | 0.86         | 15.7         | D        | 213.9          |
|  | WBT       | 0.79         | 12.3         | C        | 67.6           | 0.62         | 18.5         | B        | 133.6          |
|  | WBR       | 0.52         | 12.6         | A        | 21.1           | 0.14         | 25.5         | A        | 17.8           |
|  | SBL       | 0.22         | 56.6         | A        | 23.2           | <b>0.99</b>  | <b>89.1</b>  | <b>E</b> | <b>114.1</b>   |
|  | SBR       | 0.14         | 56.2         | A        | 22.7           | 0.49         | 54.7         | A        | 53.8           |
| Walkley Road & Sheffield Road (Signalized)   | EBL       | <b>0.92</b>  | <b>77.0</b>  | <b>E</b> | <b>125.8</b>   | 0.53         | 7.8          | A        | 18.4           |
|  | EBT       | 0.21         | 3.6          | A        | 19.3           | 0.83         | 10.0         | D        | 200.0          |
|  | WBT       | <b>1.03</b>  | <b>59.5</b>  | <b>F</b> | <b>374.3</b>   | 0.42         | 15.1         | A        | 68.3           |
|  | WBR       | 0.28         | 16.6         | A        | 44.2           | 0.11         | 11.9         | A        | 8.0            |
|  | SBL       | 0.14         | 57.5         | A        | 12.8           | 0.64         | 56.9         | B        | 56.3           |
|  | SBR       | 0.22         | 60.2         | A        | 28.8           | 0.55         | 59.4         | A        | 66.3           |
| Walkley Road & Highway 417 SB (Unsignalized) | EBT       | 0.14         | 0.0          | A        | 0.0            | 0.50         | 0.0          | A        | 0.0            |
|  | WBTR      | 0.32         | 0.0          | A        | 0.0            | 0.06         | 0.0          | A        | 0.0            |
|  | SBL       | 0.18         | 34.4         | A        | 4.7            | <b>0.91</b>  | <b>85.3</b>  | <b>E</b> | <b>56.3</b>    |
| Walkley Road & Highway 417 NB (Unsignalized) | EBTR      | 0.02         | 0.0          | A        | 0.0            | 0.28         | 0.0          | A        | 0.0            |
|  | WBT       | 0.21         | 0.0          | A        | 0.0            | 0.02         | 0.0          | A        | 0.0            |
|  | NBLR      | <b>1.16</b>  | <b>127.0</b> | <b>F</b> | <b>136.3</b>   | <b>1.41</b>  | <b>276.9</b> | <b>F</b> | <b>100.6</b>   |
| Humber Place & Sheffield Road (Unsignalized) | EBLTR     | 0.27         | 17.2         | A        | 8.3            | 0.48         | 22.8         | A        | 19.3           |
|  | WBLTR     | 0.00         | 0.0          | A        | 0.0            | 0.00         | 0.0          | A        | 0.0            |
|  | NBLTR     | 0.15         | 3.6          | A        | 3.9            | 0.08         | 2.3          | A        | 2.0            |
|  | SBLTR     | 0.00         | 0.0          | A        | 0.0            | 0.00         | 0.0          | A        | 0.0            |

**Opening Year of 2025 – Site Peak Hour:**

The Future Total Conditions when compared with the Future Background Conditions in 2025, the proposed Future Site is found to improve operations of some of the individual movements at the study area intersections.

- The intersection of Walkley Road & Lancaster Road operates at LOS 'B' overall and LOS 'C' or better for individual movements in the AM peak hour. In the PM peak hour, the intersection of Walkley Road & Lancaster Road operates at LOS 'A' overall with individual movements operating at LOS 'B' or better.
- The intersection of Walkley Road & Sheffield Road operates well overall at LOS 'D' and at LOS 'A' or better at the intersection movement level in the AM hour. Except for the EBL and WBT which operate at LOS 'E'. In the PM peak hour, the intersection of Walkley Road & Sheffield Road operates overall in acceptable conditions; i.e., at LOS 'A' and at the movement level in acceptable conditions; i.e., at LOS 'B' or better with reserve capacity available.
- The intersection of Walkley Road & SB Highway 417 operates at LOS 'A' overall and at LOS 'A' or better for individual movements for both AM and PM peak hours.
- The intersection of Walkley Road & NB Highway 417 operates at LOS 'A' overall and at LOS 'B' or better for individual movements for both AM and PM peak hours. Except for NBLR which operates at LOS 'F' in the AM peak hour.
- The intersection of Humber Place & Sheffield Road operates at LOS 'C' in the AM and LOS 'B' in the PM overall, and at the LOS 'A' or better for individual movements during both AM and PM peak hours.

**Table 17: Summary of the Traffic Analysis Findings under the Future Total Scenario in the Opening Year of 2025 – Site Peak Hour**

| Intersection                               | Movements | AM Peak Hour |             |          |                | PM Peak Hour |           |     |                |
|--|-----------|--------------|-------------|----------|----------------|--------------|-----------|-----|----------------|
|  |           | V/C          | Delay (s)   | LOS      | 95th Queue (m) | V/C          | Delay (s) | LOS | 95th Queue (m) |
| Walkley Road & Lancaster Road (Signalized) | EBL       | 0.59         | 27.1        | A        | 43.8           | 0.19         | 6.3       | A   | 10.1           |
|  | EBT       | 0.33         | 5.3         | A        | 38.3           | 0.60         | 8.7       | A   | 97.3           |
|  | WBT       | 0.72         | 10.8        | C        | 67.3           | 0.45         | 15.3      | A   | 82.4           |
|  | WBR       | 0.45         | 12.3        | A        | 20.4           | 0.10         | 24.0      | A   | 15.7           |
|  | SBL       | 0.20         | 56.3        | A        | 21.4           | 0.69         | 56.6      | B   | 67.1           |
|  | SBR       | 0.12         | 55.9        | A        | 21.3           | 0.21         | 47.5      | A   | 27.7           |
| Walkley Road & Sheffield Road (Signalized) | EBL       | <b>0.94</b>  | <b>79.7</b> | <b>E</b> | <b>130.1</b>   | 0.34         | 4.8       | A   | 13.0           |
|  | EBT       | 0.19         | 3.5         | A        | 17.3           | 0.57         | 5.1       | A   | 57.4           |
|  | WBT       | <b>0.93</b>  | <b>38.3</b> | <b>E</b> | <b>291.1</b>   | 0.29         | 13.4      | A   | 44.4           |
|  | WBR       | 0.36         | 17.9        | A        | 58.6           | 0.14         | 12.3      | A   | 8.9            |
|  | SBL       | 0.47         | 64.2        | A        | 34.8           | 0.62         | 56.5      | B   | 55.3           |
|  | SBR       | 0.23         | 60.6        | A        | 29.6           | 0.24         | 50.0      | A   | 28.3           |

|   |       |             |              |          |              |      |      |   |      |
|---|-------|-------------|--------------|----------|--------------|------|------|---|------|
| <b>Walkley Road &amp; Highway 417 SB (Unsignalized)</b> | EBT   | 0.14        | 0.0          | A        | 0.0          | 0.35 | 0.0  | A | 0.0  |
|   | WBTR  | 0.30        | 0.0          | A        | 0.0          | 0.05 | 0.0  | A | 0.0  |
|   | SBL   | 0.14        | 30.7         | A        | 3.6          | 0.41 | 23.3 | A | 14.9 |
| <b>Walkley Road &amp; Highway 417 NB (Unsignalized)</b> | EBTR  | 0.02        | 0.0          | A        | 0.0          | 0.19 | 0.0  | A | 0.0  |
|   | WBT   | 0.19        | 0.0          | A        | 0.0          | 0.02 | 0.0  | A | 0.0  |
|   | NBLR  | <b>1.09</b> | <b>101.6</b> | <b>F</b> | <b>121.8</b> | 0.67 | 42.3 | B | 32.7 |
| <b>Humber Place &amp; Sheffield Road (Unsignalized)</b> | EBLTR | 0.34        | 23.2         | A        | 10.9         | 0.30 | 16.9 | A | 9.3  |
|   | WBLTR | 0.00        | 0.0          | A        | 0.0          | 0.00 | 0.0  | A | 0.0  |
|   | NBLTR | 0.15        | 3.5          | A        | 4.0          | 0.05 | 1.6  | A | 1.3  |
|   | SBLTR | 0.00        | 0.0          | A        | 0.0          | 0.00 | 0.0  | A | 0.0  |

**Ultimate Horizon Year of 2030 – Site Peak Hour:**

Traffic operations at the study area intersections in the Future Total scenario were found to slightly improve when compared with the Future Background scenario in 2030. The following provides a quick summary of traffic operations:

- The intersection of Walkley Road & Lancaster Road operates at LOS 'C' overall and LOS 'C' or better for individual movements in the AM peak hour. In the PM peak hour, the intersection of Walkley Road & Lancaster Road operates at LOS 'B' overall and LOS 'C' or better for individual movements.
- The intersection of Walkley Road & Sheffield Road operates well overall at LOS 'D' and at LOS 'A' or better at the intersection movement level in the AM hour. Except for the EBL and WBT which operate at LOS 'F'. In the PM peak hour, the intersection of Walkley Road & Sheffield Road operates overall in acceptable conditions; i.e., at LOS 'B' and at the movement level in acceptable conditions; i.e., at LOS 'B' or better with reserve capacity available.
- The intersection of Walkley Road & SB Highway 417 operates at LOS 'A' overall and at LOS 'A' or better for individual movements for both AM and PM peak hours.
- The intersection of Walkley Road & NB Highway 417 operates at LOS 'A' overall and at LOS 'A' or better for individual movements for both AM and PM peak hours. Except for NBLR which operates at LOS 'F' in the AM and LOS 'C' in the PM.
- The intersection of Humber Place & Sheffield Road operates at LOS 'C' overall, and at the LOS 'A' or better for individual movements during both AM and PM peak hours.



**Table 18: Summary of the Traffic Analysis Findings under the Future Site Scenario in the Ultimate Horizon Year of 2030 – Site Peak Hour**

| Intersection                                 | Movements | AM Peak Hour |              |          |                | PM Peak Hour |           |     |                |
|--|-----------|--------------|--------------|----------|----------------|--------------|-----------|-----|----------------|
|  |           | V/C          | Delay (s)    | LOS      | 95th Queue (m) | V/C          | Delay (s) | LOS | 95th Queue (m) |
| Walkley Road & Lancaster Road (Signalized)   | EBL       | 0.67         | 41.6         | B        | 58.7           | 0.21         | 6.8       | A   | 10.8           |
|  | EBT       | 0.35         | 5.4          | A        | 41.7           | 0.65         | 9.4       | B   | 110.5          |
|  | WBT       | 0.77         | 12.0         | C        | 68.4           | 0.48         | 15.9      | A   | 91.3           |
|  | WBR       | 0.50         | 13.0         | A        | 20.6           | 0.10         | 24.4      | A   | 16.1           |
|  | SBL       | 0.21         | 56.6         | A        | 22.7           | 0.73         | 58.7      | C   | 71.8           |
|  | SBR       | 0.13         | 56.1         | A        | 22.3           | 0.25         | 48.3      | A   | 31.0           |
| Walkley Road & Sheffield Road (Signalized)   | EBL       | <b>1.00</b>  | <b>96.2</b>  | <b>F</b> | <b>144.6</b>   | 0.38         | 5.1       | A   | 13.6           |
|  | EBT       | 0.20         | 3.5          | A        | 18.5           | 0.61         | 5.4       | B   | 63.8           |
|  | WBT       | <b>1.00</b>  | <b>51.2</b>  | <b>F</b> | <b>354.8</b>   | 0.31         | 13.7      | A   | 48.0           |
|  | WBR       | 0.38         | 18.3         | A        | 62.9           | 0.15         | 12.3      | A   | 9.1            |
|  | SBL       | 0.48         | 64.4         | A        | 35.5           | 0.65         | 57.5      | B   | 57.7           |
|  | SBR       | 0.30         | 62.6         | A        | 35.5           | 0.30         | 51.5      | A   | 34.2           |
| Walkley Road & Highway 417 SB (Unsignalized) | EBT       | 0.15         | 0.0          | A        | 0.0            | 0.38         | 0.0       | A   | 0.0            |
|  | WBTR      | 0.32         | 0.0          | A        | 0.0            | 0.06         | 0.0       | A   | 0.0            |
|  | SBL       | 0.17         | 35.4         | A        | 4.6            | 0.47         | 26.8      | A   | 18.3           |
| Walkley Road & Highway 417 NB (Unsignalized) | EBTR      | 0.02         | 0.0          | A        | 0.0            | 0.21         | 0.0       | A   | 0.0            |
|  | WBT       | 0.20         | 0.0          | A        | 0.0            | 0.02         | 0.0       | A   | 0.0            |
|  | NBLR      | <b>1.24</b>  | <b>156.5</b> | <b>F</b> | <b>160.4</b>   | 0.78         | 59.0      | C   | 43.4           |
| Humber Place & Sheffield Road (Unsignalized) | EBLTR     | 0.39         | 26.2         | A        | 13.3           | 0.33         | 18.2      | A   | 11.0           |
|  | WBLTR     | 0.00         | 0.0          | A        | 0.0            | 0.00         | 0.0       | A   | 0.0            |
|  | NBLTR     | 0.16         | 3.8          | A        | 4.4            | 0.06         | 1.7       | A   | 1.4            |
|  | SBLTR     | 0.00         | 0.0          | A        | 0.0            | 0.00         | 0.0       | A   | 0.0            |

## 2. Transportation Demand Management

This section provides a description of the existing transit services and active transportation facilities within the study area as well as a set of recommended TDM measures for the subject development. There are no residential, institutional, recreational or natural land uses identified that would be impacted if traffic volumes generated by the proposed development are higher than expected. Increased transit frequency, along with the presence of cycling infrastructure and parking around the vicinity of the site would improve the likelihood of achieving the sustainable mode share targets. The estimated number of employees per occupations and their shift times area outlined in the figure below.


|            | Start    | End      | No  | Designation | Percentage |
|------------|----------|----------|-----|-------------|------------|
| 1st shift  | 1:30 AM  | 12:30 PM | 90  | Associates  | 19%        |
| 2nd shift  | 5:30 AM  | 2:30 PM  | 28  | Associates  | 6%         |
| 3rd shift  | 1:00 PM  | 10:00 PM | 28  | Associates  | 6%         |
| PFSD shift | 1:30 PM  | 6:00 PM  | 22  | Associates  | 5%         |
| RTS shift  | 11:30 AM | 10:30 PM | 5   | Associates  | 1%         |
| Drivers    | 9:00 AM  | 9:30 PM  | 298 | Drivers     | 63%        |

**Figure 2. Employee Shift Breakdown**

For this purpose, the City of Ottawa TDM Measures Checklist for a Non-Residential Development was used. The following provides a checklist which examines the site plan and transportation components for the proposed site.

## 3. TDM Measures Checklist:

Non-Residential Developments (office, institutional, retail or industrial)

| <b>Legend</b>   |  |
|---|--|
| <b>BASIC</b>  | The measure is generally feasible and effective, and in most cases would benefit the development and its users |
| <b>BETTER</b>   | The measure could maximize support for users of sustainable modes, and optimize development performance        |
|  | The measure is one of the most dependably effective tools to encourage the use of sustainable modes            |

| TDM measures: <i>Non-residential developments</i>                   |   | Check if proposed & add descriptions  |
|---|---|---|
| <b>1. TDM PROGRAM MANAGEMENT</b>                                    |   |   |
| <b>1.1 Program coordinator</b>                                      |   |   |
| BASIC   | ★<br>✳ 1.1.1 Designate an internal coordinator, or contract with an external coordinator  | <input type="checkbox"/>  |
| <b>1.2 Travel surveys</b>   |   |   |
| BETTER  | 1.2.1 Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress  | <input type="checkbox"/>  |
| <b>2. WALKING AND CYCLING</b>                                       |   |   |
| <b>2.1 Information on walking/cycling routes &amp; destinations</b> |   |   |
| BASIC   | 2.1.1 Display local area maps with walking/cycling access routes and key destinations at major entrances                          | ■ local area maps with walking/cycling access routes and facilities can be displayed on the information board |
| <b>2.2 Bicycle skills training</b>                                  |   |   |
| <i>Commuter travel</i>  |   |   |
| BETTER  | ★<br>✳ 2.2.1 Offer on-site cycling courses for commuters, or subsidize off-site courses   | <input type="checkbox"/>  |
| <b>Valet bike parking</b>   |   |   |
| <i>Visitor travel</i>   |   |   |
| BETTER  | 2.3.1 Offer secure valet bike parking during public events when demand exceeds fixed supply (e.g. for festivals, concerts, games) | <input type="checkbox"/>  |

| TDM measures: <i>Non-residential developments</i> |  | Check if proposed & add descriptions  |
|---|--|---|
| <b>3. TRANSIT</b>                                 |  |   |
| <b>3.1 Transit information</b>                    |  |   |
| BASIC   | 3.1.1 Display relevant transit schedules and route maps at entrances     | ■ Transit schedule and route maps can be displayed on the information board         |
| BASIC   | 3.1.2 Provide online links to OC Transpo and STO information             | ■ links to OC Transpo and STO information can be displayed on the information board |
| BETTER  | 3.1.3 Provide real-time arrival information display at entrances         | <input type="checkbox"/>  |
| <b>3.2 Transit fare incentives</b>                |  |   |
| <i>Commuter travel</i>                            |  |   |
| BETTER  | 3.2.1 Offer preloaded PRESTO cards to encourage commuters to use transit | <input type="checkbox"/>  |

|  |   |  |
|--|---|--|
| <b>BETTER</b> ★                            | 3.2.2 Subsidize or reimburse monthly transit pass purchases by employees  | <input type="checkbox"/>   |
| <i>Visitor travel</i>                      |   |  |
| <b>BETTER</b>                              | 3.2.3 Arrange inclusion of same-day transit fare in price of tickets (e.g. for festivals, concerts, games)                                      | <input type="checkbox"/>   |
| <b>3.3 Enhanced public transit service</b> |   |  |
| <i>Commuter travel</i>                     |   |  |
| <b>BETTER</b>                              | 3.3.1 Contract with OC Transpo to provide enhanced transit services (e.g. for shift changes, weekends)  | <input type="checkbox"/> Consider since Route 47 may not provide adequate service for the development's shift changes. |
| <i>Visitor travel</i>                      |   |  |
| <b>BETTER</b>                              | 3.3.2 Contract with OC Transpo to provide enhanced transit services (e.g. for festivals, concerts, games)                                       | <input type="checkbox"/>   |
| <b>3.4 Private transit service</b>         |   |  |
| <i>Commuter travel</i>                     |   |  |
| <b>BETTER</b>                              | 3.4.1 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for shift changes, weekends)    | <input type="checkbox"/>   |
| <i>Visitor travel</i>                      |   |  |
| <b>BETTER</b>                              | 3.4.2 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for festivals, concerts, games) | <input type="checkbox"/>   |

| TDM measures: <i>Non-residential developments</i> |   | Check if proposed & add descriptions |
|---|---|--------------------------------------|
| <b>4. RIDESHARING</b>                             |   |                                      |
| <b>4.1 Ridematching service</b>                   |   |                                      |
| <i>Commuter travel</i>                            |   |                                      |
| <b>BASIC</b> ★                                    | 4.1.1 Provide a dedicated ridematching portal at OttawaRideMatch.com                                | <input type="checkbox"/>             |
| <b>4.2 Carpool parking price incentives</b>       |   |                                      |
| <i>Commuter travel</i>                            |   |                                      |
| <b>BETTER</b>                                     | 4.2.1 Provide discounts on parking costs for registered carpools                                    | <input type="checkbox"/>             |
| <b>4.3 Vanpool service</b>                        |   |                                      |
| <i>Commuter travel</i>                            |   |                                      |
| <b>BETTER</b>                                     | 4.3.1 Provide a vanpooling service for long-distance commuters                                      | <input type="checkbox"/>             |
| <b>5. CARSHARING &amp; BIKESHARING</b>            |   |                                      |
| <b>5.1 Bikeshare stations &amp; memberships</b>   |   |                                      |
| <b>BETTER</b>                                     | 5.1.1 Contract with provider to install on-site bikeshare station for use by commuters and visitors | <input type="checkbox"/>             |
| <i>Commuter travel</i>                            |   |                                      |

|  |  |                          |
|--|--|--------------------------|
| BETTER   | 5.1.2 Provide employees with bikeshare memberships for local business travel                       | <input type="checkbox"/> |
| <b>5.2 Carshare vehicles &amp; memberships</b> |  |                          |
| <i>Commuter travel</i>                         |  |                          |
| BETTER   | 5.2.1 Contract with provider to install on-site carshare vehicles and promote their use by tenants | <input type="checkbox"/> |
| BETTER   | 5.2.2 Provide employees with carshare memberships for local business travel                        | <input type="checkbox"/> |
| <b>6. PARKING</b>                              |  |                          |
| <b>6.1 Priced parking</b>                      |  |                          |
| <i>Commuter travel</i>                         |  |                          |
| BASIC  | ★ 6.1.1 Charge for long-term parking (daily, weekly, monthly)                                      | <input type="checkbox"/> |
| BASIC  | 6.1.2 Unbundle parking cost from lease rates at multi-tenant sites                                 | <input type="checkbox"/> |
| <i>Visitor travel</i>                          |  |                          |
| BETTER   | 6.1.3 Charge for short-term parking (hourly)   | <input type="checkbox"/> |

| TDM measures: <i>Non-residential developments</i> |   | Check if proposed & add descriptions |
|---|---|--------------------------------------|
| <b>7. TDM MARKETING &amp; COMMUNICATIONS</b>      |   |                                      |
| <b>7.1 Multimodal travel information</b>          |   |                                      |
| <i>Commuter travel</i>                            |   |                                      |
| BASIC   | ★ 7.1.1 Provide a multimodal travel option information package to new/relocating employees and students   | <input type="checkbox"/>             |
| <i>Visitor travel</i>                             |   |                                      |
| BETTER  | ★ 7.1.2 Include multimodal travel option information in invitations or advertising that attract visitors or customers (e.g. for festivals, concerts, games) | <input type="checkbox"/>             |
| <b>7.2 Personalized trip planning</b>             |   |                                      |
| <i>Commuter travel</i>                            |   |                                      |
| BETTER  | ★ 7.2.1 Offer personalized trip planning to new/relocating employees  | <input type="checkbox"/>             |
| <b>7.3 Promotions</b>                             |   |                                      |
| <i>Commuter travel</i>                            |   |                                      |
| BETTER  | 7.3.1 Deliver promotions and incentives to maintain awareness, build understanding, and encourage trial of sustainable modes                                | <input type="checkbox"/>             |
| <b>8. OTHER INCENTIVES &amp; AMENITIES</b>        |   |                                      |
| <b>8.1 Emergency ride home</b>                    |   |                                      |
| <i>Commuter travel</i>                            |   |                                      |

|  |   |  |                          |
|--|---|--|--------------------------|
| BETTER                                   | ★ | 8.1.1 Provide emergency ride home service to non-driving commuters   | <input type="checkbox"/> |
| <b>8.2 Alternative work arrangements</b> |   |  |                          |
| <i>Commuter travel</i>                   |   |  |                          |
| BASIC                                    | ★ | 8.2.1 Encourage flexible work hours  | <input type="checkbox"/> |
| BETTER                                   |   | 8.2.2 Encourage compressed workweeks   | <input type="checkbox"/> |
| BETTER                                   | ★ | 8.2.3 Encourage telework   | <input type="checkbox"/> |
| <b>8.3 Local business travel options</b> |   |  |                          |
| <i>Commuter travel</i>                   |   |  |                          |
| BASIC                                    | ★ | 8.3.1 Provide local business travel options that minimize the need for employees to bring a personal car to work | <input type="checkbox"/> |
| <b>8.4 Commuter incentives</b>           |   |  |                          |
| <i>Commuter travel</i>                   |   |  |                          |
| BETTER                                   |   | 8.4.1 Offer employees a taxable, mode-neutral commuting allowance  | <input type="checkbox"/> |
| <b>8.5 On-site amenities</b>             |   |  |                          |
| <i>Commuter travel</i>                   |   |  |                          |
| BETTER                                   |   | 8.5.1 Provide on-site amenities/services to minimize mid-day or mid-commute errands                              | <input type="checkbox"/> |

## 4. Neighbourhood Traffic Management

As noted in the scoping memo, this section is exempted from this TIA.

## 5. Transit

OC Transpo is the main transit agency that operates the transit routes in Ottawa. The existing transit route that services the subject site is the Transpo bus route #47 running north-south along Sheffield Road, and east-west along Walkley Road. The first stop of the bus route is St-Laurent A and the last stop is Russell / Hydro. Route 47 has 40 stops, and the total trip duration for this route is approximately 32 minutes. The nearest to the site bus stops are located at the intersection of the north-west site access driveway and Sheffield Road.

The number of future transit passengers when compared to the existing transit capacity should remain very similar. The majority of trips generated by this site will be vehicle trips due to the nature of the site. The previous site at this location had a land use similar to the proposed site, and thus the increase in transit passengers due to the reconfigured development is not expected to be substantial and thus more transit capacity in the area is not required. Additionally, the development should not have a significant impact on transit travel times in the area.

## **6. Review of Network Concept**

As noted in the scoping memo, this section is exempted from this TIA.

## **7. Intersection Design**

### ***7.1 Intersection Control***

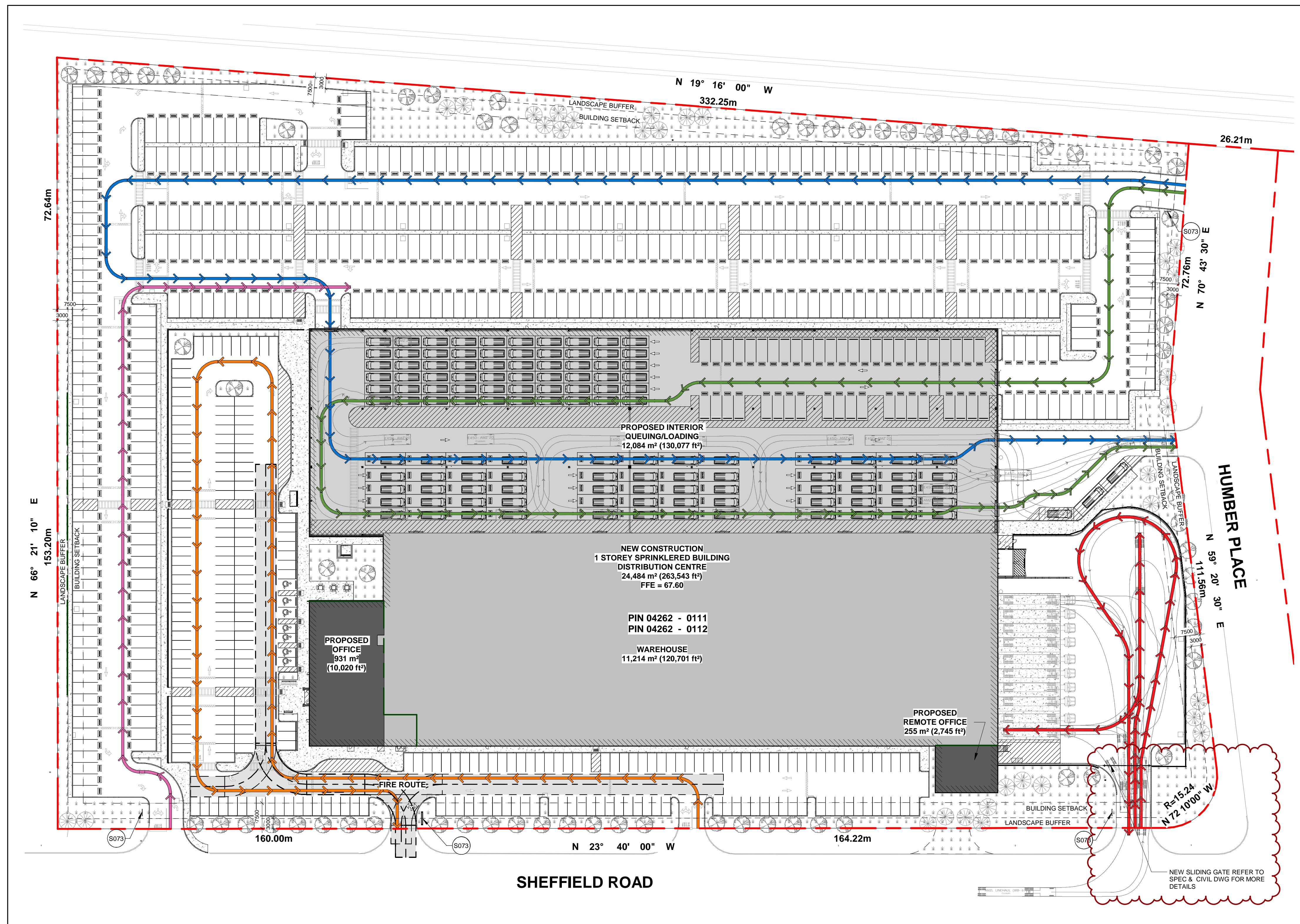
Detailed intersection control was described in section 1.4.2 of this memo.

### ***7.2 Intersection Design***

Detailed intersection designed was described in section 1.4.3 of this memo.

**APPENDIX A**  
**SITE PLAN**





1 SITE PLAN - TRAFFIC FLOW  
1 : 650

**DRAWING LEGEND**

- ASSOCIATE TRAFFIC FLOW DIRECTION
- DSP / FLEX TRAFFIC FLOW DIRECTION
- DSP / FLEX RETURN TRAFFIC FLOW DIRECTION
- TRUCK TRAFFIC FLOW DIRECTION
- VAN PERSONAL TRAFFIC FLOW DIRECTION
- DENOTES MUNICIPAL PROPERTY LINE
- DENOTES REQUIRED BUILDING SETBACK
- DENOTES REQUIRED LANDSCAPE SETBACK
- PROPOSED FIRE ROUTE BASED ON PROVINCIAL BUILDING CODE AND MUNICIPAL REQUIREMENTS
- PEDESTRIAN PATH OF TRAVEL
- SEMI-PERMANENT BARRIER SYSTEM
- TRAFFIC CONTROL MARKINGS
- SPEED BUMP AND SPEED HUMP

**KEYNOTE LEGEND**

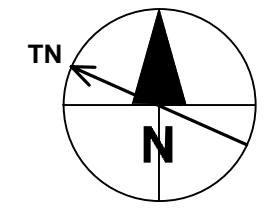
| TAG  | DESCRIPTION  |
|------|--|
| S073 | MONUMENT OR PYLON SIGN, REFER TO EXTERIOR SIGNAGE SHEETS |

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REGISTRATION

**ISSUE/REVISION**

| I/R | DATE       | DESCRIPTION                       |
|-----|------------|-----------------------------------|
| 4   | 2023-02-02 | REISSUED FOR SPA                  |
| 3   | 2022-11-23 | ISSUED FOR BID                    |
| 2   | 2022-10-14 | LANDLORD REVIEW - BUILDING PERMIT |
| 1   | 2022-10-07 | ISSUED FOR SPA                    |
| 0   | 2022-09-08 | ISSUED FOR CLIENT REVIEW          |

NOT FOR CONSTRUCTION

**APPENDIX B**  
**SYNCHRO OUTPUTS**



# Lanes, Volumes, Timings

## 3: Walkley Road & Lancaster Road

03/03/2021



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 198   | 713   | 1375  | 624   | 90    | 164   |
| Future Volume (vph)        | 198   | 713   | 1375  | 624   | 90    | 164   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 100.0 |       |       | 0.0   | 0.0   | 70.0  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1647  | 3007  | 3232  | 1517  | 3135  | 1406  |
| Flt Permitted              | 0.113 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 196   | 3007  | 3232  | 1517  | 3135  | 1406  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 599   |       | 169   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 248.5 | 361.1 |       | 367.8 |       |
| Travel Time (s)            |       | 11.2  | 16.2  |       | 27.6  |       |
| Peak Hour Factor           | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Heavy Vehicles (%)         | 5%    | 15%   | 7%    | 2%    | 7%    | 10%   |
| Adj. Flow (vph)            | 204   | 735   | 1418  | 643   | 93    | 169   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 204   | 735   | 1418  | 643   | 93    | 169   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 24.0  | 122.0 | 98.0  | 98.0  | 28.0  | 28.0  |
| Total Split (%)            | 16.0% | 81.3% | 65.3% | 65.3% | 18.7% | 18.7% |
| Maximum Green (s)          | 21.0  | 117.0 | 93.0  | 93.0  | 23.0  | 23.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 119.0 | 117.0 | 93.0  | 93.0  | 23.0  | 23.0  |
| Actuated g/C Ratio         | 0.79  | 0.78  | 0.62  | 0.62  | 0.15  | 0.15  |

Lanes, Volumes, Timings  
 3: Walkley Road & Lancaster Road

03/03/2021



| Lane Group     | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|----------------|------|------|------|------|------|------|
| v/c Ratio      | 0.57 | 0.31 | 0.71 | 0.55 | 0.19 | 0.47 |
| Control Delay  | 18.8 | 5.2  | 10.8 | 2.0  | 56.6 | 12.2 |
| Queue Delay    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay    | 18.8 | 5.2  | 10.8 | 2.0  | 56.6 | 12.2 |
| LOS            | B    | A    | B    | A    | E    | B    |
| Approach Delay |      | 8.1  | 8.0  |      | 27.9 |      |
| Approach LOS   |      | A    | A    |      | C    |      |

Intersection Summary

|                                   |  |
|-----------------------------------|--|
| Area Type:                        | Other  |
| Cycle Length:                     | 150  |
| Actuated Cycle Length:            | 150  |
| Offset:                           | 50 (33%), Referenced to phase 4:EBTL, Start of Green |
| Natural Cycle:                    | 80   |
| Control Type:                     | Pretimed   |
| Maximum v/c Ratio:                | 0.71   |
| Intersection Signal Delay:        | 9.7  |
| Intersection Capacity Utilization | 67.5%  |
| Analysis Period (min)             | 15   |
| Intersection LOS:                 | A  |
| ICU Level of Service              | C  |

Splits and Phases: 3: Walkley Road & Lancaster Road



# HCM Signalized Intersection Capacity Analysis

## 3: Walkley Road & Lancaster Road

03/03/2021



| Movement               | EBL   | EBT   | WBT   | WBR  | SBL   | SBR  |
|------------------------|-------|-------|-------|------|-------|------|
| Lane Configurations    |       |       |       |      |       |      |
| Traffic Volume (vph)   | 198   | 713   | 1375  | 624  | 90    | 164  |
| Future Volume (vph)    | 198   | 713   | 1375  | 624  | 90    | 164  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800  | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95  | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00  | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00  | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1647  | 3007  | 3232  | 1517 | 3135  | 1406 |
| Flt Permitted          | 0.11  | 1.00  | 1.00  | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 196   | 3007  | 3232  | 1517 | 3135  | 1406 |
| Peak-hour factor, PHF  | 0.97  | 0.97  | 0.97  | 0.97 | 0.97  | 0.97 |
| Adj. Flow (vph)        | 204   | 735   | 1418  | 643  | 93    | 169  |
| RTOR Reduction (vph)   | 0     | 0     | 0     | 228  | 0     | 143  |
| Lane Group Flow (vph)  | 204   | 735   | 1418  | 415  | 93    | 26   |
| Heavy Vehicles (%)     | 5%    | 15%   | 7%    | 2%   | 7%    | 10%  |
| Turn Type              | pm+pt | NA    | NA    | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8     |      | 6     |      |
| Permitted Phases       | 4     |       |       | 8    |       | 6    |
| Actuated Green, G (s)  | 117.0 | 117.0 | 93.0  | 93.0 | 23.0  | 23.0 |
| Effective Green, g (s) | 117.0 | 117.0 | 93.0  | 93.0 | 23.0  | 23.0 |
| Actuated g/C Ratio     | 0.78  | 0.78  | 0.62  | 0.62 | 0.15  | 0.15 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 356   | 2345  | 2003  | 940  | 480   | 215  |
| v/s Ratio Prot         | c0.08 | 0.24  | c0.44 |      | c0.03 |      |
| v/s Ratio Perm         | 0.37  |       |       | 0.27 |       | 0.02 |
| v/c Ratio              | 0.57  | 0.31  | 0.71  | 0.44 | 0.19  | 0.12 |
| Uniform Delay, d1      | 18.1  | 4.8   | 19.3  | 14.9 | 55.4  | 54.8 |
| Progression Factor     | 1.00  | 1.00  | 0.50  | 0.74 | 1.00  | 1.00 |
| Incremental Delay, d2  | 6.6   | 0.4   | 1.0   | 0.7  | 0.9   | 1.1  |
| Delay (s)              | 24.6  | 5.2   | 10.6  | 11.8 | 56.3  | 55.9 |
| Level of Service       | C     | A     | B     | B    | E     | E    |
| Approach Delay (s)     |       | 9.4   | 11.0  |      | 56.1  |      |
| Approach LOS           |       | A     | B     |      | E     |      |

### Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 14.1  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.60  |                           |      |
| Actuated Cycle Length (s)         | 150.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 67.5% | ICU Level of Service      | C    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

# Lanes, Volumes, Timings

## 6: Walkley Road & Sheffield Road

03/03/2021



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 275   | 439   | 1752  | 260   | 51    | 230   |
| Future Volume (vph)        | 275   | 439   | 1752  | 260   | 51    | 230   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 100.0 |       |       | 30.0  | 0.0   | 70.0  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Fr <sub>t</sub>            |       |       |       | 0.850 |       | 0.850 |
| Fl <sub>t</sub> Protected  | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1491  | 3060  | 3357  | 1459  | 2396  | 1190  |
| Fl <sub>t</sub> Permitted  | 0.044 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 69    | 3060  | 3357  | 1459  | 2396  | 1190  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 80    |       | 235   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 361.1 | 363.2 |       | 830.1 |       |
| Travel Time (s)            |       | 16.2  | 16.3  |       | 62.3  |       |
| Peak Hour Factor           | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Heavy Vehicles (%)         | 16%   | 13%   | 3%    | 6%    | 40%   | 30%   |
| Adj. Flow (vph)            | 281   | 448   | 1788  | 265   | 52    | 235   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 281   | 448   | 1788  | 265   | 52    | 235   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 32.0  | 124.0 | 92.0  | 92.0  | 26.0  | 26.0  |
| Total Split (%)            | 21.3% | 82.7% | 61.3% | 61.3% | 17.3% | 17.3% |
| Maximum Green (s)          | 29.0  | 119.0 | 87.0  | 87.0  | 21.0  | 21.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 121.0 | 119.0 | 87.0  | 87.0  | 21.0  | 21.0  |
| Actuated g/C Ratio         | 0.81  | 0.79  | 0.58  | 0.58  | 0.14  | 0.14  |

Lanes, Volumes, Timings  
 6: Walkley Road & Sheffield Road

03/03/2021

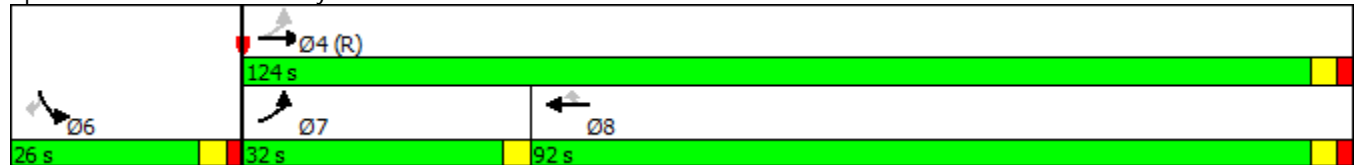


| Lane Group     | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|----------------|------|------|------|------|------|------|
| v/c Ratio      | 0.85 | 0.18 | 0.92 | 0.30 | 0.16 | 0.64 |
| Control Delay  | 61.0 | 3.6  | 37.2 | 11.8 | 58.1 | 15.2 |
| Queue Delay    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay    | 61.0 | 3.6  | 37.2 | 11.8 | 58.1 | 15.2 |
| LOS            | E    | A    | D    | B    | E    | B    |
| Approach Delay |      | 25.7 | 33.9 |      | 23.0 |      |
| Approach LOS   |      | C    | C    |      | C    |      |

Intersection Summary

|                                   |  |
|-----------------------------------|--|
| Area Type:                        | Other  |
| Cycle Length:                     | 150  |
| Actuated Cycle Length:            | 150  |
| Offset:                           | 50 (33%), Referenced to phase 4:EBTL, Start of Green |
| Natural Cycle:                    | 100  |
| Control Type:                     | Pretimed   |
| Maximum v/c Ratio:                | 0.92   |
| Intersection Signal Delay:        | 31.0   |
| Intersection LOS:                 | C  |
| Intersection Capacity Utilization | 83.0%  |
| ICU Level of Service              | E  |
| Analysis Period (min)             | 15   |

Splits and Phases: 6: Walkley Road & Sheffield Road



# HCM Signalized Intersection Capacity Analysis

## 6: Walkley Road & Sheffield Road

03/03/2021



| Movement               | EBL   | EBT   | WBT   | WBR  | SBL  | SBR   |
|------------------------|-------|-------|-------|------|------|-------|
| Lane Configurations    |       |       |       |      |      |       |
| Traffic Volume (vph)   | 275   | 439   | 1752  | 260  | 51   | 230   |
| Future Volume (vph)    | 275   | 439   | 1752  | 260  | 51   | 230   |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800  | 1800 | 1800 | 1800  |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0   | 5.0  | 5.0  | 5.0   |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95  | 1.00 | 0.97 | 1.00  |
| Frt                    | 1.00  | 1.00  | 1.00  | 0.85 | 1.00 | 0.85  |
| Flt Protected          | 0.95  | 1.00  | 1.00  | 1.00 | 0.95 | 1.00  |
| Satd. Flow (prot)      | 1491  | 3060  | 3357  | 1459 | 2396 | 1190  |
| Flt Permitted          | 0.04  | 1.00  | 1.00  | 1.00 | 0.95 | 1.00  |
| Satd. Flow (perm)      | 70    | 3060  | 3357  | 1459 | 2396 | 1190  |
| Peak-hour factor, PHF  | 0.98  | 0.98  | 0.98  | 0.98 | 0.98 | 0.98  |
| Adj. Flow (vph)        | 281   | 448   | 1788  | 265  | 52   | 235   |
| RTOR Reduction (vph)   | 0     | 0     | 0     | 34   | 0    | 202   |
| Lane Group Flow (vph)  | 281   | 448   | 1788  | 231  | 52   | 33    |
| Heavy Vehicles (%)     | 16%   | 13%   | 3%    | 6%   | 40%  | 30%   |
| Turn Type              | pm+pt | NA    | NA    | Perm | Prot | Perm  |
| Protected Phases       | 7     | 4     | 8     |      | 6    |       |
| Permitted Phases       | 4     |       |       | 8    |      | 6     |
| Actuated Green, G (s)  | 119.0 | 119.0 | 87.0  | 87.0 | 21.0 | 21.0  |
| Effective Green, g (s) | 119.0 | 119.0 | 87.0  | 87.0 | 21.0 | 21.0  |
| Actuated g/C Ratio     | 0.79  | 0.79  | 0.58  | 0.58 | 0.14 | 0.14  |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0   | 5.0  | 5.0  | 5.0   |
| Lane Grp Cap (vph)     | 330   | 2427  | 1947  | 846  | 335  | 166   |
| v/s Ratio Prot         | c0.16 | 0.15  | c0.53 |      | 0.02 |       |
| v/s Ratio Perm         | 0.51  |       |       | 0.16 |      | c0.03 |
| v/c Ratio              | 0.85  | 0.18  | 0.92  | 0.27 | 0.16 | 0.20  |
| Uniform Delay, d1      | 50.0  | 3.8   | 28.3  | 15.7 | 56.7 | 57.1  |
| Progression Factor     | 0.84  | 0.90  | 1.00  | 1.00 | 1.00 | 1.00  |
| Incremental Delay, d2  | 22.6  | 0.2   | 8.5   | 0.8  | 1.0  | 2.7   |
| Delay (s)              | 64.6  | 3.5   | 36.8  | 16.5 | 57.7 | 59.7  |
| Level of Service       | E     | A     | D     | B    | E    | E     |
| Approach Delay (s)     |       | 27.1  | 34.1  |      | 59.3 |       |
| Approach LOS           |       | C     | C     |      | E    |       |

### Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 34.8  | HCM 2000 Level of Service | C    |
| HCM 2000 Volume to Capacity ratio | 0.79  |                           |      |
| Actuated Cycle Length (s)         | 150.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 83.0% | ICU Level of Service      | E    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group



Lanes, Volumes, Timings  
 7: Walkley Road & Highway SB terminal

03/03/2021



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑↑    |       | ↘     | ↗     |
| Traffic Volume (vph)       | 0    | 435   | 946   | 0     | 22    | 884   |
| Future Volume (vph)        | 0    | 435   | 946   | 0     | 22    | 884   |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  |
| Fr t                       |      |       |       |       |       | 0.850 |
| Fl t Protected             |      |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Fl t Permitted             |      |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Link Speed (k/h)           |      | 80    | 80    |       | 80    |       |
| Link Distance (m)          |      | 131.6 | 322.4 |       | 492.9 |       |
| Travel Time (s)            |      | 5.9   | 14.5  |       | 22.2  |       |
| Peak Hour Factor           | 0.97 | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Adj. Flow (vph)            | 0    | 448   | 975   | 0     | 23    | 911   |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 448   | 975   | 0     | 23    | 911   |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 3.7   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 92.0%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service F |

# HCM Unsignalized Intersection Capacity Analysis

## 7: Walkley Road & Highway SB terminal

03/03/2021



| Movement                          | EBL  | EBT  | WBT   | WBR  | SBL                  | SBR   |
|-----------------------------------|------|------|-------|------|----------------------|-------|
| Lane Configurations               |      | ↑↑   | ↑↑    |      | ↘                    | ↗     |
| Traffic Volume (veh/h)            | 0    | 435  | 946   | 0    | 22                   | 884   |
| Future Volume (Veh/h)             | 0    | 435  | 946   | 0    | 22                   | 884   |
| Sign Control                      |      | Free | Free  |      | Stop                 |       |
| Grade                             |      | 0%   | 0%    |      | 0%                   |       |
| Peak Hour Factor                  | 0.97 | 0.97 | 0.97  | 0.97 | 0.97                 | 0.97  |
| Hourly flow rate (vph)            | 0    | 448  | 975   | 0    | 23                   | 911   |
| 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            | 975  |      |       |      | 1199                 | 488   |
| vC1, stage 1 conf vol             |      |      |       |      |                      |       |
| vC2, stage 2 conf vol             |      |      |       |      |                      |       |
| vCu, unblocked vol                | 975  |      |       |      | 1199                 | 488   |
| tC, single (s)                    | 4.1  |      |       |      | 6.8                  | 6.9   |
| tC, 2 stage (s)                   |      |      |       |      |                      |       |
| tF (s)                            | 2.2  |      |       |      | 3.5                  | 3.3   |
| p0 queue free %                   | 100  |      |       |      | 87                   | 0     |
| cM capacity (veh/h)               | 703  |      |       |      | 178                  | 526   |
| Direction, Lane #                 | EB 1 | EB 2 | WB 1  | WB 2 | SB 1                 | SB 2  |
| Volume Total                      | 224  | 224  | 488   | 488  | 23                   | 911   |
| Volume Left                       | 0    | 0    | 0     | 0    | 23                   | 0     |
| Volume Right                      | 0    | 0    | 0     | 0    | 0                    | 911   |
| cSH                               | 1700 | 1700 | 1700  | 1700 | 178                  | 526   |
| Volume to Capacity                | 0.13 | 0.13 | 0.29  | 0.29 | 0.13                 | 1.73  |
| Queue Length 95th (m)             | 0.0  | 0.0  | 0.0   | 0.0  | 3.3                  | 413.5 |
| Control Delay (s)                 | 0.0  | 0.0  | 0.0   | 0.0  | 28.2                 | 356.7 |
| Lane LOS                          |      |      |       |      | D                    | F     |
| Approach Delay (s)                | 0.0  |      | 0.0   |      | 348.6                |       |
| Approach LOS                      |      |      |       |      | F                    |       |
| Intersection Summary              |      |      |       |      |                      |       |
| Average Delay                     |      |      | 138.1 |      |                      |       |
| Intersection Capacity Utilization |      |      | 92.0% |      | ICU Level of Service | F     |
| Analysis Period (min)             |      |      | 15    |      |                      |       |

Lanes, Volumes, Timings  
 10: Highway NB terminal & Walkley Road

03/03/2021



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NBL   | NBR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    |       |      | ↑↑    | ↑↑    |       |
| Traffic Volume (vph)       | 51    | 409   | 0    | 580   | 397   | 7     |
| Future Volume (vph)        | 51    | 409   | 0    | 580   | 397   | 7     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00 | 0.95  | 1.00  | 1.00  |
| Frt                        | 0.867 |       |      | 0.998 |       |       |
| Flt Protected              |       |       |      | 0.953 |       |       |
| Satd. Flow (prot)          | 2939  | 0     | 0    | 3390  | 1697  | 0     |
| Flt Permitted              |       |       |      | 0.953 |       |       |
| Satd. Flow (perm)          | 2939  | 0     | 0    | 3390  | 1697  | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 322.4 |       |      | 108.3 | 295.7 |       |
| Travel Time (s)            | 14.5  |       |      | 8.1   | 22.2  |       |
| Peak Hour Factor           | 0.93  | 0.93  | 0.93 | 0.93  | 0.93  | 0.93  |
| Adj. Flow (vph)            | 55    | 440   | 0    | 624   | 427   | 8     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 495   | 0     | 0    | 624   | 435   | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 3.7   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 14    |       | 24   | 24    |       | 14    |
| Sign Control               | Free  |       |      | Free  | Stop  |       |

Intersection Summary

|                                   |                              |
|-----------------------------------|------------------------------|
| Area Type:                        | Other                        |
| Control Type:                     | Unsignalized                 |
| Intersection Capacity Utilization | 47.3% ICU Level of Service A |
| Analysis Period (min)             | 15                           |

# HCM Unsignalized Intersection Capacity Analysis

## 10: Highway NB terminal & Walkley Road

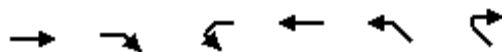
03/03/2021



| Movement                          | EBT  | EBR  | WBL   | WBT                  | NBL  | NBR  |
|-----------------------------------|------|------|-------|----------------------|------|------|
| Lane Configurations               | ↑↑   |      |       | ↑↑                   | ↘    |      |
| Traffic Volume (veh/h)            | 51   | 409  | 0     | 580                  | 397  | 7    |
| Future Volume (Veh/h)             | 51   | 409  | 0     | 580                  | 397  | 7    |
| 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)            | 55   | 440  | 0     | 624                  | 427  | 8    |
| Pedestrians                       |      |      |       |                      |      |      |
| Lane Width (m)                    |      |      |       |                      |      |      |
| Walking Speed (m/s)               |      |      |       |                      |      |      |
| Percent Blockage                  |      |      |       |                      |      |      |
| Right turn flare (veh)            |      |      |       |                      |      |      |
| Median type                       | None |      | None  |                      |      |      |
| Median storage veh                |      |      |       |                      |      |      |
| Upstream signal (m)               | 383  |      |       |                      |      |      |
| pX, platoon unblocked             |      |      |       |                      |      |      |
| vC, conflicting volume            |      |      | 495   |                      | 587  | 248  |
| vC1, stage 1 conf vol             |      |      |       |                      |      |      |
| vC2, stage 2 conf vol             |      |      |       |                      |      |      |
| vCu, unblocked vol                |      |      | 495   |                      | 587  | 248  |
| tC, single (s)                    |      |      | 4.1   |                      | 6.8  | 6.9  |
| tC, 2 stage (s)                   |      |      |       |                      |      |      |
| tF (s)                            |      |      | 2.2   |                      | 3.5  | 3.3  |
| p0 queue free %                   |      |      | 100   |                      | 3    | 99   |
| cM capacity (veh/h)               |      |      | 1065  |                      | 441  | 753  |
| Direction, Lane #                 | EB 1 | EB 2 | WB 1  | WB 2                 | NB 1 |      |
| Volume Total                      | 37   | 458  | 312   | 312                  | 435  |      |
| Volume Left                       | 0    | 0    | 0     | 0                    | 427  |      |
| Volume Right                      | 0    | 440  | 0     | 0                    | 8    |      |
| cSH                               | 1700 | 1700 | 1700  | 1700                 | 444  |      |
| Volume to Capacity                | 0.02 | 0.27 | 0.18  | 0.18                 | 0.98 |      |
| Queue Length 95th (m)             | 0.0  | 0.0  | 0.0   | 0.0                  | 92.9 |      |
| Control Delay (s)                 | 0.0  | 0.0  | 0.0   | 0.0                  | 68.5 |      |
| Lane LOS                          |      |      |       |                      |      | F    |
| Approach Delay (s)                | 0.0  |      | 0.0   |                      | 68.5 |      |
| Approach LOS                      |      |      |       |                      |      | F    |
| Intersection Summary              |      |      |       |                      |      |      |
| Average Delay                     |      |      | 19.2  |                      |      |      |
| Intersection Capacity Utilization |      |      | 47.3% | ICU Level of Service | A    |      |
| Analysis Period (min)             | 15   |      |       |                      |      |      |

Lanes, Volumes, Timings  
11: SB off ramp & Walkley Road

03/03/2021



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NWL   | NWR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    | ↑     |      | ↑↑↑   |       |       |
| Traffic Volume (vph)       | 435   | 131   | 0    | 1830  | 0     | 0     |
| Future Volume (vph)        | 435   | 131   | 0    | 1830  | 0     | 0     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Storage Length (m)         |       | 60.0  | 0.0  |       | 0.0   | 0.0   |
| Storage Lanes              |       | 1     | 0    |       | 0     | 0     |
| Taper Length (m)           |       |       | 7.6  |       | 7.6   |       |
| Lane Util. Factor          | 0.95  | 1.00  | 1.00 | 0.91  | 1.00  | 1.00  |
| Frt                        |       | 0.850 |      |       |       |       |
| Flt Protected              |       |       |      |       |       |       |
| Satd. Flow (prot)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Flt Permitted              |       |       |      |       |       |       |
| Satd. Flow (perm)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 363.2 |       |      | 131.6 | 210.3 |       |
| Travel Time (s)            | 16.3  |       |      | 9.9   | 15.8  |       |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90 | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)            | 483   | 146   | 0    | 2033  | 0     | 0     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 483   | 146   | 0    | 2033  | 0     | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 0.0   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        |       | 14    | 24   |       | 24    | 14    |
| Sign Control               | Free  |       |      | Free  | Free  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 40.7%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

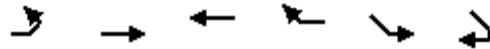
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Intersection Sign configuration not allowed in HCM analysis.

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Lanes, Volumes, Timings  
 13: Walkley Road & NB off ramp

03/03/2021



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SEL   | SER   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑     | ↗     |       |       |
| Traffic Volume (vph)       | 0    | 58    | 580   | 206   | 0     | 0     |
| Future Volume (vph)        | 0    | 58    | 580   | 206   | 0     | 0     |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 0.0  |       |       | 70.0  | 0.0   | 0.0   |
| Storage Lanes              | 0    |       |       | 1     | 0     | 0     |
| Taper Length (m)           | 7.6  |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00 | 0.95  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      |       |       | 0.850 |       |       |
| Flt Protected              |      |       |       |       |       |       |
| Satd. Flow (prot)          | 0    | 3390  | 1784  | 1517  | 0     | 0     |
| Flt Permitted              |      |       |       |       |       |       |
| Satd. Flow (perm)          | 0    | 3390  | 1784  | 1517  | 0     | 0     |
| Link Speed (k/h)           |      | 80    | 80    |       | 48    |       |
| Link Distance (m)          |      | 108.3 | 195.3 |       | 199.6 |       |
| Travel Time (s)            |      | 4.9   | 8.8   |       | 15.0  |       |
| Peak Hour Factor           | 0.93 | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  |
| Adj. Flow (vph)            | 0    | 62    | 624   | 222   | 0     | 0     |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 62    | 624   | 222   | 0     | 0     |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 0.0   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Free  |       |

Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 35.6%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

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Intersection Sign configuration not allowed in HCM analysis.

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Lanes, Volumes, Timings  
15: Sheffield Road & Humber Place

03/03/2021



| Lane Group                 | EBL  | EBT   | EBR   | WBL  | WBT   | WBR   | NBL  | NBT   | NBR   | SBL  | SBT   | SBR   |
|----------------------------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|
| Lane Configurations        |      | ↕     |       |      | ↕     |       |      | ↕     |       |      | ↕     |       |
| Traffic Volume (vph)       | 20   | 0     | 69    | 4    | 1     | 3     | 146  | 374   | 3     | 3    | 205   | 15    |
| Future Volume (vph)        | 20   | 0     | 69    | 4    | 1     | 3     | 146  | 374   | 3     | 3    | 205   | 15    |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800 | 1800  | 1800  | 1800 | 1800  | 1800  | 1800 | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  |
| Frt                        |      | 0.895 |       |      | 0.949 |       |      | 0.999 |       |      | 0.991 |       |
| Flt Protected              |      | 0.989 |       |      | 0.976 |       |      | 0.986 |       |      | 0.999 |       |
| Satd. Flow (prot)          | 0    | 1290  | 0     | 0    | 1225  | 0     | 0    | 1581  | 0     | 0    | 1389  | 0     |
| Flt Permitted              |      | 0.989 |       |      | 0.976 |       |      | 0.986 |       |      | 0.999 |       |
| Satd. Flow (perm)          | 0    | 1290  | 0     | 0    | 1225  | 0     | 0    | 1581  | 0     | 0    | 1389  | 0     |
| Link Speed (k/h)           |      | 48    |       |      | 48    |       |      | 48    |       |      | 48    |       |
| Link Distance (m)          |      | 152.4 |       |      | 148.3 |       |      | 830.1 |       |      | 120.3 |       |
| Travel Time (s)            |      | 11.4  |       |      | 11.1  |       |      | 62.3  |       |      | 9.0   |       |
| Peak Hour Factor           | 0.90 | 0.90  | 0.90  | 0.90 | 0.90  | 0.90  | 0.90 | 0.90  | 0.90  | 0.90 | 0.90  | 0.90  |
| Heavy Vehicles (%)         | 35%  | 2%    | 22%   | 50%  | 2%    | 33%   | 12%  | 14%   | 0%    | 33%  | 30%   | 26%   |
| Adj. Flow (vph)            | 22   | 0     | 77    | 4    | 1     | 3     | 162  | 416   | 3     | 3    | 228   | 17    |
| Shared Lane Traffic (%)    |      |       |       |      |       |       |      |       |       |      |       |       |
| Lane Group Flow (vph)      | 0    | 99    | 0     | 0    | 8     | 0     | 0    | 581   | 0     | 0    | 248   | 0     |
| Enter Blocked Intersection | No   | No    | No    | No   | No    | No    | No   | No    | No    | No   | No    | No    |
| Lane Alignment             | Left | Left  | Right | Left | Left  | Right | Left | Left  | Right | Left | Left  | Right |
| Median Width(m)            |      | 0.0   |       |      | 0.0   |       |      | 0.0   |       |      | 0.0   |       |
| Link Offset(m)             |      | 0.0   |       |      | 0.0   |       |      | 0.0   |       |      | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   |       |      | 4.9   |       |      | 4.9   |       |      | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |      |       |       |      |       |       |      |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       | 14    | 24   |       | 14    | 24   |       | 14    | 24   |       | 14    |
| Sign Control               |      | Stop  |       |      | Stop  |       |      | Free  |       |      | Free  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 58.0%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service B |

# HCM Unsignalized Intersection Capacity Analysis

## 15: Sheffield Road & Humber Place

03/03/2021



| Movement                          | EBL         | EBT         | EBR         | WBL         | WBT                  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|------|------|------|------|------|------|------|
| Lane Configurations               |             | ↕           |             |             | ↕                    |      |      | ↕    |      |      | ↕    |      |
| Traffic Volume (veh/h)            | 20          | 0           | 69          | 4           | 1                    | 3    | 146  | 374  | 3    | 3    | 205  | 15   |
| Future Volume (Veh/h)             | 20          | 0           | 69          | 4           | 1                    | 3    | 146  | 374  | 3    | 3    | 205  | 15   |
| Sign Control                      |             | Stop        |             |             | Stop                 |      |      | Free |      |      | Free |      |
| Grade                             |             | 0%          |             |             | 0%                   |      |      | 0%   |      |      | 0%   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90        | 0.90                 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 22          | 0           | 77          | 4           | 1                    | 3    | 162  | 416  | 3    | 3    | 228  | 17   |
| 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            | 988         | 986         | 236         | 1061        | 992                  | 418  | 245  |      |      | 419  |      |      |
| vC1, stage 1 conf vol             |             |             |             |             |                      |      |      |      |      |      |      |      |
| vC2, stage 2 conf vol             |             |             |             |             |                      |      |      |      |      |      |      |      |
| vCu, unblocked vol                | 988         | 986         | 236         | 1061        | 992                  | 418  | 245  |      |      | 419  |      |      |
| tC, single (s)                    | 7.4         | 6.5         | 6.4         | 7.6         | 6.5                  | 6.5  | 4.2  |      |      | 4.4  |      |      |
| tC, 2 stage (s)                   |             |             |             |             |                      |      |      |      |      |      |      |      |
| tF (s)                            | 3.8         | 4.0         | 3.5         | 4.0         | 4.0                  | 3.6  | 2.3  |      |      | 2.5  |      |      |
| p0 queue free %                   | 87          | 100         | 90          | 97          | 100                  | 99   | 87   |      |      | 100  |      |      |
| cM capacity (veh/h)               | 176         | 216         | 756         | 133         | 213                  | 574  | 1265 |      |      | 992  |      |      |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |                      |      |      |      |      |      |      |      |
| Volume Total                      | 99          | 8           | 581         | 248         |                      |      |      |      |      |      |      |      |
| Volume Left                       | 22          | 4           | 162         | 3           |                      |      |      |      |      |      |      |      |
| Volume Right                      | 77          | 3           | 3           | 17          |                      |      |      |      |      |      |      |      |
| cSH                               | 436         | 200         | 1265        | 992         |                      |      |      |      |      |      |      |      |
| Volume to Capacity                | 0.23        | 0.04        | 0.13        | 0.00        |                      |      |      |      |      |      |      |      |
| Queue Length 95th (m)             | 6.6         | 0.9         | 3.3         | 0.1         |                      |      |      |      |      |      |      |      |
| Control Delay (s)                 | 15.7        | 23.8        | 3.3         | 0.1         |                      |      |      |      |      |      |      |      |
| Lane LOS                          | C           | C           | A           | A           |                      |      |      |      |      |      |      |      |
| Approach Delay (s)                | 15.7        | 23.8        | 3.3         | 0.1         |                      |      |      |      |      |      |      |      |
| Approach LOS                      | C           | C           |             |             |                      |      |      |      |      |      |      |      |
| <b>Intersection Summary</b>       |             |             |             |             |                      |      |      |      |      |      |      |      |
| Average Delay                     |             |             | 4.0         |             |                      |      |      |      |      |      |      |      |
| Intersection Capacity Utilization |             |             | 58.0%       |             | ICU Level of Service |      |      |      |      | B    |      |      |
| Analysis Period (min)             |             |             | 15          |             |                      |      |      |      |      |      |      |      |

Lanes, Volumes, Timings  
18: Sheffield Road & Way #5

03/03/2021



| Lane Group                 | WBL   | WBR   | NBT   | NBR   | SBL  | SBT   |
|----------------------------|-------|-------|-------|-------|------|-------|
| Lane Configurations        |       |       |       |       |      |       |
| Traffic Volume (vph)       | 2     | 3     | 394   | 8     | 4    | 223   |
| Future Volume (vph)        | 2     | 3     | 394   | 8     | 4    | 223   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800 | 1800  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00  |
| Frt                        | 0.919 |       | 0.997 |       |      |       |
| Flt Protected              | 0.980 |       |       |       |      | 0.999 |
| Satd. Flow (prot)          | 1607  | 0     | 1779  | 0     | 0    | 916   |
| Flt Permitted              | 0.980 |       |       |       |      | 0.999 |
| Satd. Flow (perm)          | 1607  | 0     | 1779  | 0     | 0    | 916   |
| Link Speed (k/h)           | 48    |       | 48    |       |      | 48    |
| Link Distance (m)          | 56.2  |       | 120.3 |       |      | 89.9  |
| Travel Time (s)            | 4.2   |       | 9.0   |       |      | 6.7   |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90  | 0.90  | 0.90 | 0.90  |
| Heavy Vehicles (%)         | 2%    | 2%    | 2%    | 2%    | 2%   | 100%  |
| Adj. Flow (vph)            | 2     | 3     | 438   | 9     | 4    | 248   |
| Shared Lane Traffic (%)    |       |       |       |       |      |       |
| Lane Group Flow (vph)      | 5     | 0     | 447   | 0     | 0    | 252   |
| Enter Blocked Intersection | No    | No    | No    | No    | No   | No    |
| Lane Alignment             | Left  | Right | Left  | Right | Left | Left  |
| Median Width(m)            | 3.7   |       | 0.0   |       |      | 0.0   |
| Link Offset(m)             | 0.0   |       | 0.0   |       |      | 0.0   |
| Crosswalk Width(m)         | 4.9   |       | 4.9   |       |      | 4.9   |
| Two way Left Turn Lane     |       |       |       |       |      |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)        | 24    | 14    |       | 14    | 24   |       |
| Sign Control               | Stop  |       | Free  |       |      | Free  |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 32.4%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

# HCM Unsignalized Intersection Capacity Analysis

## 18: Sheffield Road & Way #5

03/03/2021



| Movement                          | WBL         | WBR         | NBT         | NBR                  | SBL  | SBT  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             |             |             |                      |      |      |
| Traffic Volume (veh/h)            | 2           | 3           | 394         | 8                    | 4    | 223  |
| Future Volume (Veh/h)             | 2           | 3           | 394         | 8                    | 4    | 223  |
| Sign Control                      | Stop        |             | Free        |                      |      | Free |
| Grade                             | 0%          |             | 0%          |                      |      | 0%   |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 2           | 3           | 438         | 9                    | 4    | 248  |
| Pedestrians                       |             |             |             |                      |      |      |
| Lane Width (m)                    |             |             |             |                      |      |      |
| Walking Speed (m/s)               |             |             |             |                      |      |      |
| Percent Blockage                  |             |             |             |                      |      |      |
| Right turn flare (veh)            |             |             |             |                      |      |      |
| Median type                       |             |             |             |                      |      |      |
| Median storage (veh)              |             |             |             |                      |      |      |
| Upstream signal (m)               |             |             |             |                      |      |      |
| pX, platoon unblocked             |             |             |             |                      |      |      |
| vC, conflicting volume            | 698         | 442         |             |                      | 447  |      |
| vC1, stage 1 conf vol             |             |             |             |                      |      |      |
| vC2, stage 2 conf vol             |             |             |             |                      |      |      |
| vCu, unblocked vol                | 698         | 442         |             |                      | 447  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |                      | 4.1  |      |
| tC, 2 stage (s)                   |             |             |             |                      |      |      |
| tF (s)                            | 3.5         | 3.3         |             |                      | 2.2  |      |
| p0 queue free %                   | 100         | 100         |             |                      | 100  |      |
| cM capacity (veh/h)               | 405         | 615         |             |                      | 1113 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |                      |      |      |
| Volume Total                      | 5           | 447         | 252         |                      |      |      |
| Volume Left                       | 2           | 0           | 4           |                      |      |      |
| Volume Right                      | 3           | 9           | 0           |                      |      |      |
| cSH                               | 509         | 1700        | 1113        |                      |      |      |
| Volume to Capacity                | 0.01        | 0.26        | 0.00        |                      |      |      |
| Queue Length 95th (m)             | 0.2         | 0.0         | 0.1         |                      |      |      |
| Control Delay (s)                 | 12.1        | 0.0         | 0.2         |                      |      |      |
| Lane LOS                          | B           |             | A           |                      |      |      |
| Approach Delay (s)                | 12.1        | 0.0         | 0.2         |                      |      |      |
| Approach LOS                      | B           |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 0.1         |                      |      |      |
| Intersection Capacity Utilization |             | 32.4%       |             | ICU Level of Service |      | A    |
| Analysis Period (min)             |             | 15          |             |                      |      |      |

Lanes, Volumes, Timings  
20: Sheffield Road & Way #4

03/03/2021



| Lane Group                 | WBL   | WBR   | NBT   | NBR   | SBL  | SBT   |
|----------------------------|-------|-------|-------|-------|------|-------|
| Lane Configurations        |       |       |       |       |      |       |
| Traffic Volume (vph)       | 2     | 3     | 389   | 8     | 4    | 225   |
| Future Volume (vph)        | 2     | 3     | 389   | 8     | 4    | 225   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800 | 1800  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00  |
| Frt                        | 0.919 |       | 0.997 |       |      |       |
| Flt Protected              | 0.980 |       |       |       |      | 0.999 |
| Satd. Flow (prot)          | 1607  | 0     | 1779  | 0     | 0    | 1783  |
| Flt Permitted              | 0.980 |       |       |       |      | 0.999 |
| Satd. Flow (perm)          | 1607  | 0     | 1779  | 0     | 0    | 1783  |
| Link Speed (k/h)           | 48    |       | 48    |       |      | 48    |
| Link Distance (m)          | 60.6  |       | 89.9  |       |      | 135.3 |
| Travel Time (s)            | 4.5   |       | 6.7   |       |      | 10.1  |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90  | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)            | 2     | 3     | 432   | 9     | 4    | 250   |
| Shared Lane Traffic (%)    |       |       |       |       |      |       |
| Lane Group Flow (vph)      | 5     | 0     | 441   | 0     | 0    | 254   |
| Enter Blocked Intersection | No    | No    | No    | No    | No   | No    |
| Lane Alignment             | Left  | Right | Left  | Right | Left | Left  |
| Median Width(m)            | 3.7   |       | 0.0   |       |      | 0.0   |
| Link Offset(m)             | 0.0   |       | 0.0   |       |      | 0.0   |
| Crosswalk Width(m)         | 4.9   |       | 4.9   |       |      | 4.9   |
| Two way Left Turn Lane     |       |       |       |       |      |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)        | 24    | 14    |       | 14    | 24   |       |
| Sign Control               | Stop  |       | Free  |       |      | Free  |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 32.1%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

# HCM Unsignalized Intersection Capacity Analysis

## 20: Sheffield Road & Way #4

03/03/2021



| Movement                          | WBL         | WBR         | NBT         | NBR                  | SBL  | SBT  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             |             |             |                      |      |      |
| Traffic Volume (veh/h)            | 2           | 3           | 389         | 8                    | 4    | 225  |
| Future Volume (Veh/h)             | 2           | 3           | 389         | 8                    | 4    | 225  |
| Sign Control                      | Stop        |             | Free        |                      | Free |      |
| Grade                             | 0%          |             | 0%          |                      | 0%   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 2           | 3           | 432         | 9                    | 4    | 250  |
| 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            | 694         | 436         |             |                      | 441  |      |
| vC1, stage 1 conf vol             |             |             |             |                      |      |      |
| vC2, stage 2 conf vol             |             |             |             |                      |      |      |
| vCu, unblocked vol                | 694         | 436         |             |                      | 441  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |                      | 4.1  |      |
| tC, 2 stage (s)                   |             |             |             |                      |      |      |
| tF (s)                            | 3.5         | 3.3         |             |                      | 2.2  |      |
| p0 queue free %                   | 100         | 100         |             |                      | 100  |      |
| cM capacity (veh/h)               | 407         | 620         |             |                      | 1119 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |                      |      |      |
| Volume Total                      | 5           | 441         | 254         |                      |      |      |
| Volume Left                       | 2           | 0           | 4           |                      |      |      |
| Volume Right                      | 3           | 9           | 0           |                      |      |      |
| cSH                               | 513         | 1700        | 1119        |                      |      |      |
| Volume to Capacity                | 0.01        | 0.26        | 0.00        |                      |      |      |
| Queue Length 95th (m)             | 0.2         | 0.0         | 0.1         |                      |      |      |
| Control Delay (s)                 | 12.1        | 0.0         | 0.2         |                      |      |      |
| Lane LOS                          | B           |             | A           |                      |      |      |
| Approach Delay (s)                | 12.1        | 0.0         | 0.2         |                      |      |      |
| Approach LOS                      | B           |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 0.1         |                      |      |      |
| Intersection Capacity Utilization |             |             | 32.1%       | ICU Level of Service |      | A    |
| Analysis Period (min)             |             |             | 15          |                      |      |      |

Lanes, Volumes, Timings  
24: Sheffield Road & Way #2

03/03/2021



| Lane Group                 | WBL   | WBR   | NBT   | NBR   | SBL  | SBT   |
|----------------------------|-------|-------|-------|-------|------|-------|
| Lane Configurations        |       |       |       |       |      |       |
| Traffic Volume (vph)       | 2     | 3     | 384   | 8     | 4    | 227   |
| Future Volume (vph)        | 2     | 3     | 384   | 8     | 4    | 227   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800 | 1800  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00  |
| Frt                        | 0.919 |       | 0.997 |       |      |       |
| Flt Protected              | 0.980 |       |       |       |      | 0.999 |
| Satd. Flow (prot)          | 1607  | 0     | 1779  | 0     | 0    | 1783  |
| Flt Permitted              | 0.980 |       |       |       |      | 0.999 |
| Satd. Flow (perm)          | 1607  | 0     | 1779  | 0     | 0    | 1783  |
| Link Speed (k/h)           | 48    |       | 48    |       |      | 48    |
| Link Distance (m)          | 65.0  |       | 135.3 |       |      | 74.6  |
| Travel Time (s)            | 4.9   |       | 10.1  |       |      | 5.6   |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90  | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)            | 2     | 3     | 427   | 9     | 4    | 252   |
| Shared Lane Traffic (%)    |       |       |       |       |      |       |
| Lane Group Flow (vph)      | 5     | 0     | 436   | 0     | 0    | 256   |
| Enter Blocked Intersection | No    | No    | No    | No    | No   | No    |
| Lane Alignment             | Left  | Right | Left  | Right | Left | Left  |
| Median Width(m)            | 3.7   |       | 0.0   |       |      | 0.0   |
| Link Offset(m)             | 0.0   |       | 0.0   |       |      | 0.0   |
| Crosswalk Width(m)         | 4.9   |       | 4.9   |       |      | 4.9   |
| Two way Left Turn Lane     |       |       |       |       |      |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)        | 24    | 14    |       | 14    | 24   |       |
| Sign Control               | Stop  |       | Free  |       |      | Free  |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 31.8%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

# HCM Unsignalized Intersection Capacity Analysis

## 24: Sheffield Road & Way #2

03/03/2021



| Movement                          | WBL  | WBR  | NBT   | NBR  | SBL                  | SBT  |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Lane Configurations               |      |      |       |      |                      |      |
| Traffic Volume (veh/h)            | 2    | 3    | 384   | 8    | 4                    | 227  |
| Future Volume (Veh/h)             | 2    | 3    | 384   | 8    | 4                    | 227  |
| Sign Control                      | Stop |      | Free  |      | Free                 |      |
| Grade                             | 0%   |      | 0%    |      | 0%                   |      |
| Peak Hour Factor                  | 0.90 | 0.90 | 0.90  | 0.90 | 0.90                 | 0.90 |
| Hourly flow rate (vph)            | 2    | 3    | 427   | 9    | 4                    | 252  |
| 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            | 692  | 432  |       |      | 436                  |      |
| vC1, stage 1 conf vol             |      |      |       |      |                      |      |
| vC2, stage 2 conf vol             |      |      |       |      |                      |      |
| vCu, unblocked vol                | 692  | 432  |       |      | 436                  |      |
| tC, single (s)                    | 6.4  | 6.2  |       |      | 4.1                  |      |
| tC, 2 stage (s)                   |      |      |       |      |                      |      |
| tF (s)                            | 3.5  | 3.3  |       |      | 2.2                  |      |
| p0 queue free %                   | 100  | 100  |       |      | 100                  |      |
| cM capacity (veh/h)               | 409  | 624  |       |      | 1124                 |      |
| Direction, Lane #                 | WB 1 | NB 1 | SB 1  |      |                      |      |
| Volume Total                      | 5    | 436  | 256   |      |                      |      |
| Volume Left                       | 2    | 0    | 4     |      |                      |      |
| Volume Right                      | 3    | 9    | 0     |      |                      |      |
| cSH                               | 515  | 1700 | 1124  |      |                      |      |
| Volume to Capacity                | 0.01 | 0.26 | 0.00  |      |                      |      |
| Queue Length 95th (m)             | 0.2  | 0.0  | 0.1   |      |                      |      |
| Control Delay (s)                 | 12.1 | 0.0  | 0.2   |      |                      |      |
| Lane LOS                          | B    |      | A     |      |                      |      |
| Approach Delay (s)                | 12.1 | 0.0  | 0.2   |      |                      |      |
| Approach LOS                      | B    |      |       |      |                      |      |
| Intersection Summary              |      |      |       |      |                      |      |
| Average Delay                     |      |      | 0.1   |      |                      |      |
| Intersection Capacity Utilization |      |      | 31.8% |      | ICU Level of Service | A    |
| Analysis Period (min)             |      |      | 15    |      |                      |      |



Lanes, Volumes, Timings  
26: Sheffield Road & Way #1

03/03/2021



| Lane Group                 | WBL   | WBR   | NBT   | NBR   | SBL  | SBT   |
|----------------------------|-------|-------|-------|-------|------|-------|
| Lane Configurations        |       |       |       |       |      |       |
| Traffic Volume (vph)       | 2     | 3     | 379   | 8     | 4    | 229   |
| Future Volume (vph)        | 2     | 3     | 379   | 8     | 4    | 229   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800 | 1800  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00  |
| Frt                        | 0.919 |       | 0.997 |       |      |       |
| Flt Protected              | 0.980 |       |       |       |      | 0.999 |
| Satd. Flow (prot)          | 1607  | 0     | 1779  | 0     | 0    | 1783  |
| Flt Permitted              | 0.980 |       |       |       |      | 0.999 |
| Satd. Flow (perm)          | 1607  | 0     | 1779  | 0     | 0    | 1783  |
| Link Speed (k/h)           | 48    |       | 48    |       |      | 48    |
| Link Distance (m)          | 58.8  |       | 74.6  |       |      | 272.6 |
| Travel Time (s)            | 4.4   |       | 5.6   |       |      | 20.4  |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90  | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)            | 2     | 3     | 421   | 9     | 4    | 254   |
| Shared Lane Traffic (%)    |       |       |       |       |      |       |
| Lane Group Flow (vph)      | 5     | 0     | 430   | 0     | 0    | 258   |
| Enter Blocked Intersection | No    | No    | No    | No    | No   | No    |
| Lane Alignment             | Left  | Right | Left  | Right | Left | Left  |
| Median Width(m)            | 3.7   |       | 0.0   |       |      | 0.0   |
| Link Offset(m)             | 0.0   |       | 0.0   |       |      | 0.0   |
| Crosswalk Width(m)         | 4.9   |       | 4.9   |       |      | 4.9   |
| Two way Left Turn Lane     |       |       |       |       |      |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)        | 24    | 14    |       | 14    | 24   |       |
| Sign Control               | Stop  |       | Free  |       |      | Free  |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 31.6%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

# HCM Unsignalized Intersection Capacity Analysis

## 26: Sheffield Road & Way #1

03/03/2021



| Movement                          | WBL         | WBR         | NBT         | NBR                  | SBL  | SBT  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             |             |             |                      |      |      |
| Traffic Volume (veh/h)            | 2           | 3           | 379         | 8                    | 4    | 229  |
| Future Volume (Veh/h)             | 2           | 3           | 379         | 8                    | 4    | 229  |
| Sign Control                      | Stop        |             | Free        |                      |      | Free |
| Grade                             | 0%          |             | 0%          |                      |      | 0%   |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 2           | 3           | 421         | 9                    | 4    | 254  |
| Pedestrians                       |             |             |             |                      |      |      |
| Lane Width (m)                    |             |             |             |                      |      |      |
| Walking Speed (m/s)               |             |             |             |                      |      |      |
| Percent Blockage                  |             |             |             |                      |      |      |
| Right turn flare (veh)            |             |             |             |                      |      |      |
| Median type                       |             |             |             |                      |      |      |
| Median storage (veh)              |             |             |             |                      |      |      |
| Upstream signal (m)               |             |             |             |                      |      |      |
| pX, platoon unblocked             |             |             |             |                      |      |      |
| vC, conflicting volume            | 688         | 426         |             |                      | 430  |      |
| vC1, stage 1 conf vol             |             |             |             |                      |      |      |
| vC2, stage 2 conf vol             |             |             |             |                      |      |      |
| vCu, unblocked vol                | 688         | 426         |             |                      | 430  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |                      | 4.1  |      |
| tC, 2 stage (s)                   |             |             |             |                      |      |      |
| tF (s)                            | 3.5         | 3.3         |             |                      | 2.2  |      |
| p0 queue free %                   | 100         | 100         |             |                      | 100  |      |
| cM capacity (veh/h)               | 411         | 629         |             |                      | 1129 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |                      |      |      |
| Volume Total                      | 5           | 430         | 258         |                      |      |      |
| Volume Left                       | 2           | 0           | 4           |                      |      |      |
| Volume Right                      | 3           | 9           | 0           |                      |      |      |
| cSH                               | 519         | 1700        | 1129        |                      |      |      |
| Volume to Capacity                | 0.01        | 0.25        | 0.00        |                      |      |      |
| Queue Length 95th (m)             | 0.2         | 0.0         | 0.1         |                      |      |      |
| Control Delay (s)                 | 12.0        | 0.0         | 0.2         |                      |      |      |
| Lane LOS                          | B           |             | A           |                      |      |      |
| Approach Delay (s)                | 12.0        | 0.0         | 0.2         |                      |      |      |
| Approach LOS                      | B           |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 0.1         |                      |      |      |
| Intersection Capacity Utilization |             |             | 31.6%       | ICU Level of Service |      | A    |
| Analysis Period (min)             |             |             | 15          |                      |      |      |

Summary of All Intervals

| Run Number              | 1     | 2     | 3     | Avg   |
|-------------------------|-------|-------|-------|-------|
| Start Time              | 6:57  | 6:57  | 6:57  | 6:57  |
| End Time                | 8:00  | 8:00  | 8:00  | 8:00  |
| Total Time (min)        | 63    | 63    | 63    | 63    |
| Time Recorded (min)     | 60    | 60    | 60    | 60    |
| # of Intervals          | 2     | 2     | 2     | 2     |
| # of Recorded Intervals | 1     | 1     | 1     | 1     |
| Vehs Entered            | 4434  | 4448  | 4393  | 4422  |
| Vehs Exited             | 4391  | 4349  | 4301  | 4349  |
| Starting Vehs           | 134   | 125   | 136   | 130   |
| Ending Vehs             | 177   | 224   | 228   | 209   |
| Travel Distance (km)    | 5683  | 5700  | 5644  | 5676  |
| Travel Time (hr)        | 174.2 | 223.4 | 183.3 | 193.6 |
| Total Delay (hr)        | 74.5  | 123.6 | 84.0  | 94.1  |
| Total Stops             | 4395  | 5819  | 4824  | 5012  |
| Fuel Used (l)           | 550.1 | 584.1 | 549.8 | 561.3 |

Interval #0 Information Seeding

|                                     |      |
|-------------------------------------|------|
| Start Time                          | 6:57 |
| End Time                            | 7:00 |
| Total Time (min)                    | 3    |
| Volumes adjusted by Growth Factors. |      |
| No data recorded this interval.     |      |

Interval #1 Information Recording

|                                     |      |
|-------------------------------------|------|
| Start Time                          | 7:00 |
| End Time                            | 8:00 |
| Total Time (min)                    | 60   |
| Volumes adjusted by Growth Factors. |      |

| Run Number           | 1     | 2     | 3     | Avg   |
|----------------------|-------|-------|-------|-------|
| Vehs Entered         | 4434  | 4448  | 4393  | 4422  |
| Vehs Exited          | 4391  | 4349  | 4301  | 4349  |
| Starting Vehs        | 134   | 125   | 136   | 130   |
| Ending Vehs          | 177   | 224   | 228   | 209   |
| Travel Distance (km) | 5683  | 5700  | 5644  | 5676  |
| Travel Time (hr)     | 174.2 | 223.4 | 183.3 | 193.6 |
| Total Delay (hr)     | 74.5  | 123.6 | 84.0  | 94.1  |
| Total Stops          | 4395  | 5819  | 4824  | 5012  |
| Fuel Used (l)        | 550.1 | 584.1 | 549.8 | 561.3 |

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3: Walkley Road & Lancaster Road Performance by movement

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6: Walkley Road & Sheffield Road Performance by movement

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7: Walkley Road & Highway SB terminal Performance by movement

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10: Highway NB terminal & Walkley Road Performance by movement

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11: SB off ramp & Walkley Road Performance by movement

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13: Walkley Road & NB off ramp Performance by movement

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15: Sheffield Road & Humber Place Performance by movement

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18: Sheffield Road & Way #5 Performance by movement

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20: Sheffield Road & Way #4 Performance by movement

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24: Sheffield Road & Way #2 Performance by movement

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26: Sheffield Road & Way #1 Performance by movement

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Total Network Performance

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Intersection: 3: Walkley Road & Lancaster Road

| Movement              | EB    | EB    | EB    | WB    | WB    | WB    | SB    | SB    | SB   |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| Directions Served     | L     | T     | T     | T     | T     | R     | L     | L     | R    |
| Maximum Queue (m)     | 82.5  | 61.2  | 48.9  | 84.4  | 92.1  | 174.7 | 46.5  | 43.7  | 31.7 |
| Average Queue (m)     | 43.2  | 23.5  | 14.4  | 54.6  | 58.6  | 16.7  | 19.8  | 6.3   | 6.0  |
| 95th Queue (m)        | 73.7  | 52.6  | 35.3  | 79.7  | 86.2  | 83.9  | 37.4  | 22.5  | 22.6 |
| Link Distance (m)     |       | 240.3 | 240.3 | 340.1 | 340.1 | 340.1 | 353.4 | 353.4 |      |
| Upstream Blk Time (%) |       |       |       |       |       | 1     |       |       |      |
| Queuing Penalty (veh) |       |       |       |       |       | 5     |       |       |      |
| Storage Bay Dist (m)  | 100.0 |       |       |       |       |       |       |       | 70.0 |
| Storage Blk Time (%)  | 0     |       |       |       |       |       |       |       |      |
| Queuing Penalty (veh) | 0     |       |       |       |       |       |       |       |      |

Intersection: 6: Walkley Road & Sheffield Road

| Movement              | EB    | EB    | EB    | WB    | WB    | WB   | SB    | SB    | SB   |
|-----------------------|-------|-------|-------|-------|-------|------|-------|-------|------|
| Directions Served     | L     | T     | T     | T     | T     | R    | L     | L     | R    |
| Maximum Queue (m)     | 107.4 | 140.4 | 95.8  | 337.3 | 344.1 | 37.6 | 48.5  | 93.7  | 77.1 |
| Average Queue (m)     | 77.2  | 25.6  | 10.3  | 220.6 | 241.6 | 21.8 | 9.9   | 17.9  | 43.5 |
| 95th Queue (m)        | 116.0 | 105.8 | 40.3  | 345.9 | 359.7 | 50.9 | 31.1  | 64.1  | 81.6 |
| Link Distance (m)     |       | 340.1 | 340.1 | 343.8 | 343.8 |      | 803.4 | 803.4 |      |
| Upstream Blk Time (%) |       |       |       | 0     | 1     |      |       |       |      |
| Queuing Penalty (veh) |       |       |       | 1     | 8     |      |       |       |      |
| Storage Bay Dist (m)  | 100.0 |       |       |       |       | 30.0 |       |       | 70.0 |
| Storage Blk Time (%)  | 8     | 0     |       |       | 38    | 0    |       | 0     | 4    |
| Queuing Penalty (veh) | 17    | 0     |       |       | 99    | 2    |       | 0     | 1    |

Intersection: 7: Walkley Road & Highway SB terminal

| Movement              | SB    | SB    |
|-----------------------|-------|-------|
| Directions Served     | L     | R     |
| Maximum Queue (m)     | 17.7  | 62.4  |
| Average Queue (m)     | 5.4   | 3.7   |
| 95th Queue (m)        | 14.0  | 44.7  |
| Link Distance (m)     | 480.6 | 480.6 |
| Upstream Blk Time (%) |       |       |
| Queuing Penalty (veh) |       |       |
| Storage Bay Dist (m)  |       |       |
| Storage Blk Time (%)  |       |       |
| Queuing Penalty (veh) |       |       |

Intersection: 10: Highway NB terminal & Walkley Road

| Movement              | NB    |
|-----------------------|-------|
| Directions Served     | LR    |
| Maximum Queue (m)     | 82.6  |
| Average Queue (m)     | 38.2  |
| 95th Queue (m)        | 71.5  |
| Link Distance (m)     | 283.2 |
| Upstream Blk Time (%) |       |
| Queuing Penalty (veh) |       |
| Storage Bay Dist (m)  |       |
| Storage Blk Time (%)  |       |
| Queuing Penalty (veh) |       |

Intersection: 11: SB off ramp & Walkley Road

| Movement              | EB    | EB   | WB    | WB    | WB    |
|-----------------------|-------|------|-------|-------|-------|
| Directions Served     | T     | R    | T     | T     | T     |
| Maximum Queue (m)     | 10.6  | 7.7  | 59.7  | 70.9  | 116.1 |
| Average Queue (m)     | 0.4   | 0.3  | 14.1  | 31.6  | 38.9  |
| 95th Queue (m)        | 5.9   | 4.2  | 50.2  | 72.3  | 109.3 |
| Link Distance (m)     | 343.8 |      | 118.3 | 118.3 | 118.3 |
| Upstream Blk Time (%) |       |      |       |       | 2     |
| Queuing Penalty (veh) |       |      |       |       | 15    |
| Storage Bay Dist (m)  |       | 60.0 |       |       |       |
| Storage Blk Time (%)  |       |      |       |       |       |
| Queuing Penalty (veh) |       |      |       |       |       |

Intersection: 13: Walkley Road & NB off ramp

| Movement              |
|-----------------------|
| Directions Served     |
| Maximum Queue (m)     |
| Average Queue (m)     |
| 95th Queue (m)        |
| Link Distance (m)     |
| Upstream Blk Time (%) |
| Queuing Penalty (veh) |
| Storage Bay Dist (m)  |
| Storage Blk Time (%)  |
| Queuing Penalty (veh) |

Intersection: 15: Sheffield Road & Humber Place

| Movement              | EB    | WB    | NB    | SB    |
|-----------------------|-------|-------|-------|-------|
| Directions Served     | LTR   | LTR   | LTR   | LTR   |
| Maximum Queue (m)     | 27.6  | 19.1  | 293.8 | 8.9   |
| Average Queue (m)     | 13.3  | 3.0   | 18.4  | 0.3   |
| 95th Queue (m)        | 23.3  | 11.8  | 160.5 | 3.7   |
| Link Distance (m)     | 139.5 | 139.5 | 803.4 | 101.3 |
| Upstream Blk Time (%) |       |       | 0     |       |
| Queuing Penalty (veh) |       |       | 0     |       |
| Storage Bay Dist (m)  |       |       |       |       |
| Storage Blk Time (%)  |       |       |       |       |
| Queuing Penalty (veh) |       |       |       |       |

Intersection: 18: Sheffield Road & Way #5

| Movement              | WB   | SB   |
|-----------------------|------|------|
| Directions Served     | LR   | LT   |
| Maximum Queue (m)     | 8.8  | 3.0  |
| Average Queue (m)     | 1.7  | 0.1  |
| 95th Queue (m)        | 7.4  | 1.7  |
| Link Distance (m)     | 47.2 | 72.4 |
| Upstream Blk Time (%) |      |      |
| Queuing Penalty (veh) |      |      |
| Storage Bay Dist (m)  |      |      |
| Storage Blk Time (%)  |      |      |
| Queuing Penalty (veh) |      |      |

Intersection: 20: Sheffield Road & Way #4

| Movement              | WB   | SB    |
|-----------------------|------|-------|
| Directions Served     | LR   | LT    |
| Maximum Queue (m)     | 8.9  | 8.3   |
| Average Queue (m)     | 1.5  | 0.6   |
| 95th Queue (m)        | 7.0  | 4.7   |
| Link Distance (m)     | 51.7 | 118.0 |
| Upstream Blk Time (%) |      |       |
| Queuing Penalty (veh) |      |       |
| Storage Bay Dist (m)  |      |       |
| Storage Blk Time (%)  |      |       |
| Queuing Penalty (veh) |      |       |

## Queuing and Blocking Report Baseline

03/03/2021

### Intersection: 24: Sheffield Road & Way #2

| Movement              | WB   | SB   |
|-----------------------|------|------|
| Directions Served     | LR   | LT   |
| Maximum Queue (m)     | 9.1  | 13.6 |
| Average Queue (m)     | 1.7  | 0.8  |
| 95th Queue (m)        | 7.3  | 5.8  |
| Link Distance (m)     | 56.4 | 57.3 |
| Upstream Blk Time (%) |      |      |
| Queuing Penalty (veh) |      |      |
| Storage Bay Dist (m)  |      |      |
| Storage Blk Time (%)  |      |      |
| Queuing Penalty (veh) |      |      |

### Intersection: 26: Sheffield Road & Way #1

| Movement              | WB   | SB    |
|-----------------------|------|-------|
| Directions Served     | LR   | LT    |
| Maximum Queue (m)     | 9.0  | 3.0   |
| Average Queue (m)     | 1.2  | 0.1   |
| 95th Queue (m)        | 6.3  | 1.7   |
| Link Distance (m)     | 49.8 | 265.6 |
| Upstream Blk Time (%) |      |       |
| Queuing Penalty (veh) |      |       |
| Storage Bay Dist (m)  |      |       |
| Storage Blk Time (%)  |      |       |
| Queuing Penalty (veh) |      |       |

### Network Summary

Network wide Queuing Penalty: 146



# Lanes, Volumes, Timings

## 3: Walkley Road & Lancaster Road

03/03/2021



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 122   | 1704  | 924   | 159   | 469   | 199   |
| Future Volume (vph)        | 122   | 1704  | 924   | 159   | 469   | 199   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 30.5  |       |       | 0.0   | 0.0   | 30.5  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1695  | 3293  | 3172  | 1419  | 3288  | 1502  |
| Flt Permitted              | 0.206 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 368   | 3293  | 3172  | 1419  | 3288  | 1502  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 175   |       | 139   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 306.2 | 364.1 |       | 701.3 |       |
| Travel Time (s)            |       | 13.8  | 16.4  |       | 52.6  |       |
| Peak Hour Factor           | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  |
| Heavy Vehicles (%)         | 2%    | 5%    | 9%    | 9%    | 2%    | 3%    |
| Adj. Flow (vph)            | 134   | 1873  | 1015  | 175   | 515   | 219   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 134   | 1873  | 1015  | 175   | 515   | 219   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 22.0  | 102.0 | 80.0  | 80.0  | 28.0  | 28.0  |
| Total Split (%)            | 16.9% | 78.5% | 61.5% | 61.5% | 21.5% | 21.5% |
| Maximum Green (s)          | 19.0  | 97.0  | 75.0  | 75.0  | 23.0  | 23.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 99.0  | 97.0  | 75.0  | 75.0  | 23.0  | 23.0  |
| Actuated g/C Ratio         | 0.76  | 0.75  | 0.58  | 0.58  | 0.18  | 0.18  |

Lanes, Volumes, Timings  
 3: Walkley Road & Lancaster Road

03/03/2021

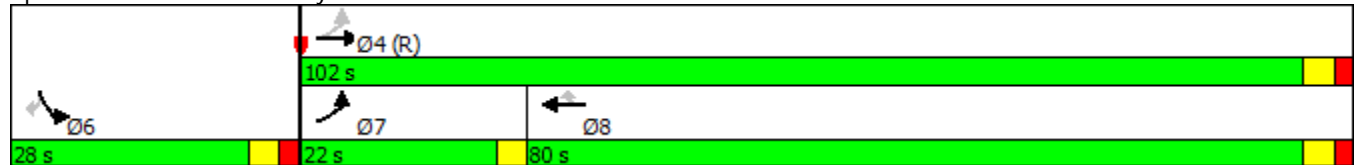


| Lane Group     | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|----------------|------|------|------|------|------|------|
| v/c Ratio      | 0.28 | 0.76 | 0.55 | 0.20 | 0.89 | 0.58 |
| Control Delay  | 5.6  | 12.4 | 17.6 | 4.1  | 70.3 | 24.9 |
| Queue Delay    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay    | 5.6  | 12.4 | 17.6 | 4.1  | 70.3 | 24.9 |
| LOS            | A    | B    | B    | A    | E    | C    |
| Approach Delay |      | 11.9 | 15.6 |      | 56.8 |      |
| Approach LOS   |      | B    | B    |      | E    |      |

Intersection Summary

|                                   |  |
|-----------------------------------|--|
| Area Type:                        | Other  |
| Cycle Length:                     | 130  |
| Actuated Cycle Length:            | 130  |
| Offset:                           | 50 (38%), Referenced to phase 4:EBTL, Start of Green |
| Natural Cycle:                    | 75   |
| Control Type:                     | Pretimed   |
| Maximum v/c Ratio:                | 0.89   |
| Intersection Signal Delay:        | 21.4   |
| Intersection LOS:                 | C  |
| Intersection Capacity Utilization | 72.2%  |
| ICU Level of Service              | C  |
| Analysis Period (min)             | 15   |

Splits and Phases: 3: Walkley Road & Lancaster Road



# HCM Signalized Intersection Capacity Analysis

## 3: Walkley Road & Lancaster Road

03/03/2021



| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 122   | 1704  | 924  | 159  | 469   | 199  |
| Future Volume (vph)    | 122   | 1704  | 924  | 159  | 469   | 199  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1695  | 3293  | 3172 | 1419 | 3288  | 1502 |
| Flt Permitted          | 0.21  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 367   | 3293  | 3172 | 1419 | 3288  | 1502 |
| Peak-hour factor, PHF  | 0.91  | 0.91  | 0.91 | 0.91 | 0.91  | 0.91 |
| Adj. Flow (vph)        | 134   | 1873  | 1015 | 175  | 515   | 219  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 74   | 0     | 114  |
| Lane Group Flow (vph)  | 134   | 1873  | 1015 | 101  | 515   | 105  |
| Heavy Vehicles (%)     | 2%    | 5%    | 9%   | 9%   | 2%    | 3%   |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 97.0  | 97.0  | 75.0 | 75.0 | 23.0  | 23.0 |
| Effective Green, g (s) | 97.0  | 97.0  | 75.0 | 75.0 | 23.0  | 23.0 |
| Actuated g/C Ratio     | 0.75  | 0.75  | 0.58 | 0.58 | 0.18  | 0.18 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 467   | 2457  | 1830 | 818  | 581   | 265  |
| v/s Ratio Prot         | 0.04  | c0.57 | 0.32 |      | c0.16 |      |
| v/s Ratio Perm         | 0.17  |       |      | 0.07 |       | 0.07 |
| v/c Ratio              | 0.29  | 0.76  | 0.55 | 0.12 | 0.89  | 0.39 |
| Uniform Delay, d1      | 6.9   | 9.7   | 17.1 | 12.5 | 52.2  | 47.3 |
| Progression Factor     | 1.00  | 1.00  | 0.95 | 2.04 | 1.00  | 1.00 |
| Incremental Delay, d2  | 1.5   | 2.3   | 1.1  | 0.3  | 17.9  | 4.4  |
| Delay (s)              | 8.4   | 12.0  | 17.4 | 25.9 | 70.1  | 51.7 |
| Level of Service       | A     | B     | B    | C    | E     | D    |
| Approach Delay (s)     |       | 11.8  | 18.6 |      | 64.6  |      |
| Approach LOS           |       | B     | B    |      | E     |      |

### Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 23.7  | HCM 2000 Level of Service | C    |
| HCM 2000 Volume to Capacity ratio | 0.81  |                           |      |
| Actuated Cycle Length (s)         | 130.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 72.2% | ICU Level of Service      | C    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
6: Walkley Road & Sheffield Road

03/03/2021



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 207   | 1873  | 688   | 90    | 300   | 378   |
| Future Volume (vph)        | 207   | 1873  | 688   | 90    | 300   | 378   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 30.5  |       |       | 50.0  | 0.0   | 30.5  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Fr <sub>t</sub>            |       |       |       | 0.850 |       | 0.850 |
| Fl <sub>t</sub> Protected  | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1383  | 3390  | 3172  | 1146  | 3164  | 1381  |
| Fl <sub>t</sub> Permitted  | 0.325 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 473   | 3390  | 3172  | 1146  | 3164  | 1381  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 93    |       | 390   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 364.1 | 339.6 |       | 830.6 |       |
| Travel Time (s)            |       | 16.4  | 15.3  |       | 62.3  |       |
| Peak Hour Factor           | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Heavy Vehicles (%)         | 25%   | 2%    | 9%    | 35%   | 6%    | 12%   |
| Adj. Flow (vph)            | 213   | 1931  | 709   | 93    | 309   | 390   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 213   | 1931  | 709   | 93    | 309   | 390   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.0  | 23.0  | 23.0  | 23.0  | 23.0  |
| Total Split (s)            | 22.0  | 104.0 | 82.0  | 82.0  | 26.0  | 26.0  |
| Total Split (%)            | 16.9% | 80.0% | 63.1% | 63.1% | 20.0% | 20.0% |
| Maximum Green (s)          | 19.0  | 99.0  | 77.0  | 77.0  | 21.0  | 21.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 101.0 | 99.0  | 77.0  | 77.0  | 21.0  | 21.0  |
| Actuated g/C Ratio         | 0.78  | 0.76  | 0.59  | 0.59  | 0.16  | 0.16  |

Lanes, Volumes, Timings  
 6: Walkley Road & Sheffield Road

03/03/2021



| Lane Group     | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|----------------|------|------|------|------|------|------|
| v/c Ratio      | 0.43 | 0.75 | 0.38 | 0.13 | 0.60 | 0.71 |
| Control Delay  | 5.0  | 7.5  | 14.6 | 2.6  | 56.3 | 12.5 |
| Queue Delay    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay    | 5.0  | 7.5  | 14.6 | 2.6  | 56.3 | 12.5 |
| LOS            | A    | A    | B    | A    | E    | B    |
| Approach Delay |      | 7.3  | 13.2 |      | 31.9 |      |
| Approach LOS   |      | A    | B    |      | C    |      |

Intersection Summary

|                                   |  |
|-----------------------------------|--|
| Area Type:                        | Other  |
| Cycle Length:                     | 130  |
| Actuated Cycle Length:            | 130  |
| Offset:                           | 13 (10%), Referenced to phase 4:EBTL, Start of Green |
| Natural Cycle:                    | 70   |
| Control Type:                     | Pretimed   |
| Maximum v/c Ratio:                | 0.75   |
| Intersection Signal Delay:        | 13.3   |
| Intersection LOS:                 | B  |
| Intersection Capacity Utilization | 72.0%  |
| ICU Level of Service              | C  |
| Analysis Period (min)             | 15   |

Splits and Phases: 6: Walkley Road & Sheffield Road



# HCM Signalized Intersection Capacity Analysis

## 6: Walkley Road & Sheffield Road

03/03/2021



| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 207   | 1873  | 688  | 90   | 300   | 378  |
| Future Volume (vph)    | 207   | 1873  | 688  | 90   | 300   | 378  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1383  | 3390  | 3172 | 1146 | 3164  | 1381 |
| Flt Permitted          | 0.33  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 474   | 3390  | 3172 | 1146 | 3164  | 1381 |
| Peak-hour factor, PHF  | 0.97  | 0.97  | 0.97 | 0.97 | 0.97  | 0.97 |
| Adj. Flow (vph)        | 213   | 1931  | 709  | 93   | 309   | 390  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 38   | 0     | 327  |
| Lane Group Flow (vph)  | 213   | 1931  | 709  | 55   | 309   | 63   |
| Heavy Vehicles (%)     | 25%   | 2%    | 9%   | 35%  | 6%    | 12%  |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 99.0  | 99.0  | 77.0 | 77.0 | 21.0  | 21.0 |
| Effective Green, g (s) | 99.0  | 99.0  | 77.0 | 77.0 | 21.0  | 21.0 |
| Actuated g/C Ratio     | 0.76  | 0.76  | 0.59 | 0.59 | 0.16  | 0.16 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 493   | 2581  | 1878 | 678  | 511   | 223  |
| v/s Ratio Prot         | 0.06  | c0.57 | 0.22 |      | c0.10 |      |
| v/s Ratio Perm         | 0.27  |       |      | 0.05 |       | 0.05 |
| v/c Ratio              | 0.43  | 0.75  | 0.38 | 0.08 | 0.60  | 0.28 |
| Uniform Delay, d1      | 5.2   | 8.6   | 13.9 | 11.4 | 50.6  | 47.9 |
| Progression Factor     | 0.88  | 0.71  | 1.00 | 1.00 | 1.00  | 1.00 |
| Incremental Delay, d2  | 1.6   | 1.2   | 0.6  | 0.2  | 5.2   | 3.1  |
| Delay (s)              | 6.2   | 7.3   | 14.5 | 11.6 | 55.9  | 51.0 |
| Level of Service       | A     | A     | B    | B    | E     | D    |
| Approach Delay (s)     |       | 7.2   | 14.2 |      | 53.2  |      |
| Approach LOS           |       | A     | B    |      | D     |      |

### Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 17.5  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.74  |                           |      |
| Actuated Cycle Length (s)         | 130.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 72.0% | ICU Level of Service      | C    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
 7: Walkley Road & Highway SB terminal

03/03/2021



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑↑    |       | ↘     | ↗     |
| Traffic Volume (vph)       | 0    | 1471  | 174   | 0     | 167   | 594   |
| Future Volume (vph)        | 0    | 1471  | 174   | 0     | 167   | 594   |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  |
| Fr t                       |      |       |       |       |       | 0.850 |
| Flt Protected              |      |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Flt Permitted              |      |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Link Speed (k/h)           |      | 80    | 80    |       | 80    |       |
| Link Distance (m)          |      | 118.5 | 305.1 |       | 468.0 |       |
| Travel Time (s)            |      | 5.3   | 13.7  |       | 21.1  |       |
| Peak Hour Factor           | 0.95 | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  |
| Adj. Flow (vph)            | 0    | 1548  | 183   | 0     | 176   | 625   |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 1548  | 183   | 0     | 176   | 625   |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 3.7   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 59.4%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service B |

# HCM Unsignalized Intersection Capacity Analysis

## 7: Walkley Road & Highway SB terminal

03/03/2021



| Movement                          | EBL  | EBT  | WBT   | WBR  | SBL                  | SBR  |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Lane Configurations               |      | ↑↑   | ↑↑    |      | ↘                    | ↗    |
| Traffic Volume (veh/h)            | 0    | 1471 | 174   | 0    | 167                  | 594  |
| Future Volume (Veh/h)             | 0    | 1471 | 174   | 0    | 167                  | 594  |
| Sign Control                      |      | Free | Free  |      | Stop                 |      |
| Grade                             |      | 0%   | 0%    |      | 0%                   |      |
| Peak Hour Factor                  | 0.95 | 0.95 | 0.95  | 0.95 | 0.95                 | 0.95 |
| Hourly flow rate (vph)            | 0    | 1548 | 183   | 0    | 176                  | 625  |
| 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            | 183  |      |       |      | 957                  | 92   |
| vC1, stage 1 conf vol             |      |      |       |      |                      |      |
| vC2, stage 2 conf vol             |      |      |       |      |                      |      |
| vCu, unblocked vol                | 183  |      |       |      | 957                  | 92   |
| tC, single (s)                    | 4.1  |      |       |      | 6.8                  | 6.9  |
| tC, 2 stage (s)                   |      |      |       |      |                      |      |
| tF (s)                            | 2.2  |      |       |      | 3.5                  | 3.3  |
| p0 queue free %                   | 100  |      |       |      | 31                   | 34   |
| cM capacity (veh/h)               | 1389 |      |       |      | 256                  | 948  |
| Direction, Lane #                 | EB 1 | EB 2 | WB 1  | WB 2 | SB 1                 | SB 2 |
| Volume Total                      | 774  | 774  | 92    | 92   | 176                  | 625  |
| Volume Left                       | 0    | 0    | 0     | 0    | 176                  | 0    |
| Volume Right                      | 0    | 0    | 0     | 0    | 0                    | 625  |
| cSH                               | 1700 | 1700 | 1700  | 1700 | 256                  | 948  |
| Volume to Capacity                | 0.46 | 0.46 | 0.05  | 0.05 | 0.69                 | 0.66 |
| Queue Length 95th (m)             | 0.0  | 0.0  | 0.0   | 0.0  | 34.6                 | 39.1 |
| Control Delay (s)                 | 0.0  | 0.0  | 0.0   | 0.0  | 45.3                 | 15.8 |
| Lane LOS                          |      |      |       |      | E                    | C    |
| Approach Delay (s)                | 0.0  |      | 0.0   |      | 22.3                 |      |
| Approach LOS                      |      |      |       |      | C                    |      |
| Intersection Summary              |      |      |       |      |                      |      |
| Average Delay                     |      |      | 7.1   |      |                      |      |
| Intersection Capacity Utilization |      |      | 59.4% |      | ICU Level of Service | B    |
| Analysis Period (min)             |      |      | 15    |      |                      |      |



Lanes, Volumes, Timings  
 10: Highway NB terminal & Walkley Road

03/03/2021



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NBL   | NBR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    |       |      | ↑↑    | ↑↑    |       |
| Traffic Volume (vph)       | 580   | 1062  | 0    | 63    | 129   | 31    |
| Future Volume (vph)        | 580   | 1062  | 0    | 63    | 129   | 31    |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00 | 0.95  | 1.00  | 1.00  |
| Frt                        | 0.903 |       |      | 0.974 |       |       |
| Flt Protected              |       |       |      | 0.961 |       |       |
| Satd. Flow (prot)          | 3061  | 0     | 0    | 3390  | 1670  | 0     |
| Flt Permitted              |       |       |      | 0.961 |       |       |
| Satd. Flow (perm)          | 3061  | 0     | 0    | 3390  | 1670  | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 305.1 |       |      | 95.4  | 443.2 |       |
| Travel Time (s)            | 13.7  |       |      | 7.2   | 33.2  |       |
| Peak Hour Factor           | 0.91  | 0.91  | 0.91 | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)            | 637   | 1167  | 0    | 69    | 142   | 34    |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 1804  | 0     | 0    | 69    | 176   | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 3.7   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 14    |       | 24   | 24    |       | 14    |
| Sign Control               | Free  |       |      | Free  | Stop  |       |

Intersection Summary

|                                   |                              |
|-----------------------------------|------------------------------|
| Area Type:                        | Other                        |
| Control Type:                     | Unsignalized                 |
| Intersection Capacity Utilization | 69.3% ICU Level of Service C |
| Analysis Period (min)             | 15                           |

# HCM Unsignalized Intersection Capacity Analysis

## 10: Highway NB terminal & Walkley Road

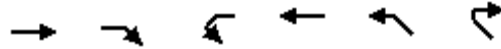
03/03/2021



| Movement                          | EBT  | EBR  | WBL   | WBT                  | NBL   | NBR  |
|-----------------------------------|------|------|-------|----------------------|-------|------|
| Lane Configurations               | ↑↑   |      |       | ↑↑                   | ↘     |      |
| Traffic Volume (veh/h)            | 580  | 1062 | 0     | 63                   | 129   | 31   |
| Future Volume (Veh/h)             | 580  | 1062 | 0     | 63                   | 129   | 31   |
| Sign Control                      | Free |      |       | Free                 | Stop  |      |
| Grade                             | 0%   |      |       | 0%                   | 0%    |      |
| Peak Hour Factor                  | 0.91 | 0.91 | 0.91  | 0.91                 | 0.91  | 0.91 |
| Hourly flow rate (vph)            | 637  | 1167 | 0     | 69                   | 142   | 34   |
| 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            |      |      | 1804  |                      | 1255  | 902  |
| vC1, stage 1 conf vol             |      |      |       |                      |       |      |
| vC2, stage 2 conf vol             |      |      |       |                      |       |      |
| vCu, unblocked vol                |      |      | 1804  |                      | 1255  | 902  |
| tC, single (s)                    |      |      | 4.1   |                      | 6.8   | 6.9  |
| tC, 2 stage (s)                   |      |      |       |                      |       |      |
| tF (s)                            |      |      | 2.2   |                      | 3.5   | 3.3  |
| p0 queue free %                   |      |      | 100   |                      | 13    | 88   |
| cM capacity (veh/h)               |      |      | 338   |                      | 164   | 281  |
| Direction, Lane #                 | EB 1 | EB 2 | WB 1  | WB 2                 | NB 1  |      |
| Volume Total                      | 425  | 1379 | 34    | 34                   | 176   |      |
| Volume Left                       | 0    | 0    | 0     | 0                    | 142   |      |
| Volume Right                      | 0    | 1167 | 0     | 0                    | 34    |      |
| cSH                               | 1700 | 1700 | 1700  | 1700                 | 178   |      |
| Volume to Capacity                | 0.25 | 0.81 | 0.02  | 0.02                 | 0.99  |      |
| Queue Length 95th (m)             | 0.0  | 0.0  | 0.0   | 0.0                  | 60.8  |      |
| Control Delay (s)                 | 0.0  | 0.0  | 0.0   | 0.0                  | 117.7 |      |
| Lane LOS                          |      |      |       |                      | F     |      |
| Approach Delay (s)                | 0.0  |      | 0.0   |                      | 117.7 |      |
| Approach LOS                      |      |      |       |                      | F     |      |
| Intersection Summary              |      |      |       |                      |       |      |
| Average Delay                     |      |      | 10.1  |                      |       |      |
| Intersection Capacity Utilization |      |      | 69.3% | ICU Level of Service | C     |      |
| Analysis Period (min)             |      |      | 15    |                      |       |      |

Lanes, Volumes, Timings  
 11: SB off ramp & Walkley Road

03/03/2021



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NWL   | NWR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    | ↑     |      | ↑↑↑   |       |       |
| Traffic Volume (vph)       | 1471  | 511   | 0    | 768   | 0     | 0     |
| Future Volume (vph)        | 1471  | 511   | 0    | 768   | 0     | 0     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Storage Length (m)         |       | 50.0  | 0.0  |       | 0.0   | 0.0   |
| Storage Lanes              |       | 1     | 0    |       | 0     | 0     |
| Taper Length (m)           |       |       | 7.6  |       | 7.6   |       |
| Lane Util. Factor          | 0.95  | 1.00  | 1.00 | 0.91  | 1.00  | 1.00  |
| Frt                        |       | 0.850 |      |       |       |       |
| Flt Protected              |       |       |      |       |       |       |
| Satd. Flow (prot)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Flt Permitted              |       |       |      |       |       |       |
| Satd. Flow (perm)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 339.6 |       |      | 118.5 | 265.8 |       |
| Travel Time (s)            | 15.3  |       |      | 8.9   | 19.9  |       |
| Peak Hour Factor           | 0.95  | 0.95  | 0.95 | 0.95  | 0.95  | 0.95  |
| Adj. Flow (vph)            | 1548  | 538   | 0    | 808   | 0     | 0     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 1548  | 538   | 0    | 808   | 0     | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 0.0   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        |       | 14    | 24   |       | 24    | 14    |
| Sign Control               | Free  |       |      | Free  | Free  |       |

**Intersection Summary**

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 46.3%                  |
|                                   | ICU Level of Service A |
| Analysis Period (min)             | 15                     |

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Intersection Sign configuration not allowed in HCM analysis.

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Lanes, Volumes, Timings  
13: Walkley Road & NB off ramp

03/03/2021



| Lane Group                 | EBL  | EBT  | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑   | ↑     | ↗     |       |       |
| Traffic Volume (vph)       | 0    | 611  | 63    | 59    | 0     | 0     |
| Future Volume (vph)        | 0    | 611  | 63    | 59    | 0     | 0     |
| Ideal Flow (vphpl)         | 1800 | 1800 | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 0.0  |      |       | 50.0  | 0.0   | 0.0   |
| Storage Lanes              | 0    |      |       | 1     | 0     | 0     |
| Taper Length (m)           | 7.6  |      |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00 | 0.95 | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      |      |       | 0.850 |       |       |
| Flt Protected              |      |      |       |       |       |       |
| Satd. Flow (prot)          | 0    | 3390 | 1784  | 1517  | 0     | 0     |
| Flt Permitted              |      |      |       |       |       |       |
| Satd. Flow (perm)          | 0    | 3390 | 1784  | 1517  | 0     | 0     |
| Link Speed (k/h)           |      | 80   | 48    |       | 48    |       |
| Link Distance (m)          |      | 95.4 | 197.1 |       | 264.7 |       |
| Travel Time (s)            |      | 4.3  | 14.8  |       | 19.9  |       |
| Peak Hour Factor           | 0.91 | 0.91 | 0.91  | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)            | 0    | 671  | 69    | 65    | 0     | 0     |
| Shared Lane Traffic (%)    |      |      |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 671  | 69    | 65    | 0     | 0     |
| Enter Blocked Intersection | No   | No   | No    | No    | No    | No    |
| Lane Alignment             | Left | Left | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0  | 0.0   |       | 0.0   |       |
| Link Offset(m)             |      | 0.0  | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9  | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |      |       |       |       |       |
| Headway Factor             | 1.06 | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |      |       | 14    | 24    | 14    |
| Sign Control               |      | Free | Free  |       | Free  |       |

Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 21.2%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

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Intersection Sign configuration not allowed in HCM analysis.

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Lanes, Volumes, Timings  
 15: Sheffield Road & Humber Place

03/03/2021



| Lane Group                 | EBL  | EBT   | EBR   | WBL  | WBT   | WBR   | NBL  | NBT   | NBR   | SBL  | SBT   | SBR   |
|----------------------------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|
| Lane Configurations        |      | ↕     |       |      | ↕     |       |      | ↕     |       |      | ↕     |       |
| Traffic Volume (vph)       | 14   | 0     | 134   | 3    | 0     | 0     | 56   | 260   | 2     | 2    | 488   | 19    |
| Future Volume (vph)        | 14   | 0     | 134   | 3    | 0     | 0     | 56   | 260   | 2     | 2    | 488   | 19    |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800 | 1800  | 1800  | 1800 | 1800  | 1800  | 1800 | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  |
| Frt                        |      | 0.878 |       |      |       |       |      | 0.999 |       |      | 0.995 |       |
| Flt Protected              |      | 0.995 |       |      | 0.950 |       |      | 0.991 |       |      |       |       |
| Satd. Flow (prot)          | 0    | 1452  | 0     | 0    | 1300  | 0     | 0    | 1376  | 0     | 0    | 1661  | 0     |
| Flt Permitted              |      | 0.995 |       |      | 0.950 |       |      | 0.991 |       |      |       |       |
| Satd. Flow (perm)          | 0    | 1452  | 0     | 0    | 1300  | 0     | 0    | 1376  | 0     | 0    | 1661  | 0     |
| Link Speed (k/h)           |      | 48    |       |      | 48    |       |      | 48    |       |      | 48    |       |
| Link Distance (m)          |      | 152.4 |       |      | 148.3 |       |      | 830.6 |       |      | 80.7  |       |
| Travel Time (s)            |      | 11.4  |       |      | 11.1  |       |      | 62.3  |       |      | 6.1   |       |
| Peak Hour Factor           | 0.90 | 0.90  | 0.90  | 0.90 | 0.90  | 0.90  | 0.90 | 0.90  | 0.90  | 0.90 | 0.90  | 0.90  |
| Heavy Vehicles (%)         | 14%  | 2%    | 9%    | 33%  | 2%    | 2%    | 21%  | 33%   | 50%   | 0%   | 9%    | 10%   |
| Adj. Flow (vph)            | 16   | 0     | 149   | 3    | 0     | 0     | 62   | 289   | 2     | 2    | 542   | 21    |
| Shared Lane Traffic (%)    |      |       |       |      |       |       |      |       |       |      |       |       |
| Lane Group Flow (vph)      | 0    | 165   | 0     | 0    | 3     | 0     | 0    | 353   | 0     | 0    | 565   | 0     |
| Enter Blocked Intersection | No   | No    | No    | No   | No    | No    | No   | No    | No    | No   | No    | No    |
| Lane Alignment             | Left | Left  | Right | Left | Left  | Right | Left | Left  | Right | Left | Left  | Right |
| Median Width(m)            |      | 0.0   |       |      | 0.0   |       |      | 0.0   |       |      | 0.0   |       |
| Link Offset(m)             |      | 0.0   |       |      | 0.0   |       |      | 0.0   |       |      | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   |       |      | 4.9   |       |      | 4.9   |       |      | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |      |       |       |      |       |       |      |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       | 14    | 24   |       | 14    | 24   |       | 14    | 24   |       | 14    |
| Sign Control               |      | Stop  |       |      | Stop  |       |      | Free  |       |      | Free  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 65.4%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service C |

# HCM Unsignalized Intersection Capacity Analysis

## 15: Sheffield Road & Humber Place

03/03/2021



| Movement                          | EBL         | EBT         | EBR         | WBL                  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|------|------|------|------|------|------|
| Lane Configurations               |             | ↕           |             |                      | ↕    |      |      | ↕    |      |      | ↕    |      |
| Traffic Volume (veh/h)            | 14          | 0           | 134         | 3                    | 0    | 0    | 56   | 260  | 2    | 2    | 488  | 19   |
| Future Volume (Veh/h)             | 14          | 0           | 134         | 3                    | 0    | 0    | 56   | 260  | 2    | 2    | 488  | 19   |
| Sign Control                      |             | Stop        |             |                      | Stop |      |      | Free |      |      | Free |      |
| Grade                             |             | 0%          |             |                      | 0%   |      |      | 0%   |      |      | 0%   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90                 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 16          | 0           | 149         | 3                    | 0    | 0    | 62   | 289  | 2    | 2    | 542  | 21   |
| Pedestrians                       |             |             |             |                      |      |      |      |      |      |      |      |      |
| Lane Width (m)                    |             |             |             |                      |      |      |      |      |      |      |      |      |
| Walking Speed (m/s)               |             |             |             |                      |      |      |      |      |      |      |      |      |
| Percent Blockage                  |             |             |             |                      |      |      |      |      |      |      |      |      |
| Right turn flare (veh)            |             |             |             |                      |      |      |      |      |      |      |      |      |
| Median type                       |             |             |             |                      |      |      |      |      |      |      |      |      |
| Median storage veh                |             |             |             |                      |      |      |      |      |      |      |      |      |
| Upstream signal (m)               |             |             |             |                      |      |      |      |      |      |      |      |      |
| pX, platoon unblocked             |             |             |             |                      |      |      |      |      |      |      |      |      |
| vC, conflicting volume            | 970         | 972         | 552         | 1120                 | 981  | 290  | 563  |      |      | 291  |      |      |
| vC1, stage 1 conf vol             |             |             |             |                      |      |      |      |      |      |      |      |      |
| vC2, stage 2 conf vol             |             |             |             |                      |      |      |      |      |      |      |      |      |
| vCu, unblocked vol                | 970         | 972         | 552         | 1120                 | 981  | 290  | 563  |      |      | 291  |      |      |
| tC, single (s)                    | 7.2         | 6.5         | 6.3         | 7.4                  | 6.5  | 6.2  | 4.3  |      |      | 4.1  |      |      |
| tC, 2 stage (s)                   |             |             |             |                      |      |      |      |      |      |      |      |      |
| tF (s)                            | 3.6         | 4.0         | 3.4         | 3.8                  | 4.0  | 3.3  | 2.4  |      |      | 2.2  |      |      |
| p0 queue free %                   | 92          | 100         | 71          | 97                   | 100  | 100  | 93   |      |      | 100  |      |      |
| cM capacity (veh/h)               | 209         | 235         | 520         | 108                  | 232  | 749  | 920  |      |      | 1282 |      |      |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b>          |      |      |      |      |      |      |      |      |
| Volume Total                      | 165         | 3           | 353         | 565                  |      |      |      |      |      |      |      |      |
| Volume Left                       | 16          | 3           | 62          | 2                    |      |      |      |      |      |      |      |      |
| Volume Right                      | 149         | 0           | 2           | 21                   |      |      |      |      |      |      |      |      |
| cSH                               | 454         | 108         | 920         | 1282                 |      |      |      |      |      |      |      |      |
| Volume to Capacity                | 0.36        | 0.03        | 0.07        | 0.00                 |      |      |      |      |      |      |      |      |
| Queue Length 95th (m)             | 12.4        | 0.6         | 1.6         | 0.0                  |      |      |      |      |      |      |      |      |
| Control Delay (s)                 | 17.4        | 39.2        | 2.2         | 0.0                  |      |      |      |      |      |      |      |      |
| Lane LOS                          | C           | E           | A           | A                    |      |      |      |      |      |      |      |      |
| Approach Delay (s)                | 17.4        | 39.2        | 2.2         | 0.0                  |      |      |      |      |      |      |      |      |
| Approach LOS                      | C           | E           |             |                      |      |      |      |      |      |      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |      |      |      |      |      |      |
| Average Delay                     |             |             | 3.5         |                      |      |      |      |      |      |      |      |      |
| Intersection Capacity Utilization |             |             | 65.4%       | ICU Level of Service |      | C    |      |      |      |      |      |      |
| Analysis Period (min)             |             |             | 15          |                      |      |      |      |      |      |      |      |      |



Lanes, Volumes, Timings  
 18: Sheffield Road & Way #5

03/03/2021



| Lane Group                 | WBL   | WBR   | NBT   | NBR   | SBL  | SBT  |
|----------------------------|-------|-------|-------|-------|------|------|
| Lane Configurations        |       |       |       |       |      |      |
| Traffic Volume (vph)       | 10    | 5     | 274   | 2     | 4    | 509  |
| Future Volume (vph)        | 10    | 5     | 274   | 2     | 4    | 509  |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800 | 1800 |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 |
| Frt                        | 0.952 |       | 0.999 |       |      |      |
| Flt Protected              | 0.969 |       |       |       |      |      |
| Satd. Flow (prot)          | 1646  | 0     | 1783  | 0     | 0    | 1071 |
| Flt Permitted              | 0.969 |       |       |       |      |      |
| Satd. Flow (perm)          | 1646  | 0     | 1783  | 0     | 0    | 1071 |
| Link Speed (k/h)           | 48    |       | 48    |       |      | 48   |
| Link Distance (m)          | 56.2  |       | 80.7  |       |      | 63.2 |
| Travel Time (s)            | 4.2   |       | 6.1   |       |      | 4.7  |
| Peak Hour Factor           | 0.90  | 0.90  | 0.92  | 0.90  | 0.90 | 0.90 |
| Bus Blockages (#/hr)       | 0     | 0     | 0     | 0     | 0    | 100  |
| Adj. Flow (vph)            | 11    | 6     | 298   | 2     | 4    | 566  |
| Shared Lane Traffic (%)    |       |       |       |       |      |      |
| Lane Group Flow (vph)      | 17    | 0     | 300   | 0     | 0    | 570  |
| Enter Blocked Intersection | No    | No    | No    | No    | No   | No   |
| Lane Alignment             | Left  | Right | Left  | Right | Left | Left |
| Median Width(m)            | 3.7   |       | 0.0   |       |      | 0.0  |
| Link Offset(m)             | 0.0   |       | 0.0   |       |      | 0.0  |
| Crosswalk Width(m)         | 4.9   |       | 4.9   |       |      | 4.9  |
| Two way Left Turn Lane     |       |       |       |       |      |      |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06 | 1.96 |
| Turning Speed (k/h)        | 24    | 14    |       | 14    | 24   |      |
| Sign Control               | Stop  |       | Free  |       |      | Free |

**Intersection Summary**

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 41.6%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

# HCM Unsignalized Intersection Capacity Analysis

## 18: Sheffield Road & Way #5

03/03/2021



| Movement                          | WBL         | WBR         | NBT         | NBR                  | SBL  | SBT  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             |             |             |                      |      |      |
| Traffic Volume (veh/h)            | 10          | 5           | 274         | 2                    | 4    | 509  |
| Future Volume (Veh/h)             | 10          | 5           | 274         | 2                    | 4    | 509  |
| Sign Control                      | Stop        |             | Free        |                      | Free |      |
| Grade                             | 0%          |             | 0%          |                      | 0%   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.92        | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 11          | 6           | 298         | 2                    | 4    | 566  |
| Pedestrians                       |             |             |             |                      |      |      |
| Lane Width (m)                    |             |             |             |                      |      |      |
| Walking Speed (m/s)               |             |             |             |                      |      |      |
| Percent Blockage                  |             |             |             |                      |      |      |
| Right turn flare (veh)            |             |             |             |                      |      |      |
| Median type                       |             |             | None        |                      | None |      |
| Median storage (veh)              |             |             |             |                      |      |      |
| Upstream signal (m)               |             |             |             |                      |      |      |
| pX, platoon unblocked             |             |             |             |                      |      |      |
| vC, conflicting volume            | 873         | 299         |             |                      | 300  |      |
| vC1, stage 1 conf vol             |             |             |             |                      |      |      |
| vC2, stage 2 conf vol             |             |             |             |                      |      |      |
| vCu, unblocked vol                | 873         | 299         |             |                      | 300  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |                      | 4.1  |      |
| tC, 2 stage (s)                   |             |             |             |                      |      |      |
| tF (s)                            | 3.5         | 3.3         |             |                      | 2.2  |      |
| p0 queue free %                   | 97          | 99          |             |                      | 100  |      |
| cM capacity (veh/h)               | 320         | 741         |             |                      | 1261 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |                      |      |      |
| Volume Total                      | 17          | 300         | 570         |                      |      |      |
| Volume Left                       | 11          | 0           | 4           |                      |      |      |
| Volume Right                      | 6           | 2           | 0           |                      |      |      |
| cSH                               | 400         | 1700        | 1261        |                      |      |      |
| Volume to Capacity                | 0.04        | 0.18        | 0.00        |                      |      |      |
| Queue Length 95th (m)             | 1.0         | 0.0         | 0.1         |                      |      |      |
| Control Delay (s)                 | 14.4        | 0.0         | 0.1         |                      |      |      |
| Lane LOS                          | B           |             | A           |                      |      |      |
| Approach Delay (s)                | 14.4        | 0.0         | 0.1         |                      |      |      |
| Approach LOS                      | B           |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 0.3         |                      |      |      |
| Intersection Capacity Utilization |             | 41.6%       |             | ICU Level of Service |      | A    |
| Analysis Period (min)             |             | 15          |             |                      |      |      |

Lanes, Volumes, Timings  
20: Sheffield Road & Way #4

03/03/2021



| Lane Group                 | WBL   | WBR   | NBT   | NBR   | SBL  | SBT   |
|----------------------------|-------|-------|-------|-------|------|-------|
| Lane Configurations        |       |       |       |       |      |       |
| Traffic Volume (vph)       | 10    | 5     | 274   | 2     | 4    | 509   |
| Future Volume (vph)        | 10    | 5     | 274   | 2     | 4    | 509   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800 | 1800  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00  |
| Frt                        | 0.952 |       | 0.999 |       |      |       |
| Flt Protected              | 0.969 |       |       |       |      |       |
| Satd. Flow (prot)          | 1646  | 0     | 1783  | 0     | 0    | 1784  |
| Flt Permitted              | 0.969 |       |       |       |      |       |
| Satd. Flow (perm)          | 1646  | 0     | 1783  | 0     | 0    | 1784  |
| Link Speed (k/h)           | 48    |       | 48    |       |      | 48    |
| Link Distance (m)          | 60.6  |       | 63.2  |       |      | 102.2 |
| Travel Time (s)            | 4.5   |       | 4.7   |       |      | 7.7   |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90  | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)            | 11    | 6     | 304   | 2     | 4    | 566   |
| Shared Lane Traffic (%)    |       |       |       |       |      |       |
| Lane Group Flow (vph)      | 17    | 0     | 306   | 0     | 0    | 570   |
| Enter Blocked Intersection | No    | No    | No    | No    | No   | No    |
| Lane Alignment             | Left  | Right | Left  | Right | Left | Left  |
| Median Width(m)            | 3.7   |       | 0.0   |       |      | 0.0   |
| Link Offset(m)             | 0.0   |       | 0.0   |       |      | 0.0   |
| Crosswalk Width(m)         | 4.9   |       | 4.9   |       |      | 4.9   |
| Two way Left Turn Lane     |       |       |       |       |      |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)        | 24    | 14    |       | 14    | 24   |       |
| Sign Control               | Stop  |       | Free  |       |      | Free  |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 41.6%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

# HCM Unsignalized Intersection Capacity Analysis

## 20: Sheffield Road & Way #4

03/03/2021



| Movement                          | WBL         | WBR         | NBT         | NBR                  | SBL  | SBT  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             |             |             |                      |      |      |
| Traffic Volume (veh/h)            | 10          | 5           | 274         | 2                    | 4    | 509  |
| Future Volume (Veh/h)             | 10          | 5           | 274         | 2                    | 4    | 509  |
| Sign Control                      | Stop        |             | Free        |                      |      | Free |
| Grade                             | 0%          |             | 0%          |                      |      | 0%   |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 11          | 6           | 304         | 2                    | 4    | 566  |
| Pedestrians                       |             |             |             |                      |      |      |
| Lane Width (m)                    |             |             |             |                      |      |      |
| Walking Speed (m/s)               |             |             |             |                      |      |      |
| Percent Blockage                  |             |             |             |                      |      |      |
| Right turn flare (veh)            |             |             |             |                      |      |      |
| Median type                       |             |             |             |                      |      |      |
| Median storage veh                |             |             |             |                      |      |      |
| Upstream signal (m)               |             |             |             |                      |      |      |
| pX, platoon unblocked             |             |             |             |                      |      |      |
| vC, conflicting volume            | 879         | 305         |             |                      | 306  |      |
| vC1, stage 1 conf vol             |             |             |             |                      |      |      |
| vC2, stage 2 conf vol             |             |             |             |                      |      |      |
| vCu, unblocked vol                | 879         | 305         |             |                      | 306  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |                      | 4.1  |      |
| tC, 2 stage (s)                   |             |             |             |                      |      |      |
| tF (s)                            | 3.5         | 3.3         |             |                      | 2.2  |      |
| p0 queue free %                   | 97          | 99          |             |                      | 100  |      |
| cM capacity (veh/h)               | 317         | 735         |             |                      | 1255 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |                      |      |      |
| Volume Total                      | 17          | 306         | 570         |                      |      |      |
| Volume Left                       | 11          | 0           | 4           |                      |      |      |
| Volume Right                      | 6           | 2           | 0           |                      |      |      |
| cSH                               | 397         | 1700        | 1255        |                      |      |      |
| Volume to Capacity                | 0.04        | 0.18        | 0.00        |                      |      |      |
| Queue Length 95th (m)             | 1.0         | 0.0         | 0.1         |                      |      |      |
| Control Delay (s)                 | 14.5        | 0.0         | 0.1         |                      |      |      |
| Lane LOS                          | B           |             | A           |                      |      |      |
| Approach Delay (s)                | 14.5        | 0.0         | 0.1         |                      |      |      |
| Approach LOS                      | B           |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 0.3         |                      |      |      |
| Intersection Capacity Utilization |             | 41.6%       |             | ICU Level of Service |      | A    |
| Analysis Period (min)             |             |             | 15          |                      |      |      |

Lanes, Volumes, Timings  
 24: Sheffield Road & Way #2

03/03/2021



| Lane Group                 | WBL   | WBR   | NBT   | NBR   | SBL  | SBT  |
|----------------------------|-------|-------|-------|-------|------|------|
| Lane Configurations        |       |       |       |       |      |      |
| Traffic Volume (vph)       | 10    | 5     | 274   | 2     | 4    | 509  |
| Future Volume (vph)        | 10    | 5     | 274   | 2     | 4    | 509  |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800 | 1800 |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 |
| Frt                        | 0.952 |       | 0.999 |       |      |      |
| Flt Protected              | 0.969 |       |       |       |      |      |
| Satd. Flow (prot)          | 1646  | 0     | 1783  | 0     | 0    | 1784 |
| Flt Permitted              | 0.969 |       |       |       |      |      |
| Satd. Flow (perm)          | 1646  | 0     | 1783  | 0     | 0    | 1784 |
| Link Speed (k/h)           | 48    |       | 48    |       |      | 48   |
| Link Distance (m)          | 65.0  |       | 102.2 |       |      | 76.9 |
| Travel Time (s)            | 4.9   |       | 7.7   |       |      | 5.8  |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90  | 0.90  | 0.90 | 0.90 |
| Adj. Flow (vph)            | 11    | 6     | 304   | 2     | 4    | 566  |
| Shared Lane Traffic (%)    |       |       |       |       |      |      |
| Lane Group Flow (vph)      | 17    | 0     | 306   | 0     | 0    | 570  |
| Enter Blocked Intersection | No    | No    | No    | No    | No   | No   |
| Lane Alignment             | Left  | Right | Left  | Right | Left | Left |
| Median Width(m)            | 3.7   |       | 0.0   |       |      | 0.0  |
| Link Offset(m)             | 0.0   |       | 0.0   |       |      | 0.0  |
| Crosswalk Width(m)         | 4.9   |       | 4.9   |       |      | 4.9  |
| Two way Left Turn Lane     |       |       |       |       |      |      |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06 | 1.06 |
| Turning Speed (k/h)        | 24    | 14    |       | 14    | 24   |      |
| Sign Control               | Stop  |       | Free  |       |      | Free |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 41.6%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
 24: Sheffield Road & Way #2

03/03/2021



| Movement                          | WBL         | WBR         | NBT         | NBR                  | SBL  | SBT  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             |             |             |                      |      |      |
| Traffic Volume (veh/h)            | 10          | 5           | 274         | 2                    | 4    | 509  |
| Future Volume (Veh/h)             | 10          | 5           | 274         | 2                    | 4    | 509  |
| Sign Control                      | Stop        |             | Free        |                      | Free |      |
| Grade                             | 0%          |             | 0%          |                      | 0%   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 11          | 6           | 304         | 2                    | 4    | 566  |
| 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            | 879         | 305         |             |                      | 306  |      |
| vC1, stage 1 conf vol             |             |             |             |                      |      |      |
| vC2, stage 2 conf vol             |             |             |             |                      |      |      |
| vCu, unblocked vol                | 879         | 305         |             |                      | 306  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |                      | 4.1  |      |
| tC, 2 stage (s)                   |             |             |             |                      |      |      |
| tF (s)                            | 3.5         | 3.3         |             |                      | 2.2  |      |
| p0 queue free %                   | 97          | 99          |             |                      | 100  |      |
| cM capacity (veh/h)               | 317         | 735         |             |                      | 1255 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |                      |      |      |
| Volume Total                      | 17          | 306         | 570         |                      |      |      |
| Volume Left                       | 11          | 0           | 4           |                      |      |      |
| Volume Right                      | 6           | 2           | 0           |                      |      |      |
| cSH                               | 397         | 1700        | 1255        |                      |      |      |
| Volume to Capacity                | 0.04        | 0.18        | 0.00        |                      |      |      |
| Queue Length 95th (m)             | 1.0         | 0.0         | 0.1         |                      |      |      |
| Control Delay (s)                 | 14.5        | 0.0         | 0.1         |                      |      |      |
| Lane LOS                          | B           |             | A           |                      |      |      |
| Approach Delay (s)                | 14.5        | 0.0         | 0.1         |                      |      |      |
| Approach LOS                      | B           |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 0.3         |                      |      |      |
| Intersection Capacity Utilization |             |             | 41.6%       | ICU Level of Service | A    |      |
| Analysis Period (min)             |             |             | 15          |                      |      |      |

Lanes, Volumes, Timings  
 26: Sheffield Road & Way #1

03/03/2021



| Lane Group                 | WBL   | WBR   | NBT   | NBR   | SBL  | SBT   |
|----------------------------|-------|-------|-------|-------|------|-------|
| Lane Configurations        |       |       |       |       |      |       |
| Traffic Volume (vph)       | 10    | 5     | 274   | 2     | 4    | 509   |
| Future Volume (vph)        | 10    | 5     | 274   | 2     | 4    | 509   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800 | 1800  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00  |
| Frt                        | 0.952 |       | 0.999 |       |      |       |
| Flt Protected              | 0.969 |       |       |       |      |       |
| Satd. Flow (prot)          | 1646  | 0     | 1783  | 0     | 0    | 1784  |
| Flt Permitted              | 0.969 |       |       |       |      |       |
| Satd. Flow (perm)          | 1646  | 0     | 1783  | 0     | 0    | 1784  |
| Link Speed (k/h)           | 48    |       | 48    |       |      | 48    |
| Link Distance (m)          | 58.8  |       | 76.9  |       |      | 181.8 |
| Travel Time (s)            | 4.4   |       | 5.8   |       |      | 13.6  |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90  | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)            | 11    | 6     | 304   | 2     | 4    | 566   |
| Shared Lane Traffic (%)    |       |       |       |       |      |       |
| Lane Group Flow (vph)      | 17    | 0     | 306   | 0     | 0    | 570   |
| Enter Blocked Intersection | No    | No    | No    | No    | No   | No    |
| Lane Alignment             | Left  | Right | Left  | Right | Left | Left  |
| Median Width(m)            | 3.7   |       | 0.0   |       |      | 0.0   |
| Link Offset(m)             | 0.0   |       | 0.0   |       |      | 0.0   |
| Crosswalk Width(m)         | 4.9   |       | 4.9   |       |      | 4.9   |
| Two way Left Turn Lane     |       |       |       |       |      |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)        | 24    | 14    |       | 14    | 24   |       |
| Sign Control               | Stop  |       | Free  |       |      | Free  |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 41.6%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

# HCM Unsignalized Intersection Capacity Analysis

## 26: Sheffield Road & Way #1

03/03/2021



| Movement                          | WBL  | WBR  | NBT   | NBR                  | SBL  | SBT  |
|-----------------------------------|------|------|-------|----------------------|------|------|
| Lane Configurations               |      |      |       |                      |      |      |
| Traffic Volume (veh/h)            | 10   | 5    | 274   | 2                    | 4    | 509  |
| Future Volume (Veh/h)             | 10   | 5    | 274   | 2                    | 4    | 509  |
| Sign Control                      | Stop |      | Free  |                      | Free |      |
| Grade                             | 0%   |      | 0%    |                      | 0%   |      |
| Peak Hour Factor                  | 0.90 | 0.90 | 0.90  | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 11   | 6    | 304   | 2                    | 4    | 566  |
| 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            | 879  | 305  |       |                      | 306  |      |
| vC1, stage 1 conf vol             |      |      |       |                      |      |      |
| vC2, stage 2 conf vol             |      |      |       |                      |      |      |
| vCu, unblocked vol                | 879  | 305  |       |                      | 306  |      |
| tC, single (s)                    | 6.4  | 6.2  |       |                      | 4.1  |      |
| tC, 2 stage (s)                   |      |      |       |                      |      |      |
| tF (s)                            | 3.5  | 3.3  |       |                      | 2.2  |      |
| p0 queue free %                   | 97   | 99   |       |                      | 100  |      |
| cM capacity (veh/h)               | 317  | 735  |       |                      | 1255 |      |
| Direction, Lane #                 | WB 1 | NB 1 | SB 1  |                      |      |      |
| Volume Total                      | 17   | 306  | 570   |                      |      |      |
| Volume Left                       | 11   | 0    | 4     |                      |      |      |
| Volume Right                      | 6    | 2    | 0     |                      |      |      |
| cSH                               | 397  | 1700 | 1255  |                      |      |      |
| Volume to Capacity                | 0.04 | 0.18 | 0.00  |                      |      |      |
| Queue Length 95th (m)             | 1.0  | 0.0  | 0.1   |                      |      |      |
| Control Delay (s)                 | 14.5 | 0.0  | 0.1   |                      |      |      |
| Lane LOS                          | B    |      | A     |                      |      |      |
| Approach Delay (s)                | 14.5 | 0.0  | 0.1   |                      |      |      |
| Approach LOS                      | B    |      |       |                      |      |      |
| Intersection Summary              |      |      |       |                      |      |      |
| Average Delay                     |      |      | 0.3   |                      |      |      |
| Intersection Capacity Utilization |      |      | 41.6% | ICU Level of Service | A    |      |
| Analysis Period (min)             |      |      | 15    |                      |      |      |



Summary of All Intervals

| Run Number              | 1     | 2     | 3     | Avg   |
|-------------------------|-------|-------|-------|-------|
| Start Time              | 6:57  | 6:57  | 6:57  | 6:57  |
| End Time                | 8:00  | 8:00  | 8:00  | 8:00  |
| Total Time (min)        | 63    | 63    | 63    | 63    |
| Time Recorded (min)     | 60    | 60    | 60    | 60    |
| # of Intervals          | 2     | 2     | 2     | 2     |
| # of Recorded Intervals | 1     | 1     | 1     | 1     |
| Vehs Entered            | 4511  | 4459  | 4593  | 4522  |
| Vehs Exited             | 4397  | 4397  | 4480  | 4422  |
| Starting Vehs           | 167   | 143   | 145   | 150   |
| Ending Vehs             | 281   | 205   | 258   | 246   |
| Travel Distance (km)    | 6803  | 6815  | 6887  | 6835  |
| Travel Time (hr)        | 259.1 | 236.7 | 235.1 | 243.6 |
| Total Delay (hr)        | 139.9 | 116.8 | 114.8 | 123.8 |
| Total Stops             | 4036  | 3952  | 4129  | 4035  |
| Fuel Used (l)           | 674.4 | 659.7 | 660.0 | 664.7 |

Interval #0 Information Seeding

|                                     |      |
|-------------------------------------|------|
| Start Time                          | 6:57 |
| End Time                            | 7:00 |
| Total Time (min)                    | 3    |
| Volumes adjusted by Growth Factors. |      |
| No data recorded this interval.     |      |

Interval #1 Information Recording

|                                     |      |
|-------------------------------------|------|
| Start Time                          | 7:00 |
| End Time                            | 8:00 |
| Total Time (min)                    | 60   |
| Volumes adjusted by Growth Factors. |      |

| Run Number           | 1     | 2     | 3     | Avg   |
|----------------------|-------|-------|-------|-------|
| Vehs Entered         | 4511  | 4459  | 4593  | 4522  |
| Vehs Exited          | 4397  | 4397  | 4480  | 4422  |
| Starting Vehs        | 167   | 143   | 145   | 150   |
| Ending Vehs          | 281   | 205   | 258   | 246   |
| Travel Distance (km) | 6803  | 6815  | 6887  | 6835  |
| Travel Time (hr)     | 259.1 | 236.7 | 235.1 | 243.6 |
| Total Delay (hr)     | 139.9 | 116.8 | 114.8 | 123.8 |
| Total Stops          | 4036  | 3952  | 4129  | 4035  |
| Fuel Used (l)        | 674.4 | 659.7 | 660.0 | 664.7 |

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3: Walkley Road & Lancaster Road Performance by movement

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6: Walkley Road & Sheffield Road Performance by movement

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7: Walkley Road & Highway SB terminal Performance by movement

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10: Highway NB terminal & Walkley Road Performance by movement

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11: SB off ramp & Walkley Road Performance by movement

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13: Walkley Road & NB off ramp Performance by movement

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15: Sheffield Road & Humber Place Performance by movement

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18: Sheffield Road & Way #5 Performance by movement

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20: Sheffield Road & Way #4 Performance by movement

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24: Sheffield Road & Way #2 Performance by movement

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26: Sheffield Road & Way #1 Performance by movement

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Total Network Performance

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Queuing and Blocking Report  
Baseline

03/03/2021

Intersection: 3: Walkley Road & Lancaster Road

| Movement              | EB   | EB    | EB    | WB    | WB    | WB    | SB    | SB    | SB   |
|-----------------------|------|-------|-------|-------|-------|-------|-------|-------|------|
| Directions Served     | L    | T     | T     | T     | T     | R     | L     | L     | R    |
| Maximum Queue (m)     | 37.9 | 103.2 | 92.6  | 77.0  | 83.6  | 19.4  | 91.9  | 110.6 | 38.1 |
| Average Queue (m)     | 18.4 | 52.0  | 50.0  | 43.7  | 47.0  | 1.4   | 60.8  | 73.6  | 30.6 |
| 95th Queue (m)        | 35.9 | 89.4  | 79.4  | 69.5  | 72.6  | 9.9   | 88.2  | 108.2 | 53.9 |
| Link Distance (m)     |      | 298.2 | 298.2 | 343.0 | 343.0 | 343.0 | 687.0 | 687.0 |      |
| Upstream Blk Time (%) |      |       |       |       |       |       |       |       |      |
| Queuing Penalty (veh) |      |       |       |       |       |       |       |       |      |
| Storage Bay Dist (m)  | 30.5 |       |       |       |       |       |       |       | 30.5 |
| Storage Blk Time (%)  | 1    | 10    |       |       |       |       |       | 45    | 0    |
| Queuing Penalty (veh) | 5    | 12    |       |       |       |       |       | 90    | 1    |

Intersection: 6: Walkley Road & Sheffield Road

| Movement              | EB   | EB    | EB    | WB    | WB    | WB   | SB    | SB    | SB   |
|-----------------------|------|-------|-------|-------|-------|------|-------|-------|------|
| Directions Served     | L    | T     | T     | T     | T     | R    | L     | L     | R    |
| Maximum Queue (m)     | 38.0 | 144.9 | 136.7 | 68.4  | 80.2  | 57.5 | 96.5  | 168.4 | 38.1 |
| Average Queue (m)     | 27.2 | 77.6  | 84.4  | 32.3  | 36.7  | 5.1  | 37.2  | 73.8  | 33.6 |
| 95th Queue (m)        | 45.0 | 126.9 | 129.7 | 59.9  | 66.0  | 30.6 | 70.7  | 147.1 | 50.8 |
| Link Distance (m)     |      | 343.0 | 343.0 | 321.0 | 321.0 |      | 803.9 | 803.9 |      |
| Upstream Blk Time (%) |      |       |       |       |       |      |       |       |      |
| Queuing Penalty (veh) |      |       |       |       |       |      |       |       |      |
| Storage Bay Dist (m)  | 30.5 |       |       |       |       | 50.0 |       |       | 30.5 |
| Storage Blk Time (%)  | 6    | 13    |       |       | 2     | 0    |       | 27    | 4    |
| Queuing Penalty (veh) | 56   | 26    |       |       | 2     | 0    |       | 101   | 6    |

Intersection: 7: Walkley Road & Highway SB terminal

| Movement              | SB    | SB    |
|-----------------------|-------|-------|
| Directions Served     | L     | R     |
| Maximum Queue (m)     | 456.7 | 458.7 |
| Average Queue (m)     | 286.8 | 147.6 |
| 95th Queue (m)        | 515.0 | 479.1 |
| Link Distance (m)     | 450.2 | 450.2 |
| Upstream Blk Time (%) | 23    | 19    |
| Queuing Penalty (veh) | 0     | 0     |
| Storage Bay Dist (m)  |       |       |
| Storage Blk Time (%)  |       |       |
| Queuing Penalty (veh) |       |       |

Queuing and Blocking Report  
Baseline

03/03/2021

Intersection: 10: Highway NB terminal & Walkley Road

| Movement              | EB    | NB    |
|-----------------------|-------|-------|
| Directions Served     | TR    | LR    |
| Maximum Queue (m)     | 31.2  | 34.6  |
| Average Queue (m)     | 1.1   | 16.6  |
| 95th Queue (m)        | 17.4  | 28.3  |
| Link Distance (m)     | 287.6 | 430.9 |
| Upstream Blk Time (%) |       |       |
| Queuing Penalty (veh) |       |       |
| Storage Bay Dist (m)  |       |       |
| Storage Blk Time (%)  |       |       |
| Queuing Penalty (veh) |       |       |

Intersection: 11: SB off ramp & Walkley Road

| Movement              | WB    |
|-----------------------|-------|
| Directions Served     | T     |
| Maximum Queue (m)     | 3.1   |
| Average Queue (m)     | 0.3   |
| 95th Queue (m)        | 3.0   |
| Link Distance (m)     | 104.9 |
| Upstream Blk Time (%) |       |
| Queuing Penalty (veh) |       |
| Storage Bay Dist (m)  |       |
| Storage Blk Time (%)  |       |
| Queuing Penalty (veh) |       |

Intersection: 13: Walkley Road & NB off ramp

| Movement              |
|-----------------------|
| Directions Served     |
| Maximum Queue (m)     |
| Average Queue (m)     |
| 95th Queue (m)        |
| Link Distance (m)     |
| Upstream Blk Time (%) |
| Queuing Penalty (veh) |
| Storage Bay Dist (m)  |
| Storage Blk Time (%)  |
| Queuing Penalty (veh) |

## Queuing and Blocking Report Baseline

03/03/2021

### Intersection: 15: Sheffield Road & Humber Place

| Movement              | EB    | WB    | NB    | SB   |
|-----------------------|-------|-------|-------|------|
| Directions Served     | LTR   | LTR   | LTR   | LTR  |
| Maximum Queue (m)     | 30.2  | 16.0  | 307.5 | 10.5 |
| Average Queue (m)     | 14.5  | 1.5   | 21.9  | 0.6  |
| 95th Queue (m)        | 24.1  | 8.7   | 164.2 | 5.3  |
| Link Distance (m)     | 139.5 | 139.6 | 803.9 | 61.6 |
| Upstream Blk Time (%) |       |       | 0     |      |
| Queuing Penalty (veh) |       |       | 0     |      |
| Storage Bay Dist (m)  |       |       |       |      |
| Storage Blk Time (%)  |       |       |       |      |
| Queuing Penalty (veh) |       |       |       |      |

### Intersection: 18: Sheffield Road & Way #5

| Movement              | WB   | SB   |
|-----------------------|------|------|
| Directions Served     | LR   | LT   |
| Maximum Queue (m)     | 11.2 | 3.1  |
| Average Queue (m)     | 3.0  | 0.1  |
| 95th Queue (m)        | 10.3 | 1.7  |
| Link Distance (m)     | 47.3 | 45.8 |
| Upstream Blk Time (%) |      |      |
| Queuing Penalty (veh) |      |      |
| Storage Bay Dist (m)  |      |      |
| Storage Blk Time (%)  |      |      |
| Queuing Penalty (veh) |      |      |

### Intersection: 20: Sheffield Road & Way #4

| Movement              | WB   | SB   |
|-----------------------|------|------|
| Directions Served     | LR   | LT   |
| Maximum Queue (m)     | 11.6 | 9.2  |
| Average Queue (m)     | 3.4  | 0.4  |
| 95th Queue (m)        | 11.0 | 3.5  |
| Link Distance (m)     | 51.7 | 84.8 |
| Upstream Blk Time (%) |      |      |
| Queuing Penalty (veh) |      |      |
| Storage Bay Dist (m)  |      |      |
| Storage Blk Time (%)  |      |      |
| Queuing Penalty (veh) |      |      |

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Intersection: 24: Sheffield Road & Way #2

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| Movement              | WB   | SB   |
|-----------------------|------|------|
| Directions Served     | LR   | LT   |
| Maximum Queue (m)     | 9.1  | 5.6  |
| Average Queue (m)     | 3.6  | 0.3  |
| 95th Queue (m)        | 10.7 | 3.6  |
| Link Distance (m)     | 56.3 | 59.7 |
| Upstream Blk Time (%) |      |      |
| Queuing Penalty (veh) |      |      |
| Storage Bay Dist (m)  |      |      |
| Storage Blk Time (%)  |      |      |
| Queuing Penalty (veh) |      |      |

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Intersection: 26: Sheffield Road & Way #1

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| Movement              | WB   | SB    |
|-----------------------|------|-------|
| Directions Served     | LR   | LT    |
| Maximum Queue (m)     | 15.6 | 11.1  |
| Average Queue (m)     | 4.0  | 0.6   |
| 95th Queue (m)        | 12.3 | 5.8   |
| Link Distance (m)     | 49.6 | 174.5 |
| Upstream Blk Time (%) |      |       |
| Queuing Penalty (veh) |      |       |
| Storage Bay Dist (m)  |      |       |
| Storage Blk Time (%)  |      |       |
| Queuing Penalty (veh) |      |       |

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Network Summary

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Network wide Queuing Penalty: 300

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future BG 2025 AM - Adjacent Peak  
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| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 207   | 745   | 1437  | 652   | 94    | 171   |
| Future Volume (vph)        | 207   | 745   | 1437  | 652   | 94    | 171   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 100.0 |       |       | 0.0   | 0.0   | 70.0  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1647  | 3007  | 3232  | 1517  | 3135  | 1406  |
| Flt Permitted              | 0.100 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 173   | 3007  | 3232  | 1517  | 3135  | 1406  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 599   |       | 176   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 248.5 | 361.1 |       | 367.8 |       |
| Travel Time (s)            |       | 11.2  | 16.2  |       | 27.6  |       |
| Peak Hour Factor           | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Heavy Vehicles (%)         | 5%    | 15%   | 7%    | 2%    | 7%    | 10%   |
| Adj. Flow (vph)            | 213   | 768   | 1481  | 672   | 97    | 176   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 213   | 768   | 1481  | 672   | 97    | 176   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 24.0  | 122.0 | 98.0  | 98.0  | 28.0  | 28.0  |
| Total Split (%)            | 16.0% | 81.3% | 65.3% | 65.3% | 18.7% | 18.7% |
| Maximum Green (s)          | 21.0  | 117.0 | 93.0  | 93.0  | 23.0  | 23.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 119.0 | 117.0 | 93.0  | 93.0  | 23.0  | 23.0  |
| Actuated g/C Ratio         | 0.79  | 0.78  | 0.62  | 0.62  | 0.15  | 0.15  |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future BG 2025 AM - Adjacent Peak  
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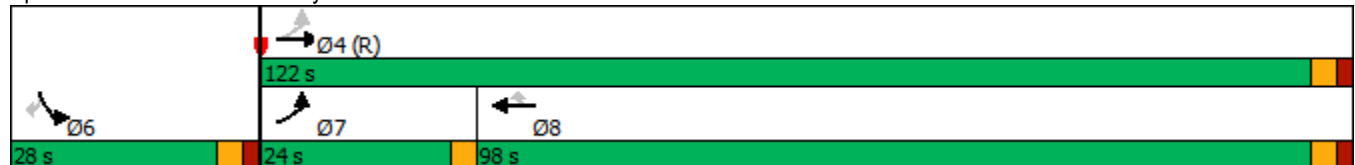


| Lane Group             | EBL   | EBT   | WBT   | WBR   | SBL   | SBR  |
|------------------------|-------|-------|-------|-------|-------|------|
| v/c Ratio              | 0.62  | 0.33  | 0.74  | 0.58  | 0.20  | 0.48 |
| Control Delay          | 25.8  | 5.3   | 11.5  | 2.3   | 56.7  | 12.1 |
| Queue Delay            | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| Total Delay            | 25.8  | 5.3   | 11.5  | 2.3   | 56.7  | 12.1 |
| LOS                    | C     | A     | B     | A     | E     | B    |
| Approach Delay         |       | 9.7   | 8.6   |       | 28.0  |      |
| Approach LOS           |       | A     | A     |       | C     |      |
| Queue Length 50th (m)  | 22.4  | 31.0  | 51.9  | 12.5  | 13.1  | 0.0  |
| Queue Length 95th (m)  | 50.8  | 38.1  | m67.3 | m20.7 | 21.9  | 22.0 |
| Internal Link Dist (m) |       | 224.5 | 337.1 |       | 343.8 |      |
| Turn Bay Length (m)    | 100.0 |       |       |       |       | 70.0 |
| Base Capacity (vph)    | 343   | 2345  | 2003  | 1168  | 480   | 364  |
| Starvation Cap Reductn | 0     | 0     | 0     | 0     | 0     | 0    |
| Spillback Cap Reductn  | 0     | 0     | 0     | 0     | 0     | 0    |
| Storage Cap Reductn    | 0     | 0     | 0     | 0     | 0     | 0    |
| Reduced v/c Ratio      | 0.62  | 0.33  | 0.74  | 0.58  | 0.20  | 0.48 |

Intersection Summary

Area Type: Other  
 Cycle Length: 150  
 Actuated Cycle Length: 150  
 Offset: 50 (33%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.74  
 Intersection Signal Delay: 10.5  
 Intersection LOS: B  
 Intersection Capacity Utilization 69.9%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

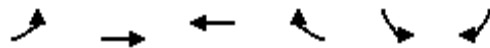
Splits and Phases: 3: Walkley Road & Lancaster Road





HCM Signalized Intersection Capacity Analysis  
3: Walkley Road & Lancaster Road

Future BG 2025 AM - Adjacent Peak  
10-24-2022



| Movement               | EBL   | EBT   | WBT   | WBR  | SBL   | SBR  |
|------------------------|-------|-------|-------|------|-------|------|
| Lane Configurations    |       |       |       |      |       |      |
| Traffic Volume (vph)   | 207   | 745   | 1437  | 652  | 94    | 171  |
| Future Volume (vph)    | 207   | 745   | 1437  | 652  | 94    | 171  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800  | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95  | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00  | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00  | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1647  | 3007  | 3232  | 1517 | 3135  | 1406 |
| Flt Permitted          | 0.10  | 1.00  | 1.00  | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 174   | 3007  | 3232  | 1517 | 3135  | 1406 |
| Peak-hour factor, PHF  | 0.97  | 0.97  | 0.97  | 0.97 | 0.97  | 0.97 |
| Adj. Flow (vph)        | 213   | 768   | 1481  | 672  | 97    | 176  |
| RTOR Reduction (vph)   | 0     | 0     | 0     | 228  | 0     | 149  |
| Lane Group Flow (vph)  | 213   | 768   | 1481  | 444  | 97    | 27   |
| Heavy Vehicles (%)     | 5%    | 15%   | 7%    | 2%   | 7%    | 10%  |
| Turn Type              | pm+pt | NA    | NA    | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8     |      | 6     |      |
| Permitted Phases       | 4     |       |       | 8    |       | 6    |
| Actuated Green, G (s)  | 117.0 | 117.0 | 93.0  | 93.0 | 23.0  | 23.0 |
| Effective Green, g (s) | 117.0 | 117.0 | 93.0  | 93.0 | 23.0  | 23.0 |
| Actuated g/C Ratio     | 0.78  | 0.78  | 0.62  | 0.62 | 0.15  | 0.15 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 341   | 2345  | 2003  | 940  | 480   | 215  |
| v/s Ratio Prot         | c0.09 | 0.26  | c0.46 |      | c0.03 |      |
| v/s Ratio Perm         | 0.40  |       |       | 0.29 |       | 0.02 |
| v/c Ratio              | 0.62  | 0.33  | 0.74  | 0.47 | 0.20  | 0.13 |
| Uniform Delay, d1      | 25.3  | 4.9   | 20.0  | 15.3 | 55.5  | 54.8 |
| Progression Factor     | 1.00  | 1.00  | 0.51  | 0.77 | 1.00  | 1.00 |
| Incremental Delay, d2  | 8.4   | 0.4   | 1.0   | 0.7  | 0.9   | 1.2  |
| Delay (s)              | 33.7  | 5.2   | 11.3  | 12.5 | 56.4  | 56.0 |
| Level of Service       | C     | A     | B     | B    | E     | E    |
| Approach Delay (s)     |       | 11.4  | 11.7  |      | 56.2  |      |
| Approach LOS           |       | B     | B     |      | E     |      |

| Intersection Summary              |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 15.2  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.63  |                           |      |
| Actuated Cycle Length (s)         | 150.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 69.9% | ICU Level of Service      | C    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
6: Walkley Road & Sheffield Road

Future BG 2025 AM - Adjacent Peak  
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| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 287   | 459   | 1831  | 272   | 53    | 240   |
| Future Volume (vph)        | 287   | 459   | 1831  | 272   | 53    | 240   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 100.0 |       |       | 30.0  | 0.0   | 70.0  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1491  | 3060  | 3357  | 1459  | 2396  | 1190  |
| Flt Permitted              | 0.044 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 69    | 3060  | 3357  | 1459  | 2396  | 1190  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 80    |       | 245   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 361.1 | 363.2 |       | 830.1 |       |
| Travel Time (s)            |       | 16.2  | 16.3  |       | 62.3  |       |
| Peak Hour Factor           | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Heavy Vehicles (%)         | 16%   | 13%   | 3%    | 6%    | 40%   | 30%   |
| Adj. Flow (vph)            | 293   | 468   | 1868  | 278   | 54    | 245   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 293   | 468   | 1868  | 278   | 54    | 245   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 32.0  | 124.0 | 92.0  | 92.0  | 26.0  | 26.0  |
| Total Split (%)            | 21.3% | 82.7% | 61.3% | 61.3% | 17.3% | 17.3% |
| Maximum Green (s)          | 29.0  | 119.0 | 87.0  | 87.0  | 21.0  | 21.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 121.0 | 119.0 | 87.0  | 87.0  | 21.0  | 21.0  |
| Actuated g/C Ratio         | 0.81  | 0.79  | 0.58  | 0.58  | 0.14  | 0.14  |

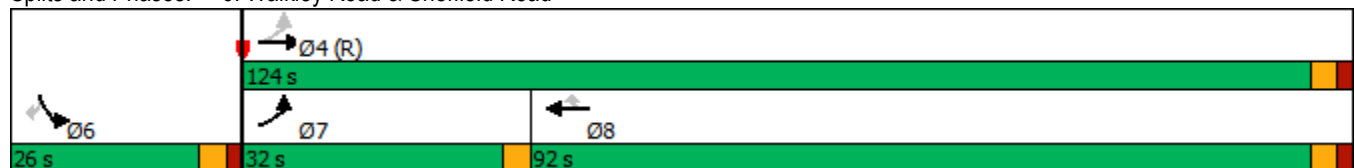


| Lane Group             | EBL    | EBT   | WBT    | WBR  | SBL   | SBR  |
|------------------------|--------|-------|--------|------|-------|------|
| v/c Ratio              | 0.89   | 0.19  | 0.96   | 0.32 | 0.16  | 0.65 |
| Control Delay          | 66.5   | 3.6   | 42.9   | 12.2 | 58.2  | 15.3 |
| Queue Delay            | 0.0    | 0.0   | 0.0    | 0.0  | 0.0   | 0.0  |
| Total Delay            | 66.5   | 3.6   | 42.9   | 12.2 | 58.2  | 15.3 |
| LOS                    | E      | A     | D      | B    | E     | B    |
| Approach Delay         |        | 27.8  | 38.9   |      | 23.0  |      |
| Approach LOS           |        | C     | D      |      | C     |      |
| Queue Length 50th (m)  | 54.3   | 14.6  | 267.0  | 28.2 | 7.4   | 0.0  |
| Queue Length 95th (m)  | #118.7 | 18.0  | #331.2 | 45.7 | 14.2  | 27.9 |
| Internal Link Dist (m) |        | 337.1 | 339.2  |      | 806.1 |      |
| Turn Bay Length (m)    | 100.0  |       |        | 30.0 |       | 70.0 |
| Base Capacity (vph)    | 330    | 2427  | 1947   | 879  | 335   | 377  |
| Starvation Cap Reductn | 0      | 0     | 0      | 0    | 0     | 0    |
| Spillback Cap Reductn  | 0      | 0     | 0      | 0    | 0     | 0    |
| Storage Cap Reductn    | 0      | 0     | 0      | 0    | 0     | 0    |
| Reduced v/c Ratio      | 0.89   | 0.19  | 0.96   | 0.32 | 0.16  | 0.65 |

Intersection Summary

Area Type: Other  
 Cycle Length: 150  
 Actuated Cycle Length: 150  
 Offset: 50 (33%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 110  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.96  
 Intersection Signal Delay: 34.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 86.0%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Walkley Road & Sheffield Road



HCM Signalized Intersection Capacity Analysis  
6: Walkley Road & Sheffield Road

Future BG 2025 AM - Adjacent Peak  
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| Movement               | EBL   | EBT   | WBT   | WBR  | SBL  | SBR   |
|------------------------|-------|-------|-------|------|------|-------|
| Lane Configurations    |       |       |       |      |      |       |
| Traffic Volume (vph)   | 287   | 459   | 1831  | 272  | 53   | 240   |
| Future Volume (vph)    | 287   | 459   | 1831  | 272  | 53   | 240   |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800  | 1800 | 1800 | 1800  |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0   | 5.0  | 5.0  | 5.0   |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95  | 1.00 | 0.97 | 1.00  |
| Frt                    | 1.00  | 1.00  | 1.00  | 0.85 | 1.00 | 0.85  |
| Flt Protected          | 0.95  | 1.00  | 1.00  | 1.00 | 0.95 | 1.00  |
| Satd. Flow (prot)      | 1491  | 3060  | 3357  | 1459 | 2396 | 1190  |
| Flt Permitted          | 0.04  | 1.00  | 1.00  | 1.00 | 0.95 | 1.00  |
| Satd. Flow (perm)      | 70    | 3060  | 3357  | 1459 | 2396 | 1190  |
| Peak-hour factor, PHF  | 0.98  | 0.98  | 0.98  | 0.98 | 0.98 | 0.98  |
| Adj. Flow (vph)        | 293   | 468   | 1868  | 278  | 54   | 245   |
| RTOR Reduction (vph)   | 0     | 0     | 0     | 34   | 0    | 211   |
| Lane Group Flow (vph)  | 293   | 468   | 1868  | 244  | 54   | 34    |
| Heavy Vehicles (%)     | 16%   | 13%   | 3%    | 6%   | 40%  | 30%   |
| Turn Type              | pm+pt | NA    | NA    | Perm | Prot | Perm  |
| Protected Phases       | 7     | 4     | 8     |      | 6    |       |
| Permitted Phases       | 4     |       |       | 8    |      | 6     |
| Actuated Green, G (s)  | 119.0 | 119.0 | 87.0  | 87.0 | 21.0 | 21.0  |
| Effective Green, g (s) | 119.0 | 119.0 | 87.0  | 87.0 | 21.0 | 21.0  |
| Actuated g/C Ratio     | 0.79  | 0.79  | 0.58  | 0.58 | 0.14 | 0.14  |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0   | 5.0  | 5.0  | 5.0   |
| Lane Grp Cap (vph)     | 330   | 2427  | 1947  | 846  | 335  | 166   |
| v/s Ratio Prot         | c0.17 | 0.15  | c0.56 |      | 0.02 |       |
| v/s Ratio Perm         | 0.53  |       |       | 0.17 |      | c0.03 |
| v/c Ratio              | 0.89  | 0.19  | 0.96  | 0.29 | 0.16 | 0.21  |
| Uniform Delay, d1      | 51.3  | 3.8   | 29.8  | 15.9 | 56.8 | 57.1  |
| Progression Factor     | 0.85  | 0.89  | 1.00  | 1.00 | 1.00 | 1.00  |
| Incremental Delay, d2  | 27.1  | 0.2   | 12.8  | 0.9  | 1.0  | 2.8   |
| Delay (s)              | 70.5  | 3.6   | 42.7  | 16.8 | 57.8 | 59.9  |
| Level of Service       | E     | A     | D     | B    | E    | E     |
| Approach Delay (s)     |       | 29.3  | 39.3  |      | 59.5 |       |
| Approach LOS           |       | C     | D     |      | E    |       |

| Intersection Summary              |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 38.8  | HCM 2000 Level of Service | D    |
| HCM 2000 Volume to Capacity ratio | 0.83  |                           |      |
| Actuated Cycle Length (s)         | 150.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 86.0% | ICU Level of Service      | E    |
| Analysis Period (min)             | 15    |                           |      |
| c Critical Lane Group             |       |                           |      |

Lanes, Volumes, Timings  
7: Walkley Road & Highway SB terminal

Future BG 2025 AM - Adjacent Peak  
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| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑↑    |       | ↘     | ↗     |
| Traffic Volume (vph)       | 0    | 455   | 989   | 0     | 23    | 924   |
| Future Volume (vph)        | 0    | 455   | 989   | 0     | 23    | 924   |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  |
| Flt                        |      |       |       |       |       | 0.850 |
| Flt Protected              |      |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Flt Permitted              |      |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Link Speed (k/h)           |      | 80    | 80    |       | 80    |       |
| Link Distance (m)          |      | 131.6 | 322.4 |       | 492.9 |       |
| Travel Time (s)            |      | 5.9   | 14.5  |       | 22.2  |       |
| Peak Hour Factor           | 0.97 | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Adj. Flow (vph)            | 0    | 469   | 1020  | 0     | 24    | 953   |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 469   | 1020  | 0     | 24    | 953   |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 3.7   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 95.9%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service F |

HCM Unsignalized Intersection Capacity Analysis  
7: Walkley Road & Highway SB terminal

Future BG 2025 AM - Adjacent Peak  
10-24-2022



| Movement                          | EBL         | EBT         | WBT         | WBR         | SBL                  | SBR         |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|-------------|
| Lane Configurations               |             | ↑↑          | ↑↑          |             | ↓                    | ↓           |
| Traffic Volume (veh/h)            | 0           | 455         | 989         | 0           | 23                   | 924         |
| Future Volume (Veh/h)             | 0           | 455         | 989         | 0           | 23                   | 924         |
| Sign Control                      |             | Free        | Free        |             | Stop                 |             |
| Grade                             |             | 0%          | 0%          |             | 0%                   |             |
| Peak Hour Factor                  | 0.97        | 0.97        | 0.97        | 0.97        | 0.97                 | 0.97        |
| Hourly flow rate (vph)            | 0           | 469         | 1020        | 0           | 24                   | 953         |
| <b>Pedestrians</b>                |             |             |             |             |                      |             |
| 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            | 1020        |             |             | 1254        | 510                  |             |
| vC1, stage 1 conf vol             |             |             |             |             |                      |             |
| vC2, stage 2 conf vol             |             |             |             |             |                      |             |
| vCu, unblocked vol                | 1020        |             |             | 1254        | 510                  |             |
| tC, single (s)                    | 4.1         |             |             | 6.8         | 6.9                  |             |
| tC, 2 stage (s)                   |             |             |             |             |                      |             |
| tF (s)                            | 2.2         |             |             | 3.5         | 3.3                  |             |
| p0 queue free %                   | 100         |             |             | 85          | 0                    |             |
| cM capacity (veh/h)               | 676         |             |             | 164         | 509                  |             |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b> | <b>SB 1</b>          | <b>SB 2</b> |
| Volume Total                      | 234         | 234         | 510         | 510         | 24                   | 953         |
| Volume Left                       | 0           | 0           | 0           | 0           | 24                   | 0           |
| Volume Right                      | 0           | 0           | 0           | 0           | 0                    | 953         |
| cSH                               | 1700        | 1700        | 1700        | 1700        | 164                  | 509         |
| Volume to Capacity                | 0.14        | 0.14        | 0.30        | 0.30        | 0.15                 | 1.87        |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0         | 3.8                  | 466.5       |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0         | 30.7                 | 420.0       |
| Lane LOS                          |             |             |             |             | D                    | F           |
| Approach Delay (s)                | 0.0         | 0.0         |             | 410.5       |                      |             |
| Approach LOS                      |             |             |             |             | F                    |             |
| <b>Intersection Summary</b>       |             |             |             |             |                      |             |
| Average Delay                     |             |             | 162.6       |             |                      |             |
| Intersection Capacity Utilization |             |             | 95.9%       |             | ICU Level of Service |             |
| Analysis Period (min)             |             |             | 15          |             |                      |             |
|                                   |             |             |             |             | F                    |             |

Lanes, Volumes, Timings  
 10: Highway NB terminal & Walkley Road

Future BG 2025 AM - Adjacent Peak  
 10-24-2022



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NBL   | NBR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    |       |      | ↑↑    | ↘     |       |
| Traffic Volume (vph)       | 53    | 427   | 0    | 606   | 415   | 7     |
| Future Volume (vph)        | 53    | 427   | 0    | 606   | 415   | 7     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00 | 0.95  | 1.00  | 1.00  |
| Frt                        | 0.867 |       |      | 0.998 |       |       |
| Flt Protected              |       |       |      | 0.953 |       |       |
| Satd. Flow (prot)          | 2939  | 0     | 0    | 3390  | 1697  | 0     |
| Flt Permitted              |       |       |      | 0.953 |       |       |
| Satd. Flow (perm)          | 2939  | 0     | 0    | 3390  | 1697  | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 322.4 |       |      | 108.3 | 295.7 |       |
| Travel Time (s)            | 14.5  |       |      | 8.1   | 22.2  |       |
| Peak Hour Factor           | 0.93  | 0.93  | 0.93 | 0.93  | 0.93  | 0.93  |
| Adj. Flow (vph)            | 57    | 459   | 0    | 652   | 446   | 8     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 516   | 0     | 0    | 652   | 454   | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 3.7   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 14    |       | 24   | 24    |       | 14    |
| Sign Control               | Free  |       |      | Free  | Stop  |       |

Intersection Summary

|                                   |                              |
|-----------------------------------|------------------------------|
| Area Type:                        | Other                        |
| Control Type:                     | Unsignalized                 |
| Intersection Capacity Utilization | 49.1% ICU Level of Service A |
| Analysis Period (min)             | 15                           |

HCM Unsignalized Intersection Capacity Analysis  
 10: Highway NB terminal & Walkley Road

Future BG 2025 AM - Adjacent Peak  
 10-24-2022

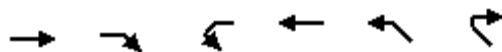


| Movement                          | EBT         | EBR         | WBL         | WBT                  | NBL         | NBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations               | ↑↑          |             |             | ↑↑                   | ↘↘          |      |
| Traffic Volume (veh/h)            | 53          | 427         | 0           | 606                  | 415         | 7    |
| Future Volume (Veh/h)             | 53          | 427         | 0           | 606                  | 415         | 7    |
| 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)            | 57          | 459         | 0           | 652                  | 446         | 8    |
| <b>Pedestrians</b>                |             |             |             |                      |             |      |
| 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            |             |             | 516         |                      | 612         | 258  |
| vC1, stage 1 conf vol             |             |             |             |                      |             |      |
| vC2, stage 2 conf vol             |             |             |             |                      |             |      |
| vCu, unblocked vol                |             |             | 516         |                      | 612         | 258  |
| tC, single (s)                    |             |             | 4.1         |                      | 6.8         | 6.9  |
| tC, 2 stage (s)                   |             |             |             |                      |             |      |
| tF (s)                            |             |             | 2.2         |                      | 3.5         | 3.3  |
| p0 queue free %                   |             |             | 100         |                      | 0           | 99   |
| cM capacity (veh/h)               |             |             | 1046        |                      | 425         | 741  |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>NB 1</b> |      |
| Volume Total                      | 38          | 478         | 326         | 326                  | 454         |      |
| Volume Left                       | 0           | 0           | 0           | 0                    | 446         |      |
| Volume Right                      | 0           | 459         | 0           | 0                    | 8           |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 428         |      |
| Volume to Capacity                | 0.02        | 0.28        | 0.19        | 0.19                 | 1.06        |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0                  | 112.4       |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 92.1        |      |
| Lane LOS                          |             |             |             |                      | F           |      |
| Approach Delay (s)                | 0.0         |             | 0.0         |                      | 92.1        |      |
| Approach LOS                      |             |             |             |                      | F           |      |
| <b>Intersection Summary</b>       |             |             |             |                      |             |      |
| Average Delay                     |             |             | 25.8        |                      |             |      |
| Intersection Capacity Utilization |             |             | 49.1%       | ICU Level of Service | A           |      |
| Analysis Period (min)             |             |             | 15          |                      |             |      |



Lanes, Volumes, Timings  
11: SB off ramp & Walkley Road

Future BG 2025 AM - Adjacent Peak  
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| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NWL   | NWR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    | ↑     |      | ↑↑↑   |       |       |
| Traffic Volume (vph)       | 455   | 137   | 0    | 1913  | 0     | 0     |
| Future Volume (vph)        | 455   | 137   | 0    | 1913  | 0     | 0     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Storage Length (m)         |       | 60.0  | 0.0  |       | 0.0   | 0.0   |
| Storage Lanes              |       | 1     | 0    |       | 0     | 0     |
| Taper Length (m)           |       |       | 7.6  |       | 7.6   |       |
| Lane Util. Factor          | 0.95  | 1.00  | 1.00 | 0.91  | 1.00  | 1.00  |
| Frt                        |       | 0.850 |      |       |       |       |
| Flt Protected              |       |       |      |       |       |       |
| Satd. Flow (prot)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Flt Permitted              |       |       |      |       |       |       |
| Satd. Flow (perm)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 363.2 |       |      | 131.6 | 210.3 |       |
| Travel Time (s)            | 16.3  |       |      | 9.9   | 15.8  |       |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90 | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)            | 506   | 152   | 0    | 2126  | 0     | 0     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 506   | 152   | 0    | 2126  | 0     | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 0.0   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        |       | 14    | 24   |       | 24    | 14    |
| Sign Control               | Free  |       |      | Free  | Free  |       |

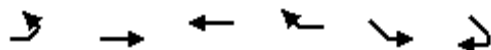
Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 42.3%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings  
13: Walkley Road & NB off ramp

Future BG 2025 AM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SEL   | SER   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑     | ↗     |       |       |
| Traffic Volume (vph)       | 0    | 60    | 606   | 215   | 0     | 0     |
| Future Volume (vph)        | 0    | 60    | 606   | 215   | 0     | 0     |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 0.0  |       |       | 70.0  | 0.0   | 0.0   |
| Storage Lanes              | 0    |       |       | 1     | 0     | 0     |
| Taper Length (m)           | 7.6  |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00 | 0.95  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      |       |       | 0.850 |       |       |
| Flt Protected              |      |       |       |       |       |       |
| Satd. Flow (prot)          | 0    | 3390  | 1784  | 1517  | 0     | 0     |
| Flt Permitted              |      |       |       |       |       |       |
| Satd. Flow (perm)          | 0    | 3390  | 1784  | 1517  | 0     | 0     |
| Link Speed (k/h)           |      | 80    | 80    |       | 48    |       |
| Link Distance (m)          |      | 108.3 | 195.3 |       | 199.6 |       |
| Travel Time (s)            |      | 4.9   | 8.8   |       | 15.0  |       |
| Peak Hour Factor           | 0.93 | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  |
| Adj. Flow (vph)            | 0    | 65    | 652   | 231   | 0     | 0     |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 65    | 652   | 231   | 0     | 0     |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 0.0   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Free  |       |

















Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 37.0%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings  
15: Sheffield Road & Humber Place

Future BG 2025 AM - Adjacent Peak  
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














|                            |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group                 | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations        |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)       | 21  | 0   | 72  | 4   | 1   | 3   | 153  | 413   | 3   | 3   | 214   | 16  |
| Future Volume (vph)        | 21  | 0   | 72  | 4   | 1   | 3   | 153  | 413   | 3   | 3   | 214   | 16  |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  | 1800   | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |   | 0.895   |   |   | 0.949   |   |  | 0.999   |   |   | 0.991   |   |
| Flt Protected              |   | 0.989   |   |   | 0.976   |   |  | 0.987   |   |   | 0.999   |   |
| Satd. Flow (prot)          | 0   | 1290  | 0   | 0   | 1225  | 0   | 0  | 1583  | 0   | 0   | 1389  | 0   |
| Flt Permitted              |   | 0.989   |   |   | 0.976   |   |  | 0.987   |   |   | 0.999   |   |
| Satd. Flow (perm)          | 0   | 1290  | 0   | 0   | 1225  | 0   | 0  | 1583  | 0   | 0   | 1389  | 0   |
| Link Speed (k/h)           |   | 48  |   |   | 48  |   |  | 48  |   |   | 48  |   |
| Link Distance (m)          |   | 152.4   |   |   | 148.3   |   |  | 830.1   |   |   | 120.3   |   |
| Travel Time (s)            |   | 11.4  |   |   | 11.1  |   |  | 62.3  |   |   | 9.0   |   |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)         | 35%   | 2%  | 22%   | 50%   | 2%  | 33%   | 12%  | 14%   | 0%  | 33%   | 30%   | 26%   |
| Adj. Flow (vph)            | 23  | 0   | 80  | 4   | 1   | 3   | 170  | 459   | 3   | 3   | 238   | 18  |
| Shared Lane Traffic (%)    |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)      | 0   | 103   | 0   | 0   | 8   | 0   | 0  | 632   | 0   | 0   | 259   | 0   |
| Enter Blocked Intersection | No  | No  | No  | No  | No  | No  | No   | No  | No  | No  | No  | No  |
| Lane Alignment             | Left  | Left  | Right   | Left  | Left  | Right   | Left   | Left  | Right   | Left  | Left  | Right   |
| Median Width(m)            |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Link Offset(m)             |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Crosswalk Width(m)         |   | 4.9   |   |   | 4.9   |   |  | 4.9   |   |   | 4.9   |   |
| Two way Left Turn Lane     |   |   |   |   |   |   |  |   |   |   |   |   |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06   | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24  |   | 14  | 24  |   | 14  | 24   |   | 14  | 24  |   | 14  |
| Sign Control               |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |

Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 61.4%        |
| ICU Level of Service              | B            |
| Analysis Period (min)             | 15           |










HCM Unsignalized Intersection Capacity Analysis  
 15: Sheffield Road & Humber Place

Future BG 2025 AM - Adjacent Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 21  | 0   | 72  | 4   | 1   | 3   | 153  | 413   | 3   | 3   | 214   | 16  |
| Future Volume (Veh/h)             | 21  | 0   | 72  | 4   | 1   | 3   | 153  | 413   | 3   | 3   | 214   | 16  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 23  | 0   | 80  | 4   | 1   | 3   | 170  | 459   | 3   | 3   | 238   | 18  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (m)                    |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (m/s)               |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Median storage veh                |   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (m)               |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 1057  | 1055  | 247   | 1134  | 1062  | 460   | 256  |   |   | 462   |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 1057  | 1055  | 247   | 1134  | 1062  | 460   | 256  |   |   | 462   |   |   |
| tC, single (s)                    | 7.4   | 6.5   | 6.4   | 7.6   | 6.5   | 6.5   | 4.2  |   |   | 4.4   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 3.8   | 4.0   | 3.5   | 4.0   | 4.0   | 3.6   | 2.3  |   |   | 2.5   |   |   |
| p0 queue free %                   | 85  | 100   | 89  | 97  | 99  | 99  | 86   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 156   | 194   | 745   | 116   | 192   | 542   | 1253   |   |   | 954   |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | SB 1  |   |   |  |   |   |   |   |   |
| Volume Total                      | 103   | 8   | 632   | 259   |   |   |  |   |   |   |   |   |
| Volume Left                       | 23  | 4   | 170   | 3   |   |   |  |   |   |   |   |   |
| Volume Right                      | 80  | 3   | 3   | 18  |   |   |  |   |   |   |   |   |
| cSH                               | 404   | 177   | 1253  | 954   |   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.25  | 0.05  | 0.14  | 0.00  |   |   |  |   |   |   |   |   |
| Queue Length 95th (m)             | 7.6   | 1.1   | 3.6   | 0.1   |   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 16.9  | 26.3  | 3.4   | 0.1   |   |   |  |   |   |   |   |   |
| Lane LOS                          | C   | D   | A   | A   |   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 16.9  | 26.3  | 3.4   | 0.1   |   |   |  |   |   |   |   |   |
| Approach LOS                      | C   | D   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 4.1   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 61.4%   |   | ICU Level of Service  |   |  |   |   | B   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

Lanes, Volumes, Timings  
18: Sheffield Road & Way #5

Future BG 2025 AM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 404   | 29  | 7   | 243   |
| Future Volume (vph)               | 0   | 0   | 404   | 29  | 7   | 243   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               |   |   | 0.991   |   |   |   |
| Flt Protected                     |   |   |   |   |   | 0.999   |
| Satd. Flow (prot)                 | 1784  | 0   | 1768  | 0   | 0   | 922   |
| Flt Permitted                     |   |   |   |   |   | 0.999   |
| Satd. Flow (perm)                 | 1784  | 0   | 1768  | 0   | 0   | 922   |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 56.2  |   | 120.3   |   |   | 89.9  |
| Travel Time (s)                   | 4.2   |   | 9.0   |   |   | 6.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 2%  | 2%  | 2%  | 2%  | 2%  | 100%  |
| Adj. Flow (vph)                   | 0   | 0   | 449   | 32  | 8   | 270   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 481   | 0   | 0   | 278   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 27.6%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 18: Sheffield Road & Way #5

Future BG 2025 AM - Adjacent Peak  
 10-24-2022



| Movement                          | WBL         | WBR         | NBT         | NBR  | SBL                  | SBT  |
|-----------------------------------|-------------|-------------|-------------|------|----------------------|------|
| Lane Configurations               |             |             |             |      |                      |      |
| Traffic Volume (veh/h)            | 0           | 0           | 404         | 29   | 7                    | 243  |
| Future Volume (Veh/h)             | 0           | 0           | 404         | 29   | 7                    | 243  |
| Sign Control                      | Stop        |             | Free        |      | Free                 |      |
| Grade                             | 0%          |             | 0%          |      | 0%                   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90 | 0.90                 | 0.90 |
| Hourly flow rate (vph)            | 0           | 0           | 449         | 32   | 8                    | 270  |
| <b>Pedestrians</b>                |             |             |             |      |                      |      |
| 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            | 751         | 465         |             |      | 481                  |      |
| vC1, stage 1 conf vol             |             |             |             |      |                      |      |
| vC2, stage 2 conf vol             |             |             |             |      |                      |      |
| vCu, unblocked vol                | 751         | 465         |             |      | 481                  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |      | 4.1                  |      |
| tC, 2 stage (s)                   |             |             |             |      |                      |      |
| tF (s)                            | 3.5         | 3.3         |             |      | 2.2                  |      |
| p0 queue free %                   | 100         | 100         |             |      | 99                   |      |
| cM capacity (veh/h)               | 376         | 597         |             |      | 1082                 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |      |                      |      |
| Volume Total                      | 0           | 481         | 278         |      |                      |      |
| Volume Left                       | 0           | 0           | 8           |      |                      |      |
| Volume Right                      | 0           | 32          | 0           |      |                      |      |
| cSH                               | 1700        | 1700        | 1082        |      |                      |      |
| Volume to Capacity                | 0.00        | 0.28        | 0.01        |      |                      |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.2         |      |                      |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.3         |      |                      |      |
| Lane LOS                          | A           |             | A           |      |                      |      |
| Approach Delay (s)                | 0.0         | 0.0         | 0.3         |      |                      |      |
| Approach LOS                      | A           |             |             |      |                      |      |
| <b>Intersection Summary</b>       |             |             |             |      |                      |      |
| Average Delay                     |             |             | 0.1         |      |                      |      |
| Intersection Capacity Utilization |             |             | 27.6%       |      | ICU Level of Service | A    |
| Analysis Period (min)             |             |             | 15          |      |                      |      |





| Lane Group                 | WBL   | WBR   | NBT  | NBR   | SBL  | SBT   |
|----------------------------|-------|-------|------|-------|------|-------|
| Lane Configurations        |       |       |      |       |      |       |
| Traffic Volume (vph)       | 9     | 2     | 404  | 0     | 0    | 241   |
| Future Volume (vph)        | 9     | 2     | 404  | 0     | 0    | 241   |
| Ideal Flow (vphp)          | 1800  | 1800  | 1800 | 1800  | 1800 | 1800  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| Frt                        | 0.977 |       |      |       |      |       |
| Flt Protected              | 0.960 |       |      |       |      |       |
| Satd. Flow (prot)          | 1674  | 0     | 1784 | 0     | 0    | 1784  |
| Flt Permitted              | 0.960 |       |      |       |      |       |
| Satd. Flow (perm)          | 1674  | 0     | 1784 | 0     | 0    | 1784  |
| Link Speed (k/h)           | 48    |       | 48   |       |      | 48    |
| Link Distance (m)          | 60.6  |       | 89.9 |       |      | 135.3 |
| Travel Time (s)            | 4.5   |       | 6.7  |       |      | 10.1  |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90 | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)            | 10    | 2     | 449  | 0     | 0    | 268   |
| Shared Lane Traffic (%)    |       |       |      |       |      |       |
| Lane Group Flow (vph)      | 12    | 0     | 449  | 0     | 0    | 268   |
| Enter Blocked Intersection | No    | No    | No   | No    | No   | No    |
| Lane Alignment             | Left  | Right | Left | Right | Left | Left  |
| Median Width(m)            | 3.7   |       | 0.0  |       |      | 0.0   |
| Link Offset(m)             | 0.0   |       | 0.0  |       |      | 0.0   |
| Crosswalk Width(m)         | 4.9   |       | 4.9  |       |      | 4.9   |
| Two way Left Turn Lane     |       |       |      |       |      |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)        | 24    | 14    |      | 14    | 24   |       |
| Sign Control               | Stop  |       | Free |       |      | Free  |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 32.4%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
20: Sheffield Road & Way #4

Future BG 2025 AM - Adjacent Peak  
10-24-2022



| Movement                          | WBL         | WBR         | NBT         | NBR  | SBL                  | SBT  |
|-----------------------------------|-------------|-------------|-------------|------|----------------------|------|
| Lane Configurations               |             |             |             |      |                      |      |
| Traffic Volume (veh/h)            | 9           | 2           | 404         | 0    | 0                    | 241  |
| Future Volume (Veh/h)             | 9           | 2           | 404         | 0    | 0                    | 241  |
| Sign Control                      | Stop        |             | Free        |      | Free                 |      |
| Grade                             | 0%          |             | 0%          |      | 0%                   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90 | 0.90                 | 0.90 |
| Hourly flow rate (vph)            | 10          | 2           | 449         | 0    | 0                    | 268  |
| <b>Pedestrians</b>                |             |             |             |      |                      |      |
| 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            | 717         | 449         |             |      | 449                  |      |
| vC1, stage 1 conf vol             |             |             |             |      |                      |      |
| vC2, stage 2 conf vol             |             |             |             |      |                      |      |
| vCu, unblocked vol                | 717         | 449         |             |      | 449                  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |      | 4.1                  |      |
| tC, 2 stage (s)                   |             |             |             |      |                      |      |
| tF (s)                            | 3.5         | 3.3         |             |      | 2.2                  |      |
| p0 queue free %                   | 97          | 100         |             |      | 100                  |      |
| cM capacity (veh/h)               | 396         | 610         |             |      | 1111                 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |      |                      |      |
| Volume Total                      | 12          | 449         | 268         |      |                      |      |
| Volume Left                       | 10          | 0           | 0           |      |                      |      |
| Volume Right                      | 2           | 0           | 0           |      |                      |      |
| cSH                               | 421         | 1700        | 1111        |      |                      |      |
| Volume to Capacity                | 0.03        | 0.26        | 0.00        |      |                      |      |
| Queue Length 95th (m)             | 0.7         | 0.0         | 0.0         |      |                      |      |
| Control Delay (s)                 | 13.8        | 0.0         | 0.0         |      |                      |      |
| Lane LOS                          | B           |             |             |      |                      |      |
| Approach Delay (s)                | 13.8        | 0.0         | 0.0         |      |                      |      |
| Approach LOS                      | B           |             |             |      |                      |      |
| <b>Intersection Summary</b>       |             |             |             |      |                      |      |
| Average Delay                     |             |             | 0.2         |      |                      |      |
| Intersection Capacity Utilization |             |             | 32.4%       |      | ICU Level of Service | A    |
| Analysis Period (min)             |             |             | 15          |      |                      |      |

Lanes, Volumes, Timings  
24: Sheffield Road & Way #2

Future BG 2025 AM - Adjacent Peak  
10-24-2022



| Lane Group                 | WBL   | WBR   | NBT   | NBR   | SBL  | SBT  |
|----------------------------|-------|-------|-------|-------|------|------|
| Lane Configurations        |       |       |       |       |      |      |
| Traffic Volume (vph)       | 0     | 0     | 398   | 8     | 2    | 241  |
| Future Volume (vph)        | 0     | 0     | 398   | 8     | 2    | 241  |
| Ideal Flow (vphp)          | 1800  | 1800  | 1800  | 1800  | 1800 | 1800 |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 |
| Fr <sub>t</sub>            | 0.997 |       |       |       |      |      |
| Fl <sub>t</sub> Protected  |       |       |       |       |      |      |
| Satd. Flow (prot)          | 1784  | 0     | 1779  | 0     | 0    | 1784 |
| Fl <sub>t</sub> Permitted  |       |       |       |       |      |      |
| Satd. Flow (perm)          | 1784  | 0     | 1779  | 0     | 0    | 1784 |
| Link Speed (k/h)           | 48    |       | 48    |       |      | 48   |
| Link Distance (m)          | 65.0  |       | 135.3 |       |      | 74.6 |
| Travel Time (s)            | 4.9   |       | 10.1  |       |      | 5.6  |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90  | 0.90  | 0.90 | 0.90 |
| Adj. Flow (vph)            | 0     | 0     | 442   | 9     | 2    | 268  |
| Shared Lane Traffic (%)    |       |       |       |       |      |      |
| Lane Group Flow (vph)      | 0     | 0     | 451   | 0     | 0    | 270  |
| Enter Blocked Intersection | No    | No    | No    | No    | No   | No   |
| Lane Alignment             | Left  | Right | Left  | Right | Left | Left |
| Median Width(m)            | 3.7   |       | 0.0   |       |      | 0.0  |
| Link Offset(m)             | 0.0   |       | 0.0   |       |      | 0.0  |
| Crosswalk Width(m)         | 4.9   |       | 4.9   |       |      | 4.9  |
| Two way Left Turn Lane     |       |       |       |       |      |      |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06 | 1.06 |
| Turning Speed (k/h)        | 24    | 14    |       | 14    | 24   |      |
| Sign Control               | Stop  |       | Free  |       |      | Free |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 26.0%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
 24: Sheffield Road & Way #2

Future BG 2025 AM - Adjacent Peak  
 10-24-2022



| Movement                          | WBL         | WBR         | NBT         | NBR                  | SBL  | SBT  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             |             |             |                      |      |      |
| Traffic Volume (veh/h)            | 0           | 0           | 398         | 8                    | 2    | 241  |
| Future Volume (Veh/h)             | 0           | 0           | 398         | 8                    | 2    | 241  |
| Sign Control                      | Stop        |             | Free        |                      | Free |      |
| Grade                             | 0%          |             | 0%          |                      | 0%   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 0           | 0           | 442         | 9                    | 2    | 268  |
| <b>Pedestrians</b>                |             |             |             |                      |      |      |
| 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            | 718         | 446         |             |                      | 451  |      |
| vC1, stage 1 conf vol             |             |             |             |                      |      |      |
| vC2, stage 2 conf vol             |             |             |             |                      |      |      |
| vCu, unblocked vol                | 718         | 446         |             |                      | 451  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |                      | 4.1  |      |
| tC, 2 stage (s)                   |             |             |             |                      |      |      |
| tF (s)                            | 3.5         | 3.3         |             |                      | 2.2  |      |
| p0 queue free %                   | 100         | 100         |             |                      | 100  |      |
| cM capacity (veh/h)               | 395         | 612         |             |                      | 1109 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |                      |      |      |
| Volume Total                      | 0           | 451         | 270         |                      |      |      |
| Volume Left                       | 0           | 0           | 2           |                      |      |      |
| Volume Right                      | 0           | 9           | 0           |                      |      |      |
| cSH                               | 1700        | 1700        | 1109        |                      |      |      |
| Volume to Capacity                | 0.00        | 0.27        | 0.00        |                      |      |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         |                      |      |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.1         |                      |      |      |
| Lane LOS                          | A           |             | A           |                      |      |      |
| Approach Delay (s)                | 0.0         | 0.0         | 0.1         |                      |      |      |
| Approach LOS                      | A           |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 0.0         |                      |      |      |
| Intersection Capacity Utilization |             |             | 26.0%       | ICU Level of Service | A    |      |
| Analysis Period (min)             |             |             | 15          |                      |      |      |



| Lane Group                 | WBL   | WBR   | NBT  | NBR   | SBL  | SBT   |
|----------------------------|-------|-------|------|-------|------|-------|
| Lane Configurations        |       |       |      |       |      |       |
| Traffic Volume (vph)       | 2     | 1     | 407  | 0     | 0    | 239   |
| Future Volume (vph)        | 2     | 1     | 407  | 0     | 0    | 239   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800 | 1800  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| Fr <sub>t</sub>            | 0.955 |       |      |       |      |       |
| Fl <sub>t</sub> Protected  | 0.968 |       |      |       |      |       |
| Satd. Flow (prot)          | 1649  | 0     | 1784 | 0     | 0    | 1784  |
| Fl <sub>t</sub> Permitted  | 0.968 |       |      |       |      |       |
| Satd. Flow (perm)          | 1649  | 0     | 1784 | 0     | 0    | 1784  |
| Link Speed (k/h)           | 48    |       | 48   |       |      | 48    |
| Link Distance (m)          | 58.8  |       | 74.6 |       |      | 272.6 |
| Travel Time (s)            | 4.4   |       | 5.6  |       |      | 20.4  |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90 | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)            | 2     | 1     | 452  | 0     | 0    | 266   |
| Shared Lane Traffic (%)    |       |       |      |       |      |       |
| Lane Group Flow (vph)      | 3     | 0     | 452  | 0     | 0    | 266   |
| Enter Blocked Intersection | No    | No    | No   | No    | No   | No    |
| Lane Alignment             | Left  | Right | Left | Right | Left | Left  |
| Median Width(m)            | 3.7   |       | 0.0  |       |      | 0.0   |
| Link Offset(m)             | 0.0   |       | 0.0  |       |      | 0.0   |
| Crosswalk Width(m)         | 4.9   |       | 4.9  |       |      | 4.9   |
| Two way Left Turn Lane     |       |       |      |       |      |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)        | 24    | 14    |      | 14    | 24   |       |
| Sign Control               | Stop  |       | Free |       |      | Free  |

**Intersection Summary**

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 32.6%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
26: Sheffield Road & Way #1

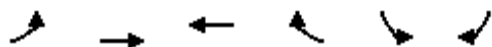
Future BG 2025 AM - Adjacent Peak  
10-24-2022



| Movement                          | WBL         | WBR         | NBT         | NBR  | SBL                  | SBT  |
|-----------------------------------|-------------|-------------|-------------|------|----------------------|------|
| Lane Configurations               |             |             |             |      |                      |      |
| Traffic Volume (veh/h)            | 2           | 1           | 407         | 0    | 0                    | 239  |
| Future Volume (Veh/h)             | 2           | 1           | 407         | 0    | 0                    | 239  |
| Sign Control                      | Stop        |             | Free        |      | Free                 |      |
| Grade                             | 0%          |             | 0%          |      | 0%                   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90 | 0.90                 | 0.90 |
| Hourly flow rate (vph)            | 2           | 1           | 452         | 0    | 0                    | 266  |
| <b>Pedestrians</b>                |             |             |             |      |                      |      |
| 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            | 718         | 452         |             |      | 452                  |      |
| vC1, stage 1 conf vol             |             |             |             |      |                      |      |
| vC2, stage 2 conf vol             |             |             |             |      |                      |      |
| vCu, unblocked vol                | 718         | 452         |             |      | 452                  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |      | 4.1                  |      |
| tC, 2 stage (s)                   |             |             |             |      |                      |      |
| tF (s)                            | 3.5         | 3.3         |             |      | 2.2                  |      |
| p0 queue free %                   | 99          | 100         |             |      | 100                  |      |
| cM capacity (veh/h)               | 396         | 608         |             |      | 1109                 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |      |                      |      |
| Volume Total                      | 3           | 452         | 266         |      |                      |      |
| Volume Left                       | 2           | 0           | 0           |      |                      |      |
| Volume Right                      | 1           | 0           | 0           |      |                      |      |
| cSH                               | 448         | 1700        | 1109        |      |                      |      |
| Volume to Capacity                | 0.01        | 0.27        | 0.00        |      |                      |      |
| Queue Length 95th (m)             | 0.2         | 0.0         | 0.0         |      |                      |      |
| Control Delay (s)                 | 13.1        | 0.0         | 0.0         |      |                      |      |
| Lane LOS                          | B           |             |             |      |                      |      |
| Approach Delay (s)                | 13.1        | 0.0         | 0.0         |      |                      |      |
| Approach LOS                      | B           |             |             |      |                      |      |
| <b>Intersection Summary</b>       |             |             |             |      |                      |      |
| Average Delay                     |             |             | 0.1         |      |                      |      |
| Intersection Capacity Utilization |             |             | 32.6%       |      | ICU Level of Service | A    |
| Analysis Period (min)             |             |             | 15          |      |                      |      |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future BG 2025 PM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 127   | 1781  | 966   | 166   | 490   | 208   |
| Future Volume (vph)        | 127   | 1781  | 966   | 166   | 490   | 208   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 30.5  |       |       | 0.0   | 0.0   | 30.5  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1695  | 3293  | 3172  | 1419  | 3288  | 1502  |
| Flt Permitted              | 0.191 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 341   | 3293  | 3172  | 1419  | 3288  | 1502  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 182   |       | 139   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 306.2 | 364.1 |       | 701.3 |       |
| Travel Time (s)            |       | 13.8  | 16.4  |       | 52.6  |       |
| Peak Hour Factor           | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  |
| Heavy Vehicles (%)         | 2%    | 5%    | 9%    | 9%    | 2%    | 3%    |
| Adj. Flow (vph)            | 140   | 1957  | 1062  | 182   | 538   | 229   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 140   | 1957  | 1062  | 182   | 538   | 229   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 22.0  | 102.0 | 80.0  | 80.0  | 28.0  | 28.0  |
| Total Split (%)            | 16.9% | 78.5% | 61.5% | 61.5% | 21.5% | 21.5% |
| Maximum Green (s)          | 19.0  | 97.0  | 75.0  | 75.0  | 23.0  | 23.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 99.0  | 97.0  | 75.0  | 75.0  | 23.0  | 23.0  |
| Actuated g/C Ratio         | 0.76  | 0.75  | 0.58  | 0.58  | 0.18  | 0.18  |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

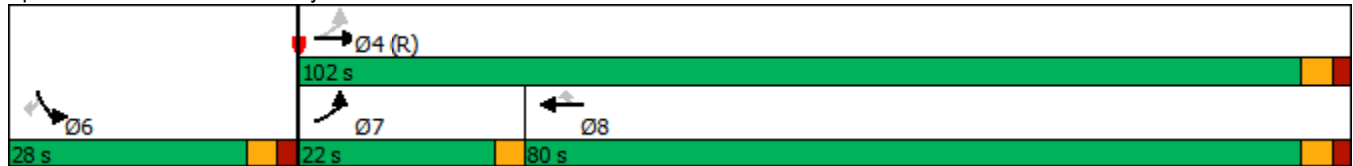


| Lane Group             | EBL  | EBT   | WBT   | WBR   | SBL    | SBR  |
|------------------------|------|-------|-------|-------|--------|------|
| v/c Ratio              | 0.31 | 0.80  | 0.58  | 0.20  | 0.93   | 0.60 |
| Control Delay          | 5.8  | 13.5  | 18.2  | 4.0   | 75.7   | 26.7 |
| Queue Delay            | 0.0  | 0.0   | 0.0   | 0.0   | 0.0    | 0.0  |
| Total Delay            | 5.8  | 13.5  | 18.2  | 4.0   | 75.7   | 26.7 |
| LOS                    | A    | B     | B     | A     | E      | C    |
| Approach Delay         |      | 13.0  | 16.1  |       | 61.1   |      |
| Approach LOS           |      | B     | B     |       | E      |      |
| Queue Length 50th (m)  | 8.1  | 144.9 | 104.7 | 9.9   | 70.7   | 20.6 |
| Queue Length 95th (m)  | 13.2 | 175.3 | 122.0 | m19.6 | #102.6 | 48.1 |
| Internal Link Dist (m) |      | 282.2 | 340.1 |       | 677.3  |      |
| Turn Bay Length (m)    | 30.5 |       |       |       |        | 30.5 |
| Base Capacity (vph)    | 457  | 2457  | 1830  | 895   | 581    | 380  |
| Starvation Cap Reductn | 0    | 0     | 0     | 0     | 0      | 0    |
| Spillback Cap Reductn  | 0    | 0     | 0     | 0     | 0      | 0    |
| Storage Cap Reductn    | 0    | 0     | 0     | 0     | 0      | 0    |
| Reduced v/c Ratio      | 0.31 | 0.80  | 0.58  | 0.20  | 0.93   | 0.60 |

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 50 (38%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.93  
 Intersection Signal Delay: 22.9  
 Intersection LOS: C  
 Intersection Capacity Utilization 75.1%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Walkley Road & Lancaster Road





HCM Signalized Intersection Capacity Analysis  
3: Walkley Road & Lancaster Road

Future BG 2025 PM - Adjacent Peak  
10-24-2022



| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 127   | 1781  | 966  | 166  | 490   | 208  |
| Future Volume (vph)    | 127   | 1781  | 966  | 166  | 490   | 208  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1695  | 3293  | 3172 | 1419 | 3288  | 1502 |
| Flt Permitted          | 0.19  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 340   | 3293  | 3172 | 1419 | 3288  | 1502 |
| Peak-hour factor, PHF  | 0.91  | 0.91  | 0.91 | 0.91 | 0.91  | 0.91 |
| Adj. Flow (vph)        | 140   | 1957  | 1062 | 182  | 538   | 229  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 77   | 0     | 114  |
| Lane Group Flow (vph)  | 140   | 1957  | 1062 | 105  | 538   | 115  |
| Heavy Vehicles (%)     | 2%    | 5%    | 9%   | 9%   | 2%    | 3%   |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 97.0  | 97.0  | 75.0 | 75.0 | 23.0  | 23.0 |
| Effective Green, g (s) | 97.0  | 97.0  | 75.0 | 75.0 | 23.0  | 23.0 |
| Actuated g/C Ratio     | 0.75  | 0.75  | 0.58 | 0.58 | 0.18  | 0.18 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 451   | 2457  | 1830 | 818  | 581   | 265  |
| v/s Ratio Prot         | 0.05  | c0.59 | 0.33 |      | c0.16 |      |
| v/s Ratio Perm         | 0.19  |       |      | 0.07 |       | 0.08 |
| v/c Ratio              | 0.31  | 0.80  | 0.58 | 0.13 | 0.93  | 0.43 |
| Uniform Delay, d1      | 7.4   | 10.3  | 17.5 | 12.6 | 52.7  | 47.7 |
| Progression Factor     | 1.00  | 1.00  | 0.96 | 2.02 | 1.00  | 1.00 |
| Incremental Delay, d2  | 1.8   | 2.8   | 1.2  | 0.3  | 22.9  | 5.1  |
| Delay (s)              | 9.2   | 13.1  | 17.9 | 25.7 | 75.6  | 52.8 |
| Level of Service       | A     | B     | B    | C    | E     | D    |
| Approach Delay (s)     |       | 12.8  | 19.1 |      | 68.8  |      |
| Approach LOS           |       | B     | B    |      | E     |      |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 25.2  | HCM 2000 Level of Service | C    |
| HCM 2000 Volume to Capacity ratio | 0.84  |                           |      |
| Actuated Cycle Length (s)         | 130.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 75.1% | ICU Level of Service      | D    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
6: Walkley Road & Sheffield Road

Future BG 2025 PM - Adjacent Peak  
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| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 216   | 1957  | 719   | 94    | 314   | 395   |
| Future Volume (vph)        | 216   | 1957  | 719   | 94    | 314   | 395   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 30.5  |       |       | 50.0  | 0.0   | 30.5  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1383  | 3390  | 3172  | 1146  | 3164  | 1381  |
| Flt Permitted              | 0.315 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 459   | 3390  | 3172  | 1146  | 3164  | 1381  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 96    |       | 389   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 364.1 | 339.6 |       | 830.6 |       |
| Travel Time (s)            |       | 16.4  | 15.3  |       | 62.3  |       |
| Peak Hour Factor           | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.97  |
| Heavy Vehicles (%)         | 25%   | 2%    | 9%    | 35%   | 6%    | 12%   |
| Adj. Flow (vph)            | 220   | 1997  | 734   | 96    | 320   | 407   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 220   | 1997  | 734   | 96    | 320   | 407   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.0  | 23.0  | 23.0  | 23.0  | 23.0  |
| Total Split (s)            | 22.0  | 104.0 | 82.0  | 82.0  | 26.0  | 26.0  |
| Total Split (%)            | 16.9% | 80.0% | 63.1% | 63.1% | 20.0% | 20.0% |
| Maximum Green (s)          | 19.0  | 99.0  | 77.0  | 77.0  | 21.0  | 21.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 101.0 | 99.0  | 77.0  | 77.0  | 21.0  | 21.0  |
| Actuated g/C Ratio         | 0.78  | 0.76  | 0.59  | 0.59  | 0.16  | 0.16  |

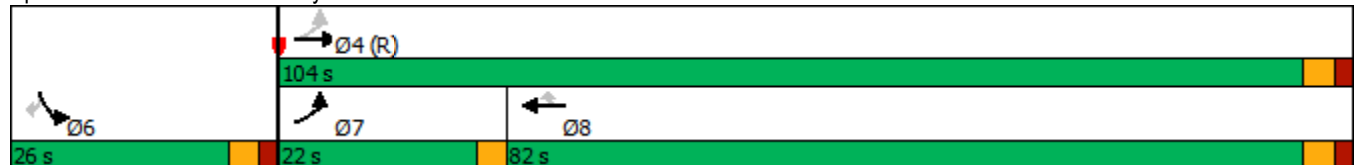


| Lane Group             | EBL   | EBT   | WBT   | WBR  | SBL   | SBR  |
|------------------------|-------|-------|-------|------|-------|------|
| v/c Ratio              | 0.45  | 0.77  | 0.39  | 0.13 | 0.63  | 0.74 |
| Control Delay          | 5.3   | 8.3   | 14.8  | 2.6  | 56.9  | 15.0 |
| Queue Delay            | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  |
| Total Delay            | 5.3   | 8.3   | 14.8  | 2.6  | 56.9  | 15.0 |
| LOS                    | A     | A     | B     | A    | E     | B    |
| Approach Delay         |       | 8.0   | 13.4  |      | 33.5  |      |
| Approach LOS           |       | A     | B     |      | C     |      |
| Queue Length 50th (m)  | 9.8   | 87.0  | 49.8  | 0.0  | 39.8  | 4.0  |
| Queue Length 95th (m)  | m17.9 | 120.1 | 62.8  | 7.1  | 55.5  | 39.4 |
| Internal Link Dist (m) |       | 340.1 | 315.6 |      | 806.6 |      |
| Turn Bay Length (m)    | 30.5  |       |       | 50.0 |       | 30.5 |
| Base Capacity (vph)    | 491   | 2581  | 1878  | 717  | 511   | 549  |
| Starvation Cap Reductn | 0     | 0     | 0     | 0    | 0     | 0    |
| Spillback Cap Reductn  | 0     | 0     | 0     | 0    | 0     | 0    |
| Storage Cap Reductn    | 0     | 0     | 0     | 0    | 0     | 0    |
| Reduced v/c Ratio      | 0.45  | 0.77  | 0.39  | 0.13 | 0.63  | 0.74 |

Intersection Summary

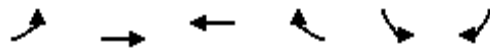
Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 13 (10%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 14.1  
 Intersection LOS: B  
 Intersection Capacity Utilization 74.9%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Walkley Road & Sheffield Road



HCM Signalized Intersection Capacity Analysis  
6: Walkley Road & Sheffield Road

Future BG 2025 PM - Adjacent Peak  
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| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 216   | 1957  | 719  | 94   | 314   | 395  |
| Future Volume (vph)    | 216   | 1957  | 719  | 94   | 314   | 395  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1383  | 3390  | 3172 | 1146 | 3164  | 1381 |
| Flt Permitted          | 0.31  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 458   | 3390  | 3172 | 1146 | 3164  | 1381 |
| Peak-hour factor, PHF  | 0.98  | 0.98  | 0.98 | 0.98 | 0.98  | 0.97 |
| Adj. Flow (vph)        | 220   | 1997  | 734  | 96   | 320   | 407  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 39   | 0     | 326  |
| Lane Group Flow (vph)  | 220   | 1997  | 734  | 57   | 320   | 81   |
| Heavy Vehicles (%)     | 25%   | 2%    | 9%   | 35%  | 6%    | 12%  |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 99.0  | 99.0  | 77.0 | 77.0 | 21.0  | 21.0 |
| Effective Green, g (s) | 99.0  | 99.0  | 77.0 | 77.0 | 21.0  | 21.0 |
| Actuated g/C Ratio     | 0.76  | 0.76  | 0.59 | 0.59 | 0.16  | 0.16 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 483   | 2581  | 1878 | 678  | 511   | 223  |
| v/s Ratio Prot         | 0.07  | c0.59 | 0.23 |      | c0.10 |      |
| v/s Ratio Perm         | 0.28  |       |      | 0.05 |       | 0.06 |
| v/c Ratio              | 0.46  | 0.77  | 0.39 | 0.08 | 0.63  | 0.36 |
| Uniform Delay, d1      | 5.4   | 9.0   | 14.1 | 11.4 | 50.8  | 48.5 |
| Progression Factor     | 0.93  | 0.76  | 1.00 | 1.00 | 1.00  | 1.00 |
| Incremental Delay, d2  | 1.7   | 1.3   | 0.6  | 0.2  | 5.7   | 4.5  |
| Delay (s)              | 6.7   | 8.1   | 14.7 | 11.6 | 56.5  | 53.1 |
| Level of Service       | A     | A     | B    | B    | E     | D    |
| Approach Delay (s)     |       | 7.9   | 14.3 |      | 54.6  |      |
| Approach LOS           |       | A     | B    |      | D     |      |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 18.3  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.77  |                           |      |
| Actuated Cycle Length (s)         | 130.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 74.9% | ICU Level of Service      | D    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
7: Walkley Road & Highway SB terminal

Future BG 2025 PM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑↑    |       | ↘     | ↗     |
| Traffic Volume (vph)       | 0    | 1537  | 182   | 0     | 175   | 621   |
| Future Volume (vph)        | 0    | 1537  | 182   | 0     | 175   | 621   |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>            |      |       |       |       |       | 0.850 |
| Fl <sub>t</sub> Protected  |      |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Fl <sub>t</sub> Permitted  |      |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Link Speed (k/h)           |      | 80    | 80    |       | 80    |       |
| Link Distance (m)          |      | 118.5 | 305.1 |       | 468.0 |       |
| Travel Time (s)            |      | 5.3   | 13.7  |       | 21.1  |       |
| Peak Hour Factor           | 0.95 | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  |
| Adj. Flow (vph)            | 0    | 1618  | 192   | 0     | 184   | 654   |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 1618  | 192   | 0     | 184   | 654   |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 3.7   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 61.7%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service B |

HCM Unsignalized Intersection Capacity Analysis  
 7: Walkley Road & Highway SB terminal

Future BG 2025 PM - Adjacent Peak  
 10-24-2022



| Movement                          | EBL         | EBT         | WBT         | WBR         | SBL                  | SBR         |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|-------------|
| Lane Configurations               |             | ↑↑          | ↑↑          |             | ↘                    | ↗           |
| Traffic Volume (veh/h)            | 0           | 1537        | 182         | 0           | 175                  | 621         |
| Future Volume (Veh/h)             | 0           | 1537        | 182         | 0           | 175                  | 621         |
| Sign Control                      |             | Free        | Free        |             | Stop                 |             |
| Grade                             |             | 0%          | 0%          |             | 0%                   |             |
| Peak Hour Factor                  | 0.95        | 0.95        | 0.95        | 0.95        | 0.95                 | 0.95        |
| Hourly flow rate (vph)            | 0           | 1618        | 192         | 0           | 184                  | 654         |
| <b>Pedestrians</b>                |             |             |             |             |                      |             |
| 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            | 192         |             |             | 1001        | 96                   |             |
| vC1, stage 1 conf vol             |             |             |             |             |                      |             |
| vC2, stage 2 conf vol             |             |             |             |             |                      |             |
| vCu, unblocked vol                | 192         |             |             | 1001        | 96                   |             |
| tC, single (s)                    | 4.1         |             |             | 6.8         | 6.9                  |             |
| tC, 2 stage (s)                   |             |             |             |             |                      |             |
| tF (s)                            | 2.2         |             |             | 3.5         | 3.3                  |             |
| p0 queue free %                   | 100         |             |             | 23          | 31                   |             |
| cM capacity (veh/h)               | 1379        |             |             | 239         | 942                  |             |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b> | <b>SB 1</b>          | <b>SB 2</b> |
| Volume Total                      | 809         | 809         | 96          | 96          | 184                  | 654         |
| Volume Left                       | 0           | 0           | 0           | 0           | 184                  | 0           |
| Volume Right                      | 0           | 0           | 0           | 0           | 0                    | 654         |
| cSH                               | 1700        | 1700        | 1700        | 1700        | 239                  | 942         |
| Volume to Capacity                | 0.48        | 0.48        | 0.06        | 0.06        | 0.77                 | 0.69        |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0         | 42.1                 | 44.6        |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0         | 56.9                 | 17.0        |
| Lane LOS                          |             |             |             |             | F                    | C           |
| Approach Delay (s)                | 0.0         | 0.0         |             | 25.8        |                      |             |
| Approach LOS                      |             |             |             |             | D                    |             |
| <b>Intersection Summary</b>       |             |             |             |             |                      |             |
| Average Delay                     |             |             | 8.2         |             |                      |             |
| Intersection Capacity Utilization |             |             | 61.7%       |             | ICU Level of Service |             |
| Analysis Period (min)             |             |             | 15          |             |                      |             |
|                                   |             |             |             |             | B                    |             |

Lanes, Volumes, Timings  
 10: Highway NB terminal & Walkley Road

Future BG 2025 PM - Adjacent Peak  
 10-24-2022



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NBL   | NBR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    |       |      | ↑↑    | ↘     |       |
| Traffic Volume (vph)       | 606   | 1110  | 0    | 66    | 135   | 32    |
| Future Volume (vph)        | 606   | 1110  | 0    | 66    | 135   | 32    |
| Ideal Flow (vphp)          | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00 | 0.95  | 1.00  | 1.00  |
| Frt                        | 0.903 |       |      | 0.974 |       |       |
| Flt Protected              |       |       |      | 0.961 |       |       |
| Satd. Flow (prot)          | 3061  | 0     | 0    | 3390  | 1670  | 0     |
| Flt Permitted              |       |       |      | 0.961 |       |       |
| Satd. Flow (perm)          | 3061  | 0     | 0    | 3390  | 1670  | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 305.1 |       |      | 95.4  | 443.2 |       |
| Travel Time (s)            | 13.7  |       |      | 7.2   | 33.2  |       |
| Peak Hour Factor           | 0.91  | 0.91  | 0.91 | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)            | 666   | 1220  | 0    | 73    | 148   | 35    |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 1886  | 0     | 0    | 73    | 183   | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 3.7   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 14    |       | 24   | 24    |       | 14    |
| Sign Control               | Free  |       |      | Free  | Stop  |       |

Intersection Summary

|                                   |                              |
|-----------------------------------|------------------------------|
| Area Type:                        | Other                        |
| Control Type:                     | Unsignalized                 |
| Intersection Capacity Utilization | 72.1% ICU Level of Service C |
| Analysis Period (min)             | 15                           |

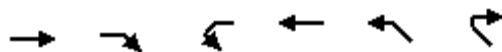
HCM Unsignalized Intersection Capacity Analysis  
 10: Highway NB terminal & Walkley Road

Future BG 2025 PM - Adjacent Peak  
 10-24-2022



| Movement                          | EBT         | EBR         | WBL         | WBT                  | NBL         | NBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations               | ↑↑          |             |             | ↑↑                   | ↘           |      |
| Traffic Volume (veh/h)            | 606         | 1110        | 0           | 66                   | 135         | 32   |
| Future Volume (Veh/h)             | 606         | 1110        | 0           | 66                   | 135         | 32   |
| Sign Control                      | Free        |             |             | Free                 | Stop        |      |
| Grade                             | 0%          |             |             | 0%                   | 0%          |      |
| Peak Hour Factor                  | 0.91        | 0.91        | 0.91        | 0.91                 | 0.91        | 0.91 |
| Hourly flow rate (vph)            | 666         | 1220        | 0           | 73                   | 148         | 35   |
| <b>Pedestrians</b>                |             |             |             |                      |             |      |
| 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            |             |             | 1886        |                      | 1312        | 943  |
| vC1, stage 1 conf vol             |             |             |             |                      |             |      |
| vC2, stage 2 conf vol             |             |             |             |                      |             |      |
| vCu, unblocked vol                |             |             | 1886        |                      | 1312        | 943  |
| tC, single (s)                    |             |             | 4.1         |                      | 6.8         | 6.9  |
| tC, 2 stage (s)                   |             |             |             |                      |             |      |
| tF (s)                            |             |             | 2.2         |                      | 3.5         | 3.3  |
| p0 queue free %                   |             |             | 100         |                      | 1           | 87   |
| cM capacity (veh/h)               |             |             | 314         |                      | 150         | 264  |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>NB 1</b> |      |
| Volume Total                      | 444         | 1442        | 36          | 36                   | 183         |      |
| Volume Left                       | 0           | 0           | 0           | 0                    | 148         |      |
| Volume Right                      | 0           | 1220        | 0           | 0                    | 35          |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 163         |      |
| Volume to Capacity                | 0.26        | 0.85        | 0.02        | 0.02                 | 1.12        |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0                  | 72.9        |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 162.7       |      |
| Lane LOS                          |             |             |             |                      | F           |      |
| Approach Delay (s)                | 0.0         |             | 0.0         |                      | 162.7       |      |
| Approach LOS                      |             |             |             |                      | F           |      |
| <b>Intersection Summary</b>       |             |             |             |                      |             |      |
| Average Delay                     |             |             | 13.9        |                      |             |      |
| Intersection Capacity Utilization |             |             | 72.1%       | ICU Level of Service | C           |      |
| Analysis Period (min)             |             |             | 15          |                      |             |      |





| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NWL   | NWR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    | ↑     |      | ↑↑↑   |       |       |
| Traffic Volume (vph)       | 1537  | 534   | 0    | 803   | 0     | 0     |
| Future Volume (vph)        | 1537  | 534   | 0    | 803   | 0     | 0     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Storage Length (m)         |       | 50.0  | 0.0  |       | 0.0   | 0.0   |
| Storage Lanes              |       | 1     | 0    |       | 0     | 0     |
| Taper Length (m)           |       |       | 7.6  |       | 7.6   |       |
| Lane Util. Factor          | 0.95  | 1.00  | 1.00 | 0.91  | 1.00  | 1.00  |
| Frt                        |       | 0.850 |      |       |       |       |
| Flt Protected              |       |       |      |       |       |       |
| Satd. Flow (prot)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Flt Permitted              |       |       |      |       |       |       |
| Satd. Flow (perm)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 339.6 |       |      | 118.5 | 265.8 |       |
| Travel Time (s)            | 15.3  |       |      | 8.9   | 19.9  |       |
| Peak Hour Factor           | 0.95  | 0.95  | 0.95 | 0.95  | 0.95  | 0.95  |
| Adj. Flow (vph)            | 1618  | 562   | 0    | 845   | 0     | 0     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 1618  | 562   | 0    | 845   | 0     | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 0.0   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        |       | 14    | 24   |       | 24    | 14    |
| Sign Control               | Free  |       |      | Free  | Free  |       |

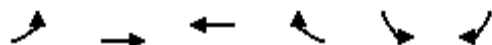
**Intersection Summary**

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 48.2%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings  
13: Walkley Road & NB off ramp

Future BG 2025 PM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL  | EBT  | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑   | ↑     | ↗     |       |       |
| Traffic Volume (vph)       | 0    | 638  | 66    | 62    | 0     | 0     |
| Future Volume (vph)        | 0    | 638  | 66    | 62    | 0     | 0     |
| Ideal Flow (vphpl)         | 1800 | 1800 | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 0.0  |      |       | 50.0  | 0.0   | 0.0   |
| Storage Lanes              | 0    |      |       | 1     | 0     | 0     |
| Taper Length (m)           | 7.6  |      |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00 | 0.95 | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      |      |       | 0.850 |       |       |
| Flt Protected              |      |      |       |       |       |       |
| Satd. Flow (prot)          | 0    | 3390 | 1784  | 1517  | 0     | 0     |
| Flt Permitted              |      |      |       |       |       |       |
| Satd. Flow (perm)          | 0    | 3390 | 1784  | 1517  | 0     | 0     |
| Link Speed (k/h)           |      | 80   | 48    |       | 48    |       |
| Link Distance (m)          |      | 95.4 | 197.1 |       | 264.7 |       |
| Travel Time (s)            |      | 4.3  | 14.8  |       | 19.9  |       |
| Peak Hour Factor           | 0.91 | 0.91 | 0.91  | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)            | 0    | 701  | 73    | 68    | 0     | 0     |
| Shared Lane Traffic (%)    |      |      |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 701  | 73    | 68    | 0     | 0     |
| Enter Blocked Intersection | No   | No   | No    | No    | No    | No    |
| Lane Alignment             | Left | Left | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0  | 0.0   |       | 0.0   |       |
| Link Offset(m)             |      | 0.0  | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9  | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |      |       |       |       |       |
| Headway Factor             | 1.06 | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |      |       | 14    | 24    | 14    |
| Sign Control               |      | Free | Free  |       | Free  |       |

















Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 21.9%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

















Lanes, Volumes, Timings  
15: Sheffield Road & Humber Place

Future BG 2025 PM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group                        | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 15  | 0   | 140   | 3   | 0   | 0   | 59   | 303   | 2   | 2   | 547   | 20  |
| Future Volume (vph)               | 15  | 0   | 140   | 3   | 0   | 0   | 59   | 303   | 2   | 2   | 547   | 20  |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  | 1800   | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   |   | 0.878   |   |   |   |   |  | 0.999   |   |   | 0.995   |   |
| Fl <sub>t</sub> Protected         |   | 0.995   |   |   | 0.950   |   |  | 0.992   |   |   |   |   |
| Satd. Flow (prot)                 | 0   | 1452  | 0   | 0   | 1300  | 0   | 0  | 1375  | 0   | 0   | 1661  | 0   |
| Fl <sub>t</sub> Permitted         |   | 0.995   |   |   | 0.950   |   |  | 0.992   |   |   |   |   |
| Satd. Flow (perm)                 | 0   | 1452  | 0   | 0   | 1300  | 0   | 0  | 1375  | 0   | 0   | 1661  | 0   |
| Link Speed (k/h)                  |   | 48  |   |   | 48  |   |  | 48  |   |   | 48  |   |
| Link Distance (m)                 |   | 152.4   |   |   | 148.3   |   |  | 830.6   |   |   | 80.7  |   |
| Travel Time (s)                   |   | 11.4  |   |   | 11.1  |   |  | 62.3  |   |   | 6.1   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 14%   | 2%  | 9%  | 33%   | 2%  | 2%  | 21%  | 33%   | 50%   | 0%  | 9%  | 10%   |
| Adj. Flow (vph)                   | 17  | 0   | 156   | 3   | 0   | 0   | 66   | 337   | 2   | 2   | 608   | 22  |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 173   | 0   | 0   | 3   | 0   | 0  | 405   | 0   | 0   | 632   | 0   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  | No   | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Left  | Right   | Left  | Left  | Right   | Left   | Left  | Right   | Left  | Left  | Right   |
| Median Width(m)                   |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Link Offset(m)                    |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Crosswalk Width(m)                |   | 4.9   |   |   | 4.9   |   |  | 4.9   |   |   | 4.9   |   |
| Two way Left Turn Lane            |   |   |   |   |   |   |  |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06   | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  |   | 14  | 24  |   | 14  | 24   |   | 14  | 24  |   | 14  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |  |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 71.8%   |   |   |   |   |   | ICU Level of Service C   |   |   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
 15: Sheffield Road & Humber Place

Future BG 2025 PM - Adjacent Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 15  | 0   | 140   | 3   | 0   | 0   | 59   | 303   | 2   | 2   | 547   | 20  |
| Future Volume (Veh/h)             | 15  | 0   | 140   | 3   | 0   | 0   | 59   | 303   | 2   | 2   | 547   | 20  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 17  | 0   | 156   | 3   | 0   | 0   | 66   | 337   | 2   | 2   | 608   | 22  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (m)                    |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (m/s)               |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Median storage veh                |   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (m)               |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 1093  | 1094  | 619   | 1249  | 1104  | 338   | 630  |   |   | 339   |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 1093  | 1094  | 619   | 1249  | 1104  | 338   | 630  |   |   | 339   |   |   |
| tC, single (s)                    | 7.2   | 6.5   | 6.3   | 7.4   | 6.5   | 6.2   | 4.3  |   |   | 4.1   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 3.6   | 4.0   | 3.4   | 3.8   | 4.0   | 3.3   | 2.4  |   |   | 2.2   |   |   |
| p0 queue free %                   | 90  | 100   | 67  | 96  | 100   | 100   | 92   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 171   | 197   | 476   | 82  | 195   | 704   | 867  |   |   | 1231  |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | SB 1  |   |   |  |   |   |   |   |   |
| Volume Total                      | 173   | 3   | 405   | 632   |   |   |  |   |   |   |   |   |
| Volume Left                       | 17  | 3   | 66  | 2   |   |   |  |   |   |   |   |   |
| Volume Right                      | 156   | 0   | 2   | 22  |   |   |  |   |   |   |   |   |
| cSH                               | 405   | 82  | 867   | 1231  |   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.43  | 0.04  | 0.08  | 0.00  |   |   |  |   |   |   |   |   |
| Queue Length 95th (m)             | 15.9  | 0.9   | 1.9   | 0.0   |   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 20.4  | 50.6  | 2.3   | 0.0   |   |   |  |   |   |   |   |   |
| Lane LOS                          | C   | F   | A   | A   |   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 20.4  | 50.6  | 2.3   | 0.0   |   |   |  |   |   |   |   |   |
| Approach LOS                      | C   | F   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 3.8   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 71.8%   |   | ICU Level of Service  |   |  |   |   | C   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

Lanes, Volumes, Timings  
18: Sheffield Road & Way #5

Future BG 2025 PM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 286   | 9   | 2   | 555   |
| Future Volume (vph)               | 0   | 0   | 286   | 9   | 2   | 555   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 0.996   |   |   |   |   |   |
| Flt Protected                     |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1777  | 0   | 0   | 1071  |
| Flt Permitted                     |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1777  | 0   | 0   | 1071  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 56.2  |   | 80.7  |   |   | 63.2  |
| Travel Time (s)                   | 4.2   |   | 6.1   |   |   | 4.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.92  | 0.90  | 0.90  | 0.90  |
| Bus Blockages (#/hr)              | 0   | 0   | 0   | 0   | 0   | 100   |
| Adj. Flow (vph)                   | 0   | 0   | 311   | 10  | 2   | 617   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 321   | 0   | 0   | 619   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.96  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 35.8%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 18: Sheffield Road & Way #5

Future BG 2025 PM - Adjacent Peak  
 10-24-2022



| Movement                          | WBL         | WBR         | NBT         | NBR                  | SBL  | SBT  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             |             |             |                      |      |      |
| Traffic Volume (veh/h)            | 0           | 0           | 286         | 9                    | 2    | 555  |
| Future Volume (Veh/h)             | 0           | 0           | 286         | 9                    | 2    | 555  |
| Sign Control                      | Stop        |             | Free        |                      | Free |      |
| Grade                             | 0%          |             | 0%          |                      | 0%   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.92        | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 0           | 0           | 311         | 10                   | 2    | 617  |
| <b>Pedestrians</b>                |             |             |             |                      |      |      |
| 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            | 937         | 316         |             |                      | 321  |      |
| vC1, stage 1 conf vol             |             |             |             |                      |      |      |
| vC2, stage 2 conf vol             |             |             |             |                      |      |      |
| vCu, unblocked vol                | 937         | 316         |             |                      | 321  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |                      | 4.1  |      |
| tC, 2 stage (s)                   |             |             |             |                      |      |      |
| tF (s)                            | 3.5         | 3.3         |             |                      | 2.2  |      |
| p0 queue free %                   | 100         | 100         |             |                      | 100  |      |
| cM capacity (veh/h)               | 293         | 724         |             |                      | 1239 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |                      |      |      |
| Volume Total                      | 0           | 321         | 619         |                      |      |      |
| Volume Left                       | 0           | 0           | 2           |                      |      |      |
| Volume Right                      | 0           | 10          | 0           |                      |      |      |
| cSH                               | 1700        | 1700        | 1239        |                      |      |      |
| Volume to Capacity                | 0.00        | 0.19        | 0.00        |                      |      |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         |                      |      |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         |                      |      |      |
| Lane LOS                          | A           |             | A           |                      |      |      |
| Approach Delay (s)                | 0.0         | 0.0         | 0.0         |                      |      |      |
| Approach LOS                      | A           |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 0.0         |                      |      |      |
| Intersection Capacity Utilization |             |             | 35.8%       | ICU Level of Service | A    |      |
| Analysis Period (min)             |             |             | 15          |                      |      |      |





| Lane Group                 | WBL   | WBR   | NBT  | NBR   | SBL  | SBT   |
|----------------------------|-------|-------|------|-------|------|-------|
| Lane Configurations        |       |       |      |       |      |       |
| Traffic Volume (vph)       | 37    | 8     | 286  | 0     | 0    | 518   |
| Future Volume (vph)        | 37    | 8     | 286  | 0     | 0    | 518   |
| Ideal Flow (vphp)          | 1800  | 1800  | 1800 | 1800  | 1800 | 1800  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| Frt                        | 0.976 |       |      |       |      |       |
| Flt Protected              | 0.961 |       |      |       |      |       |
| Satd. Flow (prot)          | 1674  | 0     | 1784 | 0     | 0    | 1784  |
| Flt Permitted              | 0.961 |       |      |       |      |       |
| Satd. Flow (perm)          | 1674  | 0     | 1784 | 0     | 0    | 1784  |
| Link Speed (k/h)           | 48    |       | 48   |       |      | 48    |
| Link Distance (m)          | 60.6  |       | 63.2 |       |      | 102.2 |
| Travel Time (s)            | 4.5   |       | 4.7  |       |      | 7.7   |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90 | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)            | 41    | 9     | 318  | 0     | 0    | 576   |
| Shared Lane Traffic (%)    |       |       |      |       |      |       |
| Lane Group Flow (vph)      | 50    | 0     | 318  | 0     | 0    | 576   |
| Enter Blocked Intersection | No    | No    | No   | No    | No   | No    |
| Lane Alignment             | Left  | Right | Left | Right | Left | Left  |
| Median Width(m)            | 3.7   |       | 0.0  |       |      | 0.0   |
| Link Offset(m)             | 0.0   |       | 0.0  |       |      | 0.0   |
| Crosswalk Width(m)         | 4.9   |       | 4.9  |       |      | 4.9   |
| Two way Left Turn Lane     |       |       |      |       |      |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)        | 24    | 14    |      | 14    | 24   |       |
| Sign Control               | Stop  |       | Free |       |      | Free  |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 38.8%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
20: Sheffield Road & Way #4

Future BG 2025 PM - Adjacent Peak  
10-24-2022



| Movement                          | WBL         | WBR         | NBT         | NBR  | SBL                  | SBT  |
|-----------------------------------|-------------|-------------|-------------|------|----------------------|------|
| Lane Configurations               |             |             |             |      |                      |      |
| Traffic Volume (veh/h)            | 37          | 8           | 286         | 0    | 0                    | 518  |
| Future Volume (Veh/h)             | 37          | 8           | 286         | 0    | 0                    | 518  |
| Sign Control                      | Stop        |             | Free        |      | Free                 |      |
| Grade                             | 0%          |             | 0%          |      | 0%                   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90 | 0.90                 | 0.90 |
| Hourly flow rate (vph)            | 41          | 9           | 318         | 0    | 0                    | 576  |
| <b>Pedestrians</b>                |             |             |             |      |                      |      |
| Lane Width (m)                    |             |             |             |      |                      |      |
| Walking Speed (m/s)               |             |             |             |      |                      |      |
| Percent Blockage                  |             |             |             |      |                      |      |
| Right turn flare (veh)            |             |             |             |      |                      |      |
| Median type                       | None        |             |             | None |                      |      |
| Median storage veh                |             |             |             |      |                      |      |
| Upstream signal (m)               |             |             |             |      |                      |      |
| pX, platoon unblocked             |             |             |             |      |                      |      |
| vC, conflicting volume            | 894         | 318         |             |      | 318                  |      |
| vC1, stage 1 conf vol             |             |             |             |      |                      |      |
| vC2, stage 2 conf vol             |             |             |             |      |                      |      |
| vCu, unblocked vol                | 894         | 318         |             |      | 318                  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |      | 4.1                  |      |
| tC, 2 stage (s)                   |             |             |             |      |                      |      |
| tF (s)                            | 3.5         | 3.3         |             |      | 2.2                  |      |
| p0 queue free %                   | 87          | 99          |             |      | 100                  |      |
| cM capacity (veh/h)               | 312         | 723         |             |      | 1242                 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |      |                      |      |
| Volume Total                      | 50          | 318         | 576         |      |                      |      |
| Volume Left                       | 41          | 0           | 0           |      |                      |      |
| Volume Right                      | 9           | 0           | 0           |      |                      |      |
| cSH                               | 347         | 1700        | 1242        |      |                      |      |
| Volume to Capacity                | 0.14        | 0.19        | 0.00        |      |                      |      |
| Queue Length 95th (m)             | 3.8         | 0.0         | 0.0         |      |                      |      |
| Control Delay (s)                 | 17.1        | 0.0         | 0.0         |      |                      |      |
| Lane LOS                          | C           |             |             |      |                      |      |
| Approach Delay (s)                | 17.1        | 0.0         | 0.0         |      |                      |      |
| Approach LOS                      | C           |             |             |      |                      |      |
| <b>Intersection Summary</b>       |             |             |             |      |                      |      |
| Average Delay                     |             |             | 0.9         |      |                      |      |
| Intersection Capacity Utilization |             |             | 38.8%       |      | ICU Level of Service | A    |
| Analysis Period (min)             |             |             | 15          |      |                      |      |

Lanes, Volumes, Timings  
24: Sheffield Road & Way #2

Future BG 2025 PM - Adjacent Peak  
10-24-2022



| Lane Group                 | WBL   | WBR   | NBT   | NBR   | SBL  | SBT  |
|----------------------------|-------|-------|-------|-------|------|------|
| Lane Configurations        |       |       |       |       |      |      |
| Traffic Volume (vph)       | 0     | 0     | 292   | 3     | 1    | 518  |
| Future Volume (vph)        | 0     | 0     | 292   | 3     | 1    | 518  |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800 | 1800 |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 |
| Fr <sub>t</sub>            | 0.999 |       |       |       |      |      |
| Fl <sub>t</sub> Protected  |       |       |       |       |      |      |
| Satd. Flow (prot)          | 1784  | 0     | 1783  | 0     | 0    | 1784 |
| Fl <sub>t</sub> Permitted  |       |       |       |       |      |      |
| Satd. Flow (perm)          | 1784  | 0     | 1783  | 0     | 0    | 1784 |
| Link Speed (k/h)           | 48    |       | 48    |       |      | 48   |
| Link Distance (m)          | 65.0  |       | 102.2 |       |      | 76.9 |
| Travel Time (s)            | 4.9   |       | 7.7   |       |      | 5.8  |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90  | 0.90  | 0.90 | 0.90 |
| Adj. Flow (vph)            | 0     | 0     | 324   | 3     | 1    | 576  |
| Shared Lane Traffic (%)    |       |       |       |       |      |      |
| Lane Group Flow (vph)      | 0     | 0     | 327   | 0     | 0    | 577  |
| Enter Blocked Intersection | No    | No    | No    | No    | No   | No   |
| Lane Alignment             | Left  | Right | Left  | Right | Left | Left |
| Median Width(m)            | 3.7   |       | 0.0   |       |      | 0.0  |
| Link Offset(m)             | 0.0   |       | 0.0   |       |      | 0.0  |
| Crosswalk Width(m)         | 4.9   |       | 4.9   |       |      | 4.9  |
| Two way Left Turn Lane     |       |       |       |       |      |      |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06 | 1.06 |
| Turning Speed (k/h)        | 24    | 14    |       | 14    | 24   |      |
| Sign Control               | Stop  |       | Free  |       |      | Free |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 32.9%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
 24: Sheffield Road & Way #2

Future BG 2025 PM - Adjacent Peak  
 10-24-2022



| Movement                          | WBL         | WBR         | NBT         | NBR                  | SBL  | SBT  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             |             |             |                      |      |      |
| Traffic Volume (veh/h)            | 0           | 0           | 292         | 3                    | 1    | 518  |
| Future Volume (Veh/h)             | 0           | 0           | 292         | 3                    | 1    | 518  |
| Sign Control                      | Stop        |             | Free        |                      | Free |      |
| Grade                             | 0%          |             | 0%          |                      | 0%   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 0           | 0           | 324         | 3                    | 1    | 576  |
| <b>Pedestrians</b>                |             |             |             |                      |      |      |
| 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            | 904         | 326         |             |                      | 327  |      |
| vC1, stage 1 conf vol             |             |             |             |                      |      |      |
| vC2, stage 2 conf vol             |             |             |             |                      |      |      |
| vCu, unblocked vol                | 904         | 326         |             |                      | 327  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |                      | 4.1  |      |
| tC, 2 stage (s)                   |             |             |             |                      |      |      |
| tF (s)                            | 3.5         | 3.3         |             |                      | 2.2  |      |
| p0 queue free %                   | 100         | 100         |             |                      | 100  |      |
| cM capacity (veh/h)               | 307         | 716         |             |                      | 1233 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |                      |      |      |
| Volume Total                      | 0           | 327         | 577         |                      |      |      |
| Volume Left                       | 0           | 0           | 1           |                      |      |      |
| Volume Right                      | 0           | 3           | 0           |                      |      |      |
| cSH                               | 1700        | 1700        | 1233        |                      |      |      |
| Volume to Capacity                | 0.00        | 0.19        | 0.00        |                      |      |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         |                      |      |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         |                      |      |      |
| Lane LOS                          | A           |             | A           |                      |      |      |
| Approach Delay (s)                | 0.0         | 0.0         | 0.0         |                      |      |      |
| Approach LOS                      | A           |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 0.0         |                      |      |      |
| Intersection Capacity Utilization |             |             | 32.9%       | ICU Level of Service | A    |      |
| Analysis Period (min)             |             |             | 15          |                      |      |      |



| Lane Group                 | WBL   | WBR   | NBT  | NBR   | SBL  | SBT   |
|----------------------------|-------|-------|------|-------|------|-------|
| Lane Configurations        |       |       |      |       |      |       |
| Traffic Volume (vph)       | 5     | 2     | 295  | 0     | 0    | 513   |
| Future Volume (vph)        | 5     | 2     | 295  | 0     | 0    | 513   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800 | 1800  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| Fr <sub>t</sub>            | 0.966 |       |      |       |      |       |
| Fl <sub>t</sub> Protected  | 0.964 |       |      |       |      |       |
| Satd. Flow (prot)          | 1662  | 0     | 1784 | 0     | 0    | 1784  |
| Fl <sub>t</sub> Permitted  | 0.964 |       |      |       |      |       |
| Satd. Flow (perm)          | 1662  | 0     | 1784 | 0     | 0    | 1784  |
| Link Speed (k/h)           | 48    |       | 48   |       |      | 48    |
| Link Distance (m)          | 58.8  |       | 76.9 |       |      | 181.8 |
| Travel Time (s)            | 4.4   |       | 5.8  |       |      | 13.6  |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90 | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)            | 6     | 2     | 328  | 0     | 0    | 570   |
| Shared Lane Traffic (%)    |       |       |      |       |      |       |
| Lane Group Flow (vph)      | 8     | 0     | 328  | 0     | 0    | 570   |
| Enter Blocked Intersection | No    | No    | No   | No    | No   | No    |
| Lane Alignment             | Left  | Right | Left | Right | Left | Left  |
| Median Width(m)            | 3.7   |       | 0.0  |       |      | 0.0   |
| Link Offset(m)             | 0.0   |       | 0.0  |       |      | 0.0   |
| Crosswalk Width(m)         | 4.9   |       | 4.9  |       |      | 4.9   |
| Two way Left Turn Lane     |       |       |      |       |      |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)        | 24    | 14    |      | 14    | 24   |       |
| Sign Control               | Stop  |       | Free |       |      | Free  |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 38.5%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
26: Sheffield Road & Way #1

Future BG 2025 PM - Adjacent Peak  
10-24-2022



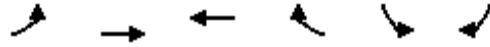
| Movement                          | WBL         | WBR         | NBT         | NBR  | SBL                  | SBT  |
|-----------------------------------|-------------|-------------|-------------|------|----------------------|------|
| Lane Configurations               |             |             |             |      |                      |      |
| Traffic Volume (veh/h)            | 5           | 2           | 295         | 0    | 0                    | 513  |
| Future Volume (Veh/h)             | 5           | 2           | 295         | 0    | 0                    | 513  |
| Sign Control                      | Stop        |             | Free        |      | Free                 |      |
| Grade                             | 0%          |             | 0%          |      | 0%                   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90 | 0.90                 | 0.90 |
| Hourly flow rate (vph)            | 6           | 2           | 328         | 0    | 0                    | 570  |
| <b>Pedestrians</b>                |             |             |             |      |                      |      |
| 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            | 898         | 328         |             |      | 328                  |      |
| vC1, stage 1 conf vol             |             |             |             |      |                      |      |
| vC2, stage 2 conf vol             |             |             |             |      |                      |      |
| vCu, unblocked vol                | 898         | 328         |             |      | 328                  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |      | 4.1                  |      |
| tC, 2 stage (s)                   |             |             |             |      |                      |      |
| tF (s)                            | 3.5         | 3.3         |             |      | 2.2                  |      |
| p0 queue free %                   | 98          | 100         |             |      | 100                  |      |
| cM capacity (veh/h)               | 310         | 713         |             |      | 1232                 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |      |                      |      |
| Volume Total                      | 8           | 328         | 570         |      |                      |      |
| Volume Left                       | 6           | 0           | 0           |      |                      |      |
| Volume Right                      | 2           | 0           | 0           |      |                      |      |
| cSH                               | 361         | 1700        | 1232        |      |                      |      |
| Volume to Capacity                | 0.02        | 0.19        | 0.00        |      |                      |      |
| Queue Length 95th (m)             | 0.5         | 0.0         | 0.0         |      |                      |      |
| Control Delay (s)                 | 15.2        | 0.0         | 0.0         |      |                      |      |
| Lane LOS                          | C           |             |             |      |                      |      |
| Approach Delay (s)                | 15.2        | 0.0         | 0.0         |      |                      |      |
| Approach LOS                      | C           |             |             |      |                      |      |
| <b>Intersection Summary</b>       |             |             |             |      |                      |      |
| Average Delay                     |             |             | 0.1         |      |                      |      |
| Intersection Capacity Utilization |             |             | 38.5%       |      | ICU Level of Service | A    |
| Analysis Period (min)             |             |             | 15          |      |                      |      |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future BG 2025 AM - Site Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 201   | 723   | 1394  | 632   | 91    | 166   |
| Future Volume (vph)        | 201   | 723   | 1394  | 632   | 91    | 166   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 100.0 |       |       | 0.0   | 0.0   | 70.0  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1647  | 3007  | 3232  | 1517  | 3135  | 1406  |
| Flt Permitted              | 0.109 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 189   | 3007  | 3232  | 1517  | 3135  | 1406  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 599   |       | 171   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 248.5 | 361.1 |       | 367.8 |       |
| Travel Time (s)            |       | 11.2  | 16.2  |       | 27.6  |       |
| Peak Hour Factor           | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Heavy Vehicles (%)         | 5%    | 15%   | 7%    | 2%    | 7%    | 10%   |
| Adj. Flow (vph)            | 207   | 745   | 1437  | 652   | 94    | 171   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 207   | 745   | 1437  | 652   | 94    | 171   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 24.0  | 122.0 | 98.0  | 98.0  | 28.0  | 28.0  |
| Total Split (%)            | 16.0% | 81.3% | 65.3% | 65.3% | 18.7% | 18.7% |
| Maximum Green (s)          | 21.0  | 117.0 | 93.0  | 93.0  | 23.0  | 23.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 119.0 | 117.0 | 93.0  | 93.0  | 23.0  | 23.0  |
| Actuated g/C Ratio         | 0.79  | 0.78  | 0.62  | 0.62  | 0.15  | 0.15  |



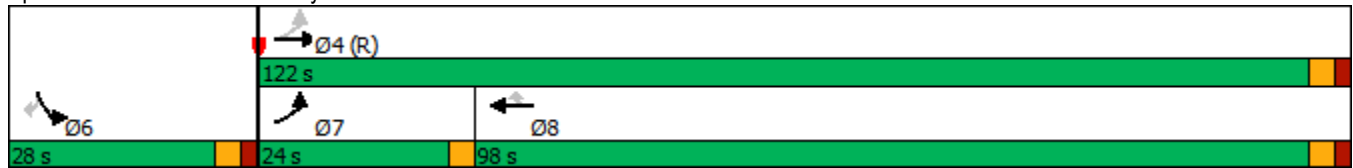
| Lane Group             | EBL   | EBT   | WBT   | WBR   | SBL   | SBR  |
|------------------------|-------|-------|-------|-------|-------|------|
| v/c Ratio              | 0.58  | 0.32  | 0.72  | 0.56  | 0.20  | 0.47 |
| Control Delay          | 20.8  | 5.2   | 11.0  | 2.1   | 56.7  | 12.2 |
| Queue Delay            | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| Total Delay            | 20.8  | 5.2   | 11.0  | 2.1   | 56.7  | 12.2 |
| LOS                    | C     | A     | B     | A     | E     | B    |
| Approach Delay         |       | 8.6   | 8.2   |       | 27.9  |      |
| Approach LOS           |       | A     | A     |       | C     |      |
| Queue Length 50th (m)  | 16.8  | 29.7  | 44.5  | 6.7   | 12.7  | 0.0  |
| Queue Length 95th (m)  | 44.3  | 36.7  | m67.2 | m20.5 | 21.4  | 21.3 |
| Internal Link Dist (m) |       | 224.5 | 337.1 |       | 343.8 |      |
| Turn Bay Length (m)    | 100.0 |       |       |       |       | 70.0 |
| Base Capacity (vph)    | 354   | 2345  | 2003  | 1168  | 480   | 360  |
| Starvation Cap Reductn | 0     | 0     | 0     | 0     | 0     | 0    |
| Spillback Cap Reductn  | 0     | 0     | 0     | 0     | 0     | 0    |
| Storage Cap Reductn    | 0     | 0     | 0     | 0     | 0     | 0    |
| Reduced v/c Ratio      | 0.58  | 0.32  | 0.72  | 0.56  | 0.20  | 0.47 |

Intersection Summary

Area Type: Other  
 Cycle Length: 150  
 Actuated Cycle Length: 150  
 Offset: 50 (33%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.72  
 Intersection Signal Delay: 9.9  
 Intersection Capacity Utilization 68.3%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service C

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

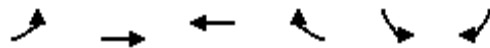
Splits and Phases: 3: Walkley Road & Lancaster Road





HCM Signalized Intersection Capacity Analysis  
3: Walkley Road & Lancaster Road

Future BG 2025 AM - Site Peak  
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| Movement               | EBL   | EBT   | WBT   | WBR  | SBL   | SBR  |
|------------------------|-------|-------|-------|------|-------|------|
| Lane Configurations    |       |       |       |      |       |      |
| Traffic Volume (vph)   | 201   | 723   | 1394  | 632  | 91    | 166  |
| Future Volume (vph)    | 201   | 723   | 1394  | 632  | 91    | 166  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800  | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95  | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00  | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00  | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1647  | 3007  | 3232  | 1517 | 3135  | 1406 |
| Flt Permitted          | 0.11  | 1.00  | 1.00  | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 189   | 3007  | 3232  | 1517 | 3135  | 1406 |
| Peak-hour factor, PHF  | 0.97  | 0.97  | 0.97  | 0.97 | 0.97  | 0.97 |
| Adj. Flow (vph)        | 207   | 745   | 1437  | 652  | 94    | 171  |
| RTOR Reduction (vph)   | 0     | 0     | 0     | 228  | 0     | 145  |
| Lane Group Flow (vph)  | 207   | 745   | 1437  | 424  | 94    | 26   |
| Heavy Vehicles (%)     | 5%    | 15%   | 7%    | 2%   | 7%    | 10%  |
| Turn Type              | pm+pt | NA    | NA    | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8     |      | 6     |      |
| Permitted Phases       | 4     |       |       | 8    |       | 6    |
| Actuated Green, G (s)  | 117.0 | 117.0 | 93.0  | 93.0 | 23.0  | 23.0 |
| Effective Green, g (s) | 117.0 | 117.0 | 93.0  | 93.0 | 23.0  | 23.0 |
| Actuated g/C Ratio     | 0.78  | 0.78  | 0.62  | 0.62 | 0.15  | 0.15 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 351   | 2345  | 2003  | 940  | 480   | 215  |
| v/s Ratio Prot         | c0.08 | 0.25  | c0.44 |      | c0.03 |      |
| v/s Ratio Perm         | 0.38  |       |       | 0.28 |       | 0.02 |
| v/c Ratio              | 0.59  | 0.32  | 0.72  | 0.45 | 0.20  | 0.12 |
| Uniform Delay, d1      | 20.4  | 4.8   | 19.5  | 15.0 | 55.4  | 54.8 |
| Progression Factor     | 1.00  | 1.00  | 0.50  | 0.76 | 1.00  | 1.00 |
| Incremental Delay, d2  | 7.1   | 0.4   | 1.0   | 0.7  | 0.9   | 1.2  |
| Delay (s)              | 27.5  | 5.2   | 10.9  | 12.2 | 56.3  | 55.9 |
| Level of Service       | C     | A     | B     | B    | E     | E    |
| Approach Delay (s)     |       | 10.0  | 11.3  |      | 56.1  |      |
| Approach LOS           |       | B     | B     |      | E     |      |

| Intersection Summary              |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 14.5  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.61  |                           |      |
| Actuated Cycle Length (s)         | 150.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 68.3% | ICU Level of Service      | C    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
6: Walkley Road & Sheffield Road

Future BG 2025 AM - Site Peak  
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| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 278   | 445   | 1776  | 264   | 51    | 233   |
| Future Volume (vph)        | 278   | 445   | 1776  | 264   | 51    | 233   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 100.0 |       |       | 30.0  | 0.0   | 70.0  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1491  | 3060  | 3357  | 1459  | 2396  | 1190  |
| Flt Permitted              | 0.044 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 69    | 3060  | 3357  | 1459  | 2396  | 1190  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 80    |       | 238   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 361.1 | 363.2 |       | 830.1 |       |
| Travel Time (s)            |       | 16.2  | 16.3  |       | 62.3  |       |
| Peak Hour Factor           | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Heavy Vehicles (%)         | 16%   | 13%   | 3%    | 6%    | 40%   | 30%   |
| Adj. Flow (vph)            | 284   | 454   | 1812  | 269   | 52    | 238   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 284   | 454   | 1812  | 269   | 52    | 238   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 32.0  | 124.0 | 92.0  | 92.0  | 26.0  | 26.0  |
| Total Split (%)            | 21.3% | 82.7% | 61.3% | 61.3% | 17.3% | 17.3% |
| Maximum Green (s)          | 29.0  | 119.0 | 87.0  | 87.0  | 21.0  | 21.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 121.0 | 119.0 | 87.0  | 87.0  | 21.0  | 21.0  |
| Actuated g/C Ratio         | 0.81  | 0.79  | 0.58  | 0.58  | 0.14  | 0.14  |

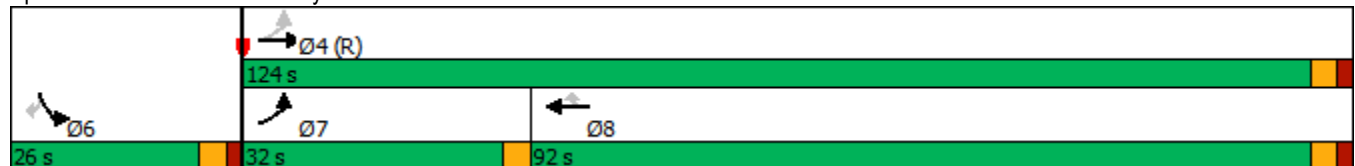


| Lane Group             | EBL    | EBT   | WBT   | WBR  | SBL   | SBR  |
|------------------------|--------|-------|-------|------|-------|------|
| v/c Ratio              | 0.86   | 0.19  | 0.93  | 0.31 | 0.16  | 0.64 |
| Control Delay          | 62.3   | 3.6   | 38.7  | 11.9 | 58.1  | 15.2 |
| Queue Delay            | 0.0    | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  |
| Total Delay            | 62.3   | 3.6   | 38.7  | 11.9 | 58.1  | 15.2 |
| LOS                    | E      | A     | D     | B    | E     | B    |
| Approach Delay         |        | 26.2  | 35.2  |      | 22.9  |      |
| Approach LOS           |        | C     | D     |      | C     |      |
| Queue Length 50th (m)  | 52.3   | 14.1  | 249.3 | 26.7 | 7.1   | 0.0  |
| Queue Length 95th (m)  | #112.3 | 17.6  | 291.1 | 43.6 | 13.8  | 27.4 |
| Internal Link Dist (m) |        | 337.1 | 339.2 |      | 806.1 |      |
| Turn Bay Length (m)    | 100.0  |       |       | 30.0 |       | 70.0 |
| Base Capacity (vph)    | 330    | 2427  | 1947  | 879  | 335   | 371  |
| Starvation Cap Reductn | 0      | 0     | 0     | 0    | 0     | 0    |
| Spillback Cap Reductn  | 0      | 0     | 0     | 0    | 0     | 0    |
| Storage Cap Reductn    | 0      | 0     | 0     | 0    | 0     | 0    |
| Reduced v/c Ratio      | 0.86   | 0.19  | 0.93  | 0.31 | 0.16  | 0.64 |

Intersection Summary

Area Type: Other  
 Cycle Length: 150  
 Actuated Cycle Length: 150  
 Offset: 50 (33%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 100  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.93  
 Intersection Signal Delay: 31.9  
 Intersection LOS: C  
 Intersection Capacity Utilization 83.9%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Walkley Road & Sheffield Road



HCM Signalized Intersection Capacity Analysis  
6: Walkley Road & Sheffield Road

Future BG 2025 AM - Site Peak  
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| Movement               | EBL   | EBT   | WBT   | WBR  | SBL  | SBR   |
|------------------------|-------|-------|-------|------|------|-------|
| Lane Configurations    |       |       |       |      |      |       |
| Traffic Volume (vph)   | 278   | 445   | 1776  | 264  | 51   | 233   |
| Future Volume (vph)    | 278   | 445   | 1776  | 264  | 51   | 233   |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800  | 1800 | 1800 | 1800  |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0   | 5.0  | 5.0  | 5.0   |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95  | 1.00 | 0.97 | 1.00  |
| Frt                    | 1.00  | 1.00  | 1.00  | 0.85 | 1.00 | 0.85  |
| Flt Protected          | 0.95  | 1.00  | 1.00  | 1.00 | 0.95 | 1.00  |
| Satd. Flow (prot)      | 1491  | 3060  | 3357  | 1459 | 2396 | 1190  |
| Flt Permitted          | 0.04  | 1.00  | 1.00  | 1.00 | 0.95 | 1.00  |
| Satd. Flow (perm)      | 70    | 3060  | 3357  | 1459 | 2396 | 1190  |
| Peak-hour factor, PHF  | 0.98  | 0.98  | 0.98  | 0.98 | 0.98 | 0.98  |
| Adj. Flow (vph)        | 284   | 454   | 1812  | 269  | 52   | 238   |
| RTOR Reduction (vph)   | 0     | 0     | 0     | 34   | 0    | 205   |
| Lane Group Flow (vph)  | 284   | 454   | 1812  | 235  | 52   | 33    |
| Heavy Vehicles (%)     | 16%   | 13%   | 3%    | 6%   | 40%  | 30%   |
| Turn Type              | pm+pt | NA    | NA    | Perm | Prot | Perm  |
| Protected Phases       | 7     | 4     | 8     |      | 6    |       |
| Permitted Phases       | 4     |       |       | 8    |      | 6     |
| Actuated Green, G (s)  | 119.0 | 119.0 | 87.0  | 87.0 | 21.0 | 21.0  |
| Effective Green, g (s) | 119.0 | 119.0 | 87.0  | 87.0 | 21.0 | 21.0  |
| Actuated g/C Ratio     | 0.79  | 0.79  | 0.58  | 0.58 | 0.14 | 0.14  |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0   | 5.0  | 5.0  | 5.0   |
| Lane Grp Cap (vph)     | 330   | 2427  | 1947  | 846  | 335  | 166   |
| v/s Ratio Prot         | c0.17 | 0.15  | c0.54 |      | 0.02 |       |
| v/s Ratio Perm         | 0.52  |       |       | 0.16 |      | c0.03 |
| v/c Ratio              | 0.86  | 0.19  | 0.93  | 0.28 | 0.16 | 0.20  |
| Uniform Delay, d1      | 50.4  | 3.8   | 28.7  | 15.8 | 56.7 | 57.1  |
| Progression Factor     | 0.84  | 0.90  | 1.00  | 1.00 | 1.00 | 1.00  |
| Incremental Delay, d2  | 23.7  | 0.2   | 9.5   | 0.8  | 1.0  | 2.7   |
| Delay (s)              | 66.0  | 3.5   | 38.3  | 16.6 | 57.7 | 59.8  |
| Level of Service       | E     | A     | D     | B    | E    | E     |
| Approach Delay (s)     |       | 27.6  | 35.5  |      | 59.4 |       |
| Approach LOS           |       | C     | D     |      | E    |       |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 35.8  | HCM 2000 Level of Service | D    |
| HCM 2000 Volume to Capacity ratio | 0.80  |                           |      |
| Actuated Cycle Length (s)         | 150.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 83.9% | ICU Level of Service      | E    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
7: Walkley Road & Highway SB terminal

Future BG 2025 AM - Site Peak  
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| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑↑    |       | ↘     | ↗     |
| Traffic Volume (vph)       | 0    | 441   | 959   | 0     | 22    | 896   |
| Future Volume (vph)        | 0    | 441   | 959   | 0     | 22    | 896   |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  |
| Flt                        |      |       |       |       |       | 0.850 |
| Flt Protected              |      |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Flt Permitted              |      |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Link Speed (k/h)           |      | 80    | 80    |       | 80    |       |
| Link Distance (m)          |      | 131.6 | 322.4 |       | 492.9 |       |
| Travel Time (s)            |      | 5.9   | 14.5  |       | 22.2  |       |
| Peak Hour Factor           | 0.97 | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Adj. Flow (vph)            | 0    | 455   | 989   | 0     | 23    | 924   |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 455   | 989   | 0     | 23    | 924   |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 3.7   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 93.2%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service F |

HCM Unsignalized Intersection Capacity Analysis  
7: Walkley Road & Highway SB terminal

Future BG 2025 AM - Site Peak  
10-24-2022



| Movement                          | EBL         | EBT         | WBT         | WBR         | SBL                    | SBR         |
|-----------------------------------|-------------|-------------|-------------|-------------|------------------------|-------------|
| Lane Configurations               |             | ↑↑          | ↑↑          |             | ↓                      | ↓           |
| Traffic Volume (veh/h)            | 0           | 441         | 959         | 0           | 22                     | 896         |
| Future Volume (Veh/h)             | 0           | 441         | 959         | 0           | 22                     | 896         |
| Sign Control                      |             | Free        | Free        |             | Stop                   |             |
| Grade                             |             | 0%          | 0%          |             | 0%                     |             |
| Peak Hour Factor                  | 0.97        | 0.97        | 0.97        | 0.97        | 0.97                   | 0.97        |
| Hourly flow rate (vph)            | 0           | 455         | 989         | 0           | 23                     | 924         |
| <b>Pedestrians</b>                |             |             |             |             |                        |             |
| 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            | 989         |             |             | 1216        | 494                    |             |
| vC1, stage 1 conf vol             |             |             |             |             |                        |             |
| vC2, stage 2 conf vol             |             |             |             |             |                        |             |
| vCu, unblocked vol                | 989         |             |             | 1216        | 494                    |             |
| tC, single (s)                    | 4.1         |             |             | 6.8         | 6.9                    |             |
| tC, 2 stage (s)                   |             |             |             |             |                        |             |
| tF (s)                            | 2.2         |             |             | 3.5         | 3.3                    |             |
| p0 queue free %                   | 100         |             |             | 87          | 0                      |             |
| cM capacity (veh/h)               | 695         |             |             | 173         | 521                    |             |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b> | <b>SB 1</b>            | <b>SB 2</b> |
| Volume Total                      | 228         | 228         | 494         | 494         | 23                     | 924         |
| Volume Left                       | 0           | 0           | 0           | 0           | 23                     | 0           |
| Volume Right                      | 0           | 0           | 0           | 0           | 0                      | 924         |
| cSH                               | 1700        | 1700        | 1700        | 1700        | 173                    | 521         |
| Volume to Capacity                | 0.13        | 0.13        | 0.29        | 0.29        | 0.13                   | 1.78        |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0         | 3.4                    | 429.9       |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0         | 28.9                   | 375.9       |
| Lane LOS                          |             |             |             |             | D                      | F           |
| Approach Delay (s)                | 0.0         | 0.0         |             | 367.5       |                        |             |
| Approach LOS                      |             |             |             |             | F                      |             |
| <b>Intersection Summary</b>       |             |             |             |             |                        |             |
| Average Delay                     |             |             | 145.6       |             |                        |             |
| Intersection Capacity Utilization |             |             | 93.2%       |             | ICU Level of Service F |             |
| Analysis Period (min)             | 15          |             |             |             |                        |             |

Lanes, Volumes, Timings  
10: Highway NB terminal & Walkley Road

Future BG 2025 AM - Site Peak  
10-24-2022



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NBL   | NBR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    |       |      | ↑↑    | ↘     |       |
| Traffic Volume (vph)       | 51    | 414   | 0    | 588   | 403   | 7     |
| Future Volume (vph)        | 51    | 414   | 0    | 588   | 403   | 7     |
| Ideal Flow (vphp)          | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00 | 0.95  | 1.00  | 1.00  |
| Frt                        | 0.866 |       |      | 0.998 |       |       |
| Flt Protected              |       |       |      | 0.953 |       |       |
| Satd. Flow (prot)          | 2936  | 0     | 0    | 3390  | 1697  | 0     |
| Flt Permitted              |       |       |      | 0.953 |       |       |
| Satd. Flow (perm)          | 2936  | 0     | 0    | 3390  | 1697  | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 322.4 |       |      | 108.3 | 295.7 |       |
| Travel Time (s)            | 14.5  |       |      | 8.1   | 22.2  |       |
| Peak Hour Factor           | 0.93  | 0.93  | 0.93 | 0.93  | 0.93  | 0.93  |
| Adj. Flow (vph)            | 55    | 445   | 0    | 632   | 433   | 8     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 500   | 0     | 0    | 632   | 441   | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 3.7   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 14    |       | 24   | 24    |       | 14    |
| Sign Control               | Free  |       |      | Free  | Stop  |       |

Intersection Summary

|                                   |                              |
|-----------------------------------|------------------------------|
| Area Type:                        | Other                        |
| Control Type:                     | Unsignalized                 |
| Intersection Capacity Utilization | 47.8% ICU Level of Service A |
| Analysis Period (min)             | 15                           |

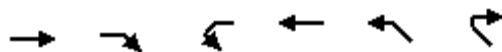
HCM Unsignalized Intersection Capacity Analysis  
 10: Highway NB terminal & Walkley Road

Future BG 2025 AM - Site Peak  
 10-24-2022



| Movement                          | EBT         | EBR         | WBL         | WBT                  | NBL         | NBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations               | ↑↑          |             |             | ↑↑                   | ↘           |      |
| Traffic Volume (veh/h)            | 51          | 414         | 0           | 588                  | 403         | 7    |
| Future Volume (Veh/h)             | 51          | 414         | 0           | 588                  | 403         | 7    |
| 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)            | 55          | 445         | 0           | 632                  | 433         | 8    |
| <b>Pedestrians</b>                |             |             |             |                      |             |      |
| 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            |             |             | 500         |                      | 594         | 250  |
| vC1, stage 1 conf vol             |             |             |             |                      |             |      |
| vC2, stage 2 conf vol             |             |             |             |                      |             |      |
| vCu, unblocked vol                |             |             | 500         |                      | 594         | 250  |
| tC, single (s)                    |             |             | 4.1         |                      | 6.8         | 6.9  |
| tC, 2 stage (s)                   |             |             |             |                      |             |      |
| tF (s)                            |             |             | 2.2         |                      | 3.5         | 3.3  |
| p0 queue free %                   |             |             | 100         |                      | 1           | 99   |
| cM capacity (veh/h)               |             |             | 1060        |                      | 436         | 750  |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>NB 1</b> |      |
| Volume Total                      | 37          | 463         | 316         | 316                  | 441         |      |
| Volume Left                       | 0           | 0           | 0           | 0                    | 433         |      |
| Volume Right                      | 0           | 445         | 0           | 0                    | 8           |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 440         |      |
| Volume to Capacity                | 0.02        | 0.27        | 0.19        | 0.19                 | 1.00        |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0                  | 98.3        |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 74.6        |      |
| Lane LOS                          |             |             |             |                      | F           |      |
| Approach Delay (s)                | 0.0         |             | 0.0         |                      | 74.6        |      |
| Approach LOS                      |             |             |             |                      | F           |      |
| <b>Intersection Summary</b>       |             |             |             |                      |             |      |
| Average Delay                     |             |             | 20.9        |                      |             |      |
| Intersection Capacity Utilization |             |             | 47.8%       | ICU Level of Service | A           |      |
| Analysis Period (min)             |             |             | 15          |                      |             |      |



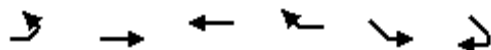


| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NWL   | NWR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    | ↑     |      | ↑↑↑   |       |       |
| Traffic Volume (vph)       | 441   | 133   | 0    | 1855  | 0     | 0     |
| Future Volume (vph)        | 441   | 133   | 0    | 1855  | 0     | 0     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Storage Length (m)         |       | 60.0  | 0.0  |       | 0.0   | 0.0   |
| Storage Lanes              |       | 1     | 0    |       | 0     | 0     |
| Taper Length (m)           |       |       | 7.6  |       | 7.6   |       |
| Lane Util. Factor          | 0.95  | 1.00  | 1.00 | 0.91  | 1.00  | 1.00  |
| Frt                        |       | 0.850 |      |       |       |       |
| Flt Protected              |       |       |      |       |       |       |
| Satd. Flow (prot)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Flt Permitted              |       |       |      |       |       |       |
| Satd. Flow (perm)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 363.2 |       |      | 131.6 | 210.3 |       |
| Travel Time (s)            | 16.3  |       |      | 9.9   | 15.8  |       |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90 | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)            | 490   | 148   | 0    | 2061  | 0     | 0     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 490   | 148   | 0    | 2061  | 0     | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 0.0   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        |       | 14    | 24   |       | 24    | 14    |
| Sign Control               | Free  |       |      | Free  | Free  |       |

**Intersection Summary**

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 41.2%                  |
|                                   | ICU Level of Service A |
| Analysis Period (min)             | 15                     |

Intersection Sign configuration not allowed in HCM analysis.



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SEL   | SER   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑     | ↗     |       |       |
| Traffic Volume (vph)       | 0    | 58    | 588   | 209   | 0     | 0     |
| Future Volume (vph)        | 0    | 58    | 588   | 209   | 0     | 0     |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 0.0  |       |       | 70.0  | 0.0   | 0.0   |
| Storage Lanes              | 0    |       |       | 1     | 0     | 0     |
| Taper Length (m)           | 7.6  |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00 | 0.95  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      |       |       | 0.850 |       |       |
| Flt Protected              |      |       |       |       |       |       |
| Satd. Flow (prot)          | 0    | 3390  | 1784  | 1517  | 0     | 0     |
| Flt Permitted              |      |       |       |       |       |       |
| Satd. Flow (perm)          | 0    | 3390  | 1784  | 1517  | 0     | 0     |
| Link Speed (k/h)           |      | 80    | 80    |       | 48    |       |
| Link Distance (m)          |      | 108.3 | 195.3 |       | 199.6 |       |
| Travel Time (s)            |      | 4.9   | 8.8   |       | 15.0  |       |
| Peak Hour Factor           | 0.93 | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  |
| Adj. Flow (vph)            | 0    | 62    | 632   | 225   | 0     | 0     |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 62    | 632   | 225   | 0     | 0     |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 0.0   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Free  |       |

















Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 36.0%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

















Lanes, Volumes, Timings  
15: Sheffield Road & Humber Place










Future BG 2025 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group                        | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 20  | 0   | 70  | 4   | 1   | 3   | 148  | 401   | 3   | 3   | 208   | 16  |
| Future Volume (vph)               | 20  | 0   | 70  | 4   | 1   | 3   | 148  | 401   | 3   | 3   | 208   | 16  |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  | 1800   | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               |   | 0.895   |   |   | 0.949   |   |  | 0.999   |   |   | 0.990   |   |
| Flt Protected                     |   | 0.989   |   |   | 0.976   |   |  | 0.987   |   |   | 0.999   |   |
| Satd. Flow (prot)                 | 0   | 1290  | 0   | 0   | 1225  | 0   | 0  | 1583  | 0   | 0   | 1387  | 0   |
| Flt Permitted                     |   | 0.989   |   |   | 0.976   |   |  | 0.987   |   |   | 0.999   |   |
| Satd. Flow (perm)                 | 0   | 1290  | 0   | 0   | 1225  | 0   | 0  | 1583  | 0   | 0   | 1387  | 0   |
| Link Speed (k/h)                  |   | 48  |   |   | 48  |   |  | 48  |   |   | 48  |   |
| Link Distance (m)                 |   | 152.4   |   |   | 148.3   |   |  | 830.1   |   |   | 120.3   |   |
| Travel Time (s)                   |   | 11.4  |   |   | 11.1  |   |  | 62.3  |   |   | 9.0   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 35%   | 2%  | 22%   | 50%   | 2%  | 33%   | 12%  | 14%   | 0%  | 33%   | 30%   | 26%   |
| Adj. Flow (vph)                   | 22  | 0   | 78  | 4   | 1   | 3   | 164  | 446   | 3   | 3   | 231   | 18  |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 100   | 0   | 0   | 8   | 0   | 0  | 613   | 0   | 0   | 252   | 0   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  | No   | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Left  | Right   | Left  | Left  | Right   | Left   | Left  | Right   | Left  | Left  | Right   |
| Median Width(m)                   |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Link Offset(m)                    |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Crosswalk Width(m)                |   | 4.9   |   |   | 4.9   |   |  | 4.9   |   |   | 4.9   |   |
| Two way Left Turn Lane            |   |   |   |   |   |   |  |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06   | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  |   | 14  | 24  |   | 14  | 24   |   | 14  | 24  |   | 14  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |  |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 59.9%   |   |   |   |   |   | ICU Level of Service B   |   |   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 15: Sheffield Road & Humber Place










Future BG 2025 AM - Site Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 20  | 0   | 70  | 4   | 1   | 3   | 148  | 401   | 3   | 3   | 208   | 16  |
| Future Volume (Veh/h)             | 20  | 0   | 70  | 4   | 1   | 3   | 148  | 401   | 3   | 3   | 208   | 16  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 22  | 0   | 78  | 4   | 1   | 3   | 164  | 446   | 3   | 3   | 231   | 18  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (m)                    |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (m/s)               |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |  |   |   |   |   |   |
|                                   |   |   |   |   |   |   |  | None  |   |   | None  |   |
| Median storage veh                |   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (m)               |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 1025  | 1023  | 240   | 1100  | 1030  | 448   | 249  |   |   | 449   |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 1025  | 1023  | 240   | 1100  | 1030  | 448   | 249  |   |   | 449   |   |   |
| tC, single (s)                    | 7.4   | 6.5   | 6.4   | 7.6   | 6.5   | 6.5   | 4.2  |   |   | 4.4   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 3.8   | 4.0   | 3.5   | 4.0   | 4.0   | 3.6   | 2.3  |   |   | 2.5   |   |   |
| p0 queue free %                   | 87  | 100   | 90  | 97  | 100   | 99  | 87   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 165   | 204   | 752   | 124   | 202   | 551   | 1260   |   |   | 966   |   |   |
| Direction, Lane #                 |   |   |   |   |   |   |  |   |   |   |   |   |
|                                   | EB 1  | WB 1  | NB 1  | SB 1  |   |   |  |   |   |   |   |   |
| Volume Total                      | 100   | 8   | 613   | 252   |   |   |  |   |   |   |   |   |
| Volume Left                       | 22  | 4   | 164   | 3   |   |   |  |   |   |   |   |   |
| Volume Right                      | 78  | 3   | 3   | 18  |   |   |  |   |   |   |   |   |
| cSH                               | 422   | 188   | 1260  | 966   |   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.24  | 0.04  | 0.13  | 0.00  |   |   |  |   |   |   |   |   |
| Queue Length 95th (m)             | 6.9   | 1.0   | 3.4   | 0.1   |   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 16.2  | 25.0  | 3.3   | 0.1   |   |   |  |   |   |   |   |   |
| Lane LOS                          | C   | D   | A   | A   |   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 16.2  | 25.0  | 3.3   | 0.1   |   |   |  |   |   |   |   |   |
| Approach LOS                      | C   | D   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 4.0   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 59.9%   | ICU Level of Service  | B   |   |  |   |   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |










|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 392   | 28  | 7   | 236   |
| Future Volume (vph)               | 0   | 0   | 392   | 28  | 7   | 236   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 0.991   |   |   |   |   |   |
| Flt Protected                     | 0.999   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1768  | 0   | 0   | 922   |
| Flt Permitted                     | 0.999   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1768  | 0   | 0   | 922   |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 56.2  |   | 120.3   |   |   | 89.9  |
| Travel Time (s)                   | 4.2   |   | 9.0   |   |   | 6.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 2%  | 2%  | 2%  | 2%  | 2%  | 100%  |
| Adj. Flow (vph)                   | 0   | 0   | 436   | 31  | 8   | 262   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 467   | 0   | 0   | 270   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 26.9%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
18: Sheffield Road & Way #5

Future BG 2025 AM - Site Peak  
10-24-2022










|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 392   | 28  | 7   | 236   |
| Future Volume (Veh/h)             | 0   | 0   | 392   | 28  | 7   | 236   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 436   | 31  | 8   | 262   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 730   | 452   |   |   | 467   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 730   | 452   |   |   | 467   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 99  |   |
| cM capacity (veh/h)               | 387   | 608   |   |   | 1094  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 467   | 270   |   |   |   |
| Volume Left                       | 0   | 0   | 8   |   |   |   |
| Volume Right                      | 0   | 31  | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1094  |   |   |   |
| Volume to Capacity                | 0.00  | 0.27  | 0.01  |   |   |   |
| Queue Length 95th (m)             | 0.0   | 0.0   | 0.2   |   |   |   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.3   |   |   |   |
| Lane LOS                          | A   |   | A   |   |   |   |
| Approach Delay (s)                | 0.0   | 0.0   | 0.3   |   |   |   |
| Approach LOS                      | A   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.1   |   |   |   |
| Intersection Capacity Utilization |   |   | 26.9%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |



|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 9   | 2   | 392   | 0   | 0   | 234   |
| Future Volume (vph)               | 9   | 2   | 392   | 0   | 0   | 234   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 0.977   |   |   |   |   |   |
| Flt Protected                     | 0.960   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1674  | 0   | 1784  | 0   | 0   | 1784  |
| Flt Permitted                     | 0.960   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1674  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 60.6  |   | 89.9  |   |   | 135.3   |
| Travel Time (s)                   | 4.5   |   | 6.7   |   |   | 10.1  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 10  | 2   | 436   | 0   | 0   | 260   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 12  | 0   | 436   | 0   | 0   | 260   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 31.8%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
20: Sheffield Road & Way #4

Future BG 2025 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 9   | 2   | 392   | 0   | 0   | 234   |
| Future Volume (Veh/h)             | 9   | 2   | 392   | 0   | 0   | 234   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 10  | 2   | 436   | 0   | 0   | 260   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 696   | 436   |   |   | 436   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 696   | 436   |   |   | 436   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 98  | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 408   | 620   |   |   | 1124  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 12  | 436   | 260   |   |   |   |
| Volume Left                       | 10  | 0   | 0   |   |   |   |
| Volume Right                      | 2   | 0   | 0   |   |   |   |
| cSH                               | 432   | 1700  | 1124  |   |   |   |
| Volume to Capacity                | 0.03  | 0.26  | 0.00  |   |   |   |
| Queue Length 95th (m)             | 0.6   | 0.0   | 0.0   |   |   |   |
| Control Delay (s)                 | 13.6  | 0.0   | 0.0   |   |   |   |
| Lane LOS                          | B   |   |   |   |   |   |
| Approach Delay (s)                | 13.6  | 0.0   | 0.0   |   |   |   |
| Approach LOS                      | B   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.2   |   |   |   |
| Intersection Capacity Utilization |   |   | 31.8%   |   | ICU Level of Service  | A   |
| Analysis Period (min)             |   |   | 15  |   |   |   |










Lanes, Volumes, Timings  
24: Sheffield Road & Way #2

Future BG 2025 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 386   | 8   | 2   | 234   |
| Future Volume (vph)               | 0   | 0   | 386   | 8   | 2   | 234   |
| Ideal Flow (vphp)                 | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   | 0.997   |   |   |   |   |   |
| Fl <sub>t</sub> Protected         |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1779  | 0   | 0   | 1784  |
| Fl <sub>t</sub> Permitted         |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1779  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 65.0  |   | 135.3   |   |   | 74.6  |
| Travel Time (s)                   | 4.9   |   | 10.1  |   |   | 5.6   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 0   | 429   | 9   | 2   | 260   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 438   | 0   | 0   | 262   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 25.3%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 24: Sheffield Road & Way #2

Future BG 2025 AM - Site Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 386   | 8   | 2   | 234   |
| Future Volume (Veh/h)             | 0   | 0   | 386   | 8   | 2   | 234   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 429   | 9   | 2   | 260   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 698   | 434   |   |   | 438   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 698   | 434   |   |   | 438   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 406   | 622   |   |   | 1122  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 438   | 262   |   |   |   |
| Volume Left                       | 0   | 0   | 2   |   |   |   |
| Volume Right                      | 0   | 9   | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1122  |   |   |   |
| Volume to Capacity                | 0.00  | 0.26  | 0.00  |   |   |   |
| Queue Length 95th (m)             | 0.0   | 0.0   | 0.0   |   |   |   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.1   |   |   |   |
| Lane LOS                          | A   |   | A   |   |   |   |
| Approach Delay (s)                | 0.0   | 0.0   | 0.1   |   |   |   |
| Approach LOS                      | A   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 25.3%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

Lanes, Volumes, Timings  
26: Sheffield Road & Way #1

Future BG 2025 AM - Site Peak  
10-24-2022












| Lane Group                 | WBL   | WBR   | NBT  | NBR   | SBL  | SBT   |
|----------------------------|-------|-------|------|-------|------|-------|
| Lane Configurations        |       |       |      |       |      |       |
| Traffic Volume (vph)       | 2     | 1     | 395  | 0     | 0    | 232   |
| Future Volume (vph)        | 2     | 1     | 395  | 0     | 0    | 232   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800 | 1800  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| Fr <sub>t</sub>            | 0.955 |       |      |       |      |       |
| Fl <sub>t</sub> Protected  | 0.968 |       |      |       |      |       |
| Satd. Flow (prot)          | 1649  | 0     | 1784 | 0     | 0    | 1784  |
| Fl <sub>t</sub> Permitted  | 0.968 |       |      |       |      |       |
| Satd. Flow (perm)          | 1649  | 0     | 1784 | 0     | 0    | 1784  |
| Link Speed (k/h)           | 48    |       | 48   |       |      | 48    |
| Link Distance (m)          | 58.8  |       | 74.6 |       |      | 272.6 |
| Travel Time (s)            | 4.4   |       | 5.6  |       |      | 20.4  |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90 | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)            | 2     | 1     | 439  | 0     | 0    | 258   |
| Shared Lane Traffic (%)    |       |       |      |       |      |       |
| Lane Group Flow (vph)      | 3     | 0     | 439  | 0     | 0    | 258   |
| Enter Blocked Intersection | No    | No    | No   | No    | No   | No    |
| Lane Alignment             | Left  | Right | Left | Right | Left | Left  |
| Median Width(m)            | 3.7   |       | 0.0  |       |      | 0.0   |
| Link Offset(m)             | 0.0   |       | 0.0  |       |      | 0.0   |
| Crosswalk Width(m)         | 4.9   |       | 4.9  |       |      | 4.9   |
| Two way Left Turn Lane     |       |       |      |       |      |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)        | 24    | 14    |      | 14    | 24   |       |
| Sign Control               | Stop  |       | Free |       |      | Free  |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 31.9%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
26: Sheffield Road & Way #1

Future BG 2025 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 2   | 1   | 395   | 0   | 0   | 232   |
| Future Volume (Veh/h)             | 2   | 1   | 395   | 0   | 0   | 232   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 2   | 1   | 439   | 0   | 0   | 258   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 697   | 439   |   |   | 439   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 697   | 439   |   |   | 439   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 407   | 618   |   |   | 1121  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 3   | 439   | 258   |   |   |   |
| Volume Left                       | 2   | 0   | 0   |   |   |   |
| Volume Right                      | 1   | 0   | 0   |   |   |   |
| cSH                               | 459   | 1700  | 1121  |   |   |   |
| Volume to Capacity                | 0.01  | 0.26  | 0.00  |   |   |   |
| Queue Length 95th (m)             | 0.1   | 0.0   | 0.0   |   |   |   |
| Control Delay (s)                 | 12.9  | 0.0   | 0.0   |   |   |   |
| Lane LOS                          | B   |   |   |   |   |   |
| Approach Delay (s)                | 12.9  | 0.0   | 0.0   |   |   |   |
| Approach LOS                      | B   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.1   |   |   |   |
| Intersection Capacity Utilization |   |   | 31.9%   | ICU Level of Service  |   | A   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future BG 2025 PM - Site Peak  
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| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        | ↖     | ↗↗    | ↖↖    | ↗     | ↖↖    | ↗     |
| Traffic Volume (vph)       | 94    | 1318  | 715   | 123   | 363   | 154   |
| Future Volume (vph)        | 94    | 1318  | 715   | 123   | 363   | 154   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 30.5  |       |       | 0.0   | 0.0   | 30.5  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1695  | 3293  | 3172  | 1419  | 3288  | 1502  |
| Flt Permitted              | 0.289 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 516   | 3293  | 3172  | 1419  | 3288  | 1502  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 135   |       | 138   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 306.2 | 364.1 |       | 701.3 |       |
| Travel Time (s)            |       | 13.8  | 16.4  |       | 52.6  |       |
| Peak Hour Factor           | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  |
| Heavy Vehicles (%)         | 2%    | 5%    | 9%    | 9%    | 2%    | 3%    |
| Adj. Flow (vph)            | 103   | 1448  | 786   | 135   | 399   | 169   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 103   | 1448  | 786   | 135   | 399   | 169   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 22.0  | 102.0 | 80.0  | 80.0  | 28.0  | 28.0  |
| Total Split (%)            | 16.9% | 78.5% | 61.5% | 61.5% | 21.5% | 21.5% |
| Maximum Green (s)          | 19.0  | 97.0  | 75.0  | 75.0  | 23.0  | 23.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 99.0  | 97.0  | 75.0  | 75.0  | 23.0  | 23.0  |
| Actuated g/C Ratio         | 0.76  | 0.75  | 0.58  | 0.58  | 0.18  | 0.18  |

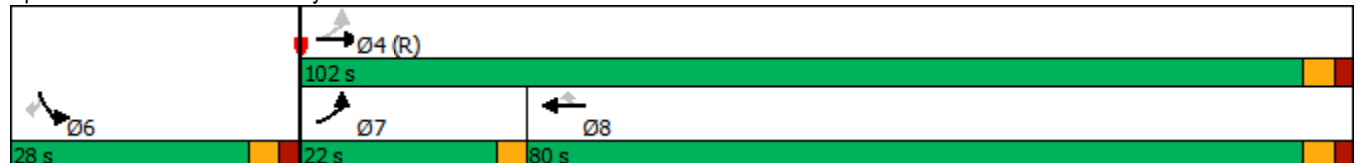


| Lane Group             | EBL  | EBT   | WBT   | WBR  | SBL   | SBR  |
|------------------------|------|-------|-------|------|-------|------|
| v/c Ratio              | 0.18 | 0.59  | 0.43  | 0.15 | 0.69  | 0.45 |
| Control Delay          | 4.7  | 8.7   | 15.1  | 4.3  | 57.0  | 15.9 |
| Queue Delay            | 0.0  | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  |
| Total Delay            | 4.7  | 8.7   | 15.1  | 4.3  | 57.0  | 15.9 |
| LOS                    | A    | A     | B     | A    | E     | B    |
| Approach Delay         |      | 8.4   | 13.5  |      | 44.8  |      |
| Approach LOS           |      | A     | B     |      | D     |      |
| Queue Length 50th (m)  | 5.8  | 77.4  | 69.6  | 8.9  | 49.8  | 6.8  |
| Queue Length 95th (m)  | 10.1 | 93.3  | 78.8  | 16.5 | 67.1  | 27.7 |
| Internal Link Dist (m) |      | 282.2 | 340.1 |      | 677.3 |      |
| Turn Bay Length (m)    | 30.5 |       |       |      |       | 30.5 |
| Base Capacity (vph)    | 565  | 2457  | 1830  | 875  | 581   | 379  |
| Starvation Cap Reductn | 0    | 0     | 0     | 0    | 0     | 0    |
| Spillback Cap Reductn  | 0    | 0     | 0     | 0    | 0     | 0    |
| Storage Cap Reductn    | 0    | 0     | 0     | 0    | 0     | 0    |
| Reduced v/c Ratio      | 0.18 | 0.59  | 0.43  | 0.15 | 0.69  | 0.45 |

Intersection Summary

|                                    |  |
|------------------------------------|--|
| Area Type:                         | Other  |
| Cycle Length:                      | 130  |
| Actuated Cycle Length:             | 130  |
| Offset:                            | 50 (38%), Referenced to phase 4:EBTL, Start of Green |
| Natural Cycle:                     | 60   |
| Control Type:                      | Pretimed   |
| Maximum v/c Ratio:                 | 0.69   |
| Intersection Signal Delay:         | 16.7   |
| Intersection LOS:                  | B  |
| Intersection Capacity Utilization: | 57.7%  |
| ICU Level of Service:              | B  |
| Analysis Period (min):             | 15   |

Splits and Phases: 3: Walkley Road & Lancaster Road





HCM Signalized Intersection Capacity Analysis  
3: Walkley Road & Lancaster Road

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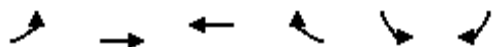
| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 94    | 1318  | 715  | 123  | 363   | 154  |
| Future Volume (vph)    | 94    | 1318  | 715  | 123  | 363   | 154  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1695  | 3293  | 3172 | 1419 | 3288  | 1502 |
| Flt Permitted          | 0.29  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 515   | 3293  | 3172 | 1419 | 3288  | 1502 |
| Peak-hour factor, PHF  | 0.91  | 0.91  | 0.91 | 0.91 | 0.91  | 0.91 |
| Adj. Flow (vph)        | 103   | 1448  | 786  | 135  | 399   | 169  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 57   | 0     | 114  |
| Lane Group Flow (vph)  | 103   | 1448  | 786  | 78   | 399   | 55   |
| Heavy Vehicles (%)     | 2%    | 5%    | 9%   | 9%   | 2%    | 3%   |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 97.0  | 97.0  | 75.0 | 75.0 | 23.0  | 23.0 |
| Effective Green, g (s) | 97.0  | 97.0  | 75.0 | 75.0 | 23.0  | 23.0 |
| Actuated g/C Ratio     | 0.75  | 0.75  | 0.58 | 0.58 | 0.18  | 0.18 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 556   | 2457  | 1830 | 818  | 581   | 265  |
| v/s Ratio Prot         | 0.03  | c0.44 | 0.25 |      | c0.12 |      |
| v/s Ratio Perm         | 0.11  |       |      | 0.05 |       | 0.04 |
| v/c Ratio              | 0.19  | 0.59  | 0.43 | 0.10 | 0.69  | 0.21 |
| Uniform Delay, d1      | 5.4   | 7.5   | 15.5 | 12.3 | 50.1  | 45.7 |
| Progression Factor     | 1.00  | 1.00  | 0.92 | 2.00 | 1.00  | 1.00 |
| Incremental Delay, d2  | 0.7   | 1.0   | 0.7  | 0.2  | 6.5   | 1.8  |
| Delay (s)              | 6.1   | 8.5   | 14.9 | 24.8 | 56.6  | 47.5 |
| Level of Service       | A     | A     | B    | C    | E     | D    |
| Approach Delay (s)     |       | 8.4   | 16.4 |      | 53.9  |      |
| Approach LOS           |       | A     | B    |      | D     |      |

| Intersection Summary              |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 19.3  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.62  |                           |      |
| Actuated Cycle Length (s)         | 130.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 57.7% | ICU Level of Service      | B    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
6: Walkley Road & Sheffield Road

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| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 160   | 1448  | 532   | 70    | 232   | 292   |
| Future Volume (vph)        | 160   | 1448  | 532   | 70    | 232   | 292   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 30.5  |       |       | 50.0  | 0.0   | 30.5  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1383  | 3390  | 3172  | 1146  | 3164  | 1381  |
| Flt Permitted              | 0.404 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 588   | 3390  | 3172  | 1146  | 3164  | 1381  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 71    |       | 301   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 364.1 | 339.6 |       | 830.6 |       |
| Travel Time (s)            |       | 16.4  | 15.3  |       | 62.3  |       |
| Peak Hour Factor           | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.97  |
| Heavy Vehicles (%)         | 25%   | 2%    | 9%    | 35%   | 6%    | 12%   |
| Adj. Flow (vph)            | 163   | 1478  | 543   | 71    | 237   | 301   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 163   | 1478  | 543   | 71    | 237   | 301   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.0  | 23.0  | 23.0  | 23.0  | 23.0  |
| Total Split (s)            | 22.0  | 104.0 | 82.0  | 82.0  | 26.0  | 26.0  |
| Total Split (%)            | 16.9% | 80.0% | 63.1% | 63.1% | 20.0% | 20.0% |
| Maximum Green (s)          | 19.0  | 99.0  | 77.0  | 77.0  | 21.0  | 21.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 101.0 | 99.0  | 77.0  | 77.0  | 21.0  | 21.0  |
| Actuated g/C Ratio         | 0.78  | 0.76  | 0.59  | 0.59  | 0.16  | 0.16  |



| Lane Group             | EBL   | EBT   | WBT   | WBR  | SBL   | SBR  |
|------------------------|-------|-------|-------|------|-------|------|
| v/c Ratio              | 0.28  | 0.57  | 0.29  | 0.10 | 0.46  | 0.63 |
| Control Delay          | 3.8   | 5.2   | 13.5  | 2.8  | 52.8  | 11.8 |
| Queue Delay            | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  |
| Total Delay            | 3.8   | 5.2   | 13.5  | 2.8  | 52.8  | 11.8 |
| LOS                    | A     | A     | B     | A    | D     | B    |
| Approach Delay         |       | 5.1   | 12.3  |      | 29.9  |      |
| Approach LOS           |       | A     | B     |      | C     |      |
| Queue Length 50th (m)  | 6.9   | 49.0  | 34.2  | 0.0  | 28.7  | 0.0  |
| Queue Length 95th (m)  | m10.9 | 57.0  | 44.4  | 6.2  | 41.7  | 26.9 |
| Internal Link Dist (m) |       | 340.1 | 315.6 |      | 806.6 |      |
| Turn Bay Length (m)    | 30.5  |       |       | 50.0 |       | 30.5 |
| Base Capacity (vph)    | 573   | 2581  | 1878  | 707  | 511   | 475  |
| Starvation Cap Reductn | 0     | 0     | 0     | 0    | 0     | 0    |
| Spillback Cap Reductn  | 0     | 0     | 0     | 0    | 0     | 0    |
| Storage Cap Reductn    | 0     | 0     | 0     | 0    | 0     | 0    |
| Reduced v/c Ratio      | 0.28  | 0.57  | 0.29  | 0.10 | 0.46  | 0.63 |

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 13 (10%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.63  
 Intersection Signal Delay: 11.4  
 Intersection LOS: B  
 Intersection Capacity Utilization 57.6%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Walkley Road & Sheffield Road



HCM Signalized Intersection Capacity Analysis  
6: Walkley Road & Sheffield Road

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| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 160   | 1448  | 532  | 70   | 232   | 292  |
| Future Volume (vph)    | 160   | 1448  | 532  | 70   | 232   | 292  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1383  | 3390  | 3172 | 1146 | 3164  | 1381 |
| Flt Permitted          | 0.40  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 589   | 3390  | 3172 | 1146 | 3164  | 1381 |
| Peak-hour factor, PHF  | 0.98  | 0.98  | 0.98 | 0.98 | 0.98  | 0.97 |
| Adj. Flow (vph)        | 163   | 1478  | 543  | 71   | 237   | 301  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 29   | 0     | 252  |
| Lane Group Flow (vph)  | 163   | 1478  | 543  | 42   | 237   | 49   |
| Heavy Vehicles (%)     | 25%   | 2%    | 9%   | 35%  | 6%    | 12%  |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 99.0  | 99.0  | 77.0 | 77.0 | 21.0  | 21.0 |
| Effective Green, g (s) | 99.0  | 99.0  | 77.0 | 77.0 | 21.0  | 21.0 |
| Actuated g/C Ratio     | 0.76  | 0.76  | 0.59 | 0.59 | 0.16  | 0.16 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 564   | 2581  | 1878 | 678  | 511   | 223  |
| v/s Ratio Prot         | 0.04  | c0.44 | 0.17 |      | c0.07 |      |
| v/s Ratio Perm         | 0.18  |       |      | 0.04 |       | 0.04 |
| v/c Ratio              | 0.29  | 0.57  | 0.29 | 0.06 | 0.46  | 0.22 |
| Uniform Delay, d1      | 4.5   | 6.6   | 13.0 | 11.2 | 49.4  | 47.4 |
| Progression Factor     | 0.76  | 0.67  | 1.00 | 1.00 | 1.00  | 1.00 |
| Incremental Delay, d2  | 1.0   | 0.7   | 0.4  | 0.2  | 3.0   | 2.2  |
| Delay (s)              | 4.5   | 5.1   | 13.4 | 11.4 | 52.4  | 49.6 |
| Level of Service       | A     | A     | B    | B    | D     | D    |
| Approach Delay (s)     |       | 5.0   | 13.2 |      | 50.8  |      |
| Approach LOS           |       | A     | B    |      | D     |      |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 15.7  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.57  |                           |      |
| Actuated Cycle Length (s)         | 130.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 57.6% | ICU Level of Service      | B    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
7: Walkley Road & Highway SB terminal

Future BG 2025 PM - Site Peak  
10-24-2022



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑↑    |       | ↘     | ↗     |
| Traffic Volume (vph)       | 0    | 1137  | 135   | 0     | 130   | 460   |
| Future Volume (vph)        | 0    | 1137  | 135   | 0     | 130   | 460   |
| Ideal Flow (vphp)          | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>            |      |       |       |       |       | 0.850 |
| Fl <sub>t</sub> Protected  |      |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Fl <sub>t</sub> Permitted  |      |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Link Speed (k/h)           |      | 80    | 80    |       | 80    |       |
| Link Distance (m)          |      | 118.5 | 305.1 |       | 468.0 |       |
| Travel Time (s)            |      | 5.3   | 13.7  |       | 21.1  |       |
| Peak Hour Factor           | 0.95 | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  |
| Adj. Flow (vph)            | 0    | 1197  | 142   | 0     | 137   | 484   |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 1197  | 142   | 0     | 137   | 484   |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 3.7   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 47.4%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
7: Walkley Road & Highway SB terminal

Future BG 2025 PM - Site Peak  
10-24-2022



| Movement                          | EBL         | EBT         | WBT         | WBR                  | SBL         | SBR         |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|-------------|
| Lane Configurations               |             | ↑↑          | ↑↑          |                      | ↘           | ↗           |
| Traffic Volume (veh/h)            | 0           | 1137        | 135         | 0                    | 130         | 460         |
| Future Volume (Veh/h)             | 0           | 1137        | 135         | 0                    | 130         | 460         |
| Sign Control                      |             | Free        | Free        |                      | Stop        |             |
| Grade                             |             | 0%          | 0%          |                      | 0%          |             |
| Peak Hour Factor                  | 0.95        | 0.95        | 0.95        | 0.95                 | 0.95        | 0.95        |
| Hourly flow rate (vph)            | 0           | 1197        | 142         | 0                    | 137         | 484         |
| <b>Pedestrians</b>                |             |             |             |                      |             |             |
| 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            | 142         |             |             |                      | 740         | 71          |
| vC1, stage 1 conf vol             |             |             |             |                      |             |             |
| vC2, stage 2 conf vol             |             |             |             |                      |             |             |
| vCu, unblocked vol                | 142         |             |             |                      | 740         | 71          |
| tC, single (s)                    | 4.1         |             |             |                      | 6.8         | 6.9         |
| tC, 2 stage (s)                   |             |             |             |                      |             |             |
| tF (s)                            | 2.2         |             |             |                      | 3.5         | 3.3         |
| p0 queue free %                   | 100         |             |             |                      | 61          | 50          |
| cM capacity (veh/h)               | 1438        |             |             |                      | 352         | 977         |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>SB 1</b> | <b>SB 2</b> |
| Volume Total                      | 598         | 598         | 71          | 71                   | 137         | 484         |
| Volume Left                       | 0           | 0           | 0           | 0                    | 137         | 0           |
| Volume Right                      | 0           | 0           | 0           | 0                    | 0           | 484         |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 352         | 977         |
| Volume to Capacity                | 0.35        | 0.35        | 0.04        | 0.04                 | 0.39        | 0.50        |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0                  | 13.6        | 21.4        |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 21.6        | 12.2        |
| Lane LOS                          |             |             |             |                      | C           | B           |
| Approach Delay (s)                | 0.0         |             | 0.0         |                      | 14.3        |             |
| Approach LOS                      |             |             |             |                      | B           |             |
| <b>Intersection Summary</b>       |             |             |             |                      |             |             |
| Average Delay                     |             |             | 4.5         |                      |             |             |
| Intersection Capacity Utilization |             |             | 47.4%       | ICU Level of Service | A           |             |
| Analysis Period (min)             |             |             | 15          |                      |             |             |

Lanes, Volumes, Timings  
 10: Highway NB terminal & Walkley Road

Future BG 2025 PM - Site Peak  
 10-24-2022



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NBL   | NBR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    |       |      | ↑↑    | ↘     |       |
| Traffic Volume (vph)       | 448   | 821   | 0    | 49    | 100   | 24    |
| Future Volume (vph)        | 448   | 821   | 0    | 49    | 100   | 24    |
| Ideal Flow (vphp)          | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00 | 0.95  | 1.00  | 1.00  |
| Frt                        | 0.903 |       |      | 0.974 |       |       |
| Flt Protected              |       |       |      | 0.961 |       |       |
| Satd. Flow (prot)          | 3061  | 0     | 0    | 3390  | 1670  | 0     |
| Flt Permitted              |       |       |      | 0.961 |       |       |
| Satd. Flow (perm)          | 3061  | 0     | 0    | 3390  | 1670  | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 305.1 |       |      | 95.4  | 443.2 |       |
| Travel Time (s)            | 13.7  |       |      | 7.2   | 33.2  |       |
| Peak Hour Factor           | 0.91  | 0.91  | 0.91 | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)            | 492   | 902   | 0    | 54    | 110   | 26    |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 1394  | 0     | 0    | 54    | 136   | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 3.7   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 14    |       | 24   | 24    |       | 14    |
| Sign Control               | Free  |       |      | Free  | Stop  |       |

Intersection Summary

|                                   |                              |
|-----------------------------------|------------------------------|
| Area Type:                        | Other                        |
| Control Type:                     | Unsignalized                 |
| Intersection Capacity Utilization | 55.1% ICU Level of Service B |
| Analysis Period (min)             | 15                           |

HCM Unsignalized Intersection Capacity Analysis  
 10: Highway NB terminal & Walkley Road

Future BG 2025 PM - Site Peak  
 10-24-2022

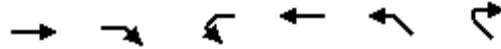


| Movement                          | EBT         | EBR         | WBL         | WBT                  | NBL         | NBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations               | ↑↑          |             |             | ↑↑                   | ↘           |      |
| Traffic Volume (veh/h)            | 448         | 821         | 0           | 49                   | 100         | 24   |
| Future Volume (Veh/h)             | 448         | 821         | 0           | 49                   | 100         | 24   |
| Sign Control                      | Free        |             |             | Free                 | Stop        |      |
| Grade                             | 0%          |             |             | 0%                   | 0%          |      |
| Peak Hour Factor                  | 0.91        | 0.91        | 0.91        | 0.91                 | 0.91        | 0.91 |
| Hourly flow rate (vph)            | 492         | 902         | 0           | 54                   | 110         | 26   |
| <b>Pedestrians</b>                |             |             |             |                      |             |      |
| 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            |             |             | 1394        |                      | 970         | 697  |
| vC1, stage 1 conf vol             |             |             |             |                      |             |      |
| vC2, stage 2 conf vol             |             |             |             |                      |             |      |
| vCu, unblocked vol                |             |             | 1394        |                      | 970         | 697  |
| tC, single (s)                    |             |             | 4.1         |                      | 6.8         | 6.9  |
| tC, 2 stage (s)                   |             |             |             |                      |             |      |
| tF (s)                            |             |             | 2.2         |                      | 3.5         | 3.3  |
| p0 queue free %                   |             |             | 100         |                      | 56          | 93   |
| cM capacity (veh/h)               |             |             | 487         |                      | 251         | 383  |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>NB 1</b> |      |
| Volume Total                      | 328         | 1066        | 27          | 27                   | 136         |      |
| Volume Left                       | 0           | 0           | 0           | 0                    | 110         |      |
| Volume Right                      | 0           | 902         | 0           | 0                    | 26          |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 268         |      |
| Volume to Capacity                | 0.19        | 0.63        | 0.02        | 0.02                 | 0.51        |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0                  | 20.2        |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 31.4        |      |
| Lane LOS                          |             |             |             |                      | D           |      |
| Approach Delay (s)                | 0.0         |             | 0.0         |                      | 31.4        |      |
| Approach LOS                      |             |             |             |                      | D           |      |
| <b>Intersection Summary</b>       |             |             |             |                      |             |      |
| Average Delay                     |             |             | 2.7         |                      |             |      |
| Intersection Capacity Utilization |             |             | 55.1%       | ICU Level of Service | B           |      |
| Analysis Period (min)             |             |             | 15          |                      |             |      |



Lanes, Volumes, Timings  
11: SB off ramp & Walkley Road

Future BG 2025 PM - Site Peak  
10-24-2022



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NWL   | NWR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    | ↑     |      | ↑↑↑   |       |       |
| Traffic Volume (vph)       | 1137  | 395   | 0    | 595   | 0     | 0     |
| Future Volume (vph)        | 1137  | 395   | 0    | 595   | 0     | 0     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Storage Length (m)         |       | 50.0  | 0.0  |       | 0.0   | 0.0   |
| Storage Lanes              |       | 1     | 0    |       | 0     | 0     |
| Taper Length (m)           |       |       | 7.6  |       | 7.6   |       |
| Lane Util. Factor          | 0.95  | 1.00  | 1.00 | 0.91  | 1.00  | 1.00  |
| Frt                        |       | 0.850 |      |       |       |       |
| Flt Protected              |       |       |      |       |       |       |
| Satd. Flow (prot)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Flt Permitted              |       |       |      |       |       |       |
| Satd. Flow (perm)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 339.6 |       |      | 118.5 | 265.8 |       |
| Travel Time (s)            | 15.3  |       |      | 8.9   | 19.9  |       |
| Peak Hour Factor           | 0.95  | 0.95  | 0.95 | 0.95  | 0.95  | 0.95  |
| Adj. Flow (vph)            | 1197  | 416   | 0    | 626   | 0     | 0     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 1197  | 416   | 0    | 626   | 0     | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 0.0   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        |       | 14    | 24   |       | 24    | 14    |
| Sign Control               | Free  |       |      | Free  | Free  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 36.5%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings  
13: Walkley Road & NB off ramp

Future BG 2025 PM - Site Peak  
10-24-2022



| Lane Group                 | EBL  | EBT  | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑   | ↑     | ↗     |       |       |
| Traffic Volume (vph)       | 0    | 472  | 49    | 46    | 0     | 0     |
| Future Volume (vph)        | 0    | 472  | 49    | 46    | 0     | 0     |
| Ideal Flow (vphpl)         | 1800 | 1800 | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 0.0  |      |       | 50.0  | 0.0   | 0.0   |
| Storage Lanes              | 0    |      |       | 1     | 0     | 0     |
| Taper Length (m)           | 7.6  |      |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00 | 0.95 | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      |      |       | 0.850 |       |       |
| Flt Protected              |      |      |       |       |       |       |
| Satd. Flow (prot)          | 0    | 3390 | 1784  | 1517  | 0     | 0     |
| Flt Permitted              |      |      |       |       |       |       |
| Satd. Flow (perm)          | 0    | 3390 | 1784  | 1517  | 0     | 0     |
| Link Speed (k/h)           |      | 80   | 48    |       | 48    |       |
| Link Distance (m)          |      | 95.4 | 197.1 |       | 264.7 |       |
| Travel Time (s)            |      | 4.3  | 14.8  |       | 19.9  |       |
| Peak Hour Factor           | 0.91 | 0.91 | 0.91  | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)            | 0    | 519  | 54    | 51    | 0     | 0     |
| Shared Lane Traffic (%)    |      |      |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 519  | 54    | 51    | 0     | 0     |
| Enter Blocked Intersection | No   | No   | No    | No    | No    | No    |
| Lane Alignment             | Left | Left | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0  | 0.0   |       | 0.0   |       |
| Link Offset(m)             |      | 0.0  | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9  | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |      |       |       |       |       |
| Headway Factor             | 1.06 | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |      |       | 14    | 24    | 14    |
| Sign Control               |      | Free | Free  |       | Free  |       |

Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 17.1%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

















Lanes, Volumes, Timings  
15: Sheffield Road & Humber Place

Future BG 2025 PM - Site Peak  
10-24-2022

| Lane Group                        | EBL          | EBT   | EBR   | WBL  | WBT   | WBR   | NBL                    | NBT   | NBR   | SBL  | SBT   | SBR   |
|-----------------------------------|--------------|-------|-------|------|-------|-------|------------------------|-------|-------|------|-------|-------|
| Lane Configurations               |              |       |       |      |       |       |                        |       |       |      |       |       |
| Traffic Volume (vph)              | 11           | 0     | 104   | 2    | 0     | 0     | 44                     | 224   | 1     | 1    | 405   | 15    |
| Future Volume (vph)               | 11           | 0     | 104   | 2    | 0     | 0     | 44                     | 224   | 1     | 1    | 405   | 15    |
| Ideal Flow (vphpl)                | 1800         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800                   | 1800  | 1800  | 1800 | 1800  | 1800  |
| Lane Util. Factor                 | 1.00         | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00                   | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  |
| Fr <sub>t</sub>                   |              | 0.878 |       |      |       |       |                        |       |       |      | 0.995 |       |
| Fl <sub>t</sub> Protected         |              | 0.995 |       |      | 0.950 |       |                        | 0.992 |       |      |       |       |
| Satd. Flow (prot)                 | 0            | 1452  | 0     | 0    | 1300  | 0     | 0                      | 1377  | 0     | 0    | 1661  | 0     |
| Fl <sub>t</sub> Permitted         |              | 0.995 |       |      | 0.950 |       |                        | 0.992 |       |      |       |       |
| Satd. Flow (perm)                 | 0            | 1452  | 0     | 0    | 1300  | 0     | 0                      | 1377  | 0     | 0    | 1661  | 0     |
| Link Speed (k/h)                  |              | 48    |       |      | 48    |       |                        | 48    |       |      | 48    |       |
| Link Distance (m)                 |              | 152.4 |       |      | 148.3 |       |                        | 830.6 |       |      | 80.7  |       |
| Travel Time (s)                   |              | 11.4  |       |      | 11.1  |       |                        | 62.3  |       |      | 6.1   |       |
| Peak Hour Factor                  | 0.90         | 0.90  | 0.90  | 0.90 | 0.90  | 0.90  | 0.90                   | 0.90  | 0.90  | 0.90 | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 14%          | 2%    | 9%    | 33%  | 2%    | 2%    | 21%                    | 33%   | 50%   | 0%   | 9%    | 10%   |
| Adj. Flow (vph)                   | 12           | 0     | 116   | 2    | 0     | 0     | 49                     | 249   | 1     | 1    | 450   | 17    |
| Shared Lane Traffic (%)           |              |       |       |      |       |       |                        |       |       |      |       |       |
| Lane Group Flow (vph)             | 0            | 128   | 0     | 0    | 2     | 0     | 0                      | 299   | 0     | 0    | 468   | 0     |
| Enter Blocked Intersection        | No           | No    | No    | No   | No    | No    | No                     | No    | No    | No   | No    | No    |
| Lane Alignment                    | Left         | Left  | Right | Left | Left  | Right | Left                   | Left  | Right | Left | Left  | Right |
| Median Width(m)                   |              | 0.0   |       |      | 0.0   |       |                        | 0.0   |       |      | 0.0   |       |
| Link Offset(m)                    |              | 0.0   |       |      | 0.0   |       |                        | 0.0   |       |      | 0.0   |       |
| Crosswalk Width(m)                |              | 4.9   |       |      | 4.9   |       |                        | 4.9   |       |      | 4.9   |       |
| Two way Left Turn Lane            |              |       |       |      |       |       |                        |       |       |      |       |       |
| Headway Factor                    | 1.06         | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06                   | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24           |       | 14    | 24   |       | 14    | 24                     |       | 14    | 24   |       | 14    |
| Sign Control                      |              | Stop  |       |      | Stop  |       |                        | Free  |       |      | Free  |       |
| <b>Intersection Summary</b>       |              |       |       |      |       |       |                        |       |       |      |       |       |
| Area Type:                        | Other        |       |       |      |       |       |                        |       |       |      |       |       |
| Control Type:                     | Unsignalized |       |       |      |       |       |                        |       |       |      |       |       |
| Intersection Capacity Utilization | 55.7%        |       |       |      |       |       | ICU Level of Service B |       |       |      |       |       |
| Analysis Period (min)             | 15           |       |       |      |       |       |                        |       |       |      |       |       |










HCM Unsignalized Intersection Capacity Analysis  
 15: Sheffield Road & Humber Place

Future BG 2025 PM - Site Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 11  | 0   | 104   | 2   | 0   | 0   | 44   | 224   | 1   | 1   | 405   | 15  |
| Future Volume (Veh/h)             | 11  | 0   | 104   | 2   | 0   | 0   | 44   | 224   | 1   | 1   | 405   | 15  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 12  | 0   | 116   | 2   | 0   | 0   | 49   | 249   | 1   | 1   | 450   | 17  |
| 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            | 808   | 808   | 458   | 924   | 816   | 250   | 467  |   |   | 250   |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 808   | 808   | 458   | 924   | 816   | 250   | 467  |   |   | 250   |   |   |
| tC, single (s)                    | 7.2   | 6.5   | 6.3   | 7.4   | 6.5   | 6.2   | 4.3  |   |   | 4.1   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 3.6   | 4.0   | 3.4   | 3.8   | 4.0   | 3.3   | 2.4  |   |   | 2.2   |   |   |
| p0 queue free %                   | 96  | 100   | 80  | 99  | 100   | 100   | 95   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 275   | 299   | 588   | 170   | 296   | 789   | 1002   |   |   | 1327  |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | SB 1  |   |   |  |   |   |   |   |   |
| Volume Total                      | 128   | 2   | 299   | 468   |   |   |  |   |   |   |   |   |
| Volume Left                       | 12  | 2   | 49  | 1   |   |   |  |   |   |   |   |   |
| Volume Right                      | 116   | 0   | 1   | 17  |   |   |  |   |   |   |   |   |
| cSH                               | 531   | 170   | 1002  | 1327  |   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.24  | 0.01  | 0.05  | 0.00  |   |   |  |   |   |   |   |   |
| Queue Length 95th (m)             | 7.1   | 0.3   | 1.2   | 0.0   |   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 13.9  | 26.4  | 1.9   | 0.0   |   |   |  |   |   |   |   |   |
| Lane LOS                          | B   | D   | A   | A   |   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 13.9  | 26.4  | 1.9   | 0.0   |   |   |  |   |   |   |   |   |
| Approach LOS                      | B   | D   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 2.7   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 55.7%   |   | ICU Level of Service  |   |  |   |   | B   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |










Lanes, Volumes, Timings  
18: Sheffield Road & Way #5

Future BG 2025 PM - Site Peak  
10-24-2022










|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 212   | 7   | 1   | 411   |
| Future Volume (vph)               | 0   | 0   | 212   | 7   | 1   | 411   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 0.995   |   |   |   |   |   |
| Flt Protected                     |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1775  | 0   | 0   | 1071  |
| Flt Permitted                     |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1775  | 0   | 0   | 1071  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 56.2  |   | 80.7  |   |   | 63.2  |
| Travel Time (s)                   | 4.2   |   | 6.1   |   |   | 4.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.92  | 0.90  | 0.90  | 0.90  |
| Bus Blockages (#/hr)              | 0   | 0   | 0   | 0   | 0   | 100   |
| Adj. Flow (vph)                   | 0   | 0   | 230   | 8   | 1   | 457   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 238   | 0   | 0   | 458   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.96  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 27.0%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 18: Sheffield Road & Way #5

Future BG 2025 PM - Site Peak  
 10-24-2022










|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 212   | 7   | 1   | 411   |
| Future Volume (Veh/h)             | 0   | 0   | 212   | 7   | 1   | 411   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.92  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 230   | 8   | 1   | 457   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 693   | 234   |   |   | 238   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 693   | 234   |   |   | 238   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 409   | 805   |   |   | 1329  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 238   | 458   |   |   |   |
| Volume Left                       | 0   | 0   | 1   |   |   |   |
| Volume Right                      | 0   | 8   | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1329  |   |   |   |
| Volume to Capacity                | 0.00  | 0.14  | 0.00  |   |   |   |
| Queue Length 95th (m)             | 0.0   | 0.0   | 0.0   |   |   |   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   |   |   |   |
| Lane LOS                          | A   |   | A   |   |   |   |
| Approach Delay (s)                | 0.0   | 0.0   | 0.0   |   |   |   |
| Approach LOS                      | A   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 27.0%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |



|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 27  | 6   | 212   | 0   | 0   | 383   |
| Future Volume (vph)               | 27  | 6   | 212   | 0   | 0   | 383   |
| Ideal Flow (vphp)                 | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   | 0.974   |   |   |   |   |   |
| Fl <sub>t</sub> Protected         | 0.961   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1670  | 0   | 1784  | 0   | 0   | 1784  |
| Fl <sub>t</sub> Permitted         | 0.961   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1670  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 60.6  |   | 63.2  |   |   | 102.2   |
| Travel Time (s)                   | 4.5   |   | 4.7   |   |   | 7.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 30  | 7   | 236   | 0   | 0   | 426   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 37  | 0   | 236   | 0   | 0   | 426   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 31.3%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
20: Sheffield Road & Way #4

Future BG 2025 PM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 27  | 6   | 212   | 0   | 0   | 383   |
| Future Volume (Veh/h)             | 27  | 6   | 212   | 0   | 0   | 383   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 30  | 7   | 236   | 0   | 0   | 426   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 662   | 236   |   |   | 236   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 662   | 236   |   |   | 236   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 93  | 99  |   |   | 100   |   |
| cM capacity (veh/h)               | 427   | 803   |   |   | 1331  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 37  | 236   | 426   |   |   |   |
| Volume Left                       | 30  | 0   | 0   |   |   |   |
| Volume Right                      | 7   | 0   | 0   |   |   |   |
| cSH                               | 468   | 1700  | 1331  |   |   |   |
| Volume to Capacity                | 0.08  | 0.14  | 0.00  |   |   |   |
| Queue Length 95th (m)             | 1.9   | 0.0   | 0.0   |   |   |   |
| Control Delay (s)                 | 13.3  | 0.0   | 0.0   |   |   |   |
| Lane LOS                          | B   |   |   |   |   |   |
| Approach Delay (s)                | 13.3  | 0.0   | 0.0   |   |   |   |
| Approach LOS                      | B   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.7   |   |   |   |
| Intersection Capacity Utilization |   |   | 31.3%   | ICU Level of Service  |   | A   |
| Analysis Period (min)             |   |   | 15  |   |   |   |










Lanes, Volumes, Timings  
24: Sheffield Road & Way #2

Future BG 2025 PM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 216   | 2   | 1   | 383   |
| Future Volume (vph)               | 0   | 0   | 216   | 2   | 1   | 383   |
| Ideal Flow (vphp)                 | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 0.999   |   |   |   |   |   |
| Flt Protected                     |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1783  | 0   | 0   | 1784  |
| Flt Permitted                     |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1783  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 65.0  |   | 102.2   |   |   | 76.9  |
| Travel Time (s)                   | 4.9   |   | 7.7   |   |   | 5.8   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 0   | 240   | 2   | 1   | 426   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 242   | 0   | 0   | 427   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 25.4%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
 24: Sheffield Road & Way #2

Future BG 2025 PM - Site Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 216   | 2   | 1   | 383   |
| Future Volume (Veh/h)             | 0   | 0   | 216   | 2   | 1   | 383   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 240   | 2   | 1   | 426   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 669   | 241   |   |   | 242   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 669   | 241   |   |   | 242   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 422   | 798   |   |   | 1324  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 242   | 427   |   |   |   |
| Volume Left                       | 0   | 0   | 1   |   |   |   |
| Volume Right                      | 0   | 2   | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1324  |   |   |   |
| Volume to Capacity                | 0.00  | 0.14  | 0.00  |   |   |   |
| Queue Length 95th (m)             | 0.0   | 0.0   | 0.0   |   |   |   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   |   |   |   |
| Lane LOS                          | A   |   | A   |   |   |   |
| Approach Delay (s)                | 0.0   | 0.0   | 0.0   |   |   |   |
| Approach LOS                      | A   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 25.4%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

Lanes, Volumes, Timings  
26: Sheffield Road & Way #1

Future BG 2025 PM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 4   | 1   | 218   | 0   | 0   | 380   |
| Future Volume (vph)               | 4   | 1   | 218   | 0   | 0   | 380   |
| Ideal Flow (vphp)                 | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   | 0.973   |   |   |   |   |   |
| Fl <sub>t</sub> Protected         | 0.962   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1670  | 0   | 1784  | 0   | 0   | 1784  |
| Fl <sub>t</sub> Permitted         | 0.962   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1670  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 58.8  |   | 76.9  |   |   | 181.8   |
| Travel Time (s)                   | 4.4   |   | 5.8   |   |   | 13.6  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 4   | 1   | 242   | 0   | 0   | 422   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 5   | 0   | 242   | 0   | 0   | 422   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 31.1%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
26: Sheffield Road & Way #1

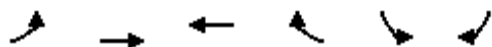
Future BG 2025 PM - Site Peak  
10-24-2022



| Movement                          | WBL         | WBR         | NBT         | NBR  | SBL                  | SBT  |
|-----------------------------------|-------------|-------------|-------------|------|----------------------|------|
| Lane Configurations               |             |             |             |      |                      |      |
| Traffic Volume (veh/h)            | 4           | 1           | 218         | 0    | 0                    | 380  |
| Future Volume (Veh/h)             | 4           | 1           | 218         | 0    | 0                    | 380  |
| Sign Control                      | Stop        |             | Free        |      | Free                 |      |
| Grade                             | 0%          |             | 0%          |      | 0%                   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90 | 0.90                 | 0.90 |
| Hourly flow rate (vph)            | 4           | 1           | 242         | 0    | 0                    | 422  |
| <b>Pedestrians</b>                |             |             |             |      |                      |      |
| 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            | 664         | 242         |             |      | 242                  |      |
| vC1, stage 1 conf vol             |             |             |             |      |                      |      |
| vC2, stage 2 conf vol             |             |             |             |      |                      |      |
| vCu, unblocked vol                | 664         | 242         |             |      | 242                  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |      | 4.1                  |      |
| tC, 2 stage (s)                   |             |             |             |      |                      |      |
| tF (s)                            | 3.5         | 3.3         |             |      | 2.2                  |      |
| p0 queue free %                   | 99          | 100         |             |      | 100                  |      |
| cM capacity (veh/h)               | 426         | 797         |             |      | 1324                 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |      |                      |      |
| Volume Total                      | 5           | 242         | 422         |      |                      |      |
| Volume Left                       | 4           | 0           | 0           |      |                      |      |
| Volume Right                      | 1           | 0           | 0           |      |                      |      |
| cSH                               | 469         | 1700        | 1324        |      |                      |      |
| Volume to Capacity                | 0.01        | 0.14        | 0.00        |      |                      |      |
| Queue Length 95th (m)             | 0.2         | 0.0         | 0.0         |      |                      |      |
| Control Delay (s)                 | 12.8        | 0.0         | 0.0         |      |                      |      |
| Lane LOS                          | B           |             |             |      |                      |      |
| Approach Delay (s)                | 12.8        | 0.0         | 0.0         |      |                      |      |
| Approach LOS                      | B           |             |             |      |                      |      |
| <b>Intersection Summary</b>       |             |             |             |      |                      |      |
| Average Delay                     |             |             | 0.1         |      |                      |      |
| Intersection Capacity Utilization |             |             | 31.1%       |      | ICU Level of Service | A    |
| Analysis Period (min)             |             |             | 15          |      |                      |      |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future BG 2030 AM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 222   | 799   | 1540  | 699   | 101   | 184   |
| Future Volume (vph)        | 222   | 799   | 1540  | 699   | 101   | 184   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 100.0 |       |       | 0.0   | 0.0   | 70.0  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1647  | 3007  | 3232  | 1517  | 3135  | 1406  |
| Flt Permitted              | 0.080 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 139   | 3007  | 3232  | 1517  | 3135  | 1406  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 599   |       | 190   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 248.5 | 361.1 |       | 367.8 |       |
| Travel Time (s)            |       | 11.2  | 16.2  |       | 27.6  |       |
| Peak Hour Factor           | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Heavy Vehicles (%)         | 5%    | 15%   | 7%    | 2%    | 7%    | 10%   |
| Adj. Flow (vph)            | 229   | 824   | 1588  | 721   | 104   | 190   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 229   | 824   | 1588  | 721   | 104   | 190   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 24.0  | 122.0 | 98.0  | 98.0  | 28.0  | 28.0  |
| Total Split (%)            | 16.0% | 81.3% | 65.3% | 65.3% | 18.7% | 18.7% |
| Maximum Green (s)          | 21.0  | 117.0 | 93.0  | 93.0  | 23.0  | 23.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 119.0 | 117.0 | 93.0  | 93.0  | 23.0  | 23.0  |
| Actuated g/C Ratio         | 0.79  | 0.78  | 0.62  | 0.62  | 0.15  | 0.15  |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future BG 2030 AM - Adjacent Peak  
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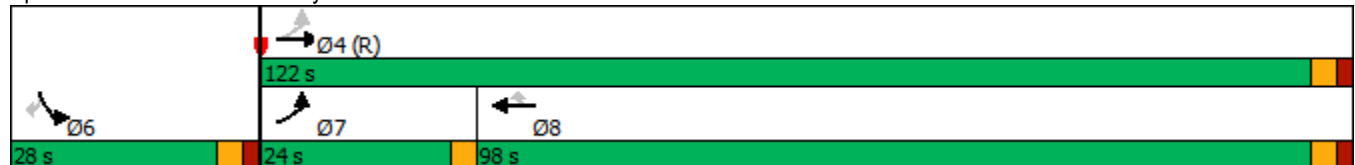


| Lane Group             | EBL   | EBT   | WBT   | WBR   | SBL   | SBR  |
|------------------------|-------|-------|-------|-------|-------|------|
| v/c Ratio              | 0.71  | 0.35  | 0.79  | 0.62  | 0.22  | 0.51 |
| Control Delay          | 40.1  | 5.5   | 12.5  | 2.6   | 57.0  | 12.1 |
| Queue Delay            | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| Total Delay            | 40.1  | 5.5   | 12.5  | 2.6   | 57.0  | 12.1 |
| LOS                    | D     | A     | B     | A     | E     | B    |
| Approach Delay         |       | 13.0  | 9.4   |       | 28.0  |      |
| Approach LOS           |       | B     | A     |       | C     |      |
| Queue Length 50th (m)  | 35.7  | 34.1  | 64.0  | 22.2  | 14.1  | 0.0  |
| Queue Length 95th (m)  | 65.9  | 41.7  | m68.0 | m21.2 | 23.2  | 22.7 |
| Internal Link Dist (m) |       | 224.5 | 337.1 |       | 343.8 |      |
| Turn Bay Length (m)    | 100.0 |       |       |       |       | 70.0 |
| Base Capacity (vph)    | 321   | 2345  | 2003  | 1168  | 480   | 376  |
| Starvation Cap Reductn | 0     | 0     | 0     | 0     | 0     | 0    |
| Spillback Cap Reductn  | 0     | 0     | 0     | 0     | 0     | 0    |
| Storage Cap Reductn    | 0     | 0     | 0     | 0     | 0     | 0    |
| Reduced v/c Ratio      | 0.71  | 0.35  | 0.79  | 0.62  | 0.22  | 0.51 |

Intersection Summary

Area Type: Other  
 Cycle Length: 150  
 Actuated Cycle Length: 150  
 Offset: 50 (33%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 12.0  
 Intersection LOS: B  
 Intersection Capacity Utilization 73.8%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Walkley Road & Lancaster Road





HCM Signalized Intersection Capacity Analysis  
3: Walkley Road & Lancaster Road

Future BG 2030 AM - Adjacent Peak  
10-24-2022



| Movement               | EBL   | EBT   | WBT   | WBR  | SBL   | SBR  |
|------------------------|-------|-------|-------|------|-------|------|
| Lane Configurations    |       |       |       |      |       |      |
| Traffic Volume (vph)   | 222   | 799   | 1540  | 699  | 101   | 184  |
| Future Volume (vph)    | 222   | 799   | 1540  | 699  | 101   | 184  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800  | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95  | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00  | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00  | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1647  | 3007  | 3232  | 1517 | 3135  | 1406 |
| Flt Permitted          | 0.08  | 1.00  | 1.00  | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 139   | 3007  | 3232  | 1517 | 3135  | 1406 |
| Peak-hour factor, PHF  | 0.97  | 0.97  | 0.97  | 0.97 | 0.97  | 0.97 |
| Adj. Flow (vph)        | 229   | 824   | 1588  | 721  | 104   | 190  |
| RTOR Reduction (vph)   | 0     | 0     | 0     | 228  | 0     | 161  |
| Lane Group Flow (vph)  | 229   | 824   | 1588  | 493  | 104   | 29   |
| Heavy Vehicles (%)     | 5%    | 15%   | 7%    | 2%   | 7%    | 10%  |
| Turn Type              | pm+pt | NA    | NA    | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8     |      | 6     |      |
| Permitted Phases       | 4     |       |       | 8    |       | 6    |
| Actuated Green, G (s)  | 117.0 | 117.0 | 93.0  | 93.0 | 23.0  | 23.0 |
| Effective Green, g (s) | 117.0 | 117.0 | 93.0  | 93.0 | 23.0  | 23.0 |
| Actuated g/C Ratio     | 0.78  | 0.78  | 0.62  | 0.62 | 0.15  | 0.15 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 319   | 2345  | 2003  | 940  | 480   | 215  |
| v/s Ratio Prot         | c0.10 | 0.27  | c0.49 |      | c0.03 |      |
| v/s Ratio Perm         | 0.46  |       |       | 0.33 |       | 0.02 |
| v/c Ratio              | 0.72  | 0.35  | 0.79  | 0.52 | 0.22  | 0.14 |
| Uniform Delay, d1      | 35.9  | 5.0   | 21.3  | 16.1 | 55.6  | 54.9 |
| Progression Factor     | 1.00  | 1.00  | 0.53  | 0.75 | 1.00  | 1.00 |
| Incremental Delay, d2  | 13.0  | 0.4   | 1.0   | 0.6  | 1.0   | 1.3  |
| Delay (s)              | 48.9  | 5.4   | 12.3  | 12.6 | 56.6  | 56.2 |
| Level of Service       | D     | A     | B     | B    | E     | E    |
| Approach Delay (s)     |       | 14.9  | 12.4  |      | 56.4  |      |
| Approach LOS           |       | B     | B     |      | E     |      |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 16.6  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.68  |                           |      |
| Actuated Cycle Length (s)         | 150.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 73.8% | ICU Level of Service      | D    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
6: Walkley Road & Sheffield Road

Future BG 2030 AM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 308   | 492   | 1962  | 291   | 57    | 258   |
| Future Volume (vph)        | 308   | 492   | 1962  | 291   | 57    | 258   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 100.0 |       |       | 30.0  | 0.0   | 70.0  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1491  | 3060  | 3357  | 1459  | 2396  | 1190  |
| Flt Permitted              | 0.044 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 69    | 3060  | 3357  | 1459  | 2396  | 1190  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 80    |       | 263   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 361.1 | 363.2 |       | 830.1 |       |
| Travel Time (s)            |       | 16.2  | 16.3  |       | 62.3  |       |
| Peak Hour Factor           | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Heavy Vehicles (%)         | 16%   | 13%   | 3%    | 6%    | 40%   | 30%   |
| Adj. Flow (vph)            | 314   | 502   | 2002  | 297   | 58    | 263   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 314   | 502   | 2002  | 297   | 58    | 263   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 32.0  | 124.0 | 92.0  | 92.0  | 26.0  | 26.0  |
| Total Split (%)            | 21.3% | 82.7% | 61.3% | 61.3% | 17.3% | 17.3% |
| Maximum Green (s)          | 29.0  | 119.0 | 87.0  | 87.0  | 21.0  | 21.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 121.0 | 119.0 | 87.0  | 87.0  | 21.0  | 21.0  |
| Actuated g/C Ratio         | 0.81  | 0.79  | 0.58  | 0.58  | 0.14  | 0.14  |



| Lane Group             | EBL    | EBT   | WBT    | WBR  | SBL   | SBR  |
|------------------------|--------|-------|--------|------|-------|------|
| v/c Ratio              | 0.95   | 0.21  | 1.03   | 0.34 | 0.17  | 0.67 |
| Control Delay          | 79.2   | 3.6   | 59.2   | 12.8 | 58.4  | 15.5 |
| Queue Delay            | 0.0    | 0.0   | 0.0    | 0.0  | 0.0   | 0.0  |
| Total Delay            | 79.2   | 3.6   | 59.2   | 12.8 | 58.4  | 15.5 |
| LOS                    | E      | A     | E      | B    | E     | B    |
| Approach Delay         |        | 32.7  | 53.2   |      | 23.3  |      |
| Approach LOS           |        | C     | D      |      | C     |      |
| Queue Length 50th (m)  | 59.2   | 15.6  | ~333.7 | 31.5 | 7.9   | 0.0  |
| Queue Length 95th (m)  | #133.1 | 19.2  | #374.3 | 50.0 | 15.0  | 29.4 |
| Internal Link Dist (m) |        | 337.1 | 339.2  |      | 806.1 |      |
| Turn Bay Length (m)    | 100.0  |       |        | 30.0 |       | 70.0 |
| Base Capacity (vph)    | 330    | 2427  | 1947   | 879  | 335   | 392  |
| Starvation Cap Reductn | 0      | 0     | 0      | 0    | 0     | 0    |
| Spillback Cap Reductn  | 0      | 0     | 0      | 0    | 0     | 0    |
| Storage Cap Reductn    | 0      | 0     | 0      | 0    | 0     | 0    |
| Reduced v/c Ratio      | 0.95   | 0.21  | 1.03   | 0.34 | 0.17  | 0.67 |

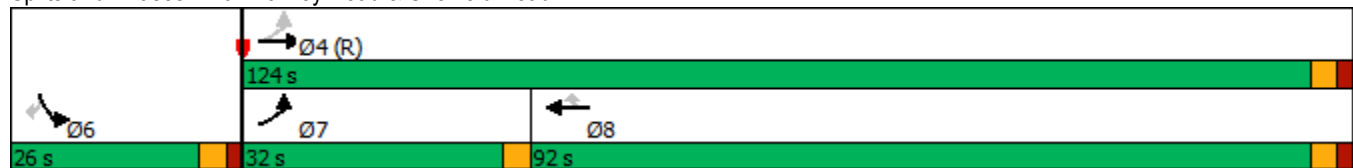
Intersection Summary

Area Type: Other  
 Cycle Length: 150  
 Actuated Cycle Length: 150  
 Offset: 50 (33%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.03  
 Intersection Signal Delay: 45.5  
 Intersection Capacity Utilization 91.1%  
 Analysis Period (min) 15  
 Intersection LOS: D  
 ICU Level of Service F

~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.

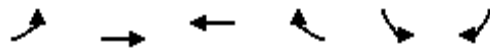
# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Walkley Road & Sheffield Road



HCM Signalized Intersection Capacity Analysis  
6: Walkley Road & Sheffield Road

Future BG 2030 AM - Adjacent Peak  
10-24-2022



| Movement               | EBL   | EBT   | WBT   | WBR  | SBL  | SBR   |
|------------------------|-------|-------|-------|------|------|-------|
| Lane Configurations    | ↖     | ↗↗    | ↗↗    | ↖    | ↖↖   | ↖     |
| Traffic Volume (vph)   | 308   | 492   | 1962  | 291  | 57   | 258   |
| Future Volume (vph)    | 308   | 492   | 1962  | 291  | 57   | 258   |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800  | 1800 | 1800 | 1800  |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0   | 5.0  | 5.0  | 5.0   |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95  | 1.00 | 0.97 | 1.00  |
| Frt                    | 1.00  | 1.00  | 1.00  | 0.85 | 1.00 | 0.85  |
| Flt Protected          | 0.95  | 1.00  | 1.00  | 1.00 | 0.95 | 1.00  |
| Satd. Flow (prot)      | 1491  | 3060  | 3357  | 1459 | 2396 | 1190  |
| Flt Permitted          | 0.04  | 1.00  | 1.00  | 1.00 | 0.95 | 1.00  |
| Satd. Flow (perm)      | 70    | 3060  | 3357  | 1459 | 2396 | 1190  |
| Peak-hour factor, PHF  | 0.98  | 0.98  | 0.98  | 0.98 | 0.98 | 0.98  |
| Adj. Flow (vph)        | 314   | 502   | 2002  | 297  | 58   | 263   |
| RTOR Reduction (vph)   | 0     | 0     | 0     | 34   | 0    | 226   |
| Lane Group Flow (vph)  | 314   | 502   | 2002  | 263  | 58   | 37    |
| Heavy Vehicles (%)     | 16%   | 13%   | 3%    | 6%   | 40%  | 30%   |
| Turn Type              | pm+pt | NA    | NA    | Perm | Prot | Perm  |
| Protected Phases       | 7     | 4     | 8     |      | 6    |       |
| Permitted Phases       | 4     |       |       | 8    |      | 6     |
| Actuated Green, G (s)  | 119.0 | 119.0 | 87.0  | 87.0 | 21.0 | 21.0  |
| Effective Green, g (s) | 119.0 | 119.0 | 87.0  | 87.0 | 21.0 | 21.0  |
| Actuated g/C Ratio     | 0.79  | 0.79  | 0.58  | 0.58 | 0.14 | 0.14  |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0   | 5.0  | 5.0  | 5.0   |
| Lane Grp Cap (vph)     | 330   | 2427  | 1947  | 846  | 335  | 166   |
| v/s Ratio Prot         | c0.18 | 0.16  | c0.60 |      | 0.02 |       |
| v/s Ratio Perm         | 0.57  |       |       | 0.18 |      | c0.03 |
| v/c Ratio              | 0.95  | 0.21  | 1.03  | 0.31 | 0.17 | 0.22  |
| Uniform Delay, d1      | 53.5  | 3.8   | 31.5  | 16.1 | 56.8 | 57.2  |
| Progression Factor     | 0.87  | 0.89  | 1.00  | 1.00 | 1.00 | 1.00  |
| Incremental Delay, d2  | 37.6  | 0.2   | 28.0  | 1.0  | 1.1  | 3.1   |
| Delay (s)              | 83.9  | 3.6   | 59.5  | 17.1 | 58.0 | 60.3  |
| Level of Service       | F     | A     | E     | B    | E    | E     |
| Approach Delay (s)     |       | 34.5  | 54.0  |      | 59.9 |       |
| Approach LOS           |       | C     | D     |      | E    |       |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 49.9  | HCM 2000 Level of Service | D    |
| HCM 2000 Volume to Capacity ratio | 0.89  |                           |      |
| Actuated Cycle Length (s)         | 150.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 91.1% | ICU Level of Service      | F    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
7: Walkley Road & Highway SB terminal

Future BG 2030 AM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑↑    |       | ↘     | ↗     |
| Traffic Volume (vph)       | 0    | 487   | 1060  | 0     | 25    | 990   |
| Future Volume (vph)        | 0    | 487   | 1060  | 0     | 25    | 990   |
| Ideal Flow (vphp)          | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>            |      |       |       |       |       | 0.850 |
| Fl <sub>t</sub> Protected  |      |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Fl <sub>t</sub> Permitted  |      |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Link Speed (k/h)           |      | 80    | 80    |       | 80    |       |
| Link Distance (m)          |      | 131.6 | 322.4 |       | 492.9 |       |
| Travel Time (s)            |      | 5.9   | 14.5  |       | 22.2  |       |
| Peak Hour Factor           | 0.97 | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Adj. Flow (vph)            | 0    | 502   | 1093  | 0     | 26    | 1021  |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 502   | 1093  | 0     | 26    | 1021  |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 3.7   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 102.3%                 |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service G |

HCM Unsignalized Intersection Capacity Analysis  
7: Walkley Road & Highway SB terminal

Future BG 2030 AM - Adjacent Peak  
10-24-2022



| Movement                          | EBL  | EBT  | WBT    | WBR  | SBL                  | SBR   |
|-----------------------------------|------|------|--------|------|----------------------|-------|
| Lane Configurations               |      | ↑↑   | ↑↑     |      | ↘                    | ↘     |
| Traffic Volume (veh/h)            | 0    | 487  | 1060   | 0    | 25                   | 990   |
| Future Volume (Veh/h)             | 0    | 487  | 1060   | 0    | 25                   | 990   |
| Sign Control                      |      | Free | Free   |      | Stop                 |       |
| Grade                             |      | 0%   | 0%     |      | 0%                   |       |
| Peak Hour Factor                  | 0.97 | 0.97 | 0.97   | 0.97 | 0.97                 | 0.97  |
| Hourly flow rate (vph)            | 0    | 502  | 1093   | 0    | 26                   | 1021  |
| 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            | 1093 |      |        |      | 1344                 | 546   |
| vC1, stage 1 conf vol             |      |      |        |      |                      |       |
| vC2, stage 2 conf vol             |      |      |        |      |                      |       |
| vCu, unblocked vol                | 1093 |      |        |      | 1344                 | 546   |
| tC, single (s)                    | 4.1  |      |        |      | 6.8                  | 6.9   |
| tC, 2 stage (s)                   |      |      |        |      |                      |       |
| tF (s)                            | 2.2  |      |        |      | 3.5                  | 3.3   |
| p0 queue free %                   | 100  |      |        |      | 82                   | 0     |
| cM capacity (veh/h)               | 634  |      |        |      | 143                  | 481   |
| Direction, Lane #                 | EB 1 | EB 2 | WB 1   | WB 2 | SB 1                 | SB 2  |
| Volume Total                      | 251  | 251  | 546    | 546  | 26                   | 1021  |
| Volume Left                       | 0    | 0    | 0      | 0    | 26                   | 0     |
| Volume Right                      | 0    | 0    | 0      | 0    | 0                    | 1021  |
| cSH                               | 1700 | 1700 | 1700   | 1700 | 143                  | 481   |
| Volume to Capacity                | 0.15 | 0.15 | 0.32   | 0.32 | 0.18                 | 2.12  |
| Queue Length 95th (m)             | 0.0  | 0.0  | 0.0    | 0.0  | 4.9                  | 552.7 |
| Control Delay (s)                 | 0.0  | 0.0  | 0.0    | 0.0  | 35.7                 | 530.7 |
| Lane LOS                          |      |      |        |      | E                    | F     |
| Approach Delay (s)                | 0.0  |      | 0.0    |      | 518.4                |       |
| Approach LOS                      |      |      |        |      | F                    |       |
| Intersection Summary              |      |      |        |      |                      |       |
| Average Delay                     |      |      | 205.4  |      |                      |       |
| Intersection Capacity Utilization |      |      | 102.3% |      | ICU Level of Service | G     |
| Analysis Period (min)             |      |      | 15     |      |                      |       |

Lanes, Volumes, Timings  
 10: Highway NB terminal & Walkley Road

Future BG 2030 AM - Adjacent Peak  
 10-24-2022



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NBL   | NBR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    |       |      | ↑↑    | ↘     |       |
| Traffic Volume (vph)       | 57    | 458   | 0    | 650   | 445   | 8     |
| Future Volume (vph)        | 57    | 458   | 0    | 650   | 445   | 8     |
| Ideal Flow (vphp)          | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00 | 0.95  | 1.00  | 1.00  |
| Frt                        | 0.867 |       |      | 0.998 |       |       |
| Flt Protected              |       |       |      | 0.953 |       |       |
| Satd. Flow (prot)          | 2939  | 0     | 0    | 3390  | 1697  | 0     |
| Flt Permitted              |       |       |      | 0.953 |       |       |
| Satd. Flow (perm)          | 2939  | 0     | 0    | 3390  | 1697  | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 322.4 |       |      | 108.3 | 295.7 |       |
| Travel Time (s)            | 14.5  |       |      | 8.1   | 22.2  |       |
| Peak Hour Factor           | 0.93  | 0.93  | 0.93 | 0.93  | 0.93  | 0.93  |
| Adj. Flow (vph)            | 61    | 492   | 0    | 699   | 478   | 9     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 553   | 0     | 0    | 699   | 487   | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 3.7   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 14    |       | 24   | 24    |       | 14    |
| Sign Control               | Free  |       |      | Free  | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 52.2%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
 10: Highway NB terminal & Walkley Road

Future BG 2030 AM - Adjacent Peak  
 10-24-2022

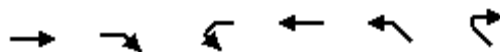


| Movement                          | EBT         | EBR         | WBL         | WBT                  | NBL         | NBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations               | ↑↑          |             |             | ↑↑                   | ↘           |      |
| Traffic Volume (veh/h)            | 57          | 458         | 0           | 650                  | 445         | 8    |
| Future Volume (Veh/h)             | 57          | 458         | 0           | 650                  | 445         | 8    |
| 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)            | 61          | 492         | 0           | 699                  | 478         | 9    |
| <b>Pedestrians</b>                |             |             |             |                      |             |      |
| 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            |             |             | 553         |                      | 656         | 276  |
| vC1, stage 1 conf vol             |             |             |             |                      |             |      |
| vC2, stage 2 conf vol             |             |             |             |                      |             |      |
| vCu, unblocked vol                |             |             | 553         |                      | 656         | 276  |
| tC, single (s)                    |             |             | 4.1         |                      | 6.8         | 6.9  |
| tC, 2 stage (s)                   |             |             |             |                      |             |      |
| tF (s)                            |             |             | 2.2         |                      | 3.5         | 3.3  |
| p0 queue free %                   |             |             | 100         |                      | 0           | 99   |
| cM capacity (veh/h)               |             |             | 1013        |                      | 398         | 721  |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>NB 1</b> |      |
| Volume Total                      | 41          | 512         | 350         | 350                  | 487         |      |
| Volume Left                       | 0           | 0           | 0           | 0                    | 478         |      |
| Volume Right                      | 0           | 492         | 0           | 0                    | 9           |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 401         |      |
| Volume to Capacity                | 0.02        | 0.30        | 0.21        | 0.21                 | 1.21        |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0                  | 151.1       |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 146.8       |      |
| Lane LOS                          |             |             |             |                      | F           |      |
| Approach Delay (s)                | 0.0         |             | 0.0         |                      | 146.8       |      |
| Approach LOS                      |             |             |             |                      | F           |      |
| <b>Intersection Summary</b>       |             |             |             |                      |             |      |
| Average Delay                     |             |             | 41.1        |                      |             |      |
| Intersection Capacity Utilization |             |             | 52.2%       | ICU Level of Service | A           |      |
| Analysis Period (min)             |             |             | 15          |                      |             |      |



Lanes, Volumes, Timings  
11: SB off ramp & Walkley Road

Future BG 2030 AM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NWL   | NWR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    | ↑     |      | ↑↑↑   |       |       |
| Traffic Volume (vph)       | 487   | 147   | 0    | 2050  | 0     | 0     |
| Future Volume (vph)        | 487   | 147   | 0    | 2050  | 0     | 0     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Storage Length (m)         |       | 60.0  | 0.0  |       | 0.0   | 0.0   |
| Storage Lanes              |       | 1     | 0    |       | 0     | 0     |
| Taper Length (m)           |       |       | 7.6  |       | 7.6   |       |
| Lane Util. Factor          | 0.95  | 1.00  | 1.00 | 0.91  | 1.00  | 1.00  |
| Frt                        |       | 0.850 |      |       |       |       |
| Flt Protected              |       |       |      |       |       |       |
| Satd. Flow (prot)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Flt Permitted              |       |       |      |       |       |       |
| Satd. Flow (perm)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 363.2 |       |      | 131.6 | 210.3 |       |
| Travel Time (s)            | 16.3  |       |      | 9.9   | 15.8  |       |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90 | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)            | 541   | 163   | 0    | 2278  | 0     | 0     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 541   | 163   | 0    | 2278  | 0     | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 0.0   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        |       | 14    | 24   |       | 24    | 14    |
| Sign Control               | Free  |       |      | Free  | Free  |       |

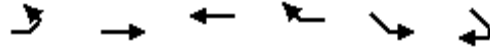
Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 45.1%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings  
13: Walkley Road & NB off ramp

Future BG 2030 AM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SEL   | SER   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑     | ↗     |       |       |
| Traffic Volume (vph)       | 0    | 65    | 650   | 231   | 0     | 0     |
| Future Volume (vph)        | 0    | 65    | 650   | 231   | 0     | 0     |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 0.0  |       |       | 70.0  | 0.0   | 0.0   |
| Storage Lanes              | 0    |       |       | 1     | 0     | 0     |
| Taper Length (m)           | 7.6  |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00 | 0.95  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      |       |       | 0.850 |       |       |
| Flt Protected              |      |       |       |       |       |       |
| Satd. Flow (prot)          | 0    | 3390  | 1784  | 1517  | 0     | 0     |
| Flt Permitted              |      |       |       |       |       |       |
| Satd. Flow (perm)          | 0    | 3390  | 1784  | 1517  | 0     | 0     |
| Link Speed (k/h)           |      | 80    | 80    |       | 48    |       |
| Link Distance (m)          |      | 108.3 | 195.3 |       | 199.6 |       |
| Travel Time (s)            |      | 4.9   | 8.8   |       | 15.0  |       |
| Peak Hour Factor           | 0.93 | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  |
| Adj. Flow (vph)            | 0    | 70    | 699   | 248   | 0     | 0     |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 70    | 699   | 248   | 0     | 0     |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 0.0   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Free  |       |

















Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 39.4%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

















Lanes, Volumes, Timings  
15: Sheffield Road & Humber Place

Future BG 2030 AM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group                        | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 22  | 0   | 77  | 4   | 1   | 3   | 164  | 442   | 3   | 3   | 230   | 17  |
| Future Volume (vph)               | 22  | 0   | 77  | 4   | 1   | 3   | 164  | 442   | 3   | 3   | 230   | 17  |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  | 1800   | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               |   | 0.894   |   |   | 0.949   |   |  | 0.999   |   |   | 0.991   |   |
| Flt Protected                     |   | 0.989   |   |   | 0.976   |   |  | 0.987   |   |   | 0.999   |   |
| Satd. Flow (prot)                 | 0   | 1289  | 0   | 0   | 1225  | 0   | 0  | 1582  | 0   | 0   | 1389  | 0   |
| Flt Permitted                     |   | 0.989   |   |   | 0.976   |   |  | 0.987   |   |   | 0.999   |   |
| Satd. Flow (perm)                 | 0   | 1289  | 0   | 0   | 1225  | 0   | 0  | 1582  | 0   | 0   | 1389  | 0   |
| Link Speed (k/h)                  |   | 48  |   |   | 48  |   |  | 48  |   |   | 48  |   |
| Link Distance (m)                 |   | 152.4   |   |   | 148.3   |   |  | 830.1   |   |   | 120.3   |   |
| Travel Time (s)                   |   | 11.4  |   |   | 11.1  |   |  | 62.3  |   |   | 9.0   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 35%   | 2%  | 22%   | 50%   | 2%  | 33%   | 12%  | 14%   | 0%  | 33%   | 30%   | 26%   |
| Adj. Flow (vph)                   | 24  | 0   | 86  | 4   | 1   | 3   | 182  | 491   | 3   | 3   | 256   | 19  |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 110   | 0   | 0   | 8   | 0   | 0  | 676   | 0   | 0   | 278   | 0   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  | No   | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Left  | Right   | Left  | Left  | Right   | Left   | Left  | Right   | Left  | Left  | Right   |
| Median Width(m)                   |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Link Offset(m)                    |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Crosswalk Width(m)                |   | 4.9   |   |   | 4.9   |   |  | 4.9   |   |   | 4.9   |   |
| Two way Left Turn Lane            |   |   |   |   |   |   |  |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06   | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  |   | 14  | 24  |   | 14  | 24   |   | 14  | 24  |   | 14  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |  |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 65.0%   |   |   |   |   |   | ICU Level of Service C   |   |   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
 15: Sheffield Road & Humber Place

Future BG 2030 AM - Adjacent Peak  
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|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 22  | 0   | 77  | 4   | 1   | 3   | 164  | 442   | 3   | 3   | 230   | 17  |
| Future Volume (Veh/h)             | 22  | 0   | 77  | 4   | 1   | 3   | 164  | 442   | 3   | 3   | 230   | 17  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 24  | 0   | 86  | 4   | 1   | 3   | 182  | 491   | 3   | 3   | 256   | 19  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (m)                    |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (m/s)               |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Median storage veh                |   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (m)               |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 1132  | 1130  | 266   | 1214  | 1138  | 492   | 275  |   |   | 494   |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 1132  | 1130  | 266   | 1214  | 1138  | 492   | 275  |   |   | 494   |   |   |
| tC, single (s)                    | 7.4   | 6.5   | 6.4   | 7.6   | 6.5   | 6.5   | 4.2  |   |   | 4.4   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 3.8   | 4.0   | 3.5   | 4.0   | 4.0   | 3.6   | 2.3  |   |   | 2.5   |   |   |
| p0 queue free %                   | 82  | 100   | 88  | 96  | 99  | 99  | 85   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 136   | 173   | 727   | 99  | 171   | 519   | 1233   |   |   | 927   |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | SB 1  |   |   |  |   |   |   |   |   |
| Volume Total                      | 110   | 8   | 676   | 278   |   |   |  |   |   |   |   |   |
| Volume Left                       | 24  | 4   | 182   | 3   |   |   |  |   |   |   |   |   |
| Volume Right                      | 86  | 3   | 3   | 19  |   |   |  |   |   |   |   |   |
| cSH                               | 374   | 154   | 1233  | 927   |   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.29  | 0.05  | 0.15  | 0.00  |   |   |  |   |   |   |   |   |
| Queue Length 95th (m)             | 9.2   | 1.2   | 3.9   | 0.1   |   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 18.6  | 29.7  | 3.6   | 0.1   |   |   |  |   |   |   |   |   |
| Lane LOS                          | C   | D   | A   | A   |   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 18.6  | 29.7  | 3.6   | 0.1   |   |   |  |   |   |   |   |   |
| Approach LOS                      | C   | D   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 4.4   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 65.0%   |   | ICU Level of Service  |   |  |   |   | C   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

Lanes, Volumes, Timings  
18: Sheffield Road & Way #5

Future BG 2030 AM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 433   | 31  | 8   | 261   |
| Future Volume (vph)               | 0   | 0   | 433   | 31  | 8   | 261   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               |   |   | 0.991   |   |   |   |
| Flt Protected                     |   |   |   |   |   | 0.998   |
| Satd. Flow (prot)                 | 1784  | 0   | 1768  | 0   | 0   | 922   |
| Flt Permitted                     |   |   |   |   |   | 0.998   |
| Satd. Flow (perm)                 | 1784  | 0   | 1768  | 0   | 0   | 922   |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 56.2  |   | 120.3   |   |   | 89.9  |
| Travel Time (s)                   | 4.2   |   | 9.0   |   |   | 6.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 2%  | 2%  | 2%  | 2%  | 2%  | 100%  |
| Adj. Flow (vph)                   | 0   | 0   | 481   | 34  | 9   | 290   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 515   | 0   | 0   | 299   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 29.4%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 18: Sheffield Road & Way #5

Future BG 2030 AM - Adjacent Peak  
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| Movement                          | WBL         | WBR         | NBT         | NBR                  | SBL  | SBT  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             |             |             |                      |      |      |
| Traffic Volume (veh/h)            | 0           | 0           | 433         | 31                   | 8    | 261  |
| Future Volume (Veh/h)             | 0           | 0           | 433         | 31                   | 8    | 261  |
| Sign Control                      | Stop        |             | Free        |                      | Free |      |
| Grade                             | 0%          |             | 0%          |                      | 0%   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 0           | 0           | 481         | 34                   | 9    | 290  |
| <b>Pedestrians</b>                |             |             |             |                      |      |      |
| 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            | 806         | 498         |             |                      | 515  |      |
| vC1, stage 1 conf vol             |             |             |             |                      |      |      |
| vC2, stage 2 conf vol             |             |             |             |                      |      |      |
| vCu, unblocked vol                | 806         | 498         |             |                      | 515  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |                      | 4.1  |      |
| tC, 2 stage (s)                   |             |             |             |                      |      |      |
| tF (s)                            | 3.5         | 3.3         |             |                      | 2.2  |      |
| p0 queue free %                   | 100         | 100         |             |                      | 99   |      |
| cM capacity (veh/h)               | 348         | 572         |             |                      | 1051 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |                      |      |      |
| Volume Total                      | 0           | 515         | 299         |                      |      |      |
| Volume Left                       | 0           | 0           | 9           |                      |      |      |
| Volume Right                      | 0           | 34          | 0           |                      |      |      |
| cSH                               | 1700        | 1700        | 1051        |                      |      |      |
| Volume to Capacity                | 0.00        | 0.30        | 0.01        |                      |      |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.2         |                      |      |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.3         |                      |      |      |
| Lane LOS                          | A           |             | A           |                      |      |      |
| Approach Delay (s)                | 0.0         | 0.0         | 0.3         |                      |      |      |
| Approach LOS                      | A           |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 0.1         |                      |      |      |
| Intersection Capacity Utilization |             |             | 29.4%       | ICU Level of Service |      | A    |
| Analysis Period (min)             |             |             | 15          |                      |      |      |



Lanes, Volumes, Timings  
20: Sheffield Road & Way #4

Future BG 2030 AM - Adjacent Peak  
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| Lane Group                 | WBL   | WBR   | NBT  | NBR   | SBL  | SBT   |
|----------------------------|-------|-------|------|-------|------|-------|
| Lane Configurations        |       |       |      |       |      |       |
| Traffic Volume (vph)       | 10    | 2     | 433  | 0     | 0    | 259   |
| Future Volume (vph)        | 10    | 2     | 433  | 0     | 0    | 259   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800 | 1800  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| Fr <sub>t</sub>            | 0.979 |       |      |       |      |       |
| Fl <sub>t</sub> Protected  | 0.959 |       |      |       |      |       |
| Satd. Flow (prot)          | 1675  | 0     | 1784 | 0     | 0    | 1784  |
| Fl <sub>t</sub> Permitted  | 0.959 |       |      |       |      |       |
| Satd. Flow (perm)          | 1675  | 0     | 1784 | 0     | 0    | 1784  |
| Link Speed (k/h)           | 48    |       | 48   |       |      | 48    |
| Link Distance (m)          | 60.6  |       | 89.9 |       |      | 135.3 |
| Travel Time (s)            | 4.5   |       | 6.7  |       |      | 10.1  |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90 | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)            | 11    | 2     | 481  | 0     | 0    | 288   |
| Shared Lane Traffic (%)    |       |       |      |       |      |       |
| Lane Group Flow (vph)      | 13    | 0     | 481  | 0     | 0    | 288   |
| Enter Blocked Intersection | No    | No    | No   | No    | No   | No    |
| Lane Alignment             | Left  | Right | Left | Right | Left | Left  |
| Median Width(m)            | 3.7   |       | 0.0  |       |      | 0.0   |
| Link Offset(m)             | 0.0   |       | 0.0  |       |      | 0.0   |
| Crosswalk Width(m)         | 4.9   |       | 4.9  |       |      | 4.9   |
| Two way Left Turn Lane     |       |       |      |       |      |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)        | 24    | 14    |      | 14    | 24   |       |
| Sign Control               | Stop  |       | Free |       |      | Free  |

Intersection Summary










|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 34.1%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |



| Movement                          | WBL         | WBR         | NBT         | NBR                  | SBL  | SBT  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             |             |             |                      |      |      |
| Traffic Volume (veh/h)            | 10          | 2           | 433         | 0                    | 0    | 259  |
| Future Volume (Veh/h)             | 10          | 2           | 433         | 0                    | 0    | 259  |
| Sign Control                      | Stop        |             | Free        |                      | Free |      |
| Grade                             | 0%          |             | 0%          |                      | 0%   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 11          | 2           | 481         | 0                    | 0    | 288  |
| <b>Pedestrians</b>                |             |             |             |                      |      |      |
| 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            | 769         | 481         |             |                      | 481  |      |
| vC1, stage 1 conf vol             |             |             |             |                      |      |      |
| vC2, stage 2 conf vol             |             |             |             |                      |      |      |
| vCu, unblocked vol                | 769         | 481         |             |                      | 481  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |                      | 4.1  |      |
| tC, 2 stage (s)                   |             |             |             |                      |      |      |
| tF (s)                            | 3.5         | 3.3         |             |                      | 2.2  |      |
| p0 queue free %                   | 97          | 100         |             |                      | 100  |      |
| cM capacity (veh/h)               | 369         | 585         |             |                      | 1082 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |                      |      |      |
| Volume Total                      | 13          | 481         | 288         |                      |      |      |
| Volume Left                       | 11          | 0           | 0           |                      |      |      |
| Volume Right                      | 2           | 0           | 0           |                      |      |      |
| cSH                               | 392         | 1700        | 1082        |                      |      |      |
| Volume to Capacity                | 0.03        | 0.28        | 0.00        |                      |      |      |
| Queue Length 95th (m)             | 0.8         | 0.0         | 0.0         |                      |      |      |
| Control Delay (s)                 | 14.5        | 0.0         | 0.0         |                      |      |      |
| Lane LOS                          | B           |             |             |                      |      |      |
| Approach Delay (s)                | 14.5        | 0.0         | 0.0         |                      |      |      |
| Approach LOS                      | B           |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 0.2         |                      |      |      |
| Intersection Capacity Utilization |             |             | 34.1%       | ICU Level of Service | A    |      |
| Analysis Period (min)             |             |             | 15          |                      |      |      |

Lanes, Volumes, Timings  
24: Sheffield Road & Way #2

Future BG 2030 AM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 427   | 9   | 2   | 259   |
| Future Volume (vph)               | 0   | 0   | 427   | 9   | 2   | 259   |
| Ideal Flow (vphp)                 | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   | 0.997   |   |   |   |   |   |
| Fl <sub>t</sub> Protected         |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1779  | 0   | 0   | 1784  |
| Fl <sub>t</sub> Permitted         |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1779  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 65.0  |   | 135.3   |   |   | 74.6  |
| Travel Time (s)                   | 4.9   |   | 10.1  |   |   | 5.6   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 0   | 474   | 10  | 2   | 288   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 484   | 0   | 0   | 290   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 27.6%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 24: Sheffield Road & Way #2

Future BG 2030 AM - Adjacent Peak  
 10-24-2022



| Movement                          | WBL         | WBR         | NBT         | NBR                  | SBL  | SBT  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             |             |             |                      |      |      |
| Traffic Volume (veh/h)            | 0           | 0           | 427         | 9                    | 2    | 259  |
| Future Volume (Veh/h)             | 0           | 0           | 427         | 9                    | 2    | 259  |
| Sign Control                      | Stop        |             | Free        |                      | Free |      |
| Grade                             | 0%          |             | 0%          |                      | 0%   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 0           | 0           | 474         | 10                   | 2    | 288  |
| <b>Pedestrians</b>                |             |             |             |                      |      |      |
| 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            | 771         | 479         |             |                      | 484  |      |
| vC1, stage 1 conf vol             |             |             |             |                      |      |      |
| vC2, stage 2 conf vol             |             |             |             |                      |      |      |
| vCu, unblocked vol                | 771         | 479         |             |                      | 484  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |                      | 4.1  |      |
| tC, 2 stage (s)                   |             |             |             |                      |      |      |
| tF (s)                            | 3.5         | 3.3         |             |                      | 2.2  |      |
| p0 queue free %                   | 100         | 100         |             |                      | 100  |      |
| cM capacity (veh/h)               | 368         | 587         |             |                      | 1079 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |                      |      |      |
| Volume Total                      | 0           | 484         | 290         |                      |      |      |
| Volume Left                       | 0           | 0           | 2           |                      |      |      |
| Volume Right                      | 0           | 10          | 0           |                      |      |      |
| cSH                               | 1700        | 1700        | 1079        |                      |      |      |
| Volume to Capacity                | 0.00        | 0.28        | 0.00        |                      |      |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         |                      |      |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.1         |                      |      |      |
| Lane LOS                          | A           |             | A           |                      |      |      |
| Approach Delay (s)                | 0.0         | 0.0         | 0.1         |                      |      |      |
| Approach LOS                      | A           |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 0.0         |                      |      |      |
| Intersection Capacity Utilization |             |             | 27.6%       | ICU Level of Service | A    |      |
| Analysis Period (min)             |             |             | 15          |                      |      |      |



| Lane Group                 | WBL   | WBR   | NBT  | NBR   | SBL  | SBT   |
|----------------------------|-------|-------|------|-------|------|-------|
| Lane Configurations        |       |       |      |       |      |       |
| Traffic Volume (vph)       | 2     | 1     | 436  | 0     | 0    | 256   |
| Future Volume (vph)        | 2     | 1     | 436  | 0     | 0    | 256   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800 | 1800  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| Fr <sub>t</sub>            | 0.955 |       |      |       |      |       |
| Fl <sub>t</sub> Protected  | 0.968 |       |      |       |      |       |
| Satd. Flow (prot)          | 1649  | 0     | 1784 | 0     | 0    | 1784  |
| Fl <sub>t</sub> Permitted  | 0.968 |       |      |       |      |       |
| Satd. Flow (perm)          | 1649  | 0     | 1784 | 0     | 0    | 1784  |
| Link Speed (k/h)           | 48    |       | 48   |       |      | 48    |
| Link Distance (m)          | 58.8  |       | 74.6 |       |      | 272.6 |
| Travel Time (s)            | 4.4   |       | 5.6  |       |      | 20.4  |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90 | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)            | 2     | 1     | 484  | 0     | 0    | 284   |
| Shared Lane Traffic (%)    |       |       |      |       |      |       |
| Lane Group Flow (vph)      | 3     | 0     | 484  | 0     | 0    | 284   |
| Enter Blocked Intersection | No    | No    | No   | No    | No   | No    |
| Lane Alignment             | Left  | Right | Left | Right | Left | Left  |
| Median Width(m)            | 3.7   |       | 0.0  |       |      | 0.0   |
| Link Offset(m)             | 0.0   |       | 0.0  |       |      | 0.0   |
| Crosswalk Width(m)         | 4.9   |       | 4.9  |       |      | 4.9   |
| Two way Left Turn Lane     |       |       |      |       |      |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)        | 24    | 14    |      | 14    | 24   |       |
| Sign Control               | Stop  |       | Free |       |      | Free  |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 34.2%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
26: Sheffield Road & Way #1

Future BG 2030 AM - Adjacent Peak  
10-24-2022



| Movement                          | WBL         | WBR         | NBT         | NBR  | SBL                  | SBT  |
|-----------------------------------|-------------|-------------|-------------|------|----------------------|------|
| Lane Configurations               |             |             |             |      |                      |      |
| Traffic Volume (veh/h)            | 2           | 1           | 436         | 0    | 0                    | 256  |
| Future Volume (Veh/h)             | 2           | 1           | 436         | 0    | 0                    | 256  |
| Sign Control                      | Stop        |             | Free        |      | Free                 |      |
| Grade                             | 0%          |             | 0%          |      | 0%                   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90 | 0.90                 | 0.90 |
| Hourly flow rate (vph)            | 2           | 1           | 484         | 0    | 0                    | 284  |
| <b>Pedestrians</b>                |             |             |             |      |                      |      |
| 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            | 768         | 484         |             |      | 484                  |      |
| vC1, stage 1 conf vol             |             |             |             |      |                      |      |
| vC2, stage 2 conf vol             |             |             |             |      |                      |      |
| vCu, unblocked vol                | 768         | 484         |             |      | 484                  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |      | 4.1                  |      |
| tC, 2 stage (s)                   |             |             |             |      |                      |      |
| tF (s)                            | 3.5         | 3.3         |             |      | 2.2                  |      |
| p0 queue free %                   | 99          | 100         |             |      | 100                  |      |
| cM capacity (veh/h)               | 370         | 583         |             |      | 1079                 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |      |                      |      |
| Volume Total                      | 3           | 484         | 284         |      |                      |      |
| Volume Left                       | 2           | 0           | 0           |      |                      |      |
| Volume Right                      | 1           | 0           | 0           |      |                      |      |
| cSH                               | 421         | 1700        | 1079        |      |                      |      |
| Volume to Capacity                | 0.01        | 0.28        | 0.00        |      |                      |      |
| Queue Length 95th (m)             | 0.2         | 0.0         | 0.0         |      |                      |      |
| Control Delay (s)                 | 13.6        | 0.0         | 0.0         |      |                      |      |
| Lane LOS                          | B           |             |             |      |                      |      |
| Approach Delay (s)                | 13.6        | 0.0         | 0.0         |      |                      |      |
| Approach LOS                      | B           |             |             |      |                      |      |
| <b>Intersection Summary</b>       |             |             |             |      |                      |      |
| Average Delay                     |             |             | 0.1         |      |                      |      |
| Intersection Capacity Utilization |             |             | 34.2%       |      | ICU Level of Service | A    |
| Analysis Period (min)             |             |             | 15          |      |                      |      |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future BG 2030 PM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 137   | 1908  | 1035  | 178   | 525   | 223   |
| Future Volume (vph)        | 137   | 1908  | 1035  | 178   | 525   | 223   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 30.5  |       |       | 0.0   | 0.0   | 30.5  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1695  | 3293  | 3172  | 1419  | 3288  | 1502  |
| Flt Permitted              | 0.169 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 302   | 3293  | 3172  | 1419  | 3288  | 1502  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 196   |       | 139   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 306.2 | 364.1 |       | 701.3 |       |
| Travel Time (s)            |       | 13.8  | 16.4  |       | 52.6  |       |
| Peak Hour Factor           | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  |
| Heavy Vehicles (%)         | 2%    | 5%    | 9%    | 9%    | 2%    | 3%    |
| Adj. Flow (vph)            | 151   | 2097  | 1137  | 196   | 577   | 245   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 151   | 2097  | 1137  | 196   | 577   | 245   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 22.0  | 102.0 | 80.0  | 80.0  | 28.0  | 28.0  |
| Total Split (%)            | 16.9% | 78.5% | 61.5% | 61.5% | 21.5% | 21.5% |
| Maximum Green (s)          | 19.0  | 97.0  | 75.0  | 75.0  | 23.0  | 23.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 99.0  | 97.0  | 75.0  | 75.0  | 23.0  | 23.0  |
| Actuated g/C Ratio         | 0.76  | 0.75  | 0.58  | 0.58  | 0.18  | 0.18  |



| Lane Group             | EBL  | EBT   | WBT   | WBR   | SBL    | SBR  |
|------------------------|------|-------|-------|-------|--------|------|
| v/c Ratio              | 0.35 | 0.85  | 0.62  | 0.22  | 0.99   | 0.64 |
| Control Delay          | 6.3  | 16.2  | 18.9  | 3.8   | 89.0   | 29.7 |
| Queue Delay            | 0.0  | 0.0   | 0.0   | 0.0   | 0.0    | 0.0  |
| Total Delay            | 6.3  | 16.2  | 18.9  | 3.8   | 89.0   | 29.7 |
| LOS                    | A    | B     | B     | A     | F      | C    |
| Approach Delay         |      | 15.5  | 16.6  |       | 71.3   |      |
| Approach LOS           |      | B     | B     |       | E      |      |
| Queue Length 50th (m)  | 8.8  | 173.4 | 110.8 | 10.9  | 76.9   | 24.9 |
| Queue Length 95th (m)  | 14.1 | 211.5 | 134.2 | m17.5 | #114.1 | 53.8 |
| Internal Link Dist (m) |      | 282.2 | 340.1 |       | 677.3  |      |
| Turn Bay Length (m)    | 30.5 |       |       |       |        | 30.5 |
| Base Capacity (vph)    | 433  | 2457  | 1830  | 901   | 581    | 380  |
| Starvation Cap Reductn | 0    | 0     | 0     | 0     | 0      | 0    |
| Spillback Cap Reductn  | 0    | 0     | 0     | 0     | 0      | 0    |
| Storage Cap Reductn    | 0    | 0     | 0     | 0     | 0      | 0    |
| Reduced v/c Ratio      | 0.35 | 0.85  | 0.62  | 0.22  | 0.99   | 0.64 |

Intersection Summary

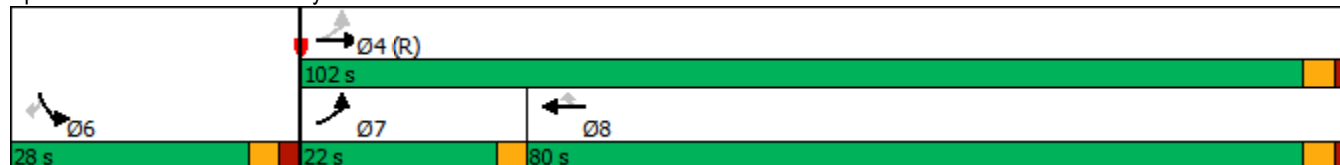
Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 50 (38%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.99  
 Intersection Signal Delay: 26.3  
 Intersection LOS: C  
 Intersection Capacity Utilization 79.8%  
 ICU Level of Service D  
 Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

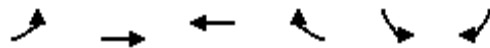
Splits and Phases: 3: Walkley Road & Lancaster Road





HCM Signalized Intersection Capacity Analysis  
3: Walkley Road & Lancaster Road

Future BG 2030 PM - Adjacent Peak  
10-24-2022



| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 137   | 1908  | 1035 | 178  | 525   | 223  |
| Future Volume (vph)    | 137   | 1908  | 1035 | 178  | 525   | 223  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1695  | 3293  | 3172 | 1419 | 3288  | 1502 |
| Flt Permitted          | 0.17  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 301   | 3293  | 3172 | 1419 | 3288  | 1502 |
| Peak-hour factor, PHF  | 0.91  | 0.91  | 0.91 | 0.91 | 0.91  | 0.91 |
| Adj. Flow (vph)        | 151   | 2097  | 1137 | 196  | 577   | 245  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 83   | 0     | 114  |
| Lane Group Flow (vph)  | 151   | 2097  | 1137 | 113  | 577   | 131  |
| Heavy Vehicles (%)     | 2%    | 5%    | 9%   | 9%   | 2%    | 3%   |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 97.0  | 97.0  | 75.0 | 75.0 | 23.0  | 23.0 |
| Effective Green, g (s) | 97.0  | 97.0  | 75.0 | 75.0 | 23.0  | 23.0 |
| Actuated g/C Ratio     | 0.75  | 0.75  | 0.58 | 0.58 | 0.18  | 0.18 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 428   | 2457  | 1830 | 818  | 581   | 265  |
| v/s Ratio Prot         | 0.05  | c0.64 | 0.36 |      | c0.18 |      |
| v/s Ratio Perm         | 0.21  |       |      | 0.08 |       | 0.09 |
| v/c Ratio              | 0.35  | 0.85  | 0.62 | 0.14 | 0.99  | 0.49 |
| Uniform Delay, d1      | 8.3   | 11.5  | 18.1 | 12.6 | 53.4  | 48.2 |
| Progression Factor     | 1.00  | 1.00  | 0.95 | 1.99 | 1.00  | 1.00 |
| Incremental Delay, d2  | 2.3   | 4.0   | 1.4  | 0.3  | 35.7  | 6.4  |
| Delay (s)              | 10.6  | 15.6  | 18.6 | 25.4 | 89.1  | 54.7 |
| Level of Service       | B     | B     | B    | C    | F     | D    |
| Approach Delay (s)     |       | 15.2  | 19.6 |      | 78.8  |      |
| Approach LOS           |       | B     | B    |      | E     |      |

| Intersection Summary              |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 28.4  | HCM 2000 Level of Service | C    |
| HCM 2000 Volume to Capacity ratio | 0.90  |                           |      |
| Actuated Cycle Length (s)         | 130.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 79.8% | ICU Level of Service      | D    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
6: Walkley Road & Sheffield Road

Future BG 2030 PM - Adjacent Peak  
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| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 232   | 2098  | 771   | 101   | 336   | 423   |
| Future Volume (vph)        | 232   | 2098  | 771   | 101   | 336   | 423   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 30.5  |       |       | 50.0  | 0.0   | 30.5  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1383  | 3390  | 3172  | 1146  | 3164  | 1381  |
| Flt Permitted              | 0.293 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 427   | 3390  | 3172  | 1146  | 3164  | 1381  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 103   |       | 369   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 364.1 | 339.6 |       | 830.6 |       |
| Travel Time (s)            |       | 16.4  | 15.3  |       | 62.3  |       |
| Peak Hour Factor           | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.97  |
| Heavy Vehicles (%)         | 25%   | 2%    | 9%    | 35%   | 6%    | 12%   |
| Adj. Flow (vph)            | 237   | 2141  | 787   | 103   | 343   | 436   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 237   | 2141  | 787   | 103   | 343   | 436   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.0  | 23.0  | 23.0  | 23.0  | 23.0  |
| Total Split (s)            | 22.0  | 104.0 | 82.0  | 82.0  | 26.0  | 26.0  |
| Total Split (%)            | 16.9% | 80.0% | 63.1% | 63.1% | 20.0% | 20.0% |
| Maximum Green (s)          | 19.0  | 99.0  | 77.0  | 77.0  | 21.0  | 21.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 101.0 | 99.0  | 77.0  | 77.0  | 21.0  | 21.0  |
| Actuated g/C Ratio         | 0.78  | 0.76  | 0.59  | 0.59  | 0.16  | 0.16  |



| Lane Group             | EBL   | EBT    | WBT   | WBR  | SBL   | SBR   |
|------------------------|-------|--------|-------|------|-------|-------|
| v/c Ratio              | 0.50  | 0.83   | 0.42  | 0.14 | 0.67  | 0.82  |
| Control Delay          | 5.7   | 10.3   | 15.2  | 2.5  | 58.5  | 23.2  |
| Queue Delay            | 0.0   | 0.1    | 0.0   | 0.0  | 0.0   | 0.0   |
| Total Delay            | 5.7   | 10.4   | 15.2  | 2.5  | 58.5  | 23.2  |
| LOS                    | A     | B      | B     | A    | E     | C     |
| Approach Delay         |       | 10.0   | 13.8  |      | 38.8  |       |
| Approach LOS           |       | A      | B     |      | D     |       |
| Queue Length 50th (m)  | 13.1  | 108.9  | 54.6  | 0.0  | 43.1  | 15.3  |
| Queue Length 95th (m)  | m17.8 | m199.2 | 68.3  | 7.3  | 59.2  | #69.0 |
| Internal Link Dist (m) |       | 340.1  | 315.6 |      | 806.6 |       |
| Turn Bay Length (m)    | 30.5  |        |       | 50.0 |       | 30.5  |
| Base Capacity (vph)    | 471   | 2581   | 1878  | 720  | 511   | 532   |
| Starvation Cap Reductn | 0     | 32     | 0     | 0    | 0     | 0     |
| Spillback Cap Reductn  | 0     | 0      | 0     | 0    | 0     | 0     |
| Storage Cap Reductn    | 0     | 0      | 0     | 0    | 0     | 0     |
| Reduced v/c Ratio      | 0.50  | 0.84   | 0.42  | 0.14 | 0.67  | 0.82  |

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 13 (10%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 16.3  
 Intersection LOS: B  
 Intersection Capacity Utilization 79.7%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Walkley Road & Sheffield Road



HCM Signalized Intersection Capacity Analysis  
6: Walkley Road & Sheffield Road

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| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 232   | 2098  | 771  | 101  | 336   | 423  |
| Future Volume (vph)    | 232   | 2098  | 771  | 101  | 336   | 423  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1383  | 3390  | 3172 | 1146 | 3164  | 1381 |
| Flt Permitted          | 0.29  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 426   | 3390  | 3172 | 1146 | 3164  | 1381 |
| Peak-hour factor, PHF  | 0.98  | 0.98  | 0.98 | 0.98 | 0.98  | 0.97 |
| Adj. Flow (vph)        | 237   | 2141  | 787  | 103  | 343   | 436  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 42   | 0     | 309  |
| Lane Group Flow (vph)  | 237   | 2141  | 787  | 61   | 343   | 127  |
| Heavy Vehicles (%)     | 25%   | 2%    | 9%   | 35%  | 6%    | 12%  |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 99.0  | 99.0  | 77.0 | 77.0 | 21.0  | 21.0 |
| Effective Green, g (s) | 99.0  | 99.0  | 77.0 | 77.0 | 21.0  | 21.0 |
| Actuated g/C Ratio     | 0.76  | 0.76  | 0.59 | 0.59 | 0.16  | 0.16 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 464   | 2581  | 1878 | 678  | 511   | 223  |
| v/s Ratio Prot         | 0.07  | c0.63 | 0.25 |      | c0.11 |      |
| v/s Ratio Perm         | 0.31  |       |      | 0.05 |       | 0.09 |
| v/c Ratio              | 0.51  | 0.83  | 0.42 | 0.09 | 0.67  | 0.57 |
| Uniform Delay, d1      | 5.8   | 10.0  | 14.4 | 11.4 | 51.3  | 50.3 |
| Progression Factor     | 1.01  | 0.84  | 1.00 | 1.00 | 1.00  | 1.00 |
| Incremental Delay, d2  | 1.8   | 1.5   | 0.7  | 0.3  | 6.9   | 10.1 |
| Delay (s)              | 7.7   | 9.9   | 15.1 | 11.7 | 58.1  | 60.4 |
| Level of Service       | A     | A     | B    | B    | E     | E    |
| Approach Delay (s)     |       | 9.7   | 14.7 |      | 59.4  |      |
| Approach LOS           |       | A     | B    |      | E     |      |

| Intersection Summary              |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 20.4  | HCM 2000 Level of Service | C    |
| HCM 2000 Volume to Capacity ratio | 0.82  |                           |      |
| Actuated Cycle Length (s)         | 130.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 79.7% | ICU Level of Service      | D    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
7: Walkley Road & Highway SB terminal

Future BG 2030 PM - Adjacent Peak  
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| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑↑    |       | ↓     | ↓     |
| Traffic Volume (vph)       | 0    | 1648  | 195   | 0     | 187   | 665   |
| Future Volume (vph)        | 0    | 1648  | 195   | 0     | 187   | 665   |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>            |      |       |       |       |       | 0.850 |
| Fl <sub>t</sub> Protected  |      |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Fl <sub>t</sub> Permitted  |      |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Link Speed (k/h)           |      | 80    | 80    |       | 80    |       |
| Link Distance (m)          |      | 118.5 | 305.1 |       | 468.0 |       |
| Travel Time (s)            |      | 5.3   | 13.7  |       | 21.1  |       |
| Peak Hour Factor           | 0.95 | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  |
| Adj. Flow (vph)            | 0    | 1735  | 205   | 0     | 197   | 700   |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 1735  | 205   | 0     | 197   | 700   |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 3.7   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 65.7%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service C |

HCM Unsignalized Intersection Capacity Analysis  
7: Walkley Road & Highway SB terminal

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| Movement                          | EBL         | EBT         | WBT         | WBR                  | SBL         | SBR         |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|-------------|
| Lane Configurations               |             | ↑↑          | ↑↑          |                      | ↓           | ↓           |
| Traffic Volume (veh/h)            | 0           | 1648        | 195         | 0                    | 187         | 665         |
| Future Volume (Veh/h)             | 0           | 1648        | 195         | 0                    | 187         | 665         |
| Sign Control                      |             | Free        | Free        |                      | Stop        |             |
| Grade                             |             | 0%          | 0%          |                      | 0%          |             |
| Peak Hour Factor                  | 0.95        | 0.95        | 0.95        | 0.95                 | 0.95        | 0.95        |
| Hourly flow rate (vph)            | 0           | 1735        | 205         | 0                    | 197         | 700         |
| <b>Pedestrians</b>                |             |             |             |                      |             |             |
| 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            | 205         |             |             |                      | 1072        | 102         |
| vC1, stage 1 conf vol             |             |             |             |                      |             |             |
| vC2, stage 2 conf vol             |             |             |             |                      |             |             |
| vCu, unblocked vol                | 205         |             |             |                      | 1072        | 102         |
| tC, single (s)                    | 4.1         |             |             |                      | 6.8         | 6.9         |
| tC, 2 stage (s)                   |             |             |             |                      |             |             |
| tF (s)                            | 2.2         |             |             |                      | 3.5         | 3.3         |
| p0 queue free %                   | 100         |             |             |                      | 8           | 25          |
| cM capacity (veh/h)               | 1364        |             |             |                      | 215         | 933         |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>SB 1</b> | <b>SB 2</b> |
| Volume Total                      | 868         | 868         | 102         | 102                  | 197         | 700         |
| Volume Left                       | 0           | 0           | 0           | 0                    | 197         | 0           |
| Volume Right                      | 0           | 0           | 0           | 0                    | 0           | 700         |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 215         | 933         |
| Volume to Capacity                | 0.51        | 0.51        | 0.06        | 0.06                 | 0.92        | 0.75        |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0                  | 57.3        | 54.9        |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 87.9        | 19.5        |
| Lane LOS                          |             |             |             |                      | F           | C           |
| Approach Delay (s)                | 0.0         |             | 0.0         |                      | 34.5        |             |
| Approach LOS                      |             |             |             |                      | D           |             |
| <b>Intersection Summary</b>       |             |             |             |                      |             |             |
| Average Delay                     |             |             | 10.9        |                      |             |             |
| Intersection Capacity Utilization |             |             | 65.7%       | ICU Level of Service | C           |             |
| Analysis Period (min)             |             |             | 15          |                      |             |             |

Lanes, Volumes, Timings  
 10: Highway NB terminal & Walkley Road

Future BG 2030 PM - Adjacent Peak  
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| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NBL   | NBR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    |       |      | ↑↑    | ↑↑    |       |
| Traffic Volume (vph)       | 650   | 1189  | 0    | 71    | 144   | 35    |
| Future Volume (vph)        | 650   | 1189  | 0    | 71    | 144   | 35    |
| Ideal Flow (vphp)          | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00 | 0.95  | 1.00  | 1.00  |
| Frt                        | 0.903 |       |      | 0.974 |       |       |
| Flt Protected              |       |       |      | 0.961 |       |       |
| Satd. Flow (prot)          | 3061  | 0     | 0    | 3390  | 1670  | 0     |
| Flt Permitted              |       |       |      | 0.961 |       |       |
| Satd. Flow (perm)          | 3061  | 0     | 0    | 3390  | 1670  | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 305.1 |       |      | 95.4  | 443.2 |       |
| Travel Time (s)            | 13.7  |       |      | 7.2   | 33.2  |       |
| Peak Hour Factor           | 0.91  | 0.91  | 0.91 | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)            | 714   | 1307  | 0    | 78    | 158   | 38    |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 2021  | 0     | 0    | 78    | 196   | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 3.7   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 14    |       | 24   | 24    |       | 14    |
| Sign Control               | Free  |       |      | Free  | Stop  |       |

Intersection Summary

|                                   |                              |
|-----------------------------------|------------------------------|
| Area Type:                        | Other                        |
| Control Type:                     | Unsignalized                 |
| Intersection Capacity Utilization | 76.8% ICU Level of Service D |
| Analysis Period (min)             | 15                           |

HCM Unsignalized Intersection Capacity Analysis  
 10: Highway NB terminal & Walkley Road

Future BG 2030 PM - Adjacent Peak  
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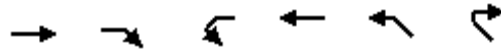


| Movement                          | EBT         | EBR         | WBL         | WBT                  | NBL         | NBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations               | ↑↑          |             |             | ↑↑                   | ↘           |      |
| Traffic Volume (veh/h)            | 650         | 1189        | 0           | 71                   | 144         | 35   |
| Future Volume (Veh/h)             | 650         | 1189        | 0           | 71                   | 144         | 35   |
| Sign Control                      | Free        |             |             | Free                 | Stop        |      |
| Grade                             | 0%          |             |             | 0%                   | 0%          |      |
| Peak Hour Factor                  | 0.91        | 0.91        | 0.91        | 0.91                 | 0.91        | 0.91 |
| Hourly flow rate (vph)            | 714         | 1307        | 0           | 78                   | 158         | 38   |
| <b>Pedestrians</b>                |             |             |             |                      |             |      |
| 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            |             |             | 2021        |                      | 1406        | 1010 |
| vC1, stage 1 conf vol             |             |             |             |                      |             |      |
| vC2, stage 2 conf vol             |             |             |             |                      |             |      |
| vCu, unblocked vol                |             |             | 2021        |                      | 1406        | 1010 |
| tC, single (s)                    |             |             | 4.1         |                      | 6.8         | 6.9  |
| tC, 2 stage (s)                   |             |             |             |                      |             |      |
| tF (s)                            |             |             | 2.2         |                      | 3.5         | 3.3  |
| p0 queue free %                   |             |             | 100         |                      | 0           | 84   |
| cM capacity (veh/h)               |             |             | 278         |                      | 130         | 238  |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>NB 1</b> |      |
| Volume Total                      | 476         | 1545        | 39          | 39                   | 196         |      |
| Volume Left                       | 0           | 0           | 0           | 0                    | 158         |      |
| Volume Right                      | 0           | 1307        | 0           | 0                    | 38          |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 143         |      |
| Volume to Capacity                | 0.28        | 0.91        | 0.02        | 0.02                 | 1.37        |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0                  | 95.3        |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 265.4       |      |
| Lane LOS                          |             |             |             |                      | F           |      |
| Approach Delay (s)                | 0.0         |             | 0.0         |                      | 265.4       |      |
| Approach LOS                      |             |             |             |                      | F           |      |
| <b>Intersection Summary</b>       |             |             |             |                      |             |      |
| Average Delay                     |             |             | 22.7        |                      |             |      |
| Intersection Capacity Utilization |             |             | 76.8%       | ICU Level of Service | D           |      |
| Analysis Period (min)             |             |             | 15          |                      |             |      |



Lanes, Volumes, Timings  
11: SB off ramp & Walkley Road

Future BG 2030 PM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NWL   | NWR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    | ↑     |      | ↑↑↑   |       |       |
| Traffic Volume (vph)       | 1648  | 572   | 0    | 860   | 0     | 0     |
| Future Volume (vph)        | 1648  | 572   | 0    | 860   | 0     | 0     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Storage Length (m)         |       | 50.0  | 0.0  |       | 0.0   | 0.0   |
| Storage Lanes              |       | 1     | 0    |       | 0     | 0     |
| Taper Length (m)           |       |       | 7.6  |       | 7.6   |       |
| Lane Util. Factor          | 0.95  | 1.00  | 1.00 | 0.91  | 1.00  | 1.00  |
| Frt                        |       | 0.850 |      |       |       |       |
| Flt Protected              |       |       |      |       |       |       |
| Satd. Flow (prot)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Flt Permitted              |       |       |      |       |       |       |
| Satd. Flow (perm)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 339.6 |       |      | 118.5 | 265.8 |       |
| Travel Time (s)            | 15.3  |       |      | 8.9   | 19.9  |       |
| Peak Hour Factor           | 0.95  | 0.95  | 0.95 | 0.95  | 0.95  | 0.95  |
| Adj. Flow (vph)            | 1735  | 602   | 0    | 905   | 0     | 0     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 1735  | 602   | 0    | 905   | 0     | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 0.0   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        |       | 14    | 24   |       | 24    | 14    |
| Sign Control               | Free  |       |      | Free  | Free  |       |

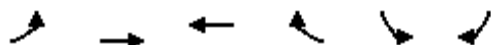
Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 51.4%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings  
13: Walkley Road & NB off ramp

Future BG 2030 PM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL  | EBT  | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑   | ↑     | ↗     |       |       |
| Traffic Volume (vph)       | 0    | 685  | 71    | 66    | 0     | 0     |
| Future Volume (vph)        | 0    | 685  | 71    | 66    | 0     | 0     |
| Ideal Flow (vphpl)         | 1800 | 1800 | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 0.0  |      |       | 50.0  | 0.0   | 0.0   |
| Storage Lanes              | 0    |      |       | 1     | 0     | 0     |
| Taper Length (m)           | 7.6  |      |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00 | 0.95 | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      |      |       | 0.850 |       |       |
| Flt Protected              |      |      |       |       |       |       |
| Satd. Flow (prot)          | 0    | 3390 | 1784  | 1517  | 0     | 0     |
| Flt Permitted              |      |      |       |       |       |       |
| Satd. Flow (perm)          | 0    | 3390 | 1784  | 1517  | 0     | 0     |
| Link Speed (k/h)           |      | 80   | 48    |       | 48    |       |
| Link Distance (m)          |      | 95.4 | 197.1 |       | 264.7 |       |
| Travel Time (s)            |      | 4.3  | 14.8  |       | 19.9  |       |
| Peak Hour Factor           | 0.91 | 0.91 | 0.91  | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)            | 0    | 753  | 78    | 73    | 0     | 0     |
| Shared Lane Traffic (%)    |      |      |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 753  | 78    | 73    | 0     | 0     |
| Enter Blocked Intersection | No   | No   | No    | No    | No    | No    |
| Lane Alignment             | Left | Left | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0  | 0.0   |       | 0.0   |       |
| Link Offset(m)             |      | 0.0  | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9  | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |      |       |       |       |       |
| Headway Factor             | 1.06 | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |      |       | 14    | 24    | 14    |
| Sign Control               |      | Free | Free  |       | Free  |       |

















Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 23.3%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

















Lanes, Volumes, Timings  
15: Sheffield Road & Humber Place

Future BG 2030 PM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group                        | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 16  | 0   | 150   | 3   | 0   | 0   | 63   | 325   | 2   | 2   | 586   | 21  |
| Future Volume (vph)               | 16  | 0   | 150   | 3   | 0   | 0   | 63   | 325   | 2   | 2   | 586   | 21  |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  | 1800   | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   |   | 0.878   |   |   |   |   |  | 0.999   |   |   | 0.995   |   |
| Fl <sub>t</sub> Protected         |   | 0.995   |   |   | 0.950   |   |  | 0.992   |   |   |   |   |
| Satd. Flow (prot)                 | 0   | 1452  | 0   | 0   | 1300  | 0   | 0  | 1375  | 0   | 0   | 1661  | 0   |
| Fl <sub>t</sub> Permitted         |   | 0.995   |   |   | 0.950   |   |  | 0.992   |   |   |   |   |
| Satd. Flow (perm)                 | 0   | 1452  | 0   | 0   | 1300  | 0   | 0  | 1375  | 0   | 0   | 1661  | 0   |
| Link Speed (k/h)                  |   | 48  |   |   | 48  |   |  | 48  |   |   | 48  |   |
| Link Distance (m)                 |   | 152.4   |   |   | 148.3   |   |  | 830.6   |   |   | 80.7  |   |
| Travel Time (s)                   |   | 11.4  |   |   | 11.1  |   |  | 62.3  |   |   | 6.1   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 14%   | 2%  | 9%  | 33%   | 2%  | 2%  | 21%  | 33%   | 50%   | 0%  | 9%  | 10%   |
| Adj. Flow (vph)                   | 18  | 0   | 167   | 3   | 0   | 0   | 70   | 361   | 2   | 2   | 651   | 23  |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 185   | 0   | 0   | 3   | 0   | 0  | 433   | 0   | 0   | 676   | 0   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  | No   | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Left  | Right   | Left  | Left  | Right   | Left   | Left  | Right   | Left  | Left  | Right   |
| Median Width(m)                   |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Link Offset(m)                    |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Crosswalk Width(m)                |   | 4.9   |   |   | 4.9   |   |  | 4.9   |   |   | 4.9   |   |
| Two way Left Turn Lane            |   |   |   |   |   |   |  |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06   | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  |   | 14  | 24  |   | 14  | 24   |   | 14  | 24  |   | 14  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |  |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 76.1%   |   |   |   |   |   | ICU Level of Service D   |   |   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
 15: Sheffield Road & Humber Place

Future BG 2030 PM - Adjacent Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 16  | 0   | 150   | 3   | 0   | 0   | 63   | 325   | 2   | 2   | 586   | 21  |
| Future Volume (Veh/h)             | 16  | 0   | 150   | 3   | 0   | 0   | 63   | 325   | 2   | 2   | 586   | 21  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 18  | 0   | 167   | 3   | 0   | 0   | 70   | 361   | 2   | 2   | 651   | 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            | 1168  | 1170  | 662   | 1336  | 1180  | 362   | 674  |   |   | 363   |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 1168  | 1170  | 662   | 1336  | 1180  | 362   | 674  |   |   | 363   |   |   |
| tC, single (s)                    | 7.2   | 6.5   | 6.3   | 7.4   | 6.5   | 6.2   | 4.3  |   |   | 4.1   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 3.6   | 4.0   | 3.4   | 3.8   | 4.0   | 3.3   | 2.4  |   |   | 2.2   |   |   |
| p0 queue free %                   | 88  | 100   | 63  | 95  | 100   | 100   | 92   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 151   | 176   | 449   | 66  | 174   | 683   | 834  |   |   | 1207  |   |   |
| Direction, Lane #                 |   |   |   |   |   |   |  |   |   |   |   |   |
|                                   | EB 1  | WB 1  | NB 1  | SB 1  |   |   |  |   |   |   |   |   |
| Volume Total                      | 185   | 3   | 433   | 676   |   |   |  |   |   |   |   |   |
| Volume Left                       | 18  | 3   | 70  | 2   |   |   |  |   |   |   |   |   |
| Volume Right                      | 167   | 0   | 2   | 23  |   |   |  |   |   |   |   |   |
| cSH                               | 377   | 66  | 834   | 1207  |   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.49  | 0.05  | 0.08  | 0.00  |   |   |  |   |   |   |   |   |
| Queue Length 95th (m)             | 19.8  | 1.1   | 2.1   | 0.0   |   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 23.4  | 62.2  | 2.4   | 0.0   |   |   |  |   |   |   |   |   |
| Lane LOS                          | C   | F   | A   | A   |   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 23.4  | 62.2  | 2.4   | 0.0   |   |   |  |   |   |   |   |   |
| Approach LOS                      | C   | F   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 4.3   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 76.1%   |   | ICU Level of Service  |   |  |   |   | D   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

Lanes, Volumes, Timings  
18: Sheffield Road & Way #5

Future BG 2030 PM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 307   | 10  | 2   | 595   |
| Future Volume (vph)               | 0   | 0   | 307   | 10  | 2   | 595   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 0.996   |   |   |   |   |   |
| Flt Protected                     |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1777  | 0   | 0   | 1071  |
| Flt Permitted                     |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1777  | 0   | 0   | 1071  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 56.2  |   | 80.7  |   |   | 63.2  |
| Travel Time (s)                   | 4.2   |   | 6.1   |   |   | 4.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.92  | 0.90  | 0.90  | 0.90  |
| Bus Blockages (#/hr)              | 0   | 0   | 0   | 0   | 0   | 100   |
| Adj. Flow (vph)                   | 0   | 0   | 334   | 11  | 2   | 661   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 345   | 0   | 0   | 663   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.96  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 38.1%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 18: Sheffield Road & Way #5

Future BG 2030 PM - Adjacent Peak  
 10-24-2022



| Movement                          | WBL         | WBR         | NBT         | NBR                  | SBL  | SBT  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             |             |             |                      |      |      |
| Traffic Volume (veh/h)            | 0           | 0           | 307         | 10                   | 2    | 595  |
| Future Volume (Veh/h)             | 0           | 0           | 307         | 10                   | 2    | 595  |
| Sign Control                      | Stop        |             | Free        |                      | Free |      |
| Grade                             | 0%          |             | 0%          |                      | 0%   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.92        | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 0           | 0           | 334         | 11                   | 2    | 661  |
| <b>Pedestrians</b>                |             |             |             |                      |      |      |
| Lane Width (m)                    |             |             |             |                      |      |      |
| Walking Speed (m/s)               |             |             |             |                      |      |      |
| Percent Blockage                  |             |             |             |                      |      |      |
| Right turn flare (veh)            |             |             |             |                      |      |      |
| Median type                       | None        |             |             | None                 |      |      |
| Median storage veh                |             |             |             |                      |      |      |
| Upstream signal (m)               |             |             |             |                      |      |      |
| pX, platoon unblocked             |             |             |             |                      |      |      |
| vC, conflicting volume            | 1004        | 340         |             |                      | 345  |      |
| vC1, stage 1 conf vol             |             |             |             |                      |      |      |
| vC2, stage 2 conf vol             |             |             |             |                      |      |      |
| vCu, unblocked vol                | 1004        | 340         |             |                      | 345  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |                      | 4.1  |      |
| tC, 2 stage (s)                   |             |             |             |                      |      |      |
| tF (s)                            | 3.5         | 3.3         |             |                      | 2.2  |      |
| p0 queue free %                   | 100         | 100         |             |                      | 100  |      |
| cM capacity (veh/h)               | 267         | 703         |             |                      | 1214 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |                      |      |      |
| Volume Total                      | 0           | 345         | 663         |                      |      |      |
| Volume Left                       | 0           | 0           | 2           |                      |      |      |
| Volume Right                      | 0           | 11          | 0           |                      |      |      |
| cSH                               | 1700        | 1700        | 1214        |                      |      |      |
| Volume to Capacity                | 0.00        | 0.20        | 0.00        |                      |      |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         |                      |      |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         |                      |      |      |
| Lane LOS                          | A           |             | A           |                      |      |      |
| Approach Delay (s)                | 0.0         | 0.0         | 0.0         |                      |      |      |
| Approach LOS                      | A           |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 0.0         |                      |      |      |
| Intersection Capacity Utilization |             |             | 38.1%       | ICU Level of Service |      | A    |
| Analysis Period (min)             |             |             | 15          |                      |      |      |





| Lane Group                 | WBL   | WBR   | NBT  | NBR   | SBL  | SBT   |
|----------------------------|-------|-------|------|-------|------|-------|
| Lane Configurations        |       |       |      |       |      |       |
| Traffic Volume (vph)       | 39    | 9     | 307  | 0     | 0    | 556   |
| Future Volume (vph)        | 39    | 9     | 307  | 0     | 0    | 556   |
| Ideal Flow (vphp)          | 1800  | 1800  | 1800 | 1800  | 1800 | 1800  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| Fr <sub>t</sub>            | 0.975 |       |      |       |      |       |
| Fl <sub>t</sub> Protected  | 0.961 |       |      |       |      |       |
| Satd. Flow (prot)          | 1672  | 0     | 1784 | 0     | 0    | 1784  |
| Fl <sub>t</sub> Permitted  | 0.961 |       |      |       |      |       |
| Satd. Flow (perm)          | 1672  | 0     | 1784 | 0     | 0    | 1784  |
| Link Speed (k/h)           | 48    |       | 48   |       |      | 48    |
| Link Distance (m)          | 60.6  |       | 63.2 |       |      | 102.2 |
| Travel Time (s)            | 4.5   |       | 4.7  |       |      | 7.7   |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90 | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)            | 43    | 10    | 341  | 0     | 0    | 618   |
| Shared Lane Traffic (%)    |       |       |      |       |      |       |
| Lane Group Flow (vph)      | 53    | 0     | 341  | 0     | 0    | 618   |
| Enter Blocked Intersection | No    | No    | No   | No    | No   | No    |
| Lane Alignment             | Left  | Right | Left | Right | Left | Left  |
| Median Width(m)            | 3.7   |       | 0.0  |       |      | 0.0   |
| Link Offset(m)             | 0.0   |       | 0.0  |       |      | 0.0   |
| Crosswalk Width(m)         | 4.9   |       | 4.9  |       |      | 4.9   |
| Two way Left Turn Lane     |       |       |      |       |      |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)        | 24    | 14    |      | 14    | 24   |       |
| Sign Control               | Stop  |       | Free |       |      | Free  |

**Intersection Summary**

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 40.9%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
 20: Sheffield Road & Way #4










Future BG 2030 PM - Adjacent Peak  
 10-24-2022



| Movement                          | WBL         | WBR         | NBT         | NBR                  | SBL  | SBT  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             |             |             |                      |      |      |
| Traffic Volume (veh/h)            | 39          | 9           | 307         | 0                    | 0    | 556  |
| Future Volume (Veh/h)             | 39          | 9           | 307         | 0                    | 0    | 556  |
| Sign Control                      | Stop        |             | Free        |                      | Free |      |
| Grade                             | 0%          |             | 0%          |                      | 0%   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 43          | 10          | 341         | 0                    | 0    | 618  |
| <b>Pedestrians</b>                |             |             |             |                      |      |      |
| 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            | 959         | 341         |             |                      | 341  |      |
| vC1, stage 1 conf vol             |             |             |             |                      |      |      |
| vC2, stage 2 conf vol             |             |             |             |                      |      |      |
| vCu, unblocked vol                | 959         | 341         |             |                      | 341  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |                      | 4.1  |      |
| tC, 2 stage (s)                   |             |             |             |                      |      |      |
| tF (s)                            | 3.5         | 3.3         |             |                      | 2.2  |      |
| p0 queue free %                   | 85          | 99          |             |                      | 100  |      |
| cM capacity (veh/h)               | 285         | 701         |             |                      | 1218 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |                      |      |      |
| Volume Total                      | 53          | 341         | 618         |                      |      |      |
| Volume Left                       | 43          | 0           | 0           |                      |      |      |
| Volume Right                      | 10          | 0           | 0           |                      |      |      |
| cSH                               | 321         | 1700        | 1218        |                      |      |      |
| Volume to Capacity                | 0.17        | 0.20        | 0.00        |                      |      |      |
| Queue Length 95th (m)             | 4.4         | 0.0         | 0.0         |                      |      |      |
| Control Delay (s)                 | 18.4        | 0.0         | 0.0         |                      |      |      |
| Lane LOS                          | C           |             |             |                      |      |      |
| Approach Delay (s)                | 18.4        | 0.0         | 0.0         |                      |      |      |
| Approach LOS                      | C           |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 1.0         |                      |      |      |
| Intersection Capacity Utilization |             |             | 40.9%       | ICU Level of Service | A    |      |
| Analysis Period (min)             |             |             | 15          |                      |      |      |

Lanes, Volumes, Timings  
24: Sheffield Road & Way #2

Future BG 2030 PM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 312   | 3   | 1   | 556   |
| Future Volume (vph)               | 0   | 0   | 312   | 3   | 1   | 556   |
| Ideal Flow (vphp)                 | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   | 0.999   |   |   |   |   |   |
| Fl <sub>t</sub> Protected         |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1783  | 0   | 0   | 1784  |
| Fl <sub>t</sub> Permitted         |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1783  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 65.0  |   | 102.2   |   |   | 76.9  |
| Travel Time (s)                   | 4.9   |   | 7.7   |   |   | 5.8   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 0   | 347   | 3   | 1   | 618   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 350   | 0   | 0   | 619   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 35.1%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 24: Sheffield Road & Way #2

Future BG 2030 PM - Adjacent Peak  
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| Movement                          | WBL         | WBR         | NBT         | NBR                  | SBL  | SBT  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             |             |             |                      |      |      |
| Traffic Volume (veh/h)            | 0           | 0           | 312         | 3                    | 1    | 556  |
| Future Volume (Veh/h)             | 0           | 0           | 312         | 3                    | 1    | 556  |
| Sign Control                      | Stop        |             | Free        |                      | Free |      |
| Grade                             | 0%          |             | 0%          |                      | 0%   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 0           | 0           | 347         | 3                    | 1    | 618  |
| <b>Pedestrians</b>                |             |             |             |                      |      |      |
| 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            | 968         | 348         |             |                      | 350  |      |
| vC1, stage 1 conf vol             |             |             |             |                      |      |      |
| vC2, stage 2 conf vol             |             |             |             |                      |      |      |
| vCu, unblocked vol                | 968         | 348         |             |                      | 350  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |                      | 4.1  |      |
| tC, 2 stage (s)                   |             |             |             |                      |      |      |
| tF (s)                            | 3.5         | 3.3         |             |                      | 2.2  |      |
| p0 queue free %                   | 100         | 100         |             |                      | 100  |      |
| cM capacity (veh/h)               | 281         | 695         |             |                      | 1209 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |                      |      |      |
| Volume Total                      | 0           | 350         | 619         |                      |      |      |
| Volume Left                       | 0           | 0           | 1           |                      |      |      |
| Volume Right                      | 0           | 3           | 0           |                      |      |      |
| cSH                               | 1700        | 1700        | 1209        |                      |      |      |
| Volume to Capacity                | 0.00        | 0.21        | 0.00        |                      |      |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         |                      |      |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         |                      |      |      |
| Lane LOS                          | A           |             | A           |                      |      |      |
| Approach Delay (s)                | 0.0         | 0.0         | 0.0         |                      |      |      |
| Approach LOS                      | A           |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 0.0         |                      |      |      |
| Intersection Capacity Utilization |             |             | 35.1%       | ICU Level of Service | A    |      |
| Analysis Period (min)             |             |             | 15          |                      |      |      |



| Lane Group                 | WBL   | WBR   | NBT  | NBR   | SBL  | SBT   |
|----------------------------|-------|-------|------|-------|------|-------|
| Lane Configurations        |       |       |      |       |      |       |
| Traffic Volume (vph)       | 6     | 2     | 316  | 0     | 0    | 550   |
| Future Volume (vph)        | 6     | 2     | 316  | 0     | 0    | 550   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800 | 1800  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| Frt                        | 0.970 |       |      |       |      |       |
| Flt Protected              | 0.963 |       |      |       |      |       |
| Satd. Flow (prot)          | 1667  | 0     | 1784 | 0     | 0    | 1784  |
| Flt Permitted              | 0.963 |       |      |       |      |       |
| Satd. Flow (perm)          | 1667  | 0     | 1784 | 0     | 0    | 1784  |
| Link Speed (k/h)           | 48    |       | 48   |       |      | 48    |
| Link Distance (m)          | 58.8  |       | 76.9 |       |      | 181.8 |
| Travel Time (s)            | 4.4   |       | 5.8  |       |      | 13.6  |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90 | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)            | 7     | 2     | 351  | 0     | 0    | 611   |
| Shared Lane Traffic (%)    |       |       |      |       |      |       |
| Lane Group Flow (vph)      | 9     | 0     | 351  | 0     | 0    | 611   |
| Enter Blocked Intersection | No    | No    | No   | No    | No   | No    |
| Lane Alignment             | Left  | Right | Left | Right | Left | Left  |
| Median Width(m)            | 3.7   |       | 0.0  |       |      | 0.0   |
| Link Offset(m)             | 0.0   |       | 0.0  |       |      | 0.0   |
| Crosswalk Width(m)         | 4.9   |       | 4.9  |       |      | 4.9   |
| Two way Left Turn Lane     |       |       |      |       |      |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)        | 24    | 14    |      | 14    | 24   |       |
| Sign Control               | Stop  |       | Free |       |      | Free  |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 40.6%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
26: Sheffield Road & Way #1

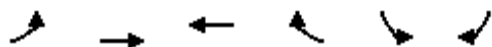
Future BG 2030 PM - Adjacent Peak  
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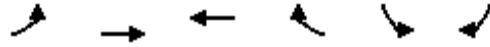
| Movement                          | WBL         | WBR         | NBT         | NBR  | SBL                  | SBT  |
|-----------------------------------|-------------|-------------|-------------|------|----------------------|------|
| Lane Configurations               |             |             |             |      |                      |      |
| Traffic Volume (veh/h)            | 6           | 2           | 316         | 0    | 0                    | 550  |
| Future Volume (Veh/h)             | 6           | 2           | 316         | 0    | 0                    | 550  |
| Sign Control                      | Stop        |             | Free        |      | Free                 |      |
| Grade                             | 0%          |             | 0%          |      | 0%                   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90 | 0.90                 | 0.90 |
| Hourly flow rate (vph)            | 7           | 2           | 351         | 0    | 0                    | 611  |
| <b>Pedestrians</b>                |             |             |             |      |                      |      |
| Lane Width (m)                    |             |             |             |      |                      |      |
| Walking Speed (m/s)               |             |             |             |      |                      |      |
| Percent Blockage                  |             |             |             |      |                      |      |
| Right turn flare (veh)            |             |             |             |      |                      |      |
| Median type                       | None        |             |             | None |                      |      |
| Median storage veh                |             |             |             |      |                      |      |
| Upstream signal (m)               |             |             |             |      |                      |      |
| pX, platoon unblocked             |             |             |             |      |                      |      |
| vC, conflicting volume            | 962         | 351         |             |      | 351                  |      |
| vC1, stage 1 conf vol             |             |             |             |      |                      |      |
| vC2, stage 2 conf vol             |             |             |             |      |                      |      |
| vCu, unblocked vol                | 962         | 351         |             |      | 351                  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |      | 4.1                  |      |
| tC, 2 stage (s)                   |             |             |             |      |                      |      |
| tF (s)                            | 3.5         | 3.3         |             |      | 2.2                  |      |
| p0 queue free %                   | 98          | 100         |             |      | 100                  |      |
| cM capacity (veh/h)               | 284         | 692         |             |      | 1208                 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |      |                      |      |
| Volume Total                      | 9           | 351         | 611         |      |                      |      |
| Volume Left                       | 7           | 0           | 0           |      |                      |      |
| Volume Right                      | 2           | 0           | 0           |      |                      |      |
| cSH                               | 327         | 1700        | 1208        |      |                      |      |
| Volume to Capacity                | 0.03        | 0.21        | 0.00        |      |                      |      |
| Queue Length 95th (m)             | 0.6         | 0.0         | 0.0         |      |                      |      |
| Control Delay (s)                 | 16.3        | 0.0         | 0.0         |      |                      |      |
| Lane LOS                          | C           |             |             |      |                      |      |
| Approach Delay (s)                | 16.3        | 0.0         | 0.0         |      |                      |      |
| Approach LOS                      | C           |             |             |      |                      |      |
| <b>Intersection Summary</b>       |             |             |             |      |                      |      |
| Average Delay                     |             |             | 0.2         |      |                      |      |
| Intersection Capacity Utilization |             |             | 40.6%       |      | ICU Level of Service | A    |
| Analysis Period (min)             |             |             | 15          |      |                      |      |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future BG 2030 AM - Site Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 215   | 775   | 1494  | 678   | 98    | 178   |
| Future Volume (vph)        | 215   | 775   | 1494  | 678   | 98    | 178   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 100.0 |       |       | 0.0   | 0.0   | 70.0  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1647  | 3007  | 3232  | 1517  | 3135  | 1406  |
| Flt Permitted              | 0.089 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 154   | 3007  | 3232  | 1517  | 3135  | 1406  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 599   |       | 184   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 248.5 | 361.1 |       | 367.8 |       |
| Travel Time (s)            |       | 11.2  | 16.2  |       | 27.6  |       |
| Peak Hour Factor           | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Heavy Vehicles (%)         | 5%    | 15%   | 7%    | 2%    | 7%    | 10%   |
| Adj. Flow (vph)            | 222   | 799   | 1540  | 699   | 101   | 184   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 222   | 799   | 1540  | 699   | 101   | 184   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 24.0  | 122.0 | 98.0  | 98.0  | 28.0  | 28.0  |
| Total Split (%)            | 16.0% | 81.3% | 65.3% | 65.3% | 18.7% | 18.7% |
| Maximum Green (s)          | 21.0  | 117.0 | 93.0  | 93.0  | 23.0  | 23.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 119.0 | 117.0 | 93.0  | 93.0  | 23.0  | 23.0  |
| Actuated g/C Ratio         | 0.79  | 0.78  | 0.62  | 0.62  | 0.15  | 0.15  |



| Lane Group             | EBL   | EBT   | WBT   | WBR   | SBL   | SBR  |
|------------------------|-------|-------|-------|-------|-------|------|
| v/c Ratio              | 0.67  | 0.34  | 0.77  | 0.60  | 0.21  | 0.50 |
| Control Delay          | 33.6  | 5.4   | 12.2  | 2.5   | 56.9  | 12.1 |
| Queue Delay            | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| Total Delay            | 33.6  | 5.4   | 12.2  | 2.5   | 56.9  | 12.1 |
| LOS                    | C     | A     | B     | A     | E     | B    |
| Approach Delay         |       | 11.5  | 9.2   |       | 28.0  |      |
| Approach LOS           |       | B     | A     |       | C     |      |
| Queue Length 50th (m)  | 29.8  | 32.7  | 61.5  | 20.4  | 13.7  | 0.0  |
| Queue Length 95th (m)  | 59.2  | 40.1  | m67.6 | m21.0 | 22.7  | 22.3 |
| Internal Link Dist (m) |       | 224.5 | 337.1 |       | 343.8 |      |
| Turn Bay Length (m)    | 100.0 |       |       |       |       | 70.0 |
| Base Capacity (vph)    | 331   | 2345  | 2003  | 1168  | 480   | 371  |
| Starvation Cap Reductn | 0     | 0     | 0     | 0     | 0     | 0    |
| Spillback Cap Reductn  | 0     | 0     | 0     | 0     | 0     | 0    |
| Storage Cap Reductn    | 0     | 0     | 0     | 0     | 0     | 0    |
| Reduced v/c Ratio      | 0.67  | 0.34  | 0.77  | 0.60  | 0.21  | 0.50 |

Intersection Summary

Area Type: Other  
 Cycle Length: 150  
 Actuated Cycle Length: 150  
 Offset: 50 (33%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 11.4  
 Intersection LOS: B  
 Intersection Capacity Utilization 72.0%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Walkley Road & Lancaster Road





# HCM Signalized Intersection Capacity Analysis

## 3: Walkley Road & Lancaster Road

Future BG 2030 AM - Site Peak  
10-24-2022



| Movement               | EBL   | EBT   | WBT   | WBR  | SBL   | SBR  |
|------------------------|-------|-------|-------|------|-------|------|
| Lane Configurations    |       |       |       |      |       |      |
| Traffic Volume (vph)   | 215   | 775   | 1494  | 678  | 98    | 178  |
| Future Volume (vph)    | 215   | 775   | 1494  | 678  | 98    | 178  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800  | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95  | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00  | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00  | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1647  | 3007  | 3232  | 1517 | 3135  | 1406 |
| Flt Permitted          | 0.09  | 1.00  | 1.00  | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 154   | 3007  | 3232  | 1517 | 3135  | 1406 |
| Peak-hour factor, PHF  | 0.97  | 0.97  | 0.97  | 0.97 | 0.97  | 0.97 |
| Adj. Flow (vph)        | 222   | 799   | 1540  | 699  | 101   | 184  |
| RTOR Reduction (vph)   | 0     | 0     | 0     | 228  | 0     | 156  |
| Lane Group Flow (vph)  | 222   | 799   | 1540  | 471  | 101   | 28   |
| Heavy Vehicles (%)     | 5%    | 15%   | 7%    | 2%   | 7%    | 10%  |
| Turn Type              | pm+pt | NA    | NA    | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8     |      | 6     |      |
| Permitted Phases       | 4     |       |       | 8    |       | 6    |
| Actuated Green, G (s)  | 117.0 | 117.0 | 93.0  | 93.0 | 23.0  | 23.0 |
| Effective Green, g (s) | 117.0 | 117.0 | 93.0  | 93.0 | 23.0  | 23.0 |
| Actuated g/C Ratio     | 0.78  | 0.78  | 0.62  | 0.62 | 0.15  | 0.15 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 329   | 2345  | 2003  | 940  | 480   | 215  |
| v/s Ratio Prot         | c0.09 | 0.27  | c0.48 |      | c0.03 |      |
| v/s Ratio Perm         | 0.43  |       |       | 0.31 |       | 0.02 |
| v/c Ratio              | 0.67  | 0.34  | 0.77  | 0.50 | 0.21  | 0.13 |
| Uniform Delay, d1      | 31.4  | 4.9   | 20.7  | 15.7 | 55.6  | 54.9 |
| Progression Factor     | 1.00  | 1.00  | 0.53  | 0.78 | 1.00  | 1.00 |
| Incremental Delay, d2  | 10.6  | 0.4   | 1.0   | 0.7  | 1.0   | 1.3  |
| Delay (s)              | 42.0  | 5.3   | 12.0  | 12.8 | 56.6  | 56.1 |
| Level of Service       | D     | A     | B     | B    | E     | E    |
| Approach Delay (s)     |       | 13.3  | 12.3  |      | 56.3  |      |
| Approach LOS           |       | B     | B     |      | E     |      |

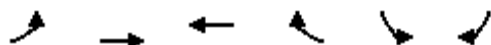
### Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 16.1  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.66  |                           |      |
| Actuated Cycle Length (s)         | 150.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 72.0% | ICU Level of Service      | C    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
6: Walkley Road & Sheffield Road

Future BG 2030 AM - Site Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 299   | 477   | 1903  | 282   | 55    | 250   |
| Future Volume (vph)        | 299   | 477   | 1903  | 282   | 55    | 250   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 100.0 |       |       | 30.0  | 0.0   | 70.0  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1491  | 3060  | 3357  | 1459  | 2396  | 1190  |
| Flt Permitted              | 0.044 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 69    | 3060  | 3357  | 1459  | 2396  | 1190  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 80    |       | 255   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 361.1 | 363.2 |       | 830.1 |       |
| Travel Time (s)            |       | 16.2  | 16.3  |       | 62.3  |       |
| Peak Hour Factor           | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Heavy Vehicles (%)         | 16%   | 13%   | 3%    | 6%    | 40%   | 30%   |
| Adj. Flow (vph)            | 305   | 487   | 1942  | 288   | 56    | 255   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 305   | 487   | 1942  | 288   | 56    | 255   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 32.0  | 124.0 | 92.0  | 92.0  | 26.0  | 26.0  |
| Total Split (%)            | 21.3% | 82.7% | 61.3% | 61.3% | 17.3% | 17.3% |
| Maximum Green (s)          | 29.0  | 119.0 | 87.0  | 87.0  | 21.0  | 21.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 121.0 | 119.0 | 87.0  | 87.0  | 21.0  | 21.0  |
| Actuated g/C Ratio         | 0.81  | 0.79  | 0.58  | 0.58  | 0.14  | 0.14  |

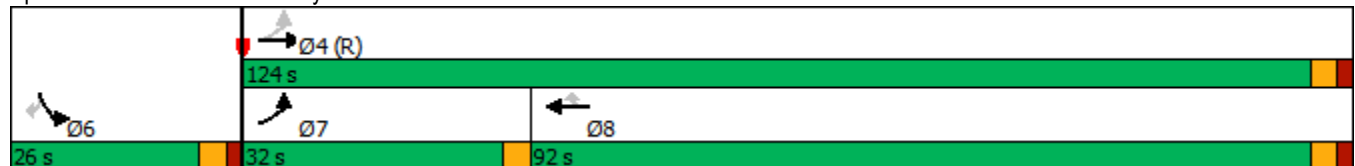


| Lane Group             | EBL    | EBT   | WBT    | WBR  | SBL   | SBR  |
|------------------------|--------|-------|--------|------|-------|------|
| v/c Ratio              | 0.92   | 0.20  | 1.00   | 0.33 | 0.17  | 0.66 |
| Control Delay          | 73.2   | 3.6   | 51.0   | 12.5 | 58.3  | 15.4 |
| Queue Delay            | 0.0    | 0.0   | 0.0    | 0.0  | 0.0   | 0.0  |
| Total Delay            | 73.2   | 3.6   | 51.0   | 12.5 | 58.3  | 15.4 |
| LOS                    | E      | A     | D      | B    | E     | B    |
| Approach Delay         |        | 30.4  | 46.0   |      | 23.1  |      |
| Approach LOS           |        | C     | D      |      | C     |      |
| Queue Length 50th (m)  | 57.1   | 15.2  | 291.8  | 30.0 | 7.6   | 0.0  |
| Queue Length 95th (m)  | #127.2 | 18.7  | #354.8 | 48.1 | 14.5  | 28.9 |
| Internal Link Dist (m) |        | 337.1 | 339.2  |      | 806.1 |      |
| Turn Bay Length (m)    | 100.0  |       |        | 30.0 |       | 70.0 |
| Base Capacity (vph)    | 330    | 2427  | 1947   | 879  | 335   | 385  |
| Starvation Cap Reductn | 0      | 0     | 0      | 0    | 0     | 0    |
| Spillback Cap Reductn  | 0      | 0     | 0      | 0    | 0     | 0    |
| Storage Cap Reductn    | 0      | 0     | 0      | 0    | 0     | 0    |
| Reduced v/c Ratio      | 0.92   | 0.20  | 1.00   | 0.33 | 0.17  | 0.66 |

Intersection Summary

Area Type: Other  
 Cycle Length: 150  
 Actuated Cycle Length: 150  
 Offset: 50 (33%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 130  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.00  
 Intersection Signal Delay: 40.2  
 Intersection LOS: D  
 Intersection Capacity Utilization 88.8%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Walkley Road & Sheffield Road



HCM Signalized Intersection Capacity Analysis  
6: Walkley Road & Sheffield Road

Future BG 2030 AM - Site Peak  
10-24-2022



| Movement               | EBL   | EBT   | WBT   | WBR  | SBL  | SBR   |
|------------------------|-------|-------|-------|------|------|-------|
| Lane Configurations    |       |       |       |      |      |       |
| Traffic Volume (vph)   | 299   | 477   | 1903  | 282  | 55   | 250   |
| Future Volume (vph)    | 299   | 477   | 1903  | 282  | 55   | 250   |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800  | 1800 | 1800 | 1800  |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0   | 5.0  | 5.0  | 5.0   |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95  | 1.00 | 0.97 | 1.00  |
| Frt                    | 1.00  | 1.00  | 1.00  | 0.85 | 1.00 | 0.85  |
| Flt Protected          | 0.95  | 1.00  | 1.00  | 1.00 | 0.95 | 1.00  |
| Satd. Flow (prot)      | 1491  | 3060  | 3357  | 1459 | 2396 | 1190  |
| Flt Permitted          | 0.04  | 1.00  | 1.00  | 1.00 | 0.95 | 1.00  |
| Satd. Flow (perm)      | 70    | 3060  | 3357  | 1459 | 2396 | 1190  |
| Peak-hour factor, PHF  | 0.98  | 0.98  | 0.98  | 0.98 | 0.98 | 0.98  |
| Adj. Flow (vph)        | 305   | 487   | 1942  | 288  | 56   | 255   |
| RTOR Reduction (vph)   | 0     | 0     | 0     | 34   | 0    | 219   |
| Lane Group Flow (vph)  | 305   | 487   | 1942  | 254  | 56   | 36    |
| Heavy Vehicles (%)     | 16%   | 13%   | 3%    | 6%   | 40%  | 30%   |
| Turn Type              | pm+pt | NA    | NA    | Perm | Prot | Perm  |
| Protected Phases       | 7     | 4     | 8     |      | 6    |       |
| Permitted Phases       | 4     |       |       | 8    |      | 6     |
| Actuated Green, G (s)  | 119.0 | 119.0 | 87.0  | 87.0 | 21.0 | 21.0  |
| Effective Green, g (s) | 119.0 | 119.0 | 87.0  | 87.0 | 21.0 | 21.0  |
| Actuated g/C Ratio     | 0.79  | 0.79  | 0.58  | 0.58 | 0.14 | 0.14  |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0   | 5.0  | 5.0  | 5.0   |
| Lane Grp Cap (vph)     | 330   | 2427  | 1947  | 846  | 335  | 166   |
| v/s Ratio Prot         | c0.18 | 0.16  | c0.58 |      | 0.02 |       |
| v/s Ratio Perm         | 0.56  |       |       | 0.17 |      | c0.03 |
| v/c Ratio              | 0.92  | 0.20  | 1.00  | 0.30 | 0.17 | 0.22  |
| Uniform Delay, d1      | 52.6  | 3.8   | 31.4  | 16.0 | 56.8 | 57.2  |
| Progression Factor     | 0.85  | 0.89  | 1.00  | 1.00 | 1.00 | 1.00  |
| Incremental Delay, d2  | 32.7  | 0.2   | 19.8  | 0.9  | 1.1  | 2.9   |
| Delay (s)              | 77.6  | 3.6   | 51.2  | 16.9 | 57.9 | 60.1  |
| Level of Service       | E     | A     | D     | B    | E    | E     |
| Approach Delay (s)     |       | 32.1  | 46.8  |      | 59.7 |       |
| Approach LOS           |       | C     | D     |      | E    |       |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 44.5  | HCM 2000 Level of Service | D    |
| HCM 2000 Volume to Capacity ratio | 0.86  |                           |      |
| Actuated Cycle Length (s)         | 150.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 88.8% | ICU Level of Service      | E    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
7: Walkley Road & Highway SB terminal

Future BG 2030 AM - Site Peak  
10-24-2022



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑↑    |       | ↘     | ↗     |
| Traffic Volume (vph)       | 0    | 472   | 1028  | 0     | 24    | 960   |
| Future Volume (vph)        | 0    | 472   | 1028  | 0     | 24    | 960   |
| Ideal Flow (vphp)          | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>            |      |       |       |       |       | 0.850 |
| Fl <sub>t</sub> Protected  |      |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Fl <sub>t</sub> Permitted  |      |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Link Speed (k/h)           |      | 80    | 80    |       | 80    |       |
| Link Distance (m)          |      | 131.6 | 322.4 |       | 492.9 |       |
| Travel Time (s)            |      | 5.9   | 14.5  |       | 22.2  |       |
| Peak Hour Factor           | 0.97 | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Adj. Flow (vph)            | 0    | 487   | 1060  | 0     | 25    | 990   |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 487   | 1060  | 0     | 25    | 990   |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 3.7   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Stop  |       |

Intersection Summary

|                                   |                              |
|-----------------------------------|------------------------------|
| Area Type:                        | Other                        |
| Control Type:                     | Unsignalized                 |
| Intersection Capacity Utilization | 99.4% ICU Level of Service F |
| Analysis Period (min)             | 15                           |

HCM Unsignalized Intersection Capacity Analysis  
7: Walkley Road & Highway SB terminal

Future BG 2030 AM - Site Peak  
10-24-2022



| Movement                          | EBL         | EBT         | WBT         | WBR         | SBL                  | SBR         |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|-------------|
| Lane Configurations               |             | ↑↑          | ↑↑          |             | ↘                    | ↘           |
| Traffic Volume (veh/h)            | 0           | 472         | 1028        | 0           | 24                   | 960         |
| Future Volume (Veh/h)             | 0           | 472         | 1028        | 0           | 24                   | 960         |
| Sign Control                      |             | Free        | Free        |             | Stop                 |             |
| Grade                             |             | 0%          | 0%          |             | 0%                   |             |
| Peak Hour Factor                  | 0.97        | 0.97        | 0.97        | 0.97        | 0.97                 | 0.97        |
| Hourly flow rate (vph)            | 0           | 487         | 1060        | 0           | 25                   | 990         |
| <b>Pedestrians</b>                |             |             |             |             |                      |             |
| 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            | 1060        |             |             |             | 1304                 | 530         |
| vC1, stage 1 conf vol             |             |             |             |             |                      |             |
| vC2, stage 2 conf vol             |             |             |             |             |                      |             |
| vCu, unblocked vol                | 1060        |             |             |             | 1304                 | 530         |
| tC, single (s)                    | 4.1         |             |             |             | 6.8                  | 6.9         |
| tC, 2 stage (s)                   |             |             |             |             |                      |             |
| tF (s)                            | 2.2         |             |             |             | 3.5                  | 3.3         |
| p0 queue free %                   | 100         |             |             |             | 84                   | 0           |
| cM capacity (veh/h)               | 653         |             |             |             | 152                  | 493         |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b> | <b>SB 1</b>          | <b>SB 2</b> |
| Volume Total                      | 244         | 244         | 530         | 530         | 25                   | 990         |
| Volume Left                       | 0           | 0           | 0           | 0           | 25                   | 0           |
| Volume Right                      | 0           | 0           | 0           | 0           | 0                    | 990         |
| cSH                               | 1700        | 1700        | 1700        | 1700        | 152                  | 493         |
| Volume to Capacity                | 0.14        | 0.14        | 0.31        | 0.31        | 0.16                 | 2.01        |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0         | 4.3                  | 513.5       |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0         | 33.3                 | 479.2       |
| Lane LOS                          |             |             |             |             | D                    | F           |
| Approach Delay (s)                | 0.0         |             | 0.0         |             | 468.2                |             |
| Approach LOS                      |             |             |             |             | F                    |             |
| <b>Intersection Summary</b>       |             |             |             |             |                      |             |
| Average Delay                     |             |             | 185.5       |             |                      |             |
| Intersection Capacity Utilization |             |             | 99.4%       |             | ICU Level of Service | F           |
| Analysis Period (min)             |             |             | 15          |             |                      |             |

Lanes, Volumes, Timings  
 10: Highway NB terminal & Walkley Road

Future BG 2030 AM - Site Peak  
 10-24-2022



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NBL   | NBR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    |       |      | ↑↑    | ↘     |       |
| Traffic Volume (vph)       | 55    | 444   | 0    | 631   | 432   | 8     |
| Future Volume (vph)        | 55    | 444   | 0    | 631   | 432   | 8     |
| Ideal Flow (vphp)          | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00 | 0.95  | 1.00  | 1.00  |
| Frt                        | 0.867 |       |      | 0.997 |       |       |
| Flt Protected              |       |       |      | 0.953 |       |       |
| Satd. Flow (prot)          | 2939  | 0     | 0    | 3390  | 1695  | 0     |
| Flt Permitted              |       |       |      | 0.953 |       |       |
| Satd. Flow (perm)          | 2939  | 0     | 0    | 3390  | 1695  | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 322.4 |       |      | 108.3 | 295.7 |       |
| Travel Time (s)            | 14.5  |       |      | 8.1   | 22.2  |       |
| Peak Hour Factor           | 0.93  | 0.93  | 0.93 | 0.93  | 0.93  | 0.93  |
| Adj. Flow (vph)            | 59    | 477   | 0    | 678   | 465   | 9     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 536   | 0     | 0    | 678   | 474   | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 3.7   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 14    |       | 24   | 24    |       | 14    |
| Sign Control               | Free  |       |      | Free  | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 50.9%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

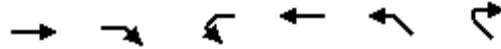
HCM Unsignalized Intersection Capacity Analysis  
 10: Highway NB terminal & Walkley Road

Future BG 2030 AM - Site Peak  
 10-24-2022



| Movement                          | EBT         | EBR         | WBL         | WBT                  | NBL         | NBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations               | ↑↑          |             |             | ↑↑                   | ↘           |      |
| Traffic Volume (veh/h)            | 55          | 444         | 0           | 631                  | 432         | 8    |
| Future Volume (Veh/h)             | 55          | 444         | 0           | 631                  | 432         | 8    |
| 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)            | 59          | 477         | 0           | 678                  | 465         | 9    |
| <b>Pedestrians</b>                |             |             |             |                      |             |      |
| 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            |             |             | 536         |                      | 636         | 268  |
| vC1, stage 1 conf vol             |             |             |             |                      |             |      |
| vC2, stage 2 conf vol             |             |             |             |                      |             |      |
| vCu, unblocked vol                |             |             | 536         |                      | 636         | 268  |
| tC, single (s)                    |             |             | 4.1         |                      | 6.8         | 6.9  |
| tC, 2 stage (s)                   |             |             |             |                      |             |      |
| tF (s)                            |             |             | 2.2         |                      | 3.5         | 3.3  |
| p0 queue free %                   |             |             | 100         |                      | 0           | 99   |
| cM capacity (veh/h)               |             |             | 1028        |                      | 410         | 730  |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>NB 1</b> |      |
| Volume Total                      | 39          | 497         | 339         | 339                  | 474         |      |
| Volume Left                       | 0           | 0           | 0           | 0                    | 465         |      |
| Volume Right                      | 0           | 477         | 0           | 0                    | 9           |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 413         |      |
| Volume to Capacity                | 0.02        | 0.29        | 0.20        | 0.20                 | 1.15        |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0                  | 134.1       |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 121.4       |      |
| Lane LOS                          |             |             |             |                      | F           |      |
| Approach Delay (s)                | 0.0         |             | 0.0         |                      | 121.4       |      |
| Approach LOS                      |             |             |             |                      | F           |      |
| <b>Intersection Summary</b>       |             |             |             |                      |             |      |
| Average Delay                     |             |             | 34.1        |                      |             |      |
| Intersection Capacity Utilization |             |             | 50.9%       | ICU Level of Service | A           |      |
| Analysis Period (min)             |             |             | 15          |                      |             |      |



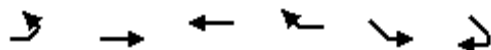


| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NWL   | NWR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    | ↑     |      | ↑↑↑   |       |       |
| Traffic Volume (vph)       | 472   | 143   | 0    | 1988  | 0     | 0     |
| Future Volume (vph)        | 472   | 143   | 0    | 1988  | 0     | 0     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Storage Length (m)         |       | 60.0  | 0.0  |       | 0.0   | 0.0   |
| Storage Lanes              |       | 1     | 0    |       | 0     | 0     |
| Taper Length (m)           |       |       | 7.6  |       | 7.6   |       |
| Lane Util. Factor          | 0.95  | 1.00  | 1.00 | 0.91  | 1.00  | 1.00  |
| Frt                        |       | 0.850 |      |       |       |       |
| Flt Protected              |       |       |      |       |       |       |
| Satd. Flow (prot)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Flt Permitted              |       |       |      |       |       |       |
| Satd. Flow (perm)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 363.2 |       |      | 131.6 | 210.3 |       |
| Travel Time (s)            | 16.3  |       |      | 9.9   | 15.8  |       |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90 | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)            | 524   | 159   | 0    | 2209  | 0     | 0     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 524   | 159   | 0    | 2209  | 0     | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 0.0   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        |       | 14    | 24   |       | 24    | 14    |
| Sign Control               | Free  |       |      | Free  | Free  |       |

**Intersection Summary**

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 43.9%                  |
|                                   | ICU Level of Service A |
| Analysis Period (min)             | 15                     |

Intersection Sign configuration not allowed in HCM analysis.



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SEL   | SER   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑     | ↗     |       |       |
| Traffic Volume (vph)       | 0    | 63    | 631   | 224   | 0     | 0     |
| Future Volume (vph)        | 0    | 63    | 631   | 224   | 0     | 0     |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 0.0  |       |       | 70.0  | 0.0   | 0.0   |
| Storage Lanes              | 0    |       |       | 1     | 0     | 0     |
| Taper Length (m)           | 7.6  |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00 | 0.95  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      |       |       | 0.850 |       |       |
| Flt Protected              |      |       |       |       |       |       |
| Satd. Flow (prot)          | 0    | 3390  | 1784  | 1517  | 0     | 0     |
| Flt Permitted              |      |       |       |       |       |       |
| Satd. Flow (perm)          | 0    | 3390  | 1784  | 1517  | 0     | 0     |
| Link Speed (k/h)           |      | 80    | 80    |       | 48    |       |
| Link Distance (m)          |      | 108.3 | 195.3 |       | 199.6 |       |
| Travel Time (s)            |      | 4.9   | 8.8   |       | 15.0  |       |
| Peak Hour Factor           | 0.93 | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  |
| Adj. Flow (vph)            | 0    | 68    | 678   | 241   | 0     | 0     |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 68    | 678   | 241   | 0     | 0     |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 0.0   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Free  |       |

















Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 38.4%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

















Lanes, Volumes, Timings  
15: Sheffield Road & Humber Place










Future BG 2030 AM - Site Peak  
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|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group                        | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 21  | 0   | 75  | 4   | 1   | 3   | 159  | 429   | 3   | 3   | 223   | 16  |
| Future Volume (vph)               | 21  | 0   | 75  | 4   | 1   | 3   | 159  | 429   | 3   | 3   | 223   | 16  |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  | 1800   | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   |   | 0.894   |   |   | 0.949   |   |  | 0.999   |   |   | 0.991   |   |
| Fl <sub>t</sub> Protected         |   | 0.989   |   |   | 0.976   |   |  | 0.987   |   |   | 0.999   |   |
| Satd. Flow (prot)                 | 0   | 1289  | 0   | 0   | 1225  | 0   | 0  | 1583  | 0   | 0   | 1389  | 0   |
| Fl <sub>t</sub> Permitted         |   | 0.989   |   |   | 0.976   |   |  | 0.987   |   |   | 0.999   |   |
| Satd. Flow (perm)                 | 0   | 1289  | 0   | 0   | 1225  | 0   | 0  | 1583  | 0   | 0   | 1389  | 0   |
| Link Speed (k/h)                  |   | 48  |   |   | 48  |   |  | 48  |   |   | 48  |   |
| Link Distance (m)                 |   | 152.4   |   |   | 148.3   |   |  | 830.1   |   |   | 120.3   |   |
| Travel Time (s)                   |   | 11.4  |   |   | 11.1  |   |  | 62.3  |   |   | 9.0   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 35%   | 2%  | 22%   | 50%   | 2%  | 33%   | 12%  | 14%   | 0%  | 33%   | 30%   | 26%   |
| Adj. Flow (vph)                   | 23  | 0   | 83  | 4   | 1   | 3   | 177  | 477   | 3   | 3   | 248   | 18  |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 106   | 0   | 0   | 8   | 0   | 0  | 657   | 0   | 0   | 269   | 0   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  | No   | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Left  | Right   | Left  | Left  | Right   | Left   | Left  | Right   | Left  | Left  | Right   |
| Median Width(m)                   |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Link Offset(m)                    |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Crosswalk Width(m)                |   | 4.9   |   |   | 4.9   |   |  | 4.9   |   |   | 4.9   |   |
| Two way Left Turn Lane            |   |   |   |   |   |   |  |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06   | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  |   | 14  | 24  |   | 14  | 24   |   | 14  | 24  |   | 14  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |  |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 63.3%   |   |   |   |   |   | ICU Level of Service B   |   |   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 15: Sheffield Road & Humber Place










Future BG 2030 AM - Site Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 21  | 0   | 75  | 4   | 1   | 3   | 159  | 429   | 3   | 3   | 223   | 16  |
| Future Volume (Veh/h)             | 21  | 0   | 75  | 4   | 1   | 3   | 159  | 429   | 3   | 3   | 223   | 16  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 23  | 0   | 83  | 4   | 1   | 3   | 177  | 477   | 3   | 3   | 248   | 18  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (m)                    |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (m/s)               |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |  |   |   |   |   |   |
|                                   |   |   |   |   |   |   |  | None  |   |   | None  |   |
| Median storage veh                |   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (m)               |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 1099  | 1097  | 257   | 1178  | 1104  | 478   | 266  |   |   | 480   |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 1099  | 1097  | 257   | 1178  | 1104  | 478   | 266  |   |   | 480   |   |   |
| tC, single (s)                    | 7.4   | 6.5   | 6.4   | 7.6   | 6.5   | 6.5   | 4.2  |   |   | 4.4   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 3.8   | 4.0   | 3.5   | 4.0   | 4.0   | 3.6   | 2.3  |   |   | 2.5   |   |   |
| p0 queue free %                   | 84  | 100   | 89  | 96  | 99  | 99  | 86   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 145   | 182   | 735   | 106   | 180   | 529   | 1242   |   |   | 939   |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | SB 1  |   |   |  |   |   |   |   |   |
| Volume Total                      | 106   | 8   | 657   | 269   |   |   |  |   |   |   |   |   |
| Volume Left                       | 23  | 4   | 177   | 3   |   |   |  |   |   |   |   |   |
| Volume Right                      | 83  | 3   | 3   | 18  |   |   |  |   |   |   |   |   |
| cSH                               | 390   | 164   | 1242  | 939   |   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.27  | 0.05  | 0.14  | 0.00  |   |   |  |   |   |   |   |   |
| Queue Length 95th (m)             | 8.3   | 1.2   | 3.8   | 0.1   |   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 17.6  | 28.1  | 3.5   | 0.1   |   |   |  |   |   |   |   |   |
| Lane LOS                          | C   | D   | A   | A   |   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 17.6  | 28.1  | 3.5   | 0.1   |   |   |  |   |   |   |   |   |
| Approach LOS                      | C   | D   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 4.2   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 63.3%   |   | ICU Level of Service  |   |  |   |   | B   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |










|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 420   | 30  | 8   | 253   |
| Future Volume (vph)               | 0   | 0   | 420   | 30  | 8   | 253   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               |   |   | 0.991   |   |   |   |
| Flt Protected                     |   |   |   |   |   | 0.998   |
| Satd. Flow (prot)                 | 1784  | 0   | 1768  | 0   | 0   | 922   |
| Flt Permitted                     |   |   |   |   |   | 0.998   |
| Satd. Flow (perm)                 | 1784  | 0   | 1768  | 0   | 0   | 922   |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 56.2  |   | 120.3   |   |   | 89.9  |
| Travel Time (s)                   | 4.2   |   | 9.0   |   |   | 6.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 2%  | 2%  | 2%  | 2%  | 2%  | 100%  |
| Adj. Flow (vph)                   | 0   | 0   | 467   | 33  | 9   | 281   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 500   | 0   | 0   | 290   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 28.6%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 18: Sheffield Road & Way #5

Future BG 2030 AM - Site Peak  
 10-24-2022










|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 420   | 30  | 8   | 253   |
| Future Volume (Veh/h)             | 0   | 0   | 420   | 30  | 8   | 253   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 467   | 33  | 9   | 281   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 782   | 484   |   |   | 500   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 782   | 484   |   |   | 500   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 99  |   |
| cM capacity (veh/h)               | 360   | 583   |   |   | 1064  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 500   | 290   |   |   |   |
| Volume Left                       | 0   | 0   | 9   |   |   |   |
| Volume Right                      | 0   | 33  | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1064  |   |   |   |
| Volume to Capacity                | 0.00  | 0.29  | 0.01  |   |   |   |
| Queue Length 95th (m)             | 0.0   | 0.0   | 0.2   |   |   |   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.3   |   |   |   |
| Lane LOS                          | A   |   | A   |   |   |   |
| Approach Delay (s)                | 0.0   | 0.0   | 0.3   |   |   |   |
| Approach LOS                      | A   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.1   |   |   |   |
| Intersection Capacity Utilization |   |   | 28.6%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |



|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 10  | 2   | 420   | 0   | 0   | 251   |
| Future Volume (vph)               | 10  | 2   | 420   | 0   | 0   | 251   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 0.979   |   |   |   |   |   |
| Flt Protected                     | 0.959   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1675  | 0   | 1784  | 0   | 0   | 1784  |
| Flt Permitted                     | 0.959   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1675  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 60.6  |   | 89.9  |   |   | 135.3   |
| Travel Time (s)                   | 4.5   |   | 6.7   |   |   | 10.1  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 11  | 2   | 467   | 0   | 0   | 279   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 13  | 0   | 467   | 0   | 0   | 279   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 33.3%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
20: Sheffield Road & Way #4

Future BG 2030 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 10  | 2   | 420   | 0   | 0   | 251   |
| Future Volume (Veh/h)             | 10  | 2   | 420   | 0   | 0   | 251   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 11  | 2   | 467   | 0   | 0   | 279   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 746   | 467   |   |   | 467   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 746   | 467   |   |   | 467   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 97  | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 381   | 596   |   |   | 1094  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 13  | 467   | 279   |   |   |   |
| Volume Left                       | 11  | 0   | 0   |   |   |   |
| Volume Right                      | 2   | 0   | 0   |   |   |   |
| cSH                               | 403   | 1700  | 1094  |   |   |   |
| Volume to Capacity                | 0.03  | 0.27  | 0.00  |   |   |   |
| Queue Length 95th (m)             | 0.8   | 0.0   | 0.0   |   |   |   |
| Control Delay (s)                 | 14.2  | 0.0   | 0.0   |   |   |   |
| Lane LOS                          | B   |   |   |   |   |   |
| Approach Delay (s)                | 14.2  | 0.0   | 0.0   |   |   |   |
| Approach LOS                      | B   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.2   |   |   |   |
| Intersection Capacity Utilization |   |   | 33.3%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |










Lanes, Volumes, Timings  
24: Sheffield Road & Way #2

Future BG 2030 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 414   | 9   | 2   | 251   |
| Future Volume (vph)               | 0   | 0   | 414   | 9   | 2   | 251   |
| Ideal Flow (vphp)                 | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 0.997   |   |   |   |   |   |
| Flt Protected                     |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1779  | 0   | 0   | 1784  |
| Flt Permitted                     |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1779  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 65.0  |   | 135.3   |   |   | 74.6  |
| Travel Time (s)                   | 4.9   |   | 10.1  |   |   | 5.6   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 0   | 460   | 10  | 2   | 279   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 470   | 0   | 0   | 281   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 26.9%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
24: Sheffield Road & Way #2

Future BG 2030 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 414   | 9   | 2   | 251   |
| Future Volume (Veh/h)             | 0   | 0   | 414   | 9   | 2   | 251   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 460   | 10  | 2   | 279   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 748   | 465   |   |   | 470   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 748   | 465   |   |   | 470   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 379   | 597   |   |   | 1092  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 470   | 281   |   |   |   |
| Volume Left                       | 0   | 0   | 2   |   |   |   |
| Volume Right                      | 0   | 10  | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1092  |   |   |   |
| Volume to Capacity                | 0.00  | 0.28  | 0.00  |   |   |   |
| Queue Length 95th (m)             | 0.0   | 0.0   | 0.0   |   |   |   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.1   |   |   |   |
| Lane LOS                          | A   |   | A   |   |   |   |
| Approach Delay (s)                | 0.0   | 0.0   | 0.1   |   |   |   |
| Approach LOS                      | A   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 26.9%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |










Lanes, Volumes, Timings  
26: Sheffield Road & Way #1

Future BG 2030 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 2   | 1   | 423   | 0   | 0   | 248   |
| Future Volume (vph)               | 2   | 1   | 423   | 0   | 0   | 248   |
| Ideal Flow (vphp)                 | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   | 0.955   |   |   |   |   |   |
| Fl <sub>t</sub> Protected         | 0.968   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1649  | 0   | 1784  | 0   | 0   | 1784  |
| Fl <sub>t</sub> Permitted         | 0.968   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1649  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 58.8  |   | 74.6  |   |   | 272.6   |
| Travel Time (s)                   | 4.4   |   | 5.6   |   |   | 20.4  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 2   | 1   | 470   | 0   | 0   | 276   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 3   | 0   | 470   | 0   | 0   | 276   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 33.5%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
26: Sheffield Road & Way #1

Future BG 2030 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 2   | 1   | 423   | 0   | 0   | 248   |
| Future Volume (Veh/h)             | 2   | 1   | 423   | 0   | 0   | 248   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 2   | 1   | 470   | 0   | 0   | 276   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 746   | 470   |   |   | 470   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 746   | 470   |   |   | 470   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 99  | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 381   | 594   |   |   | 1092  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 3   | 470   | 276   |   |   |   |
| Volume Left                       | 2   | 0   | 0   |   |   |   |
| Volume Right                      | 1   | 0   | 0   |   |   |   |
| cSH                               | 433   | 1700  | 1092  |   |   |   |
| Volume to Capacity                | 0.01  | 0.28  | 0.00  |   |   |   |
| Queue Length 95th (m)             | 0.2   | 0.0   | 0.0   |   |   |   |
| Control Delay (s)                 | 13.4  | 0.0   | 0.0   |   |   |   |
| Lane LOS                          | B   |   |   |   |   |   |
| Approach Delay (s)                | 13.4  | 0.0   | 0.0   |   |   |   |
| Approach LOS                      | B   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.1   |   |   |   |
| Intersection Capacity Utilization |   |   | 33.5%   |   | ICU Level of Service  | A   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future BG 2030 PM - Site Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 101   | 1412  | 766   | 132   | 389   | 165   |
| Future Volume (vph)        | 101   | 1412  | 766   | 132   | 389   | 165   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 30.5  |       |       | 0.0   | 0.0   | 30.5  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1695  | 3293  | 3172  | 1419  | 3288  | 1502  |
| Flt Permitted              | 0.267 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 476   | 3293  | 3172  | 1419  | 3288  | 1502  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 145   |       | 139   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 306.2 | 364.1 |       | 701.3 |       |
| Travel Time (s)            |       | 13.8  | 16.4  |       | 52.6  |       |
| Peak Hour Factor           | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  |
| Heavy Vehicles (%)         | 2%    | 5%    | 9%    | 9%    | 2%    | 3%    |
| Adj. Flow (vph)            | 111   | 1552  | 842   | 145   | 427   | 181   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 111   | 1552  | 842   | 145   | 427   | 181   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 22.0  | 102.0 | 80.0  | 80.0  | 28.0  | 28.0  |
| Total Split (%)            | 16.9% | 78.5% | 61.5% | 61.5% | 21.5% | 21.5% |
| Maximum Green (s)          | 19.0  | 97.0  | 75.0  | 75.0  | 23.0  | 23.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 99.0  | 97.0  | 75.0  | 75.0  | 23.0  | 23.0  |
| Actuated g/C Ratio         | 0.76  | 0.75  | 0.58  | 0.58  | 0.18  | 0.18  |

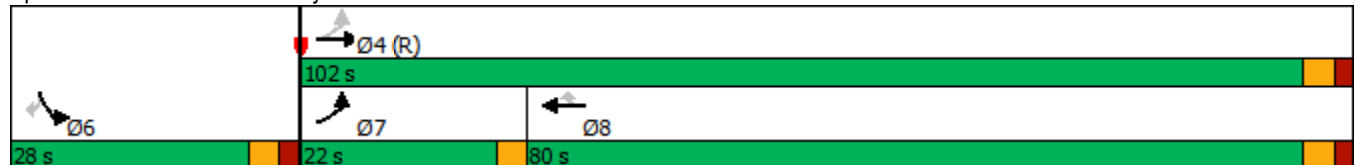


| Lane Group             | EBL  | EBT   | WBT   | WBR   | SBL   | SBR  |
|------------------------|------|-------|-------|-------|-------|------|
| v/c Ratio              | 0.21 | 0.63  | 0.46  | 0.16  | 0.73  | 0.48 |
| Control Delay          | 4.9  | 9.3   | 15.6  | 4.3   | 59.1  | 17.8 |
| Queue Delay            | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| Total Delay            | 4.9  | 9.3   | 15.6  | 4.3   | 59.1  | 17.8 |
| LOS                    | A    | A     | B     | A     | E     | B    |
| Approach Delay         |      | 9.0   | 14.0  |       | 46.8  |      |
| Approach LOS           |      | A     | B     |       | D     |      |
| Queue Length 50th (m)  | 6.3  | 88.2  | 76.5  | 9.6   | 53.9  | 9.2  |
| Queue Length 95th (m)  | 10.8 | 105.9 | 86.3  | m17.2 | 71.8  | 31.0 |
| Internal Link Dist (m) |      | 282.2 | 340.1 |       | 677.3 |      |
| Turn Bay Length (m)    | 30.5 |       |       |       |       | 30.5 |
| Base Capacity (vph)    | 540  | 2457  | 1830  | 880   | 581   | 380  |
| Starvation Cap Reductn | 0    | 0     | 0     | 0     | 0     | 0    |
| Spillback Cap Reductn  | 0    | 0     | 0     | 0     | 0     | 0    |
| Storage Cap Reductn    | 0    | 0     | 0     | 0     | 0     | 0    |
| Reduced v/c Ratio      | 0.21 | 0.63  | 0.46  | 0.16  | 0.73  | 0.48 |

**Intersection Summary**

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 50 (38%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 17.6  
 Intersection LOS: B  
 Intersection Capacity Utilization 61.2%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

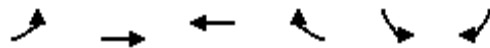
**Splits and Phases: 3: Walkley Road & Lancaster Road**





HCM Signalized Intersection Capacity Analysis  
3: Walkley Road & Lancaster Road

Future BG 2030 PM - Site Peak  
10-24-2022



| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 101   | 1412  | 766  | 132  | 389   | 165  |
| Future Volume (vph)    | 101   | 1412  | 766  | 132  | 389   | 165  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1695  | 3293  | 3172 | 1419 | 3288  | 1502 |
| Flt Permitted          | 0.27  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 476   | 3293  | 3172 | 1419 | 3288  | 1502 |
| Peak-hour factor, PHF  | 0.91  | 0.91  | 0.91 | 0.91 | 0.91  | 0.91 |
| Adj. Flow (vph)        | 111   | 1552  | 842  | 145  | 427   | 181  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 61   | 0     | 114  |
| Lane Group Flow (vph)  | 111   | 1552  | 842  | 84   | 427   | 67   |
| Heavy Vehicles (%)     | 2%    | 5%    | 9%   | 9%   | 2%    | 3%   |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 97.0  | 97.0  | 75.0 | 75.0 | 23.0  | 23.0 |
| Effective Green, g (s) | 97.0  | 97.0  | 75.0 | 75.0 | 23.0  | 23.0 |
| Actuated g/C Ratio     | 0.75  | 0.75  | 0.58 | 0.58 | 0.18  | 0.18 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 533   | 2457  | 1830 | 818  | 581   | 265  |
| v/s Ratio Prot         | 0.03  | c0.47 | 0.27 |      | c0.13 |      |
| v/s Ratio Perm         | 0.12  |       |      | 0.06 |       | 0.04 |
| v/c Ratio              | 0.21  | 0.63  | 0.46 | 0.10 | 0.73  | 0.25 |
| Uniform Delay, d1      | 5.7   | 7.9   | 15.8 | 12.4 | 50.6  | 46.1 |
| Progression Factor     | 1.00  | 1.00  | 0.93 | 2.02 | 1.00  | 1.00 |
| Incremental Delay, d2  | 0.9   | 1.2   | 0.8  | 0.2  | 8.0   | 2.3  |
| Delay (s)              | 6.6   | 9.2   | 15.4 | 25.3 | 58.7  | 48.3 |
| Level of Service       | A     | A     | B    | C    | E     | D    |
| Approach Delay (s)     |       | 9.0   | 16.9 |      | 55.6  |      |
| Approach LOS           |       | A     | B    |      | E     |      |

| Intersection Summary              |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 20.1  | HCM 2000 Level of Service | C    |
| HCM 2000 Volume to Capacity ratio | 0.67  |                           |      |
| Actuated Cycle Length (s)         | 130.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 61.2% | ICU Level of Service      | B    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
6: Walkley Road & Sheffield Road

Future BG 2030 PM - Site Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 172   | 1553  | 571   | 75    | 249   | 313   |
| Future Volume (vph)        | 172   | 1553  | 571   | 75    | 249   | 313   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 30.5  |       |       | 50.0  | 0.0   | 30.5  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1383  | 3390  | 3172  | 1146  | 3164  | 1381  |
| Flt Permitted              | 0.384 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 559   | 3390  | 3172  | 1146  | 3164  | 1381  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 77    |       | 323   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 364.1 | 339.6 |       | 830.6 |       |
| Travel Time (s)            |       | 16.4  | 15.3  |       | 62.3  |       |
| Peak Hour Factor           | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.97  |
| Heavy Vehicles (%)         | 25%   | 2%    | 9%    | 35%   | 6%    | 12%   |
| Adj. Flow (vph)            | 176   | 1585  | 583   | 77    | 254   | 323   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 176   | 1585  | 583   | 77    | 254   | 323   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.0  | 23.0  | 23.0  | 23.0  | 23.0  |
| Total Split (s)            | 22.0  | 104.0 | 82.0  | 82.0  | 26.0  | 26.0  |
| Total Split (%)            | 16.9% | 80.0% | 63.1% | 63.1% | 20.0% | 20.0% |
| Maximum Green (s)          | 19.0  | 99.0  | 77.0  | 77.0  | 21.0  | 21.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 101.0 | 99.0  | 77.0  | 77.0  | 21.0  | 21.0  |
| Actuated g/C Ratio         | 0.78  | 0.76  | 0.59  | 0.59  | 0.16  | 0.16  |

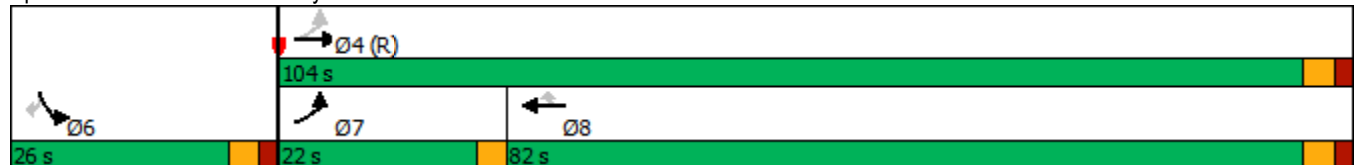


| Lane Group             | EBL   | EBT   | WBT   | WBR  | SBL   | SBR  |
|------------------------|-------|-------|-------|------|-------|------|
| v/c Ratio              | 0.32  | 0.61  | 0.31  | 0.11 | 0.50  | 0.66 |
| Control Delay          | 4.0   | 5.5   | 13.8  | 2.7  | 53.5  | 12.0 |
| Queue Delay            | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  |
| Total Delay            | 4.0   | 5.5   | 13.8  | 2.7  | 53.5  | 12.0 |
| LOS                    | A     | A     | B     | A    | D     | B    |
| Approach Delay         |       | 5.3   | 12.5  |      | 30.3  |      |
| Approach LOS           |       | A     | B     |      | C     |      |
| Queue Length 50th (m)  | 7.5   | 54.6  | 37.3  | 0.0  | 30.9  | 0.0  |
| Queue Length 95th (m)  | m11.5 | 63.3  | 48.0  | 6.4  | 44.5  | 28.2 |
| Internal Link Dist (m) |       | 340.1 | 315.6 |      | 806.6 |      |
| Turn Bay Length (m)    | 30.5  |       |       | 50.0 |       | 30.5 |
| Base Capacity (vph)    | 554   | 2581  | 1878  | 710  | 511   | 493  |
| Starvation Cap Reductn | 0     | 0     | 0     | 0    | 0     | 0    |
| Spillback Cap Reductn  | 0     | 0     | 0     | 0    | 0     | 0    |
| Storage Cap Reductn    | 0     | 0     | 0     | 0    | 0     | 0    |
| Reduced v/c Ratio      | 0.32  | 0.61  | 0.31  | 0.11 | 0.50  | 0.66 |

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 13 (10%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.66  
 Intersection Signal Delay: 11.7  
 Intersection LOS: B  
 Intersection Capacity Utilization 61.1%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Walkley Road & Sheffield Road



HCM Signalized Intersection Capacity Analysis  
6: Walkley Road & Sheffield Road

Future BG 2030 PM - Site Peak  
10-24-2022



| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 172   | 1553  | 571  | 75   | 249   | 313  |
| Future Volume (vph)    | 172   | 1553  | 571  | 75   | 249   | 313  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1383  | 3390  | 3172 | 1146 | 3164  | 1381 |
| Flt Permitted          | 0.38  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 559   | 3390  | 3172 | 1146 | 3164  | 1381 |
| Peak-hour factor, PHF  | 0.98  | 0.98  | 0.98 | 0.98 | 0.98  | 0.97 |
| Adj. Flow (vph)        | 176   | 1585  | 583  | 77   | 254   | 323  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 31   | 0     | 271  |
| Lane Group Flow (vph)  | 176   | 1585  | 583  | 46   | 254   | 52   |
| Heavy Vehicles (%)     | 25%   | 2%    | 9%   | 35%  | 6%    | 12%  |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 99.0  | 99.0  | 77.0 | 77.0 | 21.0  | 21.0 |
| Effective Green, g (s) | 99.0  | 99.0  | 77.0 | 77.0 | 21.0  | 21.0 |
| Actuated g/C Ratio     | 0.76  | 0.76  | 0.59 | 0.59 | 0.16  | 0.16 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 546   | 2581  | 1878 | 678  | 511   | 223  |
| v/s Ratio Prot         | 0.05  | c0.47 | 0.18 |      | c0.08 |      |
| v/s Ratio Perm         | 0.20  |       |      | 0.04 |       | 0.04 |
| v/c Ratio              | 0.32  | 0.61  | 0.31 | 0.07 | 0.50  | 0.23 |
| Uniform Delay, d1      | 4.7   | 6.9   | 13.2 | 11.3 | 49.7  | 47.5 |
| Progression Factor     | 0.76  | 0.65  | 1.00 | 1.00 | 1.00  | 1.00 |
| Incremental Delay, d2  | 1.2   | 0.8   | 0.4  | 0.2  | 3.4   | 2.4  |
| Delay (s)              | 4.7   | 5.4   | 13.7 | 11.4 | 53.1  | 49.9 |
| Level of Service       | A     | A     | B    | B    | D     | D    |
| Approach Delay (s)     |       | 5.3   | 13.4 |      | 51.3  |      |
| Approach LOS           |       | A     | B    |      | D     |      |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 15.9  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.61  |                           |      |
| Actuated Cycle Length (s)         | 130.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 61.1% | ICU Level of Service      | B    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
7: Walkley Road & Highway SB terminal

Future BG 2030 PM - Site Peak  
10-24-2022



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑↑    |       | ↘     | ↗     |
| Traffic Volume (vph)       | 0    | 1220  | 144   | 0     | 138   | 492   |
| Future Volume (vph)        | 0    | 1220  | 144   | 0     | 138   | 492   |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>            |      |       |       |       |       | 0.850 |
| Fl <sub>t</sub> Protected  |      |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Fl <sub>t</sub> Permitted  |      |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Link Speed (k/h)           |      | 80    | 80    |       | 80    |       |
| Link Distance (m)          |      | 118.5 | 305.1 |       | 468.0 |       |
| Travel Time (s)            |      | 5.3   | 13.7  |       | 21.1  |       |
| Peak Hour Factor           | 0.95 | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  |
| Adj. Flow (vph)            | 0    | 1284  | 152   | 0     | 145   | 518   |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 1284  | 152   | 0     | 145   | 518   |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 3.7   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 50.3%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
7: Walkley Road & Highway SB terminal

Future BG 2030 PM - Site Peak  
10-24-2022



| Movement                          | EBL         | EBT         | WBT         | WBR                  | SBL         | SBR         |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|-------------|
| Lane Configurations               |             | ↑↑          | ↑↑          |                      | ↘           | ↗           |
| Traffic Volume (veh/h)            | 0           | 1220        | 144         | 0                    | 138         | 492         |
| Future Volume (Veh/h)             | 0           | 1220        | 144         | 0                    | 138         | 492         |
| Sign Control                      |             | Free        | Free        |                      | Stop        |             |
| Grade                             |             | 0%          | 0%          |                      | 0%          |             |
| Peak Hour Factor                  | 0.95        | 0.95        | 0.95        | 0.95                 | 0.95        | 0.95        |
| Hourly flow rate (vph)            | 0           | 1284        | 152         | 0                    | 145         | 518         |
| <b>Pedestrians</b>                |             |             |             |                      |             |             |
| 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            | 152         |             |             |                      | 794         | 76          |
| vC1, stage 1 conf vol             |             |             |             |                      |             |             |
| vC2, stage 2 conf vol             |             |             |             |                      |             |             |
| vCu, unblocked vol                | 152         |             |             |                      | 794         | 76          |
| tC, single (s)                    | 4.1         |             |             |                      | 6.8         | 6.9         |
| tC, 2 stage (s)                   |             |             |             |                      |             |             |
| tF (s)                            | 2.2         |             |             |                      | 3.5         | 3.3         |
| p0 queue free %                   | 100         |             |             |                      | 55          | 47          |
| cM capacity (veh/h)               | 1426        |             |             |                      | 325         | 970         |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>SB 1</b> | <b>SB 2</b> |
| Volume Total                      | 642         | 642         | 76          | 76                   | 145         | 518         |
| Volume Left                       | 0           | 0           | 0           | 0                    | 145         | 0           |
| Volume Right                      | 0           | 0           | 0           | 0                    | 0           | 518         |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 325         | 970         |
| Volume to Capacity                | 0.38        | 0.38        | 0.04        | 0.04                 | 0.45        | 0.53        |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0                  | 16.7        | 24.7        |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 24.7        | 12.9        |
| Lane LOS                          |             |             |             |                      | C           | B           |
| Approach Delay (s)                | 0.0         |             | 0.0         |                      | 15.5        |             |
| Approach LOS                      |             |             |             |                      | C           |             |
| <b>Intersection Summary</b>       |             |             |             |                      |             |             |
| Average Delay                     |             |             | 4.9         |                      |             |             |
| Intersection Capacity Utilization |             |             | 50.3%       | ICU Level of Service | A           |             |
| Analysis Period (min)             |             |             | 15          |                      |             |             |

Lanes, Volumes, Timings  
 10: Highway NB terminal & Walkley Road

Future BG 2030 PM - Site Peak  
 10-24-2022



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NBL   | NBR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    |       |      | ↑↑    | ↘     |       |
| Traffic Volume (vph)       | 481   | 880   | 0    | 53    | 107   | 26    |
| Future Volume (vph)        | 481   | 880   | 0    | 53    | 107   | 26    |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00 | 0.95  | 1.00  | 1.00  |
| Frt                        | 0.903 |       |      | 0.973 |       |       |
| Flt Protected              |       |       |      | 0.961 |       |       |
| Satd. Flow (prot)          | 3061  | 0     | 0    | 3390  | 1668  | 0     |
| Flt Permitted              |       |       |      | 0.961 |       |       |
| Satd. Flow (perm)          | 3061  | 0     | 0    | 3390  | 1668  | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 305.1 |       |      | 95.4  | 443.2 |       |
| Travel Time (s)            | 13.7  |       |      | 7.2   | 33.2  |       |
| Peak Hour Factor           | 0.91  | 0.91  | 0.91 | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)            | 529   | 967   | 0    | 58    | 118   | 29    |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 1496  | 0     | 0    | 58    | 147   | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 3.7   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 14    |       | 24   | 24    |       | 14    |
| Sign Control               | Free  |       |      | Free  | Stop  |       |

Intersection Summary

|                                   |                              |
|-----------------------------------|------------------------------|
| Area Type:                        | Other                        |
| Control Type:                     | Unsignalized                 |
| Intersection Capacity Utilization | 58.6% ICU Level of Service B |
| Analysis Period (min)             | 15                           |

HCM Unsignalized Intersection Capacity Analysis  
 10: Highway NB terminal & Walkley Road

Future BG 2030 PM - Site Peak  
 10-24-2022

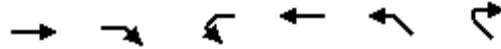


| Movement                          | EBT         | EBR         | WBL         | WBT                  | NBL         | NBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations               | ↑↑          |             |             | ↑↑                   | ↘           |      |
| Traffic Volume (veh/h)            | 481         | 880         | 0           | 53                   | 107         | 26   |
| Future Volume (Veh/h)             | 481         | 880         | 0           | 53                   | 107         | 26   |
| Sign Control                      | Free        |             |             | Free                 | Stop        |      |
| Grade                             | 0%          |             |             | 0%                   | 0%          |      |
| Peak Hour Factor                  | 0.91        | 0.91        | 0.91        | 0.91                 | 0.91        | 0.91 |
| Hourly flow rate (vph)            | 529         | 967         | 0           | 58                   | 118         | 29   |
| <b>Pedestrians</b>                |             |             |             |                      |             |      |
| 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            |             |             | 1496        |                      | 1042        | 748  |
| vC1, stage 1 conf vol             |             |             |             |                      |             |      |
| vC2, stage 2 conf vol             |             |             |             |                      |             |      |
| vCu, unblocked vol                |             |             | 1496        |                      | 1042        | 748  |
| tC, single (s)                    |             |             | 4.1         |                      | 6.8         | 6.9  |
| tC, 2 stage (s)                   |             |             |             |                      |             |      |
| tF (s)                            |             |             | 2.2         |                      | 3.5         | 3.3  |
| p0 queue free %                   |             |             | 100         |                      | 48          | 92   |
| cM capacity (veh/h)               |             |             | 444         |                      | 225         | 355  |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>NB 1</b> |      |
| Volume Total                      | 353         | 1143        | 29          | 29                   | 147         |      |
| Volume Left                       | 0           | 0           | 0           | 0                    | 118         |      |
| Volume Right                      | 0           | 967         | 0           | 0                    | 29          |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 243         |      |
| Volume to Capacity                | 0.21        | 0.67        | 0.02        | 0.02                 | 0.61        |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0                  | 27.0        |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 40.2        |      |
| Lane LOS                          |             |             |             |                      | E           |      |
| Approach Delay (s)                | 0.0         |             | 0.0         |                      | 40.2        |      |
| Approach LOS                      |             |             |             |                      | E           |      |
| <b>Intersection Summary</b>       |             |             |             |                      |             |      |
| Average Delay                     |             |             | 3.5         |                      |             |      |
| Intersection Capacity Utilization |             |             | 58.6%       | ICU Level of Service | B           |      |
| Analysis Period (min)             |             |             | 15          |                      |             |      |



Lanes, Volumes, Timings  
11: SB off ramp & Walkley Road

Future BG 2030 PM - Site Peak  
10-24-2022



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NWL   | NWR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    | ↑     |      | ↑↑↑   |       |       |
| Traffic Volume (vph)       | 1220  | 423   | 0    | 636   | 0     | 0     |
| Future Volume (vph)        | 1220  | 423   | 0    | 636   | 0     | 0     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Storage Length (m)         |       | 50.0  | 0.0  |       | 0.0   | 0.0   |
| Storage Lanes              |       | 1     | 0    |       | 0     | 0     |
| Taper Length (m)           |       |       | 7.6  |       | 7.6   |       |
| Lane Util. Factor          | 0.95  | 1.00  | 1.00 | 0.91  | 1.00  | 1.00  |
| Frt                        |       | 0.850 |      |       |       |       |
| Flt Protected              |       |       |      |       |       |       |
| Satd. Flow (prot)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Flt Permitted              |       |       |      |       |       |       |
| Satd. Flow (perm)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 339.6 |       |      | 118.5 | 265.8 |       |
| Travel Time (s)            | 15.3  |       |      | 8.9   | 19.9  |       |
| Peak Hour Factor           | 0.95  | 0.95  | 0.95 | 0.95  | 0.95  | 0.95  |
| Adj. Flow (vph)            | 1284  | 445   | 0    | 669   | 0     | 0     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 1284  | 445   | 0    | 669   | 0     | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 0.0   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        |       | 14    | 24   |       | 24    | 14    |
| Sign Control               | Free  |       |      | Free  | Free  |       |

Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 38.9%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings  
13: Walkley Road & NB off ramp

Future BG 2030 PM - Site Peak  
10-24-2022



| Lane Group                 | EBL  | EBT  | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑   | ↑     | ↑     |       |       |
| Traffic Volume (vph)       | 0    | 507  | 53    | 49    | 0     | 0     |
| Future Volume (vph)        | 0    | 507  | 53    | 49    | 0     | 0     |
| Ideal Flow (vphpl)         | 1800 | 1800 | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 0.0  |      |       | 50.0  | 0.0   | 0.0   |
| Storage Lanes              | 0    |      |       | 1     | 0     | 0     |
| Taper Length (m)           | 7.6  |      |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00 | 0.95 | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      |      |       | 0.850 |       |       |
| Flt Protected              |      |      |       |       |       |       |
| Satd. Flow (prot)          | 0    | 3390 | 1784  | 1517  | 0     | 0     |
| Flt Permitted              |      |      |       |       |       |       |
| Satd. Flow (perm)          | 0    | 3390 | 1784  | 1517  | 0     | 0     |
| Link Speed (k/h)           |      | 80   | 48    |       | 48    |       |
| Link Distance (m)          |      | 95.4 | 197.1 |       | 264.7 |       |
| Travel Time (s)            |      | 4.3  | 14.8  |       | 19.9  |       |
| Peak Hour Factor           | 0.91 | 0.91 | 0.91  | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)            | 0    | 557  | 58    | 54    | 0     | 0     |
| Shared Lane Traffic (%)    |      |      |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 557  | 58    | 54    | 0     | 0     |
| Enter Blocked Intersection | No   | No   | No    | No    | No    | No    |
| Lane Alignment             | Left | Left | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0  | 0.0   |       | 0.0   |       |
| Link Offset(m)             |      | 0.0  | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9  | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |      |       |       |       |       |
| Headway Factor             | 1.06 | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |      |       | 14    | 24    | 14    |
| Sign Control               |      | Free | Free  |       | Free  |       |

















Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 18.1%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

















Lanes, Volumes, Timings  
15: Sheffield Road & Humber Place

Future BG 2030 PM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group                        | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 12  | 0   | 111   | 2   | 0   | 0   | 47   | 241   | 1   | 1   | 434   | 16  |
| Future Volume (vph)               | 12  | 0   | 111   | 2   | 0   | 0   | 47   | 241   | 1   | 1   | 434   | 16  |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  | 1800   | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   |   | 0.878   |   |   |   |   |  |   |   |   |   | 0.995   |
| Fl <sub>t</sub> Protected         |   | 0.995   |   |   | 0.950   |   |  | 0.992   |   |   |   |   |
| Satd. Flow (prot)                 | 0   | 1452  | 0   | 0   | 1300  | 0   | 0  | 1377  | 0   | 0   | 1661  | 0   |
| Fl <sub>t</sub> Permitted         |   | 0.995   |   |   | 0.950   |   |  | 0.992   |   |   |   |   |
| Satd. Flow (perm)                 | 0   | 1452  | 0   | 0   | 1300  | 0   | 0  | 1377  | 0   | 0   | 1661  | 0   |
| Link Speed (k/h)                  |   | 48  |   |   | 48  |   |  | 48  |   |   | 48  |   |
| Link Distance (m)                 |   | 152.4   |   |   | 148.3   |   |  | 830.6   |   |   | 80.7  |   |
| Travel Time (s)                   |   | 11.4  |   |   | 11.1  |   |  | 62.3  |   |   | 6.1   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 14%   | 2%  | 9%  | 33%   | 2%  | 2%  | 21%  | 33%   | 50%   | 0%  | 9%  | 10%   |
| Adj. Flow (vph)                   | 13  | 0   | 123   | 2   | 0   | 0   | 52   | 268   | 1   | 1   | 482   | 18  |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 136   | 0   | 0   | 2   | 0   | 0  | 321   | 0   | 0   | 501   | 0   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  | No   | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Left  | Right   | Left  | Left  | Right   | Left   | Left  | Right   | Left  | Left  | Right   |
| Median Width(m)                   |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Link Offset(m)                    |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Crosswalk Width(m)                |   | 4.9   |   |   | 4.9   |   |  | 4.9   |   |   | 4.9   |   |
| Two way Left Turn Lane            |   |   |   |   |   |   |  |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06   | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  |   | 14  | 24  |   | 14  | 24   |   | 14  | 24  |   | 14  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |  |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 59.0%   |   |   |   |   |   | ICU Level of Service B   |   |   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
 15: Sheffield Road & Humber Place

Future BG 2030 PM - Site Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 12  | 0   | 111   | 2   | 0   | 0   | 47   | 241   | 1   | 1   | 434   | 16  |
| Future Volume (Veh/h)             | 12  | 0   | 111   | 2   | 0   | 0   | 47   | 241   | 1   | 1   | 434   | 16  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 13  | 0   | 123   | 2   | 0   | 0   | 52   | 268   | 1   | 1   | 482   | 18  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (m)                    |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (m/s)               |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Median storage veh                |   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (m)               |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 866   | 866   | 491   | 988   | 874   | 268   | 500  |   |   | 269   |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 866   | 866   | 491   | 988   | 874   | 268   | 500  |   |   | 269   |   |   |
| tC, single (s)                    | 7.2   | 6.5   | 6.3   | 7.4   | 6.5   | 6.2   | 4.3  |   |   | 4.1   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 3.6   | 4.0   | 3.4   | 3.8   | 4.0   | 3.3   | 2.4  |   |   | 2.2   |   |   |
| p0 queue free %                   | 95  | 100   | 78  | 99  | 100   | 100   | 95   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 250   | 275   | 564   | 149   | 272   | 770   | 973  |   |   | 1306  |   |   |
| Direction, Lane #                 |   |   |   |   |   |   |  |   |   |   |   |   |
|                                   | EB 1  | WB 1  | NB 1  | SB 1  |   |   |  |   |   |   |   |   |
| Volume Total                      | 136   | 2   | 321   | 501   |   |   |  |   |   |   |   |   |
| Volume Left                       | 13  | 2   | 52  | 1   |   |   |  |   |   |   |   |   |
| Volume Right                      | 123   | 0   | 1   | 18  |   |   |  |   |   |   |   |   |
| cSH                               | 503   | 149   | 973   | 1306  |   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.27  | 0.01  | 0.05  | 0.00  |   |   |  |   |   |   |   |   |
| Queue Length 95th (m)             | 8.2   | 0.3   | 1.3   | 0.0   |   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 14.8  | 29.5  | 1.9   | 0.0   |   |   |  |   |   |   |   |   |
| Lane LOS                          | B   | D   | A   | A   |   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 14.8  | 29.5  | 1.9   | 0.0   |   |   |  |   |   |   |   |   |
| Approach LOS                      | B   | D   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 2.8   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 59.0%   | ICU Level of Service  |   |   |  |   |   | B   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |










Lanes, Volumes, Timings  
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|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 227   | 7   | 1   | 440   |
| Future Volume (vph)               | 0   | 0   | 227   | 7   | 1   | 440   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 0.996   |   |   |   |   |   |
| Flt Protected                     |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1777  | 0   | 0   | 1071  |
| Flt Permitted                     |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1777  | 0   | 0   | 1071  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 56.2  |   | 80.7  |   |   | 63.2  |
| Travel Time (s)                   | 4.2   |   | 6.1   |   |   | 4.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.92  | 0.90  | 0.90  | 0.90  |
| Bus Blockages (#/hr)              | 0   | 0   | 0   | 0   | 0   | 100   |
| Adj. Flow (vph)                   | 0   | 0   | 247   | 8   | 1   | 489   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 255   | 0   | 0   | 490   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.96  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 28.6%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 18: Sheffield Road & Way #5

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|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 227   | 7   | 1   | 440   |
| Future Volume (Veh/h)             | 0   | 0   | 227   | 7   | 1   | 440   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.92  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 247   | 8   | 1   | 489   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 742   | 251   |   |   | 255   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 742   | 251   |   |   | 255   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 383   | 788   |   |   | 1310  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 255   | 490   |   |   |   |
| Volume Left                       | 0   | 0   | 1   |   |   |   |
| Volume Right                      | 0   | 8   | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1310  |   |   |   |
| Volume to Capacity                | 0.00  | 0.15  | 0.00  |   |   |   |
| Queue Length 95th (m)             | 0.0   | 0.0   | 0.0   |   |   |   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   |   |   |   |
| Lane LOS                          | A   |   | A   |   |   |   |
| Approach Delay (s)                | 0.0   | 0.0   | 0.0   |   |   |   |
| Approach LOS                      | A   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 28.6%   | ICU Level of Service  |   | A   |
| Analysis Period (min)             |   |   | 15  |   |   |   |



|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 29  | 6   | 227   | 0   | 0   | 411   |
| Future Volume (vph)               | 29  | 6   | 227   | 0   | 0   | 411   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 0.976   |   |   |   |   |   |
| Flt Protected                     | 0.961   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1674  | 0   | 1784  | 0   | 0   | 1784  |
| Flt Permitted                     | 0.961   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1674  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 60.6  |   | 63.2  |   |   | 102.2   |
| Travel Time (s)                   | 4.5   |   | 4.7   |   |   | 7.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 32  | 7   | 252   | 0   | 0   | 457   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 39  | 0   | 252   | 0   | 0   | 457   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 32.8%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
20: Sheffield Road & Way #4

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|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 29  | 6   | 227   | 0   | 0   | 411   |
| Future Volume (Veh/h)             | 29  | 6   | 227   | 0   | 0   | 411   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 32  | 7   | 252   | 0   | 0   | 457   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 709   | 252   |   |   | 252   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 709   | 252   |   |   | 252   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 92  | 99  |   |   | 100   |   |
| cM capacity (veh/h)               | 401   | 787   |   |   | 1313  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 39  | 252   | 457   |   |   |   |
| Volume Left                       | 32  | 0   | 0   |   |   |   |
| Volume Right                      | 7   | 0   | 0   |   |   |   |
| cSH                               | 439   | 1700  | 1313  |   |   |   |
| Volume to Capacity                | 0.09  | 0.15  | 0.00  |   |   |   |
| Queue Length 95th (m)             | 2.2   | 0.0   | 0.0   |   |   |   |
| Control Delay (s)                 | 14.0  | 0.0   | 0.0   |   |   |   |
| Lane LOS                          | B   |   |   |   |   |   |
| Approach Delay (s)                | 14.0  | 0.0   | 0.0   |   |   |   |
| Approach LOS                      | B   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.7   |   |   |   |
| Intersection Capacity Utilization |   |   | 32.8%   | ICU Level of Service  |   | A   |
| Analysis Period (min)             |   |   | 15  |   |   |   |










Lanes, Volumes, Timings  
24: Sheffield Road & Way #2

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|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 231   | 2   | 1   | 411   |
| Future Volume (vph)               | 0   | 0   | 231   | 2   | 1   | 411   |
| Ideal Flow (vphp)                 | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 0.999   |   |   |   |   |   |
| Flt Protected                     |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1783  | 0   | 0   | 1784  |
| Flt Permitted                     |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1783  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 65.0  |   | 102.2   |   |   | 76.9  |
| Travel Time (s)                   | 4.9   |   | 7.7   |   |   | 5.8   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 0   | 257   | 2   | 1   | 457   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 259   | 0   | 0   | 458   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 27.0%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
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|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 231   | 2   | 1   | 411   |
| Future Volume (Veh/h)             | 0   | 0   | 231   | 2   | 1   | 411   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 257   | 2   | 1   | 457   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 717   | 258   |   |   | 259   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 717   | 258   |   |   | 259   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 396   | 781   |   |   | 1306  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 259   | 458   |   |   |   |
| Volume Left                       | 0   | 0   | 1   |   |   |   |
| Volume Right                      | 0   | 2   | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1306  |   |   |   |
| Volume to Capacity                | 0.00  | 0.15  | 0.00  |   |   |   |
| Queue Length 95th (m)             | 0.0   | 0.0   | 0.0   |   |   |   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   |   |   |   |
| Lane LOS                          | A   |   | A   |   |   |   |
| Approach Delay (s)                | 0.0   | 0.0   | 0.0   |   |   |   |
| Approach LOS                      | A   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 27.0%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |












| Lane Group                 | WBL   | WBR   | NBT  | NBR   | SBL  | SBT   |
|----------------------------|-------|-------|------|-------|------|-------|
| Lane Configurations        |       |       |      |       |      |       |
| Traffic Volume (vph)       | 4     | 1     | 234  | 0     | 0    | 407   |
| Future Volume (vph)        | 4     | 1     | 234  | 0     | 0    | 407   |
| Ideal Flow (vphp)          | 1800  | 1800  | 1800 | 1800  | 1800 | 1800  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| Fr <sub>t</sub>            | 0.973 |       |      |       |      |       |
| Fl <sub>t</sub> Protected  | 0.962 |       |      |       |      |       |
| Satd. Flow (prot)          | 1670  | 0     | 1784 | 0     | 0    | 1784  |
| Fl <sub>t</sub> Permitted  | 0.962 |       |      |       |      |       |
| Satd. Flow (perm)          | 1670  | 0     | 1784 | 0     | 0    | 1784  |
| Link Speed (k/h)           | 48    |       | 48   |       |      | 48    |
| Link Distance (m)          | 58.8  |       | 76.9 |       |      | 181.8 |
| Travel Time (s)            | 4.4   |       | 5.8  |       |      | 13.6  |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90 | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)            | 4     | 1     | 260  | 0     | 0    | 452   |
| Shared Lane Traffic (%)    |       |       |      |       |      |       |
| Lane Group Flow (vph)      | 5     | 0     | 260  | 0     | 0    | 452   |
| Enter Blocked Intersection | No    | No    | No   | No    | No   | No    |
| Lane Alignment             | Left  | Right | Left | Right | Left | Left  |
| Median Width(m)            | 3.7   |       | 0.0  |       |      | 0.0   |
| Link Offset(m)             | 0.0   |       | 0.0  |       |      | 0.0   |
| Crosswalk Width(m)         | 4.9   |       | 4.9  |       |      | 4.9   |
| Two way Left Turn Lane     |       |       |      |       |      |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)        | 24    | 14    |      | 14    | 24   |       |
| Sign Control               | Stop  |       | Free |       |      | Free  |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 32.6%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

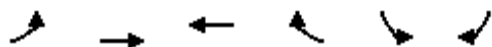
HCM Unsignalized Intersection Capacity Analysis  
26: Sheffield Road & Way #1

Future BG 2030 PM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 4   | 1   | 234   | 0   | 0   | 407   |
| Future Volume (Veh/h)             | 4   | 1   | 234   | 0   | 0   | 407   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 4   | 1   | 260   | 0   | 0   | 452   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 712   | 260   |   |   | 260   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 712   | 260   |   |   | 260   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 99  | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 399   | 779   |   |   | 1304  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 5   | 260   | 452   |   |   |   |
| Volume Left                       | 4   | 0   | 0   |   |   |   |
| Volume Right                      | 1   | 0   | 0   |   |   |   |
| cSH                               | 442   | 1700  | 1304  |   |   |   |
| Volume to Capacity                | 0.01  | 0.15  | 0.00  |   |   |   |
| Queue Length 95th (m)             | 0.3   | 0.0   | 0.0   |   |   |   |
| Control Delay (s)                 | 13.2  | 0.0   | 0.0   |   |   |   |
| Lane LOS                          | B   |   |   |   |   |   |
| Approach Delay (s)                | 13.2  | 0.0   | 0.0   |   |   |   |
| Approach LOS                      | B   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.1   |   |   |   |
| Intersection Capacity Utilization |   |   | 32.6%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future Total 2025 AM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 207   | 735   | 1433  | 652   | 94    | 171   |
| Future Volume (vph)        | 207   | 735   | 1433  | 652   | 94    | 171   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 100.0 |       |       | 0.0   | 0.0   | 70.0  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1647  | 3007  | 3232  | 1517  | 3135  | 1406  |
| Flt Permitted              | 0.101 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 175   | 3007  | 3232  | 1517  | 3135  | 1406  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 601   |       | 176   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 248.5 | 361.1 |       | 367.8 |       |
| Travel Time (s)            |       | 11.2  | 16.2  |       | 27.6  |       |
| Peak Hour Factor           | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Heavy Vehicles (%)         | 5%    | 15%   | 7%    | 2%    | 7%    | 10%   |
| Adj. Flow (vph)            | 213   | 758   | 1477  | 672   | 97    | 176   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 213   | 758   | 1477  | 672   | 97    | 176   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 24.0  | 122.0 | 98.0  | 98.0  | 28.0  | 28.0  |
| Total Split (%)            | 16.0% | 81.3% | 65.3% | 65.3% | 18.7% | 18.7% |
| Maximum Green (s)          | 21.0  | 117.0 | 93.0  | 93.0  | 23.0  | 23.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 119.0 | 117.0 | 93.0  | 93.0  | 23.0  | 23.0  |
| Actuated g/C Ratio         | 0.79  | 0.78  | 0.62  | 0.62  | 0.15  | 0.15  |



| Lane Group             | EBL   | EBT   | WBT   | WBR   | SBL   | SBR  |
|------------------------|-------|-------|-------|-------|-------|------|
| v/c Ratio              | 0.62  | 0.32  | 0.74  | 0.58  | 0.20  | 0.48 |
| Control Delay          | 25.3  | 5.3   | 11.5  | 2.2   | 56.7  | 12.1 |
| Queue Delay            | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| Total Delay            | 25.3  | 5.3   | 11.5  | 2.2   | 56.7  | 12.1 |
| LOS                    | C     | A     | B     | A     | E     | B    |
| Approach Delay         |       | 9.7   | 8.6   |       | 28.0  |      |
| Approach LOS           |       | A     | A     |       | C     |      |
| Queue Length 50th (m)  | 22.0  | 30.4  | 51.6  | 12.4  | 13.1  | 0.0  |
| Queue Length 95th (m)  | 50.3  | 37.4  | m66.9 | m20.7 | 21.9  | 22.0 |
| Internal Link Dist (m) |       | 224.5 | 337.1 |       | 343.8 |      |
| Turn Bay Length (m)    | 100.0 |       |       |       |       | 70.0 |
| Base Capacity (vph)    | 344   | 2345  | 2003  | 1168  | 480   | 364  |
| Starvation Cap Reductn | 0     | 0     | 0     | 0     | 0     | 0    |
| Spillback Cap Reductn  | 0     | 0     | 0     | 0     | 0     | 0    |
| Storage Cap Reductn    | 0     | 0     | 0     | 0     | 0     | 0    |
| Reduced v/c Ratio      | 0.62  | 0.32  | 0.74  | 0.58  | 0.20  | 0.48 |

Intersection Summary

Area Type: Other  
 Cycle Length: 150  
 Actuated Cycle Length: 150  
 Offset: 50 (33%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.74  
 Intersection Signal Delay: 10.4  
 Intersection LOS: B  
 Intersection Capacity Utilization 69.8%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Walkley Road & Lancaster Road





HCM Signalized Intersection Capacity Analysis  
3: Walkley Road & Lancaster Road

Future Total 2025 AM - Adjacent Peak  
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| Movement               | EBL   | EBT   | WBT   | WBR  | SBL   | SBR  |
|------------------------|-------|-------|-------|------|-------|------|
| Lane Configurations    |       |       |       |      |       |      |
| Traffic Volume (vph)   | 207   | 735   | 1433  | 652  | 94    | 171  |
| Future Volume (vph)    | 207   | 735   | 1433  | 652  | 94    | 171  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800  | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95  | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00  | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00  | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1647  | 3007  | 3232  | 1517 | 3135  | 1406 |
| Flt Permitted          | 0.10  | 1.00  | 1.00  | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 175   | 3007  | 3232  | 1517 | 3135  | 1406 |
| Peak-hour factor, PHF  | 0.97  | 0.97  | 0.97  | 0.97 | 0.97  | 0.97 |
| Adj. Flow (vph)        | 213   | 758   | 1477  | 672  | 97    | 176  |
| RTOR Reduction (vph)   | 0     | 0     | 0     | 228  | 0     | 149  |
| Lane Group Flow (vph)  | 213   | 758   | 1477  | 444  | 97    | 27   |
| Heavy Vehicles (%)     | 5%    | 15%   | 7%    | 2%   | 7%    | 10%  |
| Turn Type              | pm+pt | NA    | NA    | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8     |      | 6     |      |
| Permitted Phases       | 4     |       |       | 8    |       | 6    |
| Actuated Green, G (s)  | 117.0 | 117.0 | 93.0  | 93.0 | 23.0  | 23.0 |
| Effective Green, g (s) | 117.0 | 117.0 | 93.0  | 93.0 | 23.0  | 23.0 |
| Actuated g/C Ratio     | 0.78  | 0.78  | 0.62  | 0.62 | 0.15  | 0.15 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 342   | 2345  | 2003  | 940  | 480   | 215  |
| v/s Ratio Prot         | c0.09 | 0.25  | c0.46 |      | c0.03 |      |
| v/s Ratio Perm         | 0.40  |       |       | 0.29 |       | 0.02 |
| v/c Ratio              | 0.62  | 0.32  | 0.74  | 0.47 | 0.20  | 0.13 |
| Uniform Delay, d1      | 24.9  | 4.9   | 20.0  | 15.3 | 55.5  | 54.8 |
| Progression Factor     | 1.00  | 1.00  | 0.51  | 0.78 | 1.00  | 1.00 |
| Incremental Delay, d2  | 8.3   | 0.4   | 1.0   | 0.7  | 0.9   | 1.2  |
| Delay (s)              | 33.2  | 5.2   | 11.3  | 12.6 | 56.4  | 56.0 |
| Level of Service       | C     | A     | B     | B    | E     | E    |
| Approach Delay (s)     |       | 11.4  | 11.7  |      | 56.2  |      |
| Approach LOS           |       | B     | B     |      | E     |      |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 15.2  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.63  |                           |      |
| Actuated Cycle Length (s)         | 150.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 69.8% | ICU Level of Service      | C    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
6: Walkley Road & Sheffield Road

Future Total 2025 AM - Adjacent Peak  
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| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 277   | 459   | 1831  | 242   | 42    | 236   |
| Future Volume (vph)        | 277   | 459   | 1831  | 242   | 42    | 236   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 100.0 |       |       | 30.0  | 0.0   | 70.0  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1491  | 3060  | 3357  | 1459  | 2396  | 1190  |
| Flt Permitted              | 0.044 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 69    | 3060  | 3357  | 1459  | 2396  | 1190  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 71    |       | 241   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 361.1 | 363.2 |       | 830.1 |       |
| Travel Time (s)            |       | 16.2  | 16.3  |       | 62.3  |       |
| Peak Hour Factor           | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Heavy Vehicles (%)         | 16%   | 13%   | 3%    | 6%    | 40%   | 30%   |
| Adj. Flow (vph)            | 283   | 468   | 1868  | 247   | 43    | 241   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 283   | 468   | 1868  | 247   | 43    | 241   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 32.0  | 124.0 | 92.0  | 92.0  | 26.0  | 26.0  |
| Total Split (%)            | 21.3% | 82.7% | 61.3% | 61.3% | 17.3% | 17.3% |
| Maximum Green (s)          | 29.0  | 119.0 | 87.0  | 87.0  | 21.0  | 21.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 121.0 | 119.0 | 87.0  | 87.0  | 21.0  | 21.0  |
| Actuated g/C Ratio         | 0.81  | 0.79  | 0.58  | 0.58  | 0.14  | 0.14  |

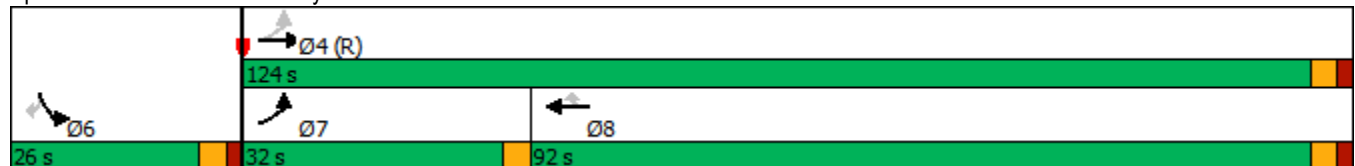


| Lane Group             | EBL    | EBT   | WBT    | WBR  | SBL   | SBR  |
|------------------------|--------|-------|--------|------|-------|------|
| v/c Ratio              | 0.86   | 0.19  | 0.96   | 0.28 | 0.13  | 0.65 |
| Control Delay          | 61.9   | 3.6   | 42.9   | 11.9 | 57.7  | 15.3 |
| Queue Delay            | 0.0    | 0.0   | 0.0    | 0.0  | 0.0   | 0.0  |
| Total Delay            | 61.9   | 3.6   | 42.9   | 11.9 | 57.7  | 15.3 |
| LOS                    | E      | A     | D      | B    | E     | B    |
| Approach Delay         |        | 25.6  | 39.3   |      | 21.7  |      |
| Approach LOS           |        | C     | D      |      | C     |      |
| Queue Length 50th (m)  | 52.1   | 14.7  | 267.0  | 24.4 | 5.8   | 0.0  |
| Queue Length 95th (m)  | #111.9 | 18.2  | #331.2 | 40.5 | 11.9  | 27.3 |
| Internal Link Dist (m) |        | 337.1 | 339.2  |      | 806.1 |      |
| Turn Bay Length (m)    | 100.0  |       |        | 30.0 |       | 70.0 |
| Base Capacity (vph)    | 330    | 2427  | 1947   | 876  | 335   | 373  |
| Starvation Cap Reductn | 0      | 0     | 0      | 0    | 0     | 0    |
| Spillback Cap Reductn  | 0      | 0     | 0      | 0    | 0     | 0    |
| Storage Cap Reductn    | 0      | 0     | 0      | 0    | 0     | 0    |
| Reduced v/c Ratio      | 0.86   | 0.19  | 0.96   | 0.28 | 0.13  | 0.65 |

Intersection Summary

Area Type: Other  
 Cycle Length: 150  
 Actuated Cycle Length: 150  
 Offset: 50 (33%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 110  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.96  
 Intersection Signal Delay: 34.4  
 Intersection LOS: C  
 Intersection Capacity Utilization 85.5%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Walkley Road & Sheffield Road



HCM Signalized Intersection Capacity Analysis  
6: Walkley Road & Sheffield Road

Future Total 2025 AM - Adjacent Peak  
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| Movement               | EBL   | EBT   | WBT   | WBR  | SBL  | SBR   |
|------------------------|-------|-------|-------|------|------|-------|
| Lane Configurations    |       |       |       |      |      |       |
| Traffic Volume (vph)   | 277   | 459   | 1831  | 242  | 42   | 236   |
| Future Volume (vph)    | 277   | 459   | 1831  | 242  | 42   | 236   |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800  | 1800 | 1800 | 1800  |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0   | 5.0  | 5.0  | 5.0   |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95  | 1.00 | 0.97 | 1.00  |
| Frt                    | 1.00  | 1.00  | 1.00  | 0.85 | 1.00 | 0.85  |
| Flt Protected          | 0.95  | 1.00  | 1.00  | 1.00 | 0.95 | 1.00  |
| Satd. Flow (prot)      | 1491  | 3060  | 3357  | 1459 | 2396 | 1190  |
| Flt Permitted          | 0.04  | 1.00  | 1.00  | 1.00 | 0.95 | 1.00  |
| Satd. Flow (perm)      | 70    | 3060  | 3357  | 1459 | 2396 | 1190  |
| Peak-hour factor, PHF  | 0.98  | 0.98  | 0.98  | 0.98 | 0.98 | 0.98  |
| Adj. Flow (vph)        | 283   | 468   | 1868  | 247  | 43   | 241   |
| RTOR Reduction (vph)   | 0     | 0     | 0     | 30   | 0    | 207   |
| Lane Group Flow (vph)  | 283   | 468   | 1868  | 217  | 43   | 34    |
| Heavy Vehicles (%)     | 16%   | 13%   | 3%    | 6%   | 40%  | 30%   |
| Turn Type              | pm+pt | NA    | NA    | Perm | Prot | Perm  |
| Protected Phases       | 7     | 4     | 8     |      | 6    |       |
| Permitted Phases       | 4     |       |       | 8    |      | 6     |
| Actuated Green, G (s)  | 119.0 | 119.0 | 87.0  | 87.0 | 21.0 | 21.0  |
| Effective Green, g (s) | 119.0 | 119.0 | 87.0  | 87.0 | 21.0 | 21.0  |
| Actuated g/C Ratio     | 0.79  | 0.79  | 0.58  | 0.58 | 0.14 | 0.14  |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0   | 5.0  | 5.0  | 5.0   |
| Lane Grp Cap (vph)     | 330   | 2427  | 1947  | 846  | 335  | 166   |
| v/s Ratio Prot         | c0.17 | 0.15  | c0.56 |      | 0.02 |       |
| v/s Ratio Perm         | 0.52  |       |       | 0.15 |      | c0.03 |
| v/c Ratio              | 0.86  | 0.19  | 0.96  | 0.26 | 0.13 | 0.20  |
| Uniform Delay, d1      | 50.7  | 3.8   | 29.8  | 15.5 | 56.5 | 57.1  |
| Progression Factor     | 0.84  | 0.90  | 1.00  | 1.00 | 1.00 | 1.00  |
| Incremental Delay, d2  | 23.3  | 0.2   | 12.8  | 0.7  | 0.8  | 2.7   |
| Delay (s)              | 65.9  | 3.6   | 42.7  | 16.3 | 57.3 | 59.8  |
| Level of Service       | E     | A     | D     | B    | E    | E     |
| Approach Delay (s)     |       | 27.1  | 39.6  |      | 59.5 |       |
| Approach LOS           |       | C     | D     |      | E    |       |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 38.4  | HCM 2000 Level of Service | D    |
| HCM 2000 Volume to Capacity ratio | 0.82  |                           |      |
| Actuated Cycle Length (s)         | 150.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 85.5% | ICU Level of Service      | E    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
7: Walkley Road & Highway SB terminal

Future Total 2025 AM - Adjacent Peak  
10-24-2022



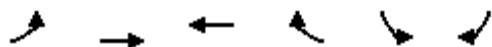
| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑↑    |       | ↘     | ↘     |
| Traffic Volume (vph)       | 0    | 444   | 974   | 0     | 23    | 909   |
| Future Volume (vph)        | 0    | 444   | 974   | 0     | 23    | 909   |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>            |      |       |       |       |       | 0.850 |
| Fl <sub>t</sub> Protected  |      |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Fl <sub>t</sub> Permitted  |      |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Link Speed (k/h)           |      | 80    | 80    |       | 80    |       |
| Link Distance (m)          |      | 131.6 | 322.4 |       | 492.9 |       |
| Travel Time (s)            |      | 5.9   | 14.5  |       | 22.2  |       |
| Peak Hour Factor           | 0.97 | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Adj. Flow (vph)            | 0    | 458   | 1004  | 0     | 24    | 937   |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 458   | 1004  | 0     | 24    | 937   |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 3.7   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 94.5%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service F |

HCM Unsignalized Intersection Capacity Analysis  
7: Walkley Road & Highway SB terminal

Future Total 2025 AM - Adjacent Peak  
10-24-2022



| Movement                          | EBL         | EBT         | WBT         | WBR         | SBL                  | SBR         |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|-------------|
| Lane Configurations               |             | ↑↑          | ↑↑          |             | ↘                    | ↗           |
| Traffic Volume (veh/h)            | 0           | 444         | 974         | 0           | 23                   | 909         |
| Future Volume (Veh/h)             | 0           | 444         | 974         | 0           | 23                   | 909         |
| Sign Control                      |             | Free        | Free        |             | Stop                 |             |
| Grade                             |             | 0%          | 0%          |             | 0%                   |             |
| Peak Hour Factor                  | 0.97        | 0.97        | 0.97        | 0.97        | 0.97                 | 0.97        |
| Hourly flow rate (vph)            | 0           | 458         | 1004        | 0           | 24                   | 937         |
| <b>Pedestrians</b>                |             |             |             |             |                      |             |
| Lane Width (m)                    |             |             |             |             |                      |             |
| Walking Speed (m/s)               |             |             |             |             |                      |             |
| Percent Blockage                  |             |             |             |             |                      |             |
| Right turn flare (veh)            |             |             |             |             |                      |             |
| Median type                       |             | None        | None        |             |                      |             |
| Median storage (veh)              |             |             |             |             |                      |             |
| Upstream signal (m)               |             |             |             |             |                      |             |
| pX, platoon unblocked             |             |             |             |             |                      |             |
| vC, conflicting volume            | 1004        |             |             |             | 1233                 | 502         |
| vC1, stage 1 conf vol             |             |             |             |             |                      |             |
| vC2, stage 2 conf vol             |             |             |             |             |                      |             |
| vCu, unblocked vol                | 1004        |             |             |             | 1233                 | 502         |
| tC, single (s)                    | 4.1         |             |             |             | 6.8                  | 6.9         |
| tC, 2 stage (s)                   |             |             |             |             |                      |             |
| tF (s)                            | 2.2         |             |             |             | 3.5                  | 3.3         |
| p0 queue free %                   | 100         |             |             |             | 86                   | 0           |
| cM capacity (veh/h)               | 686         |             |             |             | 169                  | 515         |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b> | <b>SB 1</b>          | <b>SB 2</b> |
| Volume Total                      | 229         | 229         | 502         | 502         | 24                   | 937         |
| Volume Left                       | 0           | 0           | 0           | 0           | 24                   | 0           |
| Volume Right                      | 0           | 0           | 0           | 0           | 0                    | 937         |
| cSH                               | 1700        | 1700        | 1700        | 1700        | 169                  | 515         |
| Volume to Capacity                | 0.13        | 0.13        | 0.30        | 0.30        | 0.14                 | 1.82        |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0         | 3.7                  | 446.6       |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0         | 29.8                 | 396.2       |
| Lane LOS                          |             |             |             |             | D                    | F           |
| Approach Delay (s)                | 0.0         |             | 0.0         |             | 387.0                |             |
| Approach LOS                      |             |             |             |             | F                    |             |
| <b>Intersection Summary</b>       |             |             |             |             |                      |             |
| Average Delay                     |             |             | 153.5       |             |                      |             |
| Intersection Capacity Utilization |             |             | 94.5%       |             | ICU Level of Service | F           |
| Analysis Period (min)             |             |             | 15          |             |                      |             |

Lanes, Volumes, Timings  
 10: Highway NB terminal & Walkley Road

Future Total 2025 AM - Adjacent Peak  
 10-24-2022



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NBL   | NBR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    |       |      | ↑↑    | ↘     |       |
| Traffic Volume (vph)       | 53    | 416   | 0    | 606   | 400   | 7     |
| Future Volume (vph)        | 53    | 416   | 0    | 606   | 400   | 7     |
| Ideal Flow (vphp)          | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00 | 0.95  | 1.00  | 1.00  |
| Frt                        | 0.867 |       |      | 0.998 |       |       |
| Flt Protected              |       |       |      | 0.953 |       |       |
| Satd. Flow (prot)          | 2939  | 0     | 0    | 3390  | 1697  | 0     |
| Flt Permitted              |       |       |      | 0.953 |       |       |
| Satd. Flow (perm)          | 2939  | 0     | 0    | 3390  | 1697  | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 322.4 |       |      | 108.3 | 295.7 |       |
| Travel Time (s)            | 14.5  |       |      | 8.1   | 22.2  |       |
| Peak Hour Factor           | 0.93  | 0.93  | 0.93 | 0.93  | 0.93  | 0.93  |
| Adj. Flow (vph)            | 57    | 447   | 0    | 652   | 430   | 8     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 504   | 0     | 0    | 652   | 438   | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 3.7   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 14    |       | 24   | 24    |       | 14    |
| Sign Control               | Free  |       |      | Free  | Stop  |       |

Intersection Summary

|                                   |                              |
|-----------------------------------|------------------------------|
| Area Type:                        | Other                        |
| Control Type:                     | Unsignalized                 |
| Intersection Capacity Utilization | 48.2% ICU Level of Service A |
| Analysis Period (min)             | 15                           |

HCM Unsignalized Intersection Capacity Analysis  
 10: Highway NB terminal & Walkley Road

Future Total 2025 AM - Adjacent Peak  
 10-24-2022

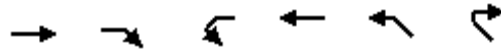


| Movement                          | EBT         | EBR         | WBL         | WBT                  | NBL         | NBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations               | ↑↑          |             |             | ↑↑                   | ↘           |      |
| Traffic Volume (veh/h)            | 53          | 416         | 0           | 606                  | 400         | 7    |
| Future Volume (Veh/h)             | 53          | 416         | 0           | 606                  | 400         | 7    |
| 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)            | 57          | 447         | 0           | 652                  | 430         | 8    |
| <b>Pedestrians</b>                |             |             |             |                      |             |      |
| 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            |             |             | 504         |                      | 606         | 252  |
| vC1, stage 1 conf vol             |             |             |             |                      |             |      |
| vC2, stage 2 conf vol             |             |             |             |                      |             |      |
| vCu, unblocked vol                |             |             | 504         |                      | 606         | 252  |
| tC, single (s)                    |             |             | 4.1         |                      | 6.8         | 6.9  |
| tC, 2 stage (s)                   |             |             |             |                      |             |      |
| tF (s)                            |             |             | 2.2         |                      | 3.5         | 3.3  |
| p0 queue free %                   |             |             | 100         |                      | 0           | 99   |
| cM capacity (veh/h)               |             |             | 1057        |                      | 428         | 748  |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>NB 1</b> |      |
| Volume Total                      | 38          | 466         | 326         | 326                  | 438         |      |
| Volume Left                       | 0           | 0           | 0           | 0                    | 430         |      |
| Volume Right                      | 0           | 447         | 0           | 0                    | 8           |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 432         |      |
| Volume to Capacity                | 0.02        | 0.27        | 0.19        | 0.19                 | 1.01        |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0                  | 100.5       |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 78.5        |      |
| Lane LOS                          |             |             |             |                      |             | F    |
| Approach Delay (s)                | 0.0         |             | 0.0         |                      | 78.5        |      |
| Approach LOS                      |             |             |             |                      |             | F    |
| <b>Intersection Summary</b>       |             |             |             |                      |             |      |
| Average Delay                     |             |             | 21.6        |                      |             |      |
| Intersection Capacity Utilization |             |             | 48.2%       | ICU Level of Service | A           |      |
| Analysis Period (min)             |             |             | 15          |                      |             |      |



Lanes, Volumes, Timings  
11: SB off ramp & Walkley Road

Future Total 2025 AM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NWL   | NWR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    | ↑     |      | ↑↑↑   |       |       |
| Traffic Volume (vph)       | 444   | 138   | 0    | 1883  | 0     | 0     |
| Future Volume (vph)        | 444   | 138   | 0    | 1883  | 0     | 0     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Storage Length (m)         |       | 60.0  | 0.0  |       | 0.0   | 0.0   |
| Storage Lanes              |       | 1     | 0    |       | 0     | 0     |
| Taper Length (m)           |       |       | 7.6  |       | 7.6   |       |
| Lane Util. Factor          | 0.95  | 1.00  | 1.00 | 0.91  | 1.00  | 1.00  |
| Frt                        |       | 0.850 |      |       |       |       |
| Flt Protected              |       |       |      |       |       |       |
| Satd. Flow (prot)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Flt Permitted              |       |       |      |       |       |       |
| Satd. Flow (perm)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 363.2 |       |      | 131.6 | 210.3 |       |
| Travel Time (s)            | 16.3  |       |      | 9.9   | 15.8  |       |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90 | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)            | 493   | 153   | 0    | 2092  | 0     | 0     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 493   | 153   | 0    | 2092  | 0     | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 0.0   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        |       | 14    | 24   |       | 24    | 14    |
| Sign Control               | Free  |       |      | Free  | Free  |       |

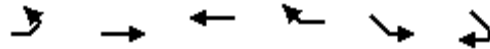
Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 41.7%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings  
13: Walkley Road & NB off ramp

Future Total 2025 AM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SEL   | SER   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑     | ↗     |       |       |
| Traffic Volume (vph)       | 0    | 60    | 606   | 215   | 0     | 0     |
| Future Volume (vph)        | 0    | 60    | 606   | 215   | 0     | 0     |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 0.0  |       |       | 70.0  | 0.0   | 0.0   |
| Storage Lanes              | 0    |       |       | 1     | 0     | 0     |
| Taper Length (m)           | 7.6  |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00 | 0.95  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      |       |       | 0.850 |       |       |
| Flt Protected              |      |       |       |       |       |       |
| Satd. Flow (prot)          | 0    | 3390  | 1784  | 1517  | 0     | 0     |
| Flt Permitted              |      |       |       |       |       |       |
| Satd. Flow (perm)          | 0    | 3390  | 1784  | 1517  | 0     | 0     |
| Link Speed (k/h)           |      | 80    | 80    |       | 48    |       |
| Link Distance (m)          |      | 108.3 | 195.3 |       | 199.6 |       |
| Travel Time (s)            |      | 4.9   | 8.8   |       | 15.0  |       |
| Peak Hour Factor           | 0.93 | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  |
| Adj. Flow (vph)            | 0    | 65    | 652   | 231   | 0     | 0     |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 65    | 652   | 231   | 0     | 0     |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 0.0   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Free  |       |

















Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 37.0%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings  
15: Sheffield Road & Humber Place

Future Total 2025 AM - Adjacent Peak  
10-24-2022

















|                            |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group                 | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations        |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)       | 21  | 0   | 72  | 0   | 0   | 0   | 153  | 376   | 0   | 0   | 204   | 16  |
| Future Volume (vph)        | 21  | 0   | 72  | 0   | 0   | 0   | 153  | 376   | 0   | 0   | 204   | 16  |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  | 1800   | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>            |   | 0.895   |   |   |   |   |  |   |   |   |   | 0.990   |
| Fl <sub>t</sub> Protected  |   | 0.989   |   |   |   |   |  | 0.986   |   |   |   |   |
| Satd. Flow (prot)          | 0   | 1290  | 0   | 0   | 1784  | 0   | 0  | 1582  | 0   | 0   | 1389  | 0   |
| Fl <sub>t</sub> Permitted  |   | 0.989   |   |   |   |   |  | 0.986   |   |   |   |   |
| Satd. Flow (perm)          | 0   | 1290  | 0   | 0   | 1784  | 0   | 0  | 1582  | 0   | 0   | 1389  | 0   |
| Link Speed (k/h)           |   | 48  |   |   | 48  |   |  | 48  |   |   | 48  |   |
| Link Distance (m)          |   | 152.4   |   |   | 148.3   |   |  | 830.1   |   |   | 120.3   |   |
| Travel Time (s)            |   | 11.4  |   |   | 11.1  |   |  | 62.3  |   |   | 9.0   |   |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)         | 35%   | 2%  | 22%   | 50%   | 2%  | 33%   | 12%  | 14%   | 0%  | 33%   | 30%   | 26%   |
| Adj. Flow (vph)            | 23  | 0   | 80  | 0   | 0   | 0   | 170  | 418   | 0   | 0   | 227   | 18  |
| Shared Lane Traffic (%)    |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)      | 0   | 103   | 0   | 0   | 0   | 0   | 0  | 588   | 0   | 0   | 245   | 0   |
| Enter Blocked Intersection | No  | No  | No  | No  | No  | No  | No   | No  | No  | No  | No  | No  |
| Lane Alignment             | Left  | Left  | Right   | Left  | Left  | Right   | Left   | Left  | Right   | Left  | Left  | Right   |
| Median Width(m)            |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Link Offset(m)             |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Crosswalk Width(m)         |   | 4.9   |   |   | 4.9   |   |  | 4.9   |   |   | 4.9   |   |
| Two way Left Turn Lane     |   |   |   |   |   |   |  |   |   |   |   |   |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06   | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24  |   | 14  | 24  |   | 14  | 24   |   | 14  | 24  |   | 14  |
| Sign Control               |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |

Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 58.1%        |
| ICU Level of Service              | B            |
| Analysis Period (min)             | 15           |










HCM Unsignalized Intersection Capacity Analysis  
 15: Sheffield Road & Humber Place

Future Total 2025 AM - Adjacent Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 21  | 0   | 72  | 0   | 0   | 0   | 153  | 376   | 0   | 0   | 204   | 16  |
| Future Volume (Veh/h)             | 21  | 0   | 72  | 0   | 0   | 0   | 153  | 376   | 0   | 0   | 204   | 16  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 23  | 0   | 80  | 0   | 0   | 0   | 170  | 418   | 0   | 0   | 227   | 18  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (m)                    |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (m/s)               |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Median storage veh                |   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (m)               |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 994   | 994   | 236   | 1074  | 1003  | 418   | 245  |   |   | 418   |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 994   | 994   | 236   | 1074  | 1003  | 418   | 245  |   |   | 418   |   |   |
| tC, single (s)                    | 7.4   | 6.5   | 6.4   | 7.6   | 6.5   | 6.5   | 4.2  |   |   | 4.4   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 3.8   | 4.0   | 3.5   | 4.0   | 4.0   | 3.6   | 2.3  |   |   | 2.5   |   |   |
| p0 queue free %                   | 87  | 100   | 89  | 100   | 100   | 100   | 87   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 175   | 212   | 756   | 129   | 210   | 574   | 1265   |   |   | 993   |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | SB 1  |   |   |  |   |   |   |   |   |
| Volume Total                      | 103   | 0   | 588   | 245   |   |   |  |   |   |   |   |   |
| Volume Left                       | 23  | 0   | 170   | 0   |   |   |  |   |   |   |   |   |
| Volume Right                      | 80  | 0   | 0   | 18  |   |   |  |   |   |   |   |   |
| cSH                               | 434   | 1700  | 1265  | 993   |   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.24  | 0.05  | 0.13  | 0.00  |   |   |  |   |   |   |   |   |
| Queue Length 95th (m)             | 6.9   | 0.0   | 3.5   | 0.0   |   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 15.9  | 0.0   | 3.4   | 0.0   |   |   |  |   |   |   |   |   |
| Lane LOS                          | C   | A   | A   |   |   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 15.9  | 0.0   | 3.4   | 0.0   |   |   |  |   |   |   |   |   |
| Approach LOS                      | C   | A   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 3.9   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 58.1%   |   | ICU Level of Service  |   |  |   |   | B   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

Lanes, Volumes, Timings  
18: Sheffield Road & Way #5

Future Total 2025 AM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 393   | 0   | 0   | 229   |
| Future Volume (vph)               | 0   | 0   | 393   | 0   | 0   | 229   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| <b>Flt</b>                        |   |   |   |   |   |   |
| Flt Protected                     |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1784  | 0   | 0   | 910   |
| Flt Permitted                     |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1784  | 0   | 0   | 910   |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 56.2  |   | 120.3   |   |   | 89.9  |
| Travel Time (s)                   | 4.2   |   | 9.0   |   |   | 6.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 2%  | 2%  | 2%  | 2%  | 2%  | 100%  |
| Adj. Flow (vph)                   | 0   | 0   | 437   | 0   | 0   | 254   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 437   | 0   | 0   | 254   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| <b>Two way Left Turn Lane</b>     |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 25.2%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 18: Sheffield Road & Way #5

Future Total 2025 AM - Adjacent Peak  
 10-24-2022



| Movement                          | WBL         | WBR         | NBT         | NBR                  | SBL  | SBT  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             |             |             |                      |      |      |
| Traffic Volume (veh/h)            | 0           | 0           | 393         | 0                    | 0    | 229  |
| Future Volume (Veh/h)             | 0           | 0           | 393         | 0                    | 0    | 229  |
| Sign Control                      | Stop        |             | Free        |                      | Free |      |
| Grade                             | 0%          |             | 0%          |                      | 0%   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 0           | 0           | 437         | 0                    | 0    | 254  |
| <b>Pedestrians</b>                |             |             |             |                      |      |      |
| 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            | 691         | 437         |             |                      | 437  |      |
| vC1, stage 1 conf vol             |             |             |             |                      |      |      |
| vC2, stage 2 conf vol             |             |             |             |                      |      |      |
| vCu, unblocked vol                | 691         | 437         |             |                      | 437  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |                      | 4.1  |      |
| tC, 2 stage (s)                   |             |             |             |                      |      |      |
| tF (s)                            | 3.5         | 3.3         |             |                      | 2.2  |      |
| p0 queue free %                   | 100         | 100         |             |                      | 100  |      |
| cM capacity (veh/h)               | 410         | 620         |             |                      | 1123 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |                      |      |      |
| Volume Total                      | 0           | 437         | 254         |                      |      |      |
| Volume Left                       | 0           | 0           | 0           |                      |      |      |
| Volume Right                      | 0           | 0           | 0           |                      |      |      |
| cSH                               | 1700        | 1700        | 1123        |                      |      |      |
| Volume to Capacity                | 0.00        | 0.26        | 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           |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 0.0         |                      |      |      |
| Intersection Capacity Utilization |             |             | 25.2%       | ICU Level of Service | A    |      |
| Analysis Period (min)             |             |             | 15          |                      |      |      |














| Lane Group                     | WBL   | WBR   | NBT  | NBR   | SBL  | SBT   |
|--------------------------------|-------|-------|------|-------|------|-------|
| Lane Configurations            |       |       |      |       |      |       |
| Traffic Volume (vph)           | 1     | 0     | 393  | 0     | 0    | 229   |
| Future Volume (vph)            | 1     | 0     | 393  | 0     | 0    | 229   |
| Ideal Flow (vphpl)             | 1800  | 1800  | 1800 | 1800  | 1800 | 1800  |
| Lane Util. Factor              | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| <b>Fr</b>                      |       |       |      |       |      |       |
| Flt Protected                  | 0.950 |       |      |       |      |       |
| Satd. Flow (prot)              | 1695  | 0     | 1784 | 0     | 0    | 1784  |
| Flt Permitted                  | 0.950 |       |      |       |      |       |
| Satd. Flow (perm)              | 1695  | 0     | 1784 | 0     | 0    | 1784  |
| Link Speed (k/h)               | 48    |       | 48   |       |      | 48    |
| Link Distance (m)              | 60.6  |       | 89.9 |       |      | 135.3 |
| Travel Time (s)                | 4.5   |       | 6.7  |       |      | 10.1  |
| Peak Hour Factor               | 0.90  | 0.90  | 0.90 | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)                | 1     | 0     | 437  | 0     | 0    | 254   |
| <b>Shared Lane Traffic (%)</b> |       |       |      |       |      |       |
| Lane Group Flow (vph)          | 1     | 0     | 437  | 0     | 0    | 254   |
| Enter Blocked Intersection     | No    | No    | No   | No    | No   | No    |
| Lane Alignment                 | Left  | Right | Left | Right | Left | Left  |
| Median Width(m)                | 3.7   |       | 0.0  |       |      | 0.0   |
| Link Offset(m)                 | 0.0   |       | 0.0  |       |      | 0.0   |
| Crosswalk Width(m)             | 4.9   |       | 4.9  |       |      | 4.9   |
| <b>Two way Left Turn Lane</b>  |       |       |      |       |      |       |
| Headway Factor                 | 1.06  | 1.06  | 1.06 | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)            | 24    | 14    |      | 14    | 24   |       |
| Sign Control                   | Stop  |       | Free |       |      | Free  |

**Intersection Summary**

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 31.8%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |










HCM Unsignalized Intersection Capacity Analysis  
 20: Sheffield Road & Way #4

Future Total 2025 AM - Adjacent Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 1   | 0   | 393   | 0   | 0   | 229   |
| Future Volume (Veh/h)             | 1   | 0   | 393   | 0   | 0   | 229   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1   | 0   | 437   | 0   | 0   | 254   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 691   | 437   |   |   | 437   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 691   | 437   |   |   | 437   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 410   | 620   |   |   | 1123  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 1   | 437   | 254   |   |   |   |
| Volume Left                       | 1   | 0   | 0   |   |   |   |
| Volume Right                      | 0   | 0   | 0   |   |   |   |
| cSH                               | 410   | 1700  | 1123  |   |   |   |
| Volume to Capacity                | 0.00  | 0.26  | 0.00  |   |   |   |
| Queue Length 95th (m)             | 0.1   | 0.0   | 0.0   |   |   |   |
| Control Delay (s)                 | 13.8  | 0.0   | 0.0   |   |   |   |
| Lane LOS                          | B   |   |   |   |   |   |
| Approach Delay (s)                | 13.8  | 0.0   | 0.0   |   |   |   |
| Approach LOS                      | B   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 31.8%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |










Lanes, Volumes, Timings  
24: Sheffield Road & Way #2

Future Total 2025 AM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 393   | 0   | 0   | 229   |
| Future Volume (vph)               | 0   | 0   | 393   | 0   | 0   | 229   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| <b>Fr</b>                         |   |   |   |   |   |   |
| Flt Protected                     |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| Flt Permitted                     |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 65.0  |   | 135.3   |   |   | 74.6  |
| Travel Time (s)                   | 4.9   |   | 10.1  |   |   | 5.6   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 0   | 437   | 0   | 0   | 254   |
| <b>Shared Lane Traffic (%)</b>    |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 437   | 0   | 0   | 254   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| <b>Two way Left Turn Lane</b>     |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 25.2%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
24: Sheffield Road & Way #2

Future Total 2025 AM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 393   | 0   | 0   | 229   |
| Future Volume (Veh/h)             | 0   | 0   | 393   | 0   | 0   | 229   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 437   | 0   | 0   | 254   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 691   | 437   |   |   | 437   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 691   | 437   |   |   | 437   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 410   | 620   |   |   | 1123  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 437   | 254   |   |   |   |
| Volume Left                       | 0   | 0   | 0   |   |   |   |
| Volume Right                      | 0   | 0   | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1123  |   |   |   |
| Volume to Capacity                | 0.00  | 0.26  | 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   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 25.2%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |










Lanes, Volumes, Timings  
26: Sheffield Road & Way #1

Future Total 2025 AM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 402   | 0   | 0   | 227   |
| Future Volume (vph)               | 0   | 0   | 402   | 0   | 0   | 227   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| <b>Fr</b>                         |   |   |   |   |   |   |
| Flt Protected                     |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| Flt Permitted                     |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 58.8  |   | 74.6  |   |   | 272.6   |
| Travel Time (s)                   | 4.4   |   | 5.6   |   |   | 20.4  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 0   | 447   | 0   | 0   | 252   |
| <b>Shared Lane Traffic (%)</b>    |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 447   | 0   | 0   | 252   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| <b>Two way Left Turn Lane</b>     |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 25.7%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
26: Sheffield Road & Way #1

Future Total 2025 AM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 402   | 0   | 0   | 227   |
| Future Volume (Veh/h)             | 0   | 0   | 402   | 0   | 0   | 227   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 447   | 0   | 0   | 252   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| Lane Width (m)                    |   |   |   |   |   |   |
| Walking Speed (m/s)               |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       | None  |   |   | None  |   |   |
| Median storage veh                |   |   |   |   |   |   |
| Upstream signal (m)               |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |
| vC, conflicting volume            | 699   | 447   |   |   | 447   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 699   | 447   |   |   | 447   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 406   | 612   |   |   | 1113  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 447   | 252   |   |   |   |
| Volume Left                       | 0   | 0   | 0   |   |   |   |
| Volume Right                      | 0   | 0   | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1113  |   |   |   |
| Volume to Capacity                | 0.00  | 0.26  | 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   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 25.7%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future Total 2025 PM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 127   | 1788  | 966   | 166   | 490   | 208   |
| Future Volume (vph)        | 127   | 1788  | 966   | 166   | 490   | 208   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 30.5  |       |       | 0.0   | 0.0   | 30.5  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1695  | 3293  | 3172  | 1419  | 3288  | 1502  |
| Flt Permitted              | 0.191 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 341   | 3293  | 3172  | 1419  | 3288  | 1502  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 182   |       | 139   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 306.2 | 364.1 |       | 701.3 |       |
| Travel Time (s)            |       | 13.8  | 16.4  |       | 52.6  |       |
| Peak Hour Factor           | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  |
| Heavy Vehicles (%)         | 2%    | 5%    | 9%    | 9%    | 2%    | 3%    |
| Adj. Flow (vph)            | 140   | 1965  | 1062  | 182   | 538   | 229   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 140   | 1965  | 1062  | 182   | 538   | 229   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 22.0  | 102.0 | 80.0  | 80.0  | 28.0  | 28.0  |
| Total Split (%)            | 16.9% | 78.5% | 61.5% | 61.5% | 21.5% | 21.5% |
| Maximum Green (s)          | 19.0  | 97.0  | 75.0  | 75.0  | 23.0  | 23.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 99.0  | 97.0  | 75.0  | 75.0  | 23.0  | 23.0  |
| Actuated g/C Ratio         | 0.76  | 0.75  | 0.58  | 0.58  | 0.18  | 0.18  |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future Total 2025 PM - Adjacent Peak  
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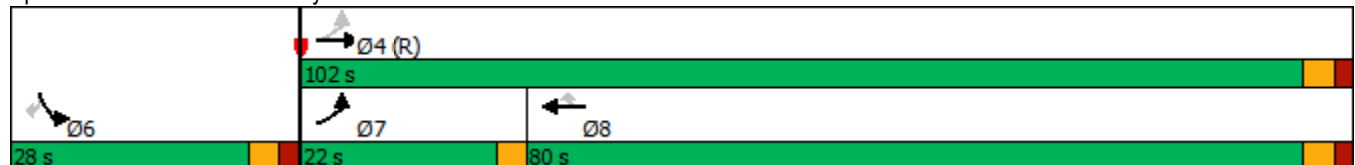


| Lane Group             | EBL  | EBT   | WBT   | WBR   | SBL    | SBR  |
|------------------------|------|-------|-------|-------|--------|------|
| v/c Ratio              | 0.31 | 0.80  | 0.58  | 0.20  | 0.93   | 0.60 |
| Control Delay          | 5.8  | 13.6  | 18.2  | 4.0   | 75.7   | 26.7 |
| Queue Delay            | 0.0  | 0.0   | 0.0   | 0.0   | 0.0    | 0.0  |
| Total Delay            | 5.8  | 13.6  | 18.2  | 4.0   | 75.7   | 26.7 |
| LOS                    | A    | B     | B     | A     | E      | C    |
| Approach Delay         |      | 13.1  | 16.1  |       | 61.1   |      |
| Approach LOS           |      | B     | B     |       | E      |      |
| Queue Length 50th (m)  | 8.1  | 146.6 | 105.0 | 10.0  | 70.7   | 20.6 |
| Queue Length 95th (m)  | 13.2 | 177.4 | 121.7 | m19.9 | #102.6 | 48.1 |
| Internal Link Dist (m) |      | 282.2 | 340.1 |       | 677.3  |      |
| Turn Bay Length (m)    | 30.5 |       |       |       |        | 30.5 |
| Base Capacity (vph)    | 457  | 2457  | 1830  | 895   | 581    | 380  |
| Starvation Cap Reductn | 0    | 0     | 0     | 0     | 0      | 0    |
| Spillback Cap Reductn  | 0    | 0     | 0     | 0     | 0      | 0    |
| Storage Cap Reductn    | 0    | 0     | 0     | 0     | 0      | 0    |
| Reduced v/c Ratio      | 0.31 | 0.80  | 0.58  | 0.20  | 0.93   | 0.60 |

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 50 (38%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.93  
 Intersection Signal Delay: 23.0  
 Intersection LOS: C  
 Intersection Capacity Utilization 75.3%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

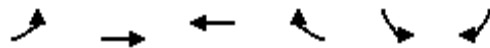
Splits and Phases: 3: Walkley Road & Lancaster Road





HCM Signalized Intersection Capacity Analysis  
3: Walkley Road & Lancaster Road

Future Total 2025 PM - Adjacent Peak  
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| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 127   | 1788  | 966  | 166  | 490   | 208  |
| Future Volume (vph)    | 127   | 1788  | 966  | 166  | 490   | 208  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1695  | 3293  | 3172 | 1419 | 3288  | 1502 |
| Flt Permitted          | 0.19  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 340   | 3293  | 3172 | 1419 | 3288  | 1502 |
| Peak-hour factor, PHF  | 0.91  | 0.91  | 0.91 | 0.91 | 0.91  | 0.91 |
| Adj. Flow (vph)        | 140   | 1965  | 1062 | 182  | 538   | 229  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 77   | 0     | 114  |
| Lane Group Flow (vph)  | 140   | 1965  | 1062 | 105  | 538   | 115  |
| Heavy Vehicles (%)     | 2%    | 5%    | 9%   | 9%   | 2%    | 3%   |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 97.0  | 97.0  | 75.0 | 75.0 | 23.0  | 23.0 |
| Effective Green, g (s) | 97.0  | 97.0  | 75.0 | 75.0 | 23.0  | 23.0 |
| Actuated g/C Ratio     | 0.75  | 0.75  | 0.58 | 0.58 | 0.18  | 0.18 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 451   | 2457  | 1830 | 818  | 581   | 265  |
| v/s Ratio Prot         | 0.05  | c0.60 | 0.33 |      | c0.16 |      |
| v/s Ratio Perm         | 0.19  |       |      | 0.07 |       | 0.08 |
| v/c Ratio              | 0.31  | 0.80  | 0.58 | 0.13 | 0.93  | 0.43 |
| Uniform Delay, d1      | 7.4   | 10.4  | 17.5 | 12.6 | 52.7  | 47.7 |
| Progression Factor     | 1.00  | 1.00  | 0.96 | 2.03 | 1.00  | 1.00 |
| Incremental Delay, d2  | 1.8   | 2.8   | 1.2  | 0.3  | 22.9  | 5.1  |
| Delay (s)              | 9.2   | 13.2  | 17.9 | 25.8 | 75.6  | 52.8 |
| Level of Service       | A     | B     | B    | C    | E     | D    |
| Approach Delay (s)     |       | 13.0  | 19.1 |      | 68.8  |      |
| Approach LOS           |       | B     | B    |      | E     |      |

| Intersection Summary              |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 25.2  | HCM 2000 Level of Service | C    |
| HCM 2000 Volume to Capacity ratio | 0.84  |                           |      |
| Actuated Cycle Length (s)         | 130.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 75.3% | ICU Level of Service      | D    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
6: Walkley Road & Sheffield Road

Future Total 2025 PM - Adjacent Peak  
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| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 223   | 1957  | 719   | 117   | 300   | 391   |
| Future Volume (vph)        | 223   | 1957  | 719   | 117   | 300   | 391   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 30.5  |       |       | 50.0  | 0.0   | 30.5  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1383  | 3390  | 3172  | 1146  | 3164  | 1381  |
| Flt Permitted              | 0.315 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 459   | 3390  | 3172  | 1146  | 3164  | 1381  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 119   |       | 389   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 364.1 | 339.6 |       | 830.6 |       |
| Travel Time (s)            |       | 16.4  | 15.3  |       | 62.3  |       |
| Peak Hour Factor           | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.97  |
| Heavy Vehicles (%)         | 25%   | 2%    | 9%    | 35%   | 6%    | 12%   |
| Adj. Flow (vph)            | 228   | 1997  | 734   | 119   | 306   | 403   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 228   | 1997  | 734   | 119   | 306   | 403   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.0  | 23.0  | 23.0  | 23.0  | 23.0  |
| Total Split (s)            | 22.0  | 104.0 | 82.0  | 82.0  | 26.0  | 26.0  |
| Total Split (%)            | 16.9% | 80.0% | 63.1% | 63.1% | 20.0% | 20.0% |
| Maximum Green (s)          | 19.0  | 99.0  | 77.0  | 77.0  | 21.0  | 21.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 101.0 | 99.0  | 77.0  | 77.0  | 21.0  | 21.0  |
| Actuated g/C Ratio         | 0.78  | 0.76  | 0.59  | 0.59  | 0.16  | 0.16  |

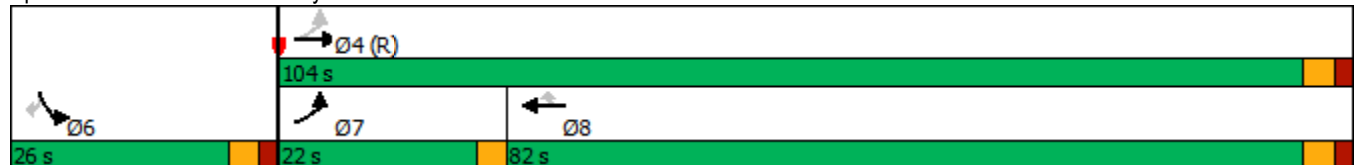


| Lane Group             | EBL   | EBT   | WBT   | WBR  | SBL   | SBR  |
|------------------------|-------|-------|-------|------|-------|------|
| v/c Ratio              | 0.46  | 0.77  | 0.39  | 0.16 | 0.60  | 0.73 |
| Control Delay          | 5.4   | 8.4   | 14.8  | 2.5  | 56.1  | 14.4 |
| Queue Delay            | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  |
| Total Delay            | 5.4   | 8.4   | 14.8  | 2.5  | 56.1  | 14.4 |
| LOS                    | A     | A     | B     | A    | E     | B    |
| Approach Delay         |       | 8.1   | 13.1  |      | 32.4  |      |
| Approach LOS           |       | A     | B     |      | C     |      |
| Queue Length 50th (m)  | 10.4  | 88.0  | 49.8  | 0.0  | 37.9  | 3.1  |
| Queue Length 95th (m)  | m18.7 | 122.8 | 62.8  | 7.8  | 52.9  | 37.4 |
| Internal Link Dist (m) |       | 340.1 | 315.6 |      | 806.6 |      |
| Turn Bay Length (m)    | 30.5  |       |       | 50.0 |       | 30.5 |
| Base Capacity (vph)    | 491   | 2581  | 1878  | 727  | 511   | 549  |
| Starvation Cap Reductn | 0     | 0     | 0     | 0    | 0     | 0    |
| Spillback Cap Reductn  | 0     | 0     | 0     | 0    | 0     | 0    |
| Storage Cap Reductn    | 0     | 0     | 0     | 0    | 0     | 0    |
| Reduced v/c Ratio      | 0.46  | 0.77  | 0.39  | 0.16 | 0.60  | 0.73 |

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 13 (10%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 13.8  
 Intersection LOS: B  
 Intersection Capacity Utilization 74.5%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Walkley Road & Sheffield Road



HCM Signalized Intersection Capacity Analysis  
6: Walkley Road & Sheffield Road

Future Total 2025 PM - Adjacent Peak  
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| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 223   | 1957  | 719  | 117  | 300   | 391  |
| Future Volume (vph)    | 223   | 1957  | 719  | 117  | 300   | 391  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1383  | 3390  | 3172 | 1146 | 3164  | 1381 |
| Flt Permitted          | 0.31  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 458   | 3390  | 3172 | 1146 | 3164  | 1381 |
| Peak-hour factor, PHF  | 0.98  | 0.98  | 0.98 | 0.98 | 0.98  | 0.97 |
| Adj. Flow (vph)        | 228   | 1997  | 734  | 119  | 306   | 403  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 49   | 0     | 326  |
| Lane Group Flow (vph)  | 228   | 1997  | 734  | 70   | 306   | 77   |
| Heavy Vehicles (%)     | 25%   | 2%    | 9%   | 35%  | 6%    | 12%  |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 99.0  | 99.0  | 77.0 | 77.0 | 21.0  | 21.0 |
| Effective Green, g (s) | 99.0  | 99.0  | 77.0 | 77.0 | 21.0  | 21.0 |
| Actuated g/C Ratio     | 0.76  | 0.76  | 0.59 | 0.59 | 0.16  | 0.16 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 483   | 2581  | 1878 | 678  | 511   | 223  |
| v/s Ratio Prot         | 0.07  | c0.59 | 0.23 |      | c0.10 |      |
| v/s Ratio Perm         | 0.29  |       |      | 0.06 |       | 0.06 |
| v/c Ratio              | 0.47  | 0.77  | 0.39 | 0.10 | 0.60  | 0.34 |
| Uniform Delay, d1      | 5.5   | 9.0   | 14.1 | 11.5 | 50.6  | 48.4 |
| Progression Factor     | 0.94  | 0.76  | 1.00 | 1.00 | 1.00  | 1.00 |
| Incremental Delay, d2  | 1.8   | 1.3   | 0.6  | 0.3  | 5.1   | 4.2  |
| Delay (s)              | 6.9   | 8.1   | 14.7 | 11.8 | 55.7  | 52.6 |
| Level of Service       | A     | A     | B    | B    | E     | D    |
| Approach Delay (s)     |       | 8.0   | 14.3 |      | 53.9  |      |
| Approach LOS           |       | A     | B    |      | D     |      |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 18.0  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.76  |                           |      |
| Actuated Cycle Length (s)         | 130.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 74.5% | ICU Level of Service      | D    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
7: Walkley Road & Highway SB terminal

Future Total 2025 PM - Adjacent Peak  
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| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑↑    |       | ↘     | ↗     |
| Traffic Volume (vph)       | 0    | 1509  | 191   | 0     | 175   | 635   |
| Future Volume (vph)        | 0    | 1509  | 191   | 0     | 175   | 635   |
| Ideal Flow (vphp)          | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>            |      |       |       |       |       | 0.850 |
| Fl <sub>t</sub> Protected  |      |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Fl <sub>t</sub> Permitted  |      |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Link Speed (k/h)           |      | 80    | 80    |       | 80    |       |
| Link Distance (m)          |      | 118.5 | 305.1 |       | 468.0 |       |
| Travel Time (s)            |      | 5.3   | 13.7  |       | 21.1  |       |
| Peak Hour Factor           | 0.95 | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  |
| Adj. Flow (vph)            | 0    | 1588  | 201   | 0     | 184   | 668   |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 1588  | 201   | 0     | 184   | 668   |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 3.7   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 60.9%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service B |

HCM Unsignalized Intersection Capacity Analysis  
7: Walkley Road & Highway SB terminal

Future Total 2025 PM - Adjacent Peak  
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| Movement                          | EBL         | EBT         | WBT         | WBR         | SBL                  | SBR         |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|-------------|
| Lane Configurations               |             | ↑↑          | ↑↑          |             | ↗                    | ↘           |
| Traffic Volume (veh/h)            | 0           | 1509        | 191         | 0           | 175                  | 635         |
| Future Volume (Veh/h)             | 0           | 1509        | 191         | 0           | 175                  | 635         |
| Sign Control                      |             | Free        | Free        |             | Stop                 |             |
| Grade                             |             | 0%          | 0%          |             | 0%                   |             |
| Peak Hour Factor                  | 0.95        | 0.95        | 0.95        | 0.95        | 0.95                 | 0.95        |
| Hourly flow rate (vph)            | 0           | 1588        | 201         | 0           | 184                  | 668         |
| <b>Pedestrians</b>                |             |             |             |             |                      |             |
| 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            | 201         |             |             |             | 995                  | 100         |
| vC1, stage 1 conf vol             |             |             |             |             |                      |             |
| vC2, stage 2 conf vol             |             |             |             |             |                      |             |
| vCu, unblocked vol                | 201         |             |             |             | 995                  | 100         |
| tC, single (s)                    | 4.1         |             |             |             | 6.8                  | 6.9         |
| tC, 2 stage (s)                   |             |             |             |             |                      |             |
| tF (s)                            | 2.2         |             |             |             | 3.5                  | 3.3         |
| p0 queue free %                   | 100         |             |             |             | 24                   | 29          |
| cM capacity (veh/h)               | 1368        |             |             |             | 242                  | 935         |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b> | <b>SB 1</b>          | <b>SB 2</b> |
| Volume Total                      | 794         | 794         | 100         | 100         | 184                  | 668         |
| Volume Left                       | 0           | 0           | 0           | 0           | 184                  | 0           |
| Volume Right                      | 0           | 0           | 0           | 0           | 0                    | 668         |
| cSH                               | 1700        | 1700        | 1700        | 1700        | 242                  | 935         |
| Volume to Capacity                | 0.47        | 0.47        | 0.06        | 0.06        | 0.76                 | 0.71        |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0         | 41.5                 | 47.9        |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0         | 55.6                 | 17.8        |
| Lane LOS                          |             |             |             |             | F                    | C           |
| Approach Delay (s)                | 0.0         |             | 0.0         |             | 26.0                 |             |
| Approach LOS                      |             |             |             |             | D                    |             |
| <b>Intersection Summary</b>       |             |             |             |             |                      |             |
| Average Delay                     |             |             | 8.4         |             |                      |             |
| Intersection Capacity Utilization |             |             | 60.9%       |             | ICU Level of Service | B           |
| Analysis Period (min)             |             |             | 15          |             |                      |             |

Lanes, Volumes, Timings  
10: Highway NB terminal & Walkley Road

Future Total 2025 PM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NBL   | NBR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    |       |      | ↑↑    | ↘     |       |
| Traffic Volume (vph)       | 606   | 1082  | 0    | 66    | 144   | 32    |
| Future Volume (vph)        | 606   | 1082  | 0    | 66    | 144   | 32    |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00 | 0.95  | 1.00  | 1.00  |
| Frt                        | 0.904 |       |      | 0.976 |       |       |
| Flt Protected              |       |       |      | 0.961 |       |       |
| Satd. Flow (prot)          | 3065  | 0     | 0    | 3390  | 1674  | 0     |
| Flt Permitted              |       |       |      | 0.961 |       |       |
| Satd. Flow (perm)          | 3065  | 0     | 0    | 3390  | 1674  | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 305.1 |       |      | 95.4  | 443.2 |       |
| Travel Time (s)            | 13.7  |       |      | 7.2   | 33.2  |       |
| Peak Hour Factor           | 0.91  | 0.91  | 0.91 | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)            | 666   | 1189  | 0    | 73    | 158   | 35    |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 1855  | 0     | 0    | 73    | 193   | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 3.7   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 14    |       | 24   | 24    |       | 14    |
| Sign Control               | Free  |       |      | Free  | Stop  |       |

Intersection Summary

|                                   |                              |
|-----------------------------------|------------------------------|
| Area Type:                        | Other                        |
| Control Type:                     | Unsignalized                 |
| Intersection Capacity Utilization | 71.6% ICU Level of Service C |
| Analysis Period (min)             | 15                           |

HCM Unsignalized Intersection Capacity Analysis  
 10: Highway NB terminal & Walkley Road

Future Total 2025 PM - Adjacent Peak  
 10-24-2022

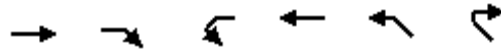


| Movement                          | EBT         | EBR         | WBL         | WBT                  | NBL         | NBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations               | ↑↑          |             |             | ↑↑                   | ↘           |      |
| Traffic Volume (veh/h)            | 606         | 1082        | 0           | 66                   | 144         | 32   |
| Future Volume (Veh/h)             | 606         | 1082        | 0           | 66                   | 144         | 32   |
| Sign Control                      | Free        |             |             | Free                 | Stop        |      |
| Grade                             | 0%          |             |             | 0%                   | 0%          |      |
| Peak Hour Factor                  | 0.91        | 0.91        | 0.91        | 0.91                 | 0.91        | 0.91 |
| Hourly flow rate (vph)            | 666         | 1189        | 0           | 73                   | 158         | 35   |
| <b>Pedestrians</b>                |             |             |             |                      |             |      |
| 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            |             |             | 1855        |                      | 1297        | 928  |
| vC1, stage 1 conf vol             |             |             |             |                      |             |      |
| vC2, stage 2 conf vol             |             |             |             |                      |             |      |
| vCu, unblocked vol                |             |             | 1855        |                      | 1297        | 928  |
| tC, single (s)                    |             |             | 4.1         |                      | 6.8         | 6.9  |
| tC, 2 stage (s)                   |             |             |             |                      |             |      |
| tF (s)                            |             |             | 2.2         |                      | 3.5         | 3.3  |
| p0 queue free %                   |             |             | 100         |                      | 0           | 87   |
| cM capacity (veh/h)               |             |             | 322         |                      | 154         | 270  |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>NB 1</b> |      |
| Volume Total                      | 444         | 1411        | 36          | 36                   | 193         |      |
| Volume Left                       | 0           | 0           | 0           | 0                    | 158         |      |
| Volume Right                      | 0           | 1189        | 0           | 0                    | 35          |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 167         |      |
| Volume to Capacity                | 0.26        | 0.83        | 0.02        | 0.02                 | 1.16        |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0                  | 78.4        |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 174.4       |      |
| Lane LOS                          |             |             |             |                      | F           |      |
| Approach Delay (s)                | 0.0         |             | 0.0         |                      | 174.4       |      |
| Approach LOS                      |             |             |             |                      | F           |      |
| <b>Intersection Summary</b>       |             |             |             |                      |             |      |
| Average Delay                     |             |             | 15.9        |                      |             |      |
| Intersection Capacity Utilization |             |             | 71.6%       | ICU Level of Service | C           |      |
| Analysis Period (min)             |             |             | 15          |                      |             |      |



Lanes, Volumes, Timings  
11: SB off ramp & Walkley Road

Future Total 2025 PM - Adjacent Peak  
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| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NWL   | NWR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    | ↑     |      | ↑↑↑   |       |       |
| Traffic Volume (vph)       | 1509  | 534   | 0    | 826   | 0     | 0     |
| Future Volume (vph)        | 1509  | 534   | 0    | 826   | 0     | 0     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Storage Length (m)         |       | 50.0  | 0.0  |       | 0.0   | 0.0   |
| Storage Lanes              |       | 1     | 0    |       | 0     | 0     |
| Taper Length (m)           |       |       | 7.6  |       | 7.6   |       |
| Lane Util. Factor          | 0.95  | 1.00  | 1.00 | 0.91  | 1.00  | 1.00  |
| Frt                        |       | 0.850 |      |       |       |       |
| Flt Protected              |       |       |      |       |       |       |
| Satd. Flow (prot)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Flt Permitted              |       |       |      |       |       |       |
| Satd. Flow (perm)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 339.6 |       |      | 118.5 | 265.8 |       |
| Travel Time (s)            | 15.3  |       |      | 8.9   | 19.9  |       |
| Peak Hour Factor           | 0.95  | 0.95  | 0.95 | 0.95  | 0.95  | 0.95  |
| Adj. Flow (vph)            | 1588  | 562   | 0    | 869   | 0     | 0     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 1588  | 562   | 0    | 869   | 0     | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 0.0   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        |       | 14    | 24   |       | 24    | 14    |
| Sign Control               | Free  |       |      | Free  | Free  |       |

Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 47.4%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings  
13: Walkley Road & NB off ramp

Future Total 2025 PM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL  | EBT  | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑   | ↑     | ↗     |       |       |
| Traffic Volume (vph)       | 0    | 638  | 66    | 62    | 0     | 0     |
| Future Volume (vph)        | 0    | 638  | 66    | 62    | 0     | 0     |
| Ideal Flow (vphpl)         | 1800 | 1800 | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 0.0  |      |       | 50.0  | 0.0   | 0.0   |
| Storage Lanes              | 0    |      |       | 1     | 0     | 0     |
| Taper Length (m)           | 7.6  |      |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00 | 0.95 | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      |      |       | 0.850 |       |       |
| Flt Protected              |      |      |       |       |       |       |
| Satd. Flow (prot)          | 0    | 3390 | 1784  | 1517  | 0     | 0     |
| Flt Permitted              |      |      |       |       |       |       |
| Satd. Flow (perm)          | 0    | 3390 | 1784  | 1517  | 0     | 0     |
| Link Speed (k/h)           |      | 80   | 48    |       | 48    |       |
| Link Distance (m)          |      | 95.4 | 197.1 |       | 264.7 |       |
| Travel Time (s)            |      | 4.3  | 14.8  |       | 19.9  |       |
| Peak Hour Factor           | 0.91 | 0.91 | 0.91  | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)            | 0    | 701  | 73    | 68    | 0     | 0     |
| Shared Lane Traffic (%)    |      |      |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 701  | 73    | 68    | 0     | 0     |
| Enter Blocked Intersection | No   | No   | No    | No    | No    | No    |
| Lane Alignment             | Left | Left | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0  | 0.0   |       | 0.0   |       |
| Link Offset(m)             |      | 0.0  | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9  | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |      |       |       |       |       |
| Headway Factor             | 1.06 | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |      |       | 14    | 24    | 14    |
| Sign Control               |      | Free | Free  |       | Free  |       |

















Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 21.9%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

















Lanes, Volumes, Timings  
15: Sheffield Road & Humber Place

Future Total 2025 PM - Adjacent Peak  
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|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group                        | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 15  | 0   | 140   | 0   | 0   | 0   | 59   | 334   | 0   | 0   | 531   | 20  |
| Future Volume (vph)               | 15  | 0   | 140   | 0   | 0   | 0   | 59   | 334   | 0   | 0   | 531   | 20  |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  | 1800   | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   |   | 0.878   |   |   |   |   |  |   |   |   |   | 0.995   |
| Fl <sub>t</sub> Protected         |   | 0.995   |   |   |   |   |  | 0.993   |   |   |   |   |
| Satd. Flow (prot)                 | 0   | 1452  | 0   | 0   | 1784  | 0   | 0  | 1378  | 0   | 0   | 1661  | 0   |
| Fl <sub>t</sub> Permitted         |   | 0.995   |   |   |   |   |  | 0.993   |   |   |   |   |
| Satd. Flow (perm)                 | 0   | 1452  | 0   | 0   | 1784  | 0   | 0  | 1378  | 0   | 0   | 1661  | 0   |
| Link Speed (k/h)                  |   | 48  |   |   | 48  |   |  | 48  |   |   | 48  |   |
| Link Distance (m)                 |   | 152.4   |   |   | 148.3   |   |  | 830.6   |   |   | 80.7  |   |
| Travel Time (s)                   |   | 11.4  |   |   | 11.1  |   |  | 62.3  |   |   | 6.1   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 14%   | 2%  | 9%  | 33%   | 2%  | 2%  | 21%  | 33%   | 50%   | 0%  | 9%  | 10%   |
| Adj. Flow (vph)                   | 17  | 0   | 156   | 0   | 0   | 0   | 66   | 371   | 0   | 0   | 590   | 22  |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 173   | 0   | 0   | 0   | 0   | 0  | 437   | 0   | 0   | 612   | 0   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  | No   | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Left  | Right   | Left  | Left  | Right   | Left   | Left  | Right   | Left  | Left  | Right   |
| Median Width(m)                   |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Link Offset(m)                    |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Crosswalk Width(m)                |   | 4.9   |   |   | 4.9   |   |  | 4.9   |   |   | 4.9   |   |
| Two way Left Turn Lane            |   |   |   |   |   |   |  |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06   | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  |   | 14  | 24  |   | 14  | 24   |   | 14  | 24  |   | 14  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |  |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 72.8%   |   |   |   |   |   | ICU Level of Service C   |   |   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
15: Sheffield Road & Humber Place

Future Total 2025 PM - Adjacent Peak  
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|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 15  | 0   | 140   | 0   | 0   | 0   | 59   | 334   | 0   | 0   | 531   | 20  |
| Future Volume (Veh/h)             | 15  | 0   | 140   | 0   | 0   | 0   | 59   | 334   | 0   | 0   | 531   | 20  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 17  | 0   | 156   | 0   | 0   | 0   | 66   | 371   | 0   | 0   | 590   | 22  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (m)                    |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (m/s)               |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Median storage veh                |   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (m)               |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 1104  | 1104  | 601   | 1260  | 1115  | 371   | 612  |   |   | 371   |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 1104  | 1104  | 601   | 1260  | 1115  | 371   | 612  |   |   | 371   |   |   |
| tC, single (s)                    | 7.2   | 6.5   | 6.3   | 7.4   | 6.5   | 6.2   | 4.3  |   |   | 4.1   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 3.6   | 4.0   | 3.4   | 3.8   | 4.0   | 3.3   | 2.4  |   |   | 2.2   |   |   |
| p0 queue free %                   | 90  | 100   | 68  | 100   | 100   | 100   | 93   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 168   | 195   | 488   | 82  | 192   | 675   | 881  |   |   | 1199  |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | SB 1  |   |   |  |   |   |   |   |   |
| Volume Total                      | 173   | 0   | 437   | 612   |   |   |  |   |   |   |   |   |
| Volume Left                       | 17  | 0   | 66  | 0   |   |   |  |   |   |   |   |   |
| Volume Right                      | 156   | 0   | 0   | 22  |   |   |  |   |   |   |   |   |
| cSH                               | 411   | 1700  | 881   | 1199  |   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.42  | 0.00  | 0.07  | 0.00  |   |   |  |   |   |   |   |   |
| Queue Length 95th (m)             | 15.5  | 0.0   | 1.8   | 0.0   |   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 20.0  | 0.0   | 2.2   | 0.0   |   |   |  |   |   |   |   |   |
| Lane LOS                          | C   | A   | A   |   |   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 20.0  | 0.0   | 2.2   | 0.0   |   |   |  |   |   |   |   |   |
| Approach LOS                      | C   | A   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 3.6   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 72.8%   |   | ICU Level of Service  |   |  |   |   | C   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |










Lanes, Volumes, Timings  
18: Sheffield Road & Way #5

Future Total 2025 PM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 325   | 1   | 0   | 537   |
| Future Volume (vph)               | 0   | 0   | 325   | 1   | 0   | 537   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| <b>Flt</b>                        |   |   |   |   |   |   |
| Flt Protected                     |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1784  | 0   | 0   | 1071  |
| Flt Permitted                     |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1784  | 0   | 0   | 1071  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 56.2  |   | 80.7  |   |   | 63.2  |
| Travel Time (s)                   | 4.2   |   | 6.1   |   |   | 4.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.92  | 0.90  | 0.90  | 0.90  |
| Bus Blockages (#/hr)              | 0   | 0   | 0   | 0   | 0   | 100   |
| Adj. Flow (vph)                   | 0   | 0   | 353   | 1   | 0   | 597   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 354   | 0   | 0   | 597   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| <b>Two way Left Turn Lane</b>     |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.96  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 33.2%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 18: Sheffield Road & Way #5










Future Total 2025 PM - Adjacent Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 325   | 1   | 0   | 537   |
| Future Volume (Veh/h)             | 0   | 0   | 325   | 1   | 0   | 537   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.92  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 353   | 1   | 0   | 597   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 950   | 354   |   |   | 354   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 950   | 354   |   |   | 354   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 288   | 690   |   |   | 1205  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 354   | 597   |   |   |   |
| Volume Left                       | 0   | 0   | 0   |   |   |   |
| Volume Right                      | 0   | 1   | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1205  |   |   |   |
| Volume to Capacity                | 0.00  | 0.21  | 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   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 33.2%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |












Lanes, Volumes, Timings  
20: Sheffield Road & Way #4

Future Total 2025 PM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 325   | 0   | 0   | 535   |
| Future Volume (vph)               | 0   | 0   | 325   | 0   | 0   | 535   |
| Ideal Flow (vphp)                 | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| <b>Fr</b>                         |   |   |   |   |   |   |
| <b>Flt Protected</b>              |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| <b>Flt Permitted</b>              |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 60.6  |   | 63.2  |   |   | 102.2   |
| Travel Time (s)                   | 4.5   |   | 4.7   |   |   | 7.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 0   | 361   | 0   | 0   | 594   |
| <b>Shared Lane Traffic (%)</b>    |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 361   | 0   | 0   | 594   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| <b>Two way Left Turn Lane</b>     |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 33.1%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
20: Sheffield Road & Way #4

Future Total 2025 PM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 325   | 0   | 0   | 535   |
| Future Volume (Veh/h)             | 0   | 0   | 325   | 0   | 0   | 535   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 361   | 0   | 0   | 594   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 955   | 361   |   |   | 361   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 955   | 361   |   |   | 361   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 287   | 684   |   |   | 1198  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 361   | 594   |   |   |   |
| Volume Left                       | 0   | 0   | 0   |   |   |   |
| Volume Right                      | 0   | 0   | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1198  |   |   |   |
| Volume to Capacity                | 0.00  | 0.21  | 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   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 33.1%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |










Lanes, Volumes, Timings  
24: Sheffield Road & Way #2

Future Total 2025 PM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 284   | 42  | 10  | 535   |
| Future Volume (vph)               | 0   | 0   | 284   | 42  | 10  | 535   |
| Ideal Flow (vphp)                 | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   | 0.983   |   |   |   |   |   |
| Fl <sub>t</sub> Protected         | 0.999   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1754  | 0   | 0   | 1783  |
| Fl <sub>t</sub> Permitted         | 0.999   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1754  | 0   | 0   | 1783  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 65.0  |   | 102.2   |   |   | 76.9  |
| Travel Time (s)                   | 4.9   |   | 7.7   |   |   | 5.8   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 0   | 316   | 47  | 11  | 594   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 363   | 0   | 0   | 605   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 41.5%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
24: Sheffield Road & Way #2

Future Total 2025 PM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 284   | 42  | 10  | 535   |
| Future Volume (Veh/h)             | 0   | 0   | 284   | 42  | 10  | 535   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 316   | 47  | 11  | 594   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 956   | 340   |   |   | 363   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 956   | 340   |   |   | 363   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 99  |   |
| cM capacity (veh/h)               | 284   | 703   |   |   | 1196  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 363   | 605   |   |   |   |
| Volume Left                       | 0   | 0   | 11  |   |   |   |
| Volume Right                      | 0   | 47  | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1196  |   |   |   |
| Volume to Capacity                | 0.00  | 0.21  | 0.01  |   |   |   |
| Queue Length 95th (m)             | 0.0   | 0.0   | 0.2   |   |   |   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.3   |   |   |   |
| Lane LOS                          | A   |   | A   |   |   |   |
| Approach Delay (s)                | 0.0   | 0.0   | 0.3   |   |   |   |
| Approach LOS                      | A   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.2   |   |   |   |
| Intersection Capacity Utilization |   |   | 41.5%   |   | ICU Level of Service  | A   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

Lanes, Volumes, Timings  
26: Sheffield Road & Way #1

Future Total 2025 PM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 20  | 6   | 287   | 0   | 0   | 514   |
| Future Volume (vph)               | 20  | 6   | 287   | 0   | 0   | 514   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 0.967   |   |   |   |   |   |
| Flt Protected                     | 0.963   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1662  | 0   | 1784  | 0   | 0   | 1784  |
| Flt Permitted                     | 0.963   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1662  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 58.8  |   | 76.9  |   |   | 181.8   |
| Travel Time (s)                   | 4.4   |   | 5.8   |   |   | 13.6  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 22  | 7   | 319   | 0   | 0   | 571   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 29  | 0   | 319   | 0   | 0   | 571   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 38.6%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 26: Sheffield Road & Way #1

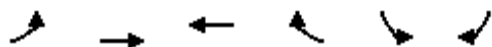
Future Total 2025 PM - Adjacent Peak  
 10-24-2022



| Movement                          | WBL         | WBR         | NBT         | NBR  | SBL                  | SBT  |
|-----------------------------------|-------------|-------------|-------------|------|----------------------|------|
| Lane Configurations               |             |             |             |      |                      |      |
| Traffic Volume (veh/h)            | 20          | 6           | 287         | 0    | 0                    | 514  |
| Future Volume (Veh/h)             | 20          | 6           | 287         | 0    | 0                    | 514  |
| Sign Control                      | Stop        |             | Free        |      | Free                 |      |
| Grade                             | 0%          |             | 0%          |      | 0%                   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90 | 0.90                 | 0.90 |
| Hourly flow rate (vph)            | 22          | 7           | 319         | 0    | 0                    | 571  |
| <b>Pedestrians</b>                |             |             |             |      |                      |      |
| 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            | 890         | 319         |             |      | 319                  |      |
| vC1, stage 1 conf vol             |             |             |             |      |                      |      |
| vC2, stage 2 conf vol             |             |             |             |      |                      |      |
| vCu, unblocked vol                | 890         | 319         |             |      | 319                  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |      | 4.1                  |      |
| tC, 2 stage (s)                   |             |             |             |      |                      |      |
| tF (s)                            | 3.5         | 3.3         |             |      | 2.2                  |      |
| p0 queue free %                   | 93          | 99          |             |      | 100                  |      |
| cM capacity (veh/h)               | 313         | 722         |             |      | 1241                 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |      |                      |      |
| Volume Total                      | 29          | 319         | 571         |      |                      |      |
| Volume Left                       | 22          | 0           | 0           |      |                      |      |
| Volume Right                      | 7           | 0           | 0           |      |                      |      |
| cSH                               | 363         | 1700        | 1241        |      |                      |      |
| Volume to Capacity                | 0.08        | 0.19        | 0.00        |      |                      |      |
| Queue Length 95th (m)             | 2.0         | 0.0         | 0.0         |      |                      |      |
| Control Delay (s)                 | 15.8        | 0.0         | 0.0         |      |                      |      |
| Lane LOS                          | C           |             |             |      |                      |      |
| Approach Delay (s)                | 15.8        | 0.0         | 0.0         |      |                      |      |
| Approach LOS                      | C           |             |             |      |                      |      |
| <b>Intersection Summary</b>       |             |             |             |      |                      |      |
| Average Delay                     |             |             | 0.5         |      |                      |      |
| Intersection Capacity Utilization |             |             | 38.6%       |      | ICU Level of Service | A    |
| Analysis Period (min)             |             |             | 15          |      |                      |      |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future Total 2025 AM - Site Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 201   | 749   | 1390  | 632   | 91    | 166   |
| Future Volume (vph)        | 201   | 749   | 1390  | 632   | 91    | 166   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 100.0 |       |       | 0.0   | 0.0   | 70.0  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1647  | 3007  | 3232  | 1517  | 3135  | 1406  |
| Flt Permitted              | 0.110 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 191   | 3007  | 3232  | 1517  | 3135  | 1406  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 601   |       | 171   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 248.5 | 361.1 |       | 367.8 |       |
| Travel Time (s)            |       | 11.2  | 16.2  |       | 27.6  |       |
| Peak Hour Factor           | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Heavy Vehicles (%)         | 5%    | 15%   | 7%    | 2%    | 7%    | 10%   |
| Adj. Flow (vph)            | 207   | 772   | 1433  | 652   | 94    | 171   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 207   | 772   | 1433  | 652   | 94    | 171   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 24.0  | 122.0 | 98.0  | 98.0  | 28.0  | 28.0  |
| Total Split (%)            | 16.0% | 81.3% | 65.3% | 65.3% | 18.7% | 18.7% |
| Maximum Green (s)          | 21.0  | 117.0 | 93.0  | 93.0  | 23.0  | 23.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 119.0 | 117.0 | 93.0  | 93.0  | 23.0  | 23.0  |
| Actuated g/C Ratio         | 0.79  | 0.78  | 0.62  | 0.62  | 0.15  | 0.15  |



| Lane Group             | EBL   | EBT   | WBT   | WBR   | SBL   | SBR  |
|------------------------|-------|-------|-------|-------|-------|------|
| v/c Ratio              | 0.58  | 0.33  | 0.72  | 0.56  | 0.20  | 0.47 |
| Control Delay          | 20.4  | 5.3   | 11.0  | 2.0   | 56.7  | 12.2 |
| Queue Delay            | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| Total Delay            | 20.4  | 5.3   | 11.0  | 2.0   | 56.7  | 12.2 |
| LOS                    | C     | A     | B     | A     | E     | B    |
| Approach Delay         |       | 8.5   | 8.2   |       | 27.9  |      |
| Approach LOS           |       | A     | A     |       | C     |      |
| Queue Length 50th (m)  | 16.3  | 31.2  | 44.3  | 6.7   | 12.7  | 0.0  |
| Queue Length 95th (m)  | 43.8  | 38.3  | m67.3 | m20.4 | 21.4  | 21.3 |
| Internal Link Dist (m) |       | 224.5 | 337.1 |       | 343.8 |      |
| Turn Bay Length (m)    | 100.0 |       |       |       |       | 70.0 |
| Base Capacity (vph)    | 355   | 2345  | 2003  | 1168  | 480   | 360  |
| Starvation Cap Reductn | 0     | 0     | 0     | 0     | 0     | 0    |
| Spillback Cap Reductn  | 0     | 0     | 0     | 0     | 0     | 0    |
| Storage Cap Reductn    | 0     | 0     | 0     | 0     | 0     | 0    |
| Reduced v/c Ratio      | 0.58  | 0.33  | 0.72  | 0.56  | 0.20  | 0.47 |

Intersection Summary

Area Type: Other  
 Cycle Length: 150  
 Actuated Cycle Length: 150  
 Offset: 50 (33%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.72  
 Intersection Signal Delay: 9.8  
 Intersection Capacity Utilization 68.1%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service C  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Walkley Road & Lancaster Road





HCM Signalized Intersection Capacity Analysis  
3: Walkley Road & Lancaster Road

Future Total 2025 AM - Site Peak  
10-24-2022



| Movement               | EBL   | EBT   | WBT   | WBR  | SBL   | SBR  |
|------------------------|-------|-------|-------|------|-------|------|
| Lane Configurations    |       |       |       |      |       |      |
| Traffic Volume (vph)   | 201   | 749   | 1390  | 632  | 91    | 166  |
| Future Volume (vph)    | 201   | 749   | 1390  | 632  | 91    | 166  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800  | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95  | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00  | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00  | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1647  | 3007  | 3232  | 1517 | 3135  | 1406 |
| Flt Permitted          | 0.11  | 1.00  | 1.00  | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 191   | 3007  | 3232  | 1517 | 3135  | 1406 |
| Peak-hour factor, PHF  | 0.97  | 0.97  | 0.97  | 0.97 | 0.97  | 0.97 |
| Adj. Flow (vph)        | 207   | 772   | 1433  | 652  | 94    | 171  |
| RTOR Reduction (vph)   | 0     | 0     | 0     | 228  | 0     | 145  |
| Lane Group Flow (vph)  | 207   | 772   | 1433  | 424  | 94    | 26   |
| Heavy Vehicles (%)     | 5%    | 15%   | 7%    | 2%   | 7%    | 10%  |
| Turn Type              | pm+pt | NA    | NA    | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8     |      | 6     |      |
| Permitted Phases       | 4     |       |       | 8    |       | 6    |
| Actuated Green, G (s)  | 117.0 | 117.0 | 93.0  | 93.0 | 23.0  | 23.0 |
| Effective Green, g (s) | 117.0 | 117.0 | 93.0  | 93.0 | 23.0  | 23.0 |
| Actuated g/C Ratio     | 0.78  | 0.78  | 0.62  | 0.62 | 0.15  | 0.15 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 352   | 2345  | 2003  | 940  | 480   | 215  |
| v/s Ratio Prot         | c0.08 | 0.26  | c0.44 |      | c0.03 |      |
| v/s Ratio Perm         | 0.38  |       |       | 0.28 |       | 0.02 |
| v/c Ratio              | 0.59  | 0.33  | 0.72  | 0.45 | 0.20  | 0.12 |
| Uniform Delay, d1      | 20.0  | 4.9   | 19.5  | 15.0 | 55.4  | 54.8 |
| Progression Factor     | 1.00  | 1.00  | 0.51  | 0.77 | 1.00  | 1.00 |
| Incremental Delay, d2  | 7.0   | 0.4   | 0.9   | 0.7  | 0.9   | 1.2  |
| Delay (s)              | 27.1  | 5.3   | 10.8  | 12.3 | 56.3  | 55.9 |
| Level of Service       | C     | A     | B     | B    | E     | E    |
| Approach Delay (s)     |       | 9.9   | 11.3  |      | 56.1  |      |
| Approach LOS           |       | A     | B     |      | E     |      |

| Intersection Summary              |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 14.4  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.61  |                           |      |
| Actuated Cycle Length (s)         | 150.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 68.1% | ICU Level of Service      | C    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
6: Walkley Road & Sheffield Road

Future Total 2025 AM - Site Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 304   | 445   | 1776  | 342   | 156   | 269   |
| Future Volume (vph)        | 304   | 445   | 1776  | 342   | 156   | 269   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 100.0 |       |       | 30.0  | 0.0   | 70.0  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1491  | 3060  | 3357  | 1459  | 2396  | 1190  |
| Flt Permitted              | 0.044 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 69    | 3060  | 3357  | 1459  | 2396  | 1190  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 103   |       | 274   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 361.1 | 363.2 |       | 830.1 |       |
| Travel Time (s)            |       | 16.2  | 16.3  |       | 62.3  |       |
| Peak Hour Factor           | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Heavy Vehicles (%)         | 16%   | 13%   | 3%    | 6%    | 40%   | 30%   |
| Adj. Flow (vph)            | 310   | 454   | 1812  | 349   | 159   | 274   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 310   | 454   | 1812  | 349   | 159   | 274   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 32.0  | 124.0 | 92.0  | 92.0  | 26.0  | 26.0  |
| Total Split (%)            | 21.3% | 82.7% | 61.3% | 61.3% | 17.3% | 17.3% |
| Maximum Green (s)          | 29.0  | 119.0 | 87.0  | 87.0  | 21.0  | 21.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 121.0 | 119.0 | 87.0  | 87.0  | 21.0  | 21.0  |
| Actuated g/C Ratio         | 0.81  | 0.79  | 0.58  | 0.58  | 0.14  | 0.14  |

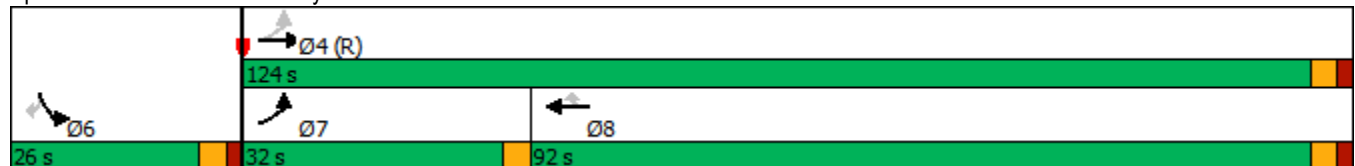


| Lane Group             | EBL    | EBT   | WBT   | WBR  | SBL   | SBR  |
|------------------------|--------|-------|-------|------|-------|------|
| v/c Ratio              | 0.94   | 0.19  | 0.93  | 0.39 | 0.47  | 0.68 |
| Control Delay          | 76.1   | 3.5   | 38.7  | 13.0 | 64.7  | 15.6 |
| Queue Delay            | 0.0    | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  |
| Total Delay            | 76.1   | 3.5   | 38.7  | 13.0 | 64.7  | 15.6 |
| LOS                    | E      | A     | D     | B    | E     | B    |
| Approach Delay         |        | 33.0  | 34.5  |      | 33.6  |      |
| Approach LOS           |        | C     | C     |      | C     |      |
| Queue Length 50th (m)  | 58.2   | 13.9  | 249.3 | 37.2 | 22.7  | 0.0  |
| Queue Length 95th (m)  | #130.1 | 17.3  | 291.1 | 58.6 | 34.8  | 29.6 |
| Internal Link Dist (m) |        | 337.1 | 339.2 |      | 806.1 |      |
| Turn Bay Length (m)    | 100.0  |       |       | 30.0 |       | 70.0 |
| Base Capacity (vph)    | 330    | 2427  | 1947  | 889  | 335   | 402  |
| Starvation Cap Reductn | 0      | 0     | 0     | 0    | 0     | 0    |
| Spillback Cap Reductn  | 0      | 0     | 0     | 0    | 0     | 0    |
| Storage Cap Reductn    | 0      | 0     | 0     | 0    | 0     | 0    |
| Reduced v/c Ratio      | 0.94   | 0.19  | 0.93  | 0.39 | 0.47  | 0.68 |

Intersection Summary

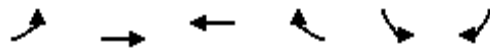
Area Type: Other  
 Cycle Length: 150  
 Actuated Cycle Length: 150  
 Offset: 50 (33%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 110  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.94  
 Intersection Signal Delay: 34.1  
 Intersection LOS: C  
 Intersection Capacity Utilization 86.0%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Walkley Road & Sheffield Road



HCM Signalized Intersection Capacity Analysis  
6: Walkley Road & Sheffield Road

Future Total 2025 AM - Site Peak  
10-24-2022



| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 304   | 445   | 1776 | 342  | 156   | 269  |
| Future Volume (vph)    | 304   | 445   | 1776 | 342  | 156   | 269  |
| Ideal Flow (vphp)      | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1491  | 3060  | 3357 | 1459 | 2396  | 1190 |
| Flt Permitted          | 0.04  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 70    | 3060  | 3357 | 1459 | 2396  | 1190 |
| Peak-hour factor, PHF  | 0.98  | 0.98  | 0.98 | 0.98 | 0.98  | 0.98 |
| Adj. Flow (vph)        | 310   | 454   | 1812 | 349  | 159   | 274  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 43   | 0     | 236  |
| Lane Group Flow (vph)  | 310   | 454   | 1812 | 306  | 159   | 38   |
| Heavy Vehicles (%)     | 16%   | 13%   | 3%   | 6%   | 40%   | 30%  |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 119.0 | 119.0 | 87.0 | 87.0 | 21.0  | 21.0 |
| Effective Green, g (s) | 119.0 | 119.0 | 87.0 | 87.0 | 21.0  | 21.0 |
| Actuated g/C Ratio     | 0.79  | 0.79  | 0.58 | 0.58 | 0.14  | 0.14 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 330   | 2427  | 1947 | 846  | 335   | 166  |
| v/s Ratio Prot         | c0.18 | 0.15  | 0.54 |      | c0.07 |      |
| v/s Ratio Perm         | c0.57 |       |      | 0.21 |       | 0.03 |
| v/c Ratio              | 0.94  | 0.19  | 0.93 | 0.36 | 0.47  | 0.23 |
| Uniform Delay, d1      | 52.1  | 3.8   | 28.7 | 16.7 | 59.4  | 57.3 |
| Progression Factor     | 0.85  | 0.89  | 1.00 | 1.00 | 1.00  | 1.00 |
| Incremental Delay, d2  | 35.5  | 0.2   | 9.5  | 1.2  | 4.8   | 3.2  |
| Delay (s)              | 79.7  | 3.5   | 38.3 | 17.9 | 64.2  | 60.6 |
| Level of Service       | E     | A     | D    | B    | E     | E    |
| Approach Delay (s)     |       | 34.4  | 35.0 |      | 61.9  |      |
| Approach LOS           |       | C     | C    |      | E     |      |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 38.3  | HCM 2000 Level of Service | D    |
| HCM 2000 Volume to Capacity ratio | 0.88  |                           |      |
| Actuated Cycle Length (s)         | 150.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 86.0% | ICU Level of Service      | E    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
7: Walkley Road & Highway SB terminal

Future Total 2025 AM - Site Peak  
10-24-2022



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑↑    |       | ↘     | ↘     |
| Traffic Volume (vph)       | 0    | 466   | 987   | 0     | 22    | 946   |
| Future Volume (vph)        | 0    | 466   | 987   | 0     | 22    | 946   |
| Ideal Flow (vphp)          | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>            |      |       |       |       |       | 0.850 |
| Fl <sub>t</sub> Protected  |      |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Fl <sub>t</sub> Permitted  |      |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Link Speed (k/h)           |      | 80    | 80    |       | 80    |       |
| Link Distance (m)          |      | 131.6 | 322.4 |       | 492.9 |       |
| Travel Time (s)            |      | 5.9   | 14.5  |       | 22.2  |       |
| Peak Hour Factor           | 0.97 | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Adj. Flow (vph)            | 0    | 480   | 1018  | 0     | 23    | 975   |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 480   | 1018  | 0     | 23    | 975   |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 3.7   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Stop  |       |

Intersection Summary

|                                   |                              |
|-----------------------------------|------------------------------|
| Area Type:                        | Other                        |
| Control Type:                     | Unsignalized                 |
| Intersection Capacity Utilization | 97.3% ICU Level of Service F |
| Analysis Period (min)             | 15                           |

HCM Unsignalized Intersection Capacity Analysis  
7: Walkley Road & Highway SB terminal

Future Total 2025 AM - Site Peak  
10-24-2022



| Movement                          | EBL         | EBT         | WBT         | WBR         | SBL                  | SBR         |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|-------------|
| Lane Configurations               |             | ↑↑          | ↑↑          |             | ↘                    | ↗           |
| Traffic Volume (veh/h)            | 0           | 466         | 987         | 0           | 22                   | 946         |
| Future Volume (Veh/h)             | 0           | 466         | 987         | 0           | 22                   | 946         |
| Sign Control                      |             | Free        | Free        |             | Stop                 |             |
| Grade                             |             | 0%          | 0%          |             | 0%                   |             |
| Peak Hour Factor                  | 0.97        | 0.97        | 0.97        | 0.97        | 0.97                 | 0.97        |
| Hourly flow rate (vph)            | 0           | 480         | 1018        | 0           | 23                   | 975         |
| <b>Pedestrians</b>                |             |             |             |             |                      |             |
| 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            | 1018        |             |             |             | 1258                 | 509         |
| vC1, stage 1 conf vol             |             |             |             |             |                      |             |
| vC2, stage 2 conf vol             |             |             |             |             |                      |             |
| vCu, unblocked vol                | 1018        |             |             |             | 1258                 | 509         |
| tC, single (s)                    | 4.1         |             |             |             | 6.8                  | 6.9         |
| tC, 2 stage (s)                   |             |             |             |             |                      |             |
| tF (s)                            | 2.2         |             |             |             | 3.5                  | 3.3         |
| p0 queue free %                   | 100         |             |             |             | 86                   | 0           |
| cM capacity (veh/h)               | 677         |             |             |             | 163                  | 509         |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b> | <b>SB 1</b>          | <b>SB 2</b> |
| Volume Total                      | 240         | 240         | 509         | 509         | 23                   | 975         |
| Volume Left                       | 0           | 0           | 0           | 0           | 23                   | 0           |
| Volume Right                      | 0           | 0           | 0           | 0           | 0                    | 975         |
| cSH                               | 1700        | 1700        | 1700        | 1700        | 163                  | 509         |
| Volume to Capacity                | 0.14        | 0.14        | 0.30        | 0.30        | 0.14                 | 1.91        |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0         | 3.6                  | 485.9       |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0         | 30.7                 | 437.9       |
| Lane LOS                          |             |             |             |             | D                    | F           |
| Approach Delay (s)                | 0.0         |             | 0.0         |             | 428.5                |             |
| Approach LOS                      |             |             |             |             | F                    |             |
| <b>Intersection Summary</b>       |             |             |             |             |                      |             |
| Average Delay                     |             |             | 171.3       |             |                      |             |
| Intersection Capacity Utilization |             |             | 97.3%       |             | ICU Level of Service | F           |
| Analysis Period (min)             |             |             | 15          |             |                      |             |

Lanes, Volumes, Timings  
 10: Highway NB terminal & Walkley Road

Future Total 2025 AM - Site Peak  
 10-24-2022















| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NBL   | NBR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    |       |      | ↑↑    | ↘     |       |
| Traffic Volume (vph)       | 51    | 439   | 0    | 588   | 431   | 7     |
| Future Volume (vph)        | 51    | 439   | 0    | 588   | 431   | 7     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00 | 0.95  | 1.00  | 1.00  |
| Frt                        | 0.866 |       |      | 0.998 |       |       |
| Flt Protected              |       |       |      | 0.953 |       |       |
| Satd. Flow (prot)          | 2936  | 0     | 0    | 3390  | 1697  | 0     |
| Flt Permitted              |       |       |      | 0.953 |       |       |
| Satd. Flow (perm)          | 2936  | 0     | 0    | 3390  | 1697  | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 322.4 |       |      | 108.3 | 295.7 |       |
| Travel Time (s)            | 14.5  |       |      | 8.1   | 22.2  |       |
| Peak Hour Factor           | 0.93  | 0.93  | 0.93 | 0.93  | 0.93  | 0.93  |
| Adj. Flow (vph)            | 55    | 472   | 0    | 632   | 463   | 8     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 527   | 0     | 0    | 632   | 471   | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 3.7   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 14    |       | 24   | 24    |       | 14    |
| Sign Control               | Free  |       |      | Free  | Stop  |       |

Intersection Summary

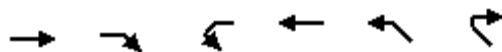
|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 49.5%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
 10: Highway NB terminal & Walkley Road

Future Total 2025 AM - Site Peak  
 10-24-2022

|                                   |    |  |  |    |    |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations               |   |   |   |   |   |   |
| Traffic Volume (veh/h)            | 51  | 439   | 0   | 588   | 431   | 7   |
| Future Volume (Veh/h)             | 51  | 439   | 0   | 588   | 431   | 7   |
| 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)            | 55  | 472   | 0   | 632   | 463   | 8   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            |   |   | 527   |   | 607   | 264   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                |   |   | 527   |   | 607   | 264   |
| tC, single (s)                    |   |   | 4.1   |   | 6.8   | 6.9   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            |   |   | 2.2   |   | 3.5   | 3.3   |
| p0 queue free %                   |   |   | 100   |   | 0   | 99  |
| cM capacity (veh/h)               |   |   | 1036  |   | 428   | 735   |
| <b>Direction, Lane #</b>          | <b>EB 1</b>   | <b>EB 2</b>   | <b>WB 1</b>   | <b>WB 2</b>   | <b>NB 1</b>   |   |
| Volume Total                      | 37  | 490   | 316   | 316   | 471   |   |
| Volume Left                       | 0   | 0   | 0   | 0   | 463   |   |
| Volume Right                      | 0   | 472   | 0   | 0   | 8   |   |
| cSH                               | 1700  | 1700  | 1700  | 1700  | 431   |   |
| Volume to Capacity                | 0.02  | 0.29  | 0.19  | 0.19  | 1.09  |   |
| Queue Length 95th (m)             | 0.0   | 0.0   | 0.0   | 0.0   | 121.8   |   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   | 0.0   | 101.6   |   |
| Lane LOS                          |   |   |   |   | F   |   |
| Approach Delay (s)                | 0.0   |   | 0.0   |   | 101.6   |   |
| Approach LOS                      |   |   |   |   | F   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 29.4  |   |   |   |
| Intersection Capacity Utilization |   |   | 49.5%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |





| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NWL   | NWR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    | ↑     |      | ↑↑↑   |       |       |
| Traffic Volume (vph)       | 466   | 214   | 0    | 1933  | 0     | 0     |
| Future Volume (vph)        | 466   | 214   | 0    | 1933  | 0     | 0     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Storage Length (m)         |       | 60.0  | 0.0  |       | 0.0   | 0.0   |
| Storage Lanes              |       | 1     | 0    |       | 0     | 0     |
| Taper Length (m)           |       |       | 7.6  |       | 7.6   |       |
| Lane Util. Factor          | 0.95  | 1.00  | 1.00 | 0.91  | 1.00  | 1.00  |
| Frt                        |       | 0.850 |      |       |       |       |
| Flt Protected              |       |       |      |       |       |       |
| Satd. Flow (prot)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Flt Permitted              |       |       |      |       |       |       |
| Satd. Flow (perm)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 363.2 |       |      | 131.6 | 210.3 |       |
| Travel Time (s)            | 16.3  |       |      | 9.9   | 15.8  |       |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90 | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)            | 518   | 238   | 0    | 2148  | 0     | 0     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 518   | 238   | 0    | 2148  | 0     | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 0.0   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        |       | 14    | 24   |       | 24    | 14    |
| Sign Control               | Free  |       |      | Free  | Free  |       |

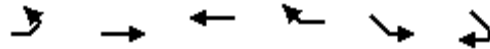
**Intersection Summary**

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 42.8%                  |
|                                   | ICU Level of Service A |
| Analysis Period (min)             | 15                     |

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings  
13: Walkley Road & NB off ramp

Future Total 2025 AM - Site Peak  
10-24-2022



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SEL   | SER   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑     | ↗     |       |       |
| Traffic Volume (vph)       | 0    | 58    | 588   | 209   | 0     | 0     |
| Future Volume (vph)        | 0    | 58    | 588   | 209   | 0     | 0     |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 0.0  |       |       | 70.0  | 0.0   | 0.0   |
| Storage Lanes              | 0    |       |       | 1     | 0     | 0     |
| Taper Length (m)           | 7.6  |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00 | 0.95  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      |       |       | 0.850 |       |       |
| Flt Protected              |      |       |       |       |       |       |
| Satd. Flow (prot)          | 0    | 3390  | 1784  | 1517  | 0     | 0     |
| Flt Permitted              |      |       |       |       |       |       |
| Satd. Flow (perm)          | 0    | 3390  | 1784  | 1517  | 0     | 0     |
| Link Speed (k/h)           |      | 80    | 80    |       | 48    |       |
| Link Distance (m)          |      | 108.3 | 195.3 |       | 199.6 |       |
| Travel Time (s)            |      | 4.9   | 8.8   |       | 15.0  |       |
| Peak Hour Factor           | 0.93 | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  |
| Adj. Flow (vph)            | 0    | 62    | 632   | 225   | 0     | 0     |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 62    | 632   | 225   | 0     | 0     |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 0.0   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Free  |       |

















Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 36.0%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

















Lanes, Volumes, Timings  
15: Sheffield Road & Humber Place










Future Total 2025 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group                        | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 20  | 0   | 70  | 0   | 0   | 0   | 148  | 507   | 0   | 0   | 354   | 16  |
| Future Volume (vph)               | 20  | 0   | 70  | 0   | 0   | 0   | 148  | 507   | 0   | 0   | 354   | 16  |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  | 1800   | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   |   | 0.895   |   |   |   |   |  |   |   |   |   | 0.994   |
| Fl <sub>t</sub> Protected         |   | 0.989   |   |   |   |   |  | 0.989   |   |   |   |   |
| Satd. Flow (prot)                 | 0   | 1290  | 0   | 0   | 1784  | 0   | 0  | 1585  | 0   | 0   | 1393  | 0   |
| Fl <sub>t</sub> Permitted         |   | 0.989   |   |   |   |   |  | 0.989   |   |   |   |   |
| Satd. Flow (perm)                 | 0   | 1290  | 0   | 0   | 1784  | 0   | 0  | 1585  | 0   | 0   | 1393  | 0   |
| Link Speed (k/h)                  |   | 48  |   |   | 48  |   |  | 48  |   |   | 48  |   |
| Link Distance (m)                 |   | 152.4   |   |   | 148.3   |   |  | 830.1   |   |   | 120.3   |   |
| Travel Time (s)                   |   | 11.4  |   |   | 11.1  |   |  | 62.3  |   |   | 9.0   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 35%   | 2%  | 22%   | 50%   | 2%  | 33%   | 12%  | 14%   | 0%  | 33%   | 30%   | 26%   |
| Adj. Flow (vph)                   | 22  | 0   | 78  | 0   | 0   | 0   | 164  | 563   | 0   | 0   | 393   | 18  |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 100   | 0   | 0   | 0   | 0   | 0  | 727   | 0   | 0   | 411   | 0   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  | No   | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Left  | Right   | Left  | Left  | Right   | Left   | Left  | Right   | Left  | Left  | Right   |
| Median Width(m)                   |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Link Offset(m)                    |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Crosswalk Width(m)                |   | 4.9   |   |   | 4.9   |   |  | 4.9   |   |   | 4.9   |   |
| Two way Left Turn Lane            |   |   |   |   |   |   |  |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06   | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  |   | 14  | 24  |   | 14  | 24   |   | 14  | 24  |   | 14  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |  |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 73.2%   |   |   |   |   |   | ICU Level of Service D   |   |   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 15: Sheffield Road & Humber Place










Future Total 2025 AM - Site Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 20  | 0   | 70  | 0   | 0   | 0   | 148  | 507   | 0   | 0   | 354   | 16  |
| Future Volume (Veh/h)             | 20  | 0   | 70  | 0   | 0   | 0   | 148  | 507   | 0   | 0   | 354   | 16  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 22  | 0   | 78  | 0   | 0   | 0   | 164  | 563   | 0   | 0   | 393   | 18  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (m)                    |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (m/s)               |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Median storage veh                |   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (m)               |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 1293  | 1293  | 402   | 1371  | 1302  | 563   | 411  |   |   | 563   |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 1293  | 1293  | 402   | 1371  | 1302  | 563   | 411  |   |   | 563   |   |   |
| tC, single (s)                    | 7.4   | 6.5   | 6.4   | 7.6   | 6.5   | 6.5   | 4.2  |   |   | 4.4   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 3.8   | 4.0   | 3.5   | 4.0   | 4.0   | 3.6   | 2.3  |   |   | 2.5   |   |   |
| p0 queue free %                   | 79  | 100   | 87  | 100   | 100   | 100   | 85   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 106   | 138   | 607   | 75  | 137   | 471   | 1096   |   |   | 871   |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | SB 1  |   |   |  |   |   |   |   |   |
| Volume Total                      | 100   | 0   | 727   | 411   |   |   |  |   |   |   |   |   |
| Volume Left                       | 22  | 0   | 164   | 0   |   |   |  |   |   |   |   |   |
| Volume Right                      | 78  | 0   | 0   | 18  |   |   |  |   |   |   |   |   |
| cSH                               | 297   | 1700  | 1096  | 871   |   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.34  | 0.00  | 0.15  | 0.00  |   |   |  |   |   |   |   |   |
| Queue Length 95th (m)             | 10.9  | 0.0   | 4.0   | 0.0   |   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 23.2  | 0.0   | 3.5   | 0.0   |   |   |  |   |   |   |   |   |
| Lane LOS                          | C   | A   | A   |   |   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 23.2  | 0.0   | 3.5   | 0.0   |   |   |  |   |   |   |   |   |
| Approach LOS                      | C   | A   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 3.9   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 73.2%   |   | ICU Level of Service  |   |  |   |   | D   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 1   | 0   | 381   | 142   | 35  | 378   |
| Future Volume (vph)               | 1   | 0   | 381   | 142   | 35  | 378   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 0.963   |   |   |   |   |   |
| Flt Protected                     | 0.950   |   |   |   |   | 0.996   |
| Satd. Flow (prot)                 | 1695  | 0   | 1718  | 0   | 0   | 946   |
| Flt Permitted                     | 0.950   |   |   |   |   | 0.996   |
| Satd. Flow (perm)                 | 1695  | 0   | 1718  | 0   | 0   | 946   |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 56.2  |   | 120.3   |   |   | 89.9  |
| Travel Time (s)                   | 4.2   |   | 9.0   |   |   | 6.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 2%  | 2%  | 2%  | 2%  | 2%  | 100%  |
| Adj. Flow (vph)                   | 1   | 0   | 423   | 158   | 39  | 420   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 1   | 0   | 581   | 0   | 0   | 459   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 61.6%   |   |   | ICU Level of Service B  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 18: Sheffield Road & Way #5










Future Total 2025 AM - Site Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 1   | 0   | 381   | 142   | 35  | 378   |
| Future Volume (Veh/h)             | 1   | 0   | 381   | 142   | 35  | 378   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1   | 0   | 423   | 158   | 39  | 420   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| Lane Width (m)                    |   |   |   |   |   |   |
| Walking Speed (m/s)               |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       | None  |   |   | None  |   |   |
| Median storage (veh)              |   |   |   |   |   |   |
| Upstream signal (m)               |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |
| vC, conflicting volume            | 1000  | 502   |   |   | 581   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 1000  | 502   |   |   | 581   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 96  |   |
| cM capacity (veh/h)               | 259   | 569   |   |   | 993   |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 1   | 581   | 459   |   |   |   |
| Volume Left                       | 1   | 0   | 39  |   |   |   |
| Volume Right                      | 0   | 158   | 0   |   |   |   |
| cSH                               | 259   | 1700  | 993   |   |   |   |
| Volume to Capacity                | 0.00  | 0.34  | 0.04  |   |   |   |
| Queue Length 95th (m)             | 0.1   | 0.0   | 0.9   |   |   |   |
| Control Delay (s)                 | 19.0  | 0.0   | 1.2   |   |   |   |
| Lane LOS                          | C   |   | A   |   |   |   |
| Approach Delay (s)                | 19.0  | 0.0   | 1.2   |   |   |   |
| Approach LOS                      | C   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.5   |   |   |   |
| Intersection Capacity Utilization |   |   | 61.6%   | ICU Level of Service  | B   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |












Lanes, Volumes, Timings  
20: Sheffield Road & Way #4

Future Total 2025 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 156   | 39  | 392   | 0   | 0   | 257   |
| Future Volume (vph)               | 156   | 39  | 392   | 0   | 0   | 257   |
| Ideal Flow (vphp)                 | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 0.973   |   |   |   |   |   |
| Flt Protected                     | 0.961   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1668  | 0   | 1784  | 0   | 0   | 1784  |
| Flt Permitted                     | 0.961   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1668  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   | 48  |   |
| Link Distance (m)                 | 60.6  |   | 89.9  |   | 135.3   |   |
| Travel Time (s)                   | 4.5   |   | 6.7   |   | 10.1  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 173   | 43  | 436   | 0   | 0   | 286   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 216   | 0   | 436   | 0   | 0   | 286   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   | 0.0   |   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   | 0.0   |   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   | 4.9   |   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 40.1%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
20: Sheffield Road & Way #4

Future Total 2025 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 156   | 39  | 392   | 0   | 0   | 257   |
| Future Volume (Veh/h)             | 156   | 39  | 392   | 0   | 0   | 257   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 173   | 43  | 436   | 0   | 0   | 286   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 722   | 436   |   |   | 436   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 722   | 436   |   |   | 436   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 56  | 93  |   |   | 100   |   |
| cM capacity (veh/h)               | 394   | 620   |   |   | 1124  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 216   | 436   | 286   |   |   |   |
| Volume Left                       | 173   | 0   | 0   |   |   |   |
| Volume Right                      | 43  | 0   | 0   |   |   |   |
| cSH                               | 424   | 1700  | 1124  |   |   |   |
| Volume to Capacity                | 0.51  | 0.26  | 0.00  |   |   |   |
| Queue Length 95th (m)             | 21.3  | 0.0   | 0.0   |   |   |   |
| Control Delay (s)                 | 21.9  | 0.0   | 0.0   |   |   |   |
| Lane LOS                          | C   |   |   |   |   |   |
| Approach Delay (s)                | 21.9  | 0.0   | 0.0   |   |   |   |
| Approach LOS                      | C   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 5.1   |   |   |   |
| Intersection Capacity Utilization |   |   | 40.1%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |










Lanes, Volumes, Timings  
24: Sheffield Road & Way #2

Future Total 2025 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 420   | 0   | 0   | 257   |
| Future Volume (vph)               | 0   | 0   | 420   | 0   | 0   | 257   |
| Ideal Flow (vphp)                 | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| <b>Fr</b>                         |   |   |   |   |   |   |
| <b>Flt Protected</b>              |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| <b>Flt Permitted</b>              |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 65.0  |   | 135.3   |   |   | 74.6  |
| Travel Time (s)                   | 4.9   |   | 10.1  |   |   | 5.6   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 0   | 467   | 0   | 0   | 286   |
| <b>Shared Lane Traffic (%)</b>    |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 467   | 0   | 0   | 286   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| <b>Two way Left Turn Lane</b>     |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 26.7%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
24: Sheffield Road & Way #2

Future Total 2025 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 420   | 0   | 0   | 257   |
| Future Volume (Veh/h)             | 0   | 0   | 420   | 0   | 0   | 257   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 467   | 0   | 0   | 286   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 753   | 467   |   |   | 467   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 753   | 467   |   |   | 467   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 377   | 596   |   |   | 1094  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 467   | 286   |   |   |   |
| Volume Left                       | 0   | 0   | 0   |   |   |   |
| Volume Right                      | 0   | 0   | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1094  |   |   |   |
| Volume to Capacity                | 0.00  | 0.27  | 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   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 26.7%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

Lanes, Volumes, Timings  
26: Sheffield Road & Way #1

Future Total 2025 AM - Site Peak  
10-24-2022












| Lane Group                     | WBL  | WBR   | NBT  | NBR   | SBL  | SBT   |
|--------------------------------|------|-------|------|-------|------|-------|
| Lane Configurations            |      |       |      |       |      |       |
| Traffic Volume (vph)           | 0    | 0     | 429  | 0     | 0    | 255   |
| Future Volume (vph)            | 0    | 0     | 429  | 0     | 0    | 255   |
| Ideal Flow (vphp)              | 1800 | 1800  | 1800 | 1800  | 1800 | 1800  |
| Lane Util. Factor              | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| <b>Fr</b>                      |      |       |      |       |      |       |
| Flt Protected                  |      |       |      |       |      |       |
| Satd. Flow (prot)              | 1784 | 0     | 1784 | 0     | 0    | 1784  |
| Flt Permitted                  |      |       |      |       |      |       |
| Satd. Flow (perm)              | 1784 | 0     | 1784 | 0     | 0    | 1784  |
| Link Speed (k/h)               | 48   |       | 48   |       |      | 48    |
| Link Distance (m)              | 58.8 |       | 74.6 |       |      | 272.6 |
| Travel Time (s)                | 4.4  |       | 5.6  |       |      | 20.4  |
| Peak Hour Factor               | 0.90 | 0.90  | 0.90 | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)                | 0    | 0     | 477  | 0     | 0    | 283   |
| <b>Shared Lane Traffic (%)</b> |      |       |      |       |      |       |
| Lane Group Flow (vph)          | 0    | 0     | 477  | 0     | 0    | 283   |
| Enter Blocked Intersection     | No   | No    | No   | No    | No   | No    |
| Lane Alignment                 | Left | Right | Left | Right | Left | Left  |
| Median Width(m)                | 3.7  |       | 0.0  |       |      | 0.0   |
| Link Offset(m)                 | 0.0  |       | 0.0  |       |      | 0.0   |
| Crosswalk Width(m)             | 4.9  |       | 4.9  |       |      | 4.9   |
| <b>Two way Left Turn Lane</b>  |      |       |      |       |      |       |
| Headway Factor                 | 1.06 | 1.06  | 1.06 | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)            | 24   | 14    |      | 14    | 24   |       |
| Sign Control                   | Stop |       | Free |       |      | Free  |

**Intersection Summary**

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 27.2%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
26: Sheffield Road & Way #1

Future Total 2025 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 429   | 0   | 0   | 255   |
| Future Volume (Veh/h)             | 0   | 0   | 429   | 0   | 0   | 255   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 477   | 0   | 0   | 283   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 760   | 477   |   |   | 477   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 760   | 477   |   |   | 477   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 374   | 588   |   |   | 1085  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 477   | 283   |   |   |   |
| Volume Left                       | 0   | 0   | 0   |   |   |   |
| Volume Right                      | 0   | 0   | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1085  |   |   |   |
| Volume to Capacity                | 0.00  | 0.28  | 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   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 27.2%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future Total 2025 PM - Site Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 94    | 1348  | 743   | 123   | 363   | 154   |
| Future Volume (vph)        | 94    | 1348  | 743   | 123   | 363   | 154   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 30.5  |       |       | 0.0   | 0.0   | 30.5  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1695  | 3293  | 3172  | 1419  | 3288  | 1502  |
| Flt Permitted              | 0.277 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 494   | 3293  | 3172  | 1419  | 3288  | 1502  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 135   |       | 138   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 306.2 | 364.1 |       | 701.3 |       |
| Travel Time (s)            |       | 13.8  | 16.4  |       | 52.6  |       |
| Peak Hour Factor           | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  |
| Heavy Vehicles (%)         | 2%    | 5%    | 9%    | 9%    | 2%    | 3%    |
| Adj. Flow (vph)            | 103   | 1481  | 816   | 135   | 399   | 169   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 103   | 1481  | 816   | 135   | 399   | 169   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 22.0  | 102.0 | 80.0  | 80.0  | 28.0  | 28.0  |
| Total Split (%)            | 16.9% | 78.5% | 61.5% | 61.5% | 21.5% | 21.5% |
| Maximum Green (s)          | 19.0  | 97.0  | 75.0  | 75.0  | 23.0  | 23.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 99.0  | 97.0  | 75.0  | 75.0  | 23.0  | 23.0  |
| Actuated g/C Ratio         | 0.76  | 0.75  | 0.58  | 0.58  | 0.18  | 0.18  |

Lanes, Volumes, Timings  
 3: Walkley Road & Lancaster Road

Future Total 2025 PM - Site Peak  
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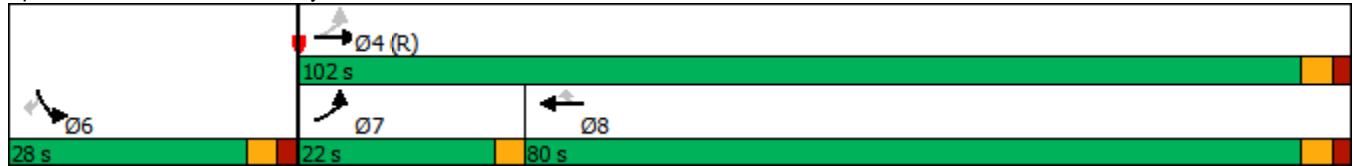


| Lane Group             | EBL  | EBT   | WBT   | WBR   | SBL   | SBR  |
|------------------------|------|-------|-------|-------|-------|------|
| v/c Ratio              | 0.19 | 0.60  | 0.45  | 0.15  | 0.69  | 0.45 |
| Control Delay          | 4.7  | 8.9   | 15.5  | 4.2   | 57.0  | 15.9 |
| Queue Delay            | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| Total Delay            | 4.7  | 8.9   | 15.5  | 4.2   | 57.0  | 15.9 |
| LOS                    | A    | A     | B     | A     | E     | B    |
| Approach Delay         |      | 8.6   | 13.9  |       | 44.8  |      |
| Approach LOS           |      | A     | B     |       | D     |      |
| Queue Length 50th (m)  | 5.8  | 80.7  | 72.8  | 8.6   | 49.8  | 6.8  |
| Queue Length 95th (m)  | 10.1 | 97.3  | 82.4  | m15.7 | 67.1  | 27.7 |
| Internal Link Dist (m) |      | 282.2 | 340.1 |       | 677.3 |      |
| Turn Bay Length (m)    | 30.5 |       |       |       |       | 30.5 |
| Base Capacity (vph)    | 551  | 2457  | 1830  | 875   | 581   | 379  |
| Starvation Cap Reductn | 0    | 0     | 0     | 0     | 0     | 0    |
| Spillback Cap Reductn  | 0    | 0     | 0     | 0     | 0     | 0    |
| Storage Cap Reductn    | 0    | 0     | 0     | 0     | 0     | 0    |
| Reduced v/c Ratio      | 0.19 | 0.60  | 0.45  | 0.15  | 0.69  | 0.45 |

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 50 (38%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.69  
 Intersection Signal Delay: 16.8  
 Intersection LOS: B  
 Intersection Capacity Utilization 58.6%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Walkley Road & Lancaster Road





HCM Signalized Intersection Capacity Analysis  
3: Walkley Road & Lancaster Road

Future Total 2025 PM - Site Peak  
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| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 94    | 1348  | 743  | 123  | 363   | 154  |
| Future Volume (vph)    | 94    | 1348  | 743  | 123  | 363   | 154  |
| Ideal Flow (vphp)      | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1695  | 3293  | 3172 | 1419 | 3288  | 1502 |
| Flt Permitted          | 0.28  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 494   | 3293  | 3172 | 1419 | 3288  | 1502 |
| Peak-hour factor, PHF  | 0.91  | 0.91  | 0.91 | 0.91 | 0.91  | 0.91 |
| Adj. Flow (vph)        | 103   | 1481  | 816  | 135  | 399   | 169  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 57   | 0     | 114  |
| Lane Group Flow (vph)  | 103   | 1481  | 816  | 78   | 399   | 55   |
| Heavy Vehicles (%)     | 2%    | 5%    | 9%   | 9%   | 2%    | 3%   |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 97.0  | 97.0  | 75.0 | 75.0 | 23.0  | 23.0 |
| Effective Green, g (s) | 97.0  | 97.0  | 75.0 | 75.0 | 23.0  | 23.0 |
| Actuated g/C Ratio     | 0.75  | 0.75  | 0.58 | 0.58 | 0.18  | 0.18 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 544   | 2457  | 1830 | 818  | 581   | 265  |
| v/s Ratio Prot         | 0.03  | c0.45 | 0.26 |      | c0.12 |      |
| v/s Ratio Perm         | 0.11  |       |      | 0.05 |       | 0.04 |
| v/c Ratio              | 0.19  | 0.60  | 0.45 | 0.10 | 0.69  | 0.21 |
| Uniform Delay, d1      | 5.5   | 7.6   | 15.7 | 12.3 | 50.1  | 45.7 |
| Progression Factor     | 1.00  | 1.00  | 0.93 | 1.93 | 1.00  | 1.00 |
| Incremental Delay, d2  | 0.8   | 1.1   | 0.7  | 0.2  | 6.5   | 1.8  |
| Delay (s)              | 6.3   | 8.7   | 15.3 | 24.0 | 56.6  | 47.5 |
| Level of Service       | A     | A     | B    | C    | E     | D    |
| Approach Delay (s)     |       | 8.6   | 16.5 |      | 53.9  |      |
| Approach LOS           |       | A     | B    |      | D     |      |

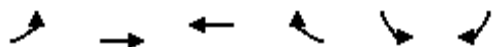
Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 19.3  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.63  |                           |      |
| Actuated Cycle Length (s)         | 130.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 58.6% | ICU Level of Service      | B    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
6: Walkley Road & Sheffield Road

Future Total 2025 PM - Site Peak  
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| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 190   | 1448  | 532   | 162   | 313   | 320   |
| Future Volume (vph)        | 190   | 1448  | 532   | 162   | 313   | 320   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 30.5  |       |       | 50.0  | 0.0   | 30.5  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1383  | 3390  | 3172  | 1146  | 3164  | 1381  |
| Flt Permitted              | 0.404 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 588   | 3390  | 3172  | 1146  | 3164  | 1381  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 165   |       | 330   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 364.1 | 339.6 |       | 830.6 |       |
| Travel Time (s)            |       | 16.4  | 15.3  |       | 62.3  |       |
| Peak Hour Factor           | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.97  |
| Heavy Vehicles (%)         | 25%   | 2%    | 9%    | 35%   | 6%    | 12%   |
| Adj. Flow (vph)            | 194   | 1478  | 543   | 165   | 319   | 330   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 194   | 1478  | 543   | 165   | 319   | 330   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.0  | 23.0  | 23.0  | 23.0  | 23.0  |
| Total Split (s)            | 22.0  | 104.0 | 82.0  | 82.0  | 26.0  | 26.0  |
| Total Split (%)            | 16.9% | 80.0% | 63.1% | 63.1% | 20.0% | 20.0% |
| Maximum Green (s)          | 19.0  | 99.0  | 77.0  | 77.0  | 21.0  | 21.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 101.0 | 99.0  | 77.0  | 77.0  | 21.0  | 21.0  |
| Actuated g/C Ratio         | 0.78  | 0.76  | 0.59  | 0.59  | 0.16  | 0.16  |



| Lane Group             | EBL   | EBT   | WBT   | WBR  | SBL   | SBR  |
|------------------------|-------|-------|-------|------|-------|------|
| v/c Ratio              | 0.34  | 0.57  | 0.29  | 0.22 | 0.62  | 0.66 |
| Control Delay          | 4.2   | 5.2   | 13.5  | 2.4  | 56.9  | 12.1 |
| Queue Delay            | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  |
| Total Delay            | 4.2   | 5.2   | 13.5  | 2.4  | 56.9  | 12.1 |
| LOS                    | A     | A     | B     | A    | E     | B    |
| Approach Delay         |       | 5.1   | 10.9  |      | 34.1  |      |
| Approach LOS           |       | A     | B     |      | C     |      |
| Queue Length 50th (m)  | 8.4   | 49.4  | 34.2  | 0.0  | 39.7  | 0.0  |
| Queue Length 95th (m)  | m13.0 | 57.4  | 44.4  | 8.9  | 55.3  | 28.3 |
| Internal Link Dist (m) |       | 340.1 | 315.6 |      | 806.6 |      |
| Turn Bay Length (m)    | 30.5  |       |       | 50.0 |       | 30.5 |
| Base Capacity (vph)    | 573   | 2581  | 1878  | 746  | 511   | 499  |
| Starvation Cap Reductn | 0     | 0     | 0     | 0    | 0     | 0    |
| Spillback Cap Reductn  | 0     | 0     | 0     | 0    | 0     | 0    |
| Storage Cap Reductn    | 0     | 0     | 0     | 0    | 0     | 0    |
| Reduced v/c Ratio      | 0.34  | 0.57  | 0.29  | 0.22 | 0.62  | 0.66 |

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 13 (10%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.66  
 Intersection Signal Delay: 12.7  
 Intersection LOS: B  
 Intersection Capacity Utilization 60.0%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Walkley Road & Sheffield Road



HCM Signalized Intersection Capacity Analysis  
6: Walkley Road & Sheffield Road

Future Total 2025 PM - Site Peak  
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| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 190   | 1448  | 532  | 162  | 313   | 320  |
| Future Volume (vph)    | 190   | 1448  | 532  | 162  | 313   | 320  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1383  | 3390  | 3172 | 1146 | 3164  | 1381 |
| Flt Permitted          | 0.40  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 589   | 3390  | 3172 | 1146 | 3164  | 1381 |
| Peak-hour factor, PHF  | 0.98  | 0.98  | 0.98 | 0.98 | 0.98  | 0.97 |
| Adj. Flow (vph)        | 194   | 1478  | 543  | 165  | 319   | 330  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 67   | 0     | 277  |
| Lane Group Flow (vph)  | 194   | 1478  | 543  | 98   | 319   | 53   |
| Heavy Vehicles (%)     | 25%   | 2%    | 9%   | 35%  | 6%    | 12%  |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 99.0  | 99.0  | 77.0 | 77.0 | 21.0  | 21.0 |
| Effective Green, g (s) | 99.0  | 99.0  | 77.0 | 77.0 | 21.0  | 21.0 |
| Actuated g/C Ratio     | 0.76  | 0.76  | 0.59 | 0.59 | 0.16  | 0.16 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 564   | 2581  | 1878 | 678  | 511   | 223  |
| v/s Ratio Prot         | 0.05  | c0.44 | 0.17 |      | c0.10 |      |
| v/s Ratio Perm         | 0.21  |       |      | 0.09 |       | 0.04 |
| v/c Ratio              | 0.34  | 0.57  | 0.29 | 0.14 | 0.62  | 0.24 |
| Uniform Delay, d1      | 4.6   | 6.6   | 13.0 | 11.8 | 50.8  | 47.5 |
| Progression Factor     | 0.76  | 0.67  | 1.00 | 1.00 | 1.00  | 1.00 |
| Incremental Delay, d2  | 1.3   | 0.7   | 0.4  | 0.4  | 5.7   | 2.5  |
| Delay (s)              | 4.8   | 5.1   | 13.4 | 12.3 | 56.5  | 50.0 |
| Level of Service       | A     | A     | B    | B    | E     | D    |
| Approach Delay (s)     |       | 5.1   | 13.2 |      | 53.2  |      |
| Approach LOS           |       | A     | B    |      | D     |      |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 17.3  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.60  |                           |      |
| Actuated Cycle Length (s)         | 130.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 60.0% | ICU Level of Service      | B    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
7: Walkley Road & Highway SB terminal

Future Total 2025 PM - Site Peak  
10-24-2022



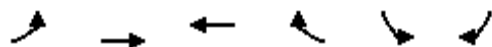
| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑↑    |       | ↘     | ↗     |
| Traffic Volume (vph)       | 0    | 1144  | 171   | 0     | 130   | 516   |
| Future Volume (vph)        | 0    | 1144  | 171   | 0     | 130   | 516   |
| Ideal Flow (vphp)          | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  |
| Flt                        |      |       |       |       |       | 0.850 |
| Flt Protected              |      |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Flt Permitted              |      |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Link Speed (k/h)           |      | 80    | 80    |       | 80    |       |
| Link Distance (m)          |      | 118.5 | 305.1 |       | 468.0 |       |
| Travel Time (s)            |      | 5.3   | 13.7  |       | 21.1  |       |
| Peak Hour Factor           | 0.95 | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  |
| Adj. Flow (vph)            | 0    | 1204  | 180   | 0     | 137   | 543   |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 1204  | 180   | 0     | 137   | 543   |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 3.7   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 47.6%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
7: Walkley Road & Highway SB terminal

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| Movement                          | EBL         | EBT         | WBT         | WBR         | SBL                  | SBR         |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|-------------|
| Lane Configurations               |             | ↑↑          | ↑↑          |             | ↘                    | ↗           |
| Traffic Volume (veh/h)            | 0           | 1144        | 171         | 0           | 130                  | 516         |
| Future Volume (Veh/h)             | 0           | 1144        | 171         | 0           | 130                  | 516         |
| Sign Control                      |             | Free        | Free        |             | Stop                 |             |
| Grade                             |             | 0%          | 0%          |             | 0%                   |             |
| Peak Hour Factor                  | 0.95        | 0.95        | 0.95        | 0.95        | 0.95                 | 0.95        |
| Hourly flow rate (vph)            | 0           | 1204        | 180         | 0           | 137                  | 543         |
| <b>Pedestrians</b>                |             |             |             |             |                      |             |
| 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            | 180         |             |             |             | 782                  | 90          |
| vC1, stage 1 conf vol             |             |             |             |             |                      |             |
| vC2, stage 2 conf vol             |             |             |             |             |                      |             |
| vCu, unblocked vol                | 180         |             |             |             | 782                  | 90          |
| tC, single (s)                    | 4.1         |             |             |             | 6.8                  | 6.9         |
| tC, 2 stage (s)                   |             |             |             |             |                      |             |
| tF (s)                            | 2.2         |             |             |             | 3.5                  | 3.3         |
| p0 queue free %                   | 100         |             |             |             | 59                   | 43          |
| cM capacity (veh/h)               | 1393        |             |             |             | 331                  | 950         |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b> | <b>SB 1</b>          | <b>SB 2</b> |
| Volume Total                      | 602         | 602         | 90          | 90          | 137                  | 543         |
| Volume Left                       | 0           | 0           | 0           | 0           | 137                  | 0           |
| Volume Right                      | 0           | 0           | 0           | 0           | 0                    | 543         |
| cSH                               | 1700        | 1700        | 1700        | 1700        | 331                  | 950         |
| Volume to Capacity                | 0.35        | 0.35        | 0.05        | 0.05        | 0.41                 | 0.57        |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0         | 14.9                 | 28.3        |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0         | 23.3                 | 13.7        |
| Lane LOS                          |             |             |             |             | C                    | B           |
| Approach Delay (s)                | 0.0         |             | 0.0         |             | 15.7                 |             |
| Approach LOS                      |             |             |             |             | C                    |             |
| <b>Intersection Summary</b>       |             |             |             |             |                      |             |
| Average Delay                     |             |             | 5.2         |             |                      |             |
| Intersection Capacity Utilization |             |             | 47.6%       |             | ICU Level of Service | A           |
| Analysis Period (min)             |             |             | 15          |             |                      |             |

Lanes, Volumes, Timings  
 10: Highway NB terminal & Walkley Road

Future Total 2025 PM - Site Peak  
 10-24-2022















| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NBL   | NBR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    |       |      | ↑↑    | ↘↘    |       |
| Traffic Volume (vph)       | 448   | 828   | 0    | 49    | 136   | 24    |
| Future Volume (vph)        | 448   | 828   | 0    | 49    | 136   | 24    |
| Ideal Flow (vphp)          | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00 | 0.95  | 1.00  | 1.00  |
| Fr <sub>t</sub>            | 0.903 |       |      | 0.980 |       |       |
| Fl <sub>t</sub> Protected  |       |       |      | 0.959 |       |       |
| Satd. Flow (prot)          | 3061  | 0     | 0    | 3390  | 1677  | 0     |
| Fl <sub>t</sub> Permitted  |       |       |      | 0.959 |       |       |
| Satd. Flow (perm)          | 3061  | 0     | 0    | 3390  | 1677  | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 305.1 |       |      | 95.4  | 443.2 |       |
| Travel Time (s)            | 13.7  |       |      | 7.2   | 33.2  |       |
| Peak Hour Factor           | 0.91  | 0.91  | 0.91 | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)            | 492   | 910   | 0    | 54    | 149   | 26    |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 1402  | 0     | 0    | 54    | 175   | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 3.7   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 14    |       | 24   | 24    |       | 14    |
| Sign Control               | Free  |       |      | Free  | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 57.4%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service B |

HCM Unsignalized Intersection Capacity Analysis  
 10: Highway NB terminal & Walkley Road

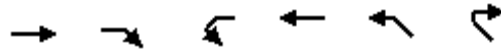
Future Total 2025 PM - Site Peak  
 10-24-2022

|                                   |    |  |  |    |    |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations               |   |   |   |   |   |   |
| Traffic Volume (veh/h)            | 448   | 828   | 0   | 49  | 136   | 24  |
| Future Volume (Veh/h)             | 448   | 828   | 0   | 49  | 136   | 24  |
| Sign Control                      | Free  |   |   | Free  | Stop  |   |
| Grade                             | 0%  |   |   | 0%  | 0%  |   |
| Peak Hour Factor                  | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  |
| Hourly flow rate (vph)            | 492   | 910   | 0   | 54  | 149   | 26  |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            |   |   | 1402  |   | 974   | 701   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                |   |   | 1402  |   | 974   | 701   |
| tC, single (s)                    |   |   | 4.1   |   | 6.8   | 6.9   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            |   |   | 2.2   |   | 3.5   | 3.3   |
| p0 queue free %                   |   |   | 100   |   | 40  | 93  |
| cM capacity (veh/h)               |   |   | 483   |   | 249   | 381   |
| <b>Direction, Lane #</b>          | <b>EB 1</b>   | <b>EB 2</b>   | <b>WB 1</b>   | <b>WB 2</b>   | <b>NB 1</b>   |   |
| Volume Total                      | 328   | 1074  | 27  | 27  | 175   |   |
| Volume Left                       | 0   | 0   | 0   | 0   | 149   |   |
| Volume Right                      | 0   | 910   | 0   | 0   | 26  |   |
| cSH                               | 1700  | 1700  | 1700  | 1700  | 263   |   |
| Volume to Capacity                | 0.19  | 0.63  | 0.02  | 0.02  | 0.67  |   |
| Queue Length 95th (m)             | 0.0   | 0.0   | 0.0   | 0.0   | 32.7  |   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   | 0.0   | 42.3  |   |
| Lane LOS                          |   |   |   |   |   | E   |
| Approach Delay (s)                | 0.0   |   | 0.0   |   | 42.3  |   |
| Approach LOS                      |   |   |   |   |   | E   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 4.5   |   |   |   |
| Intersection Capacity Utilization |   |   | 57.4%   | ICU Level of Service  | B   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |



Lanes, Volumes, Timings  
11: SB off ramp & Walkley Road

Future Total 2025 PM - Site Peak  
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| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NWL   | NWR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    | ↑     |      | ↑↑↑   |       |       |
| Traffic Volume (vph)       | 1144  | 468   | 0    | 687   | 0     | 0     |
| Future Volume (vph)        | 1144  | 468   | 0    | 687   | 0     | 0     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Storage Length (m)         |       | 50.0  | 0.0  |       | 0.0   | 0.0   |
| Storage Lanes              |       | 1     | 0    |       | 0     | 0     |
| Taper Length (m)           |       |       | 7.6  |       | 7.6   |       |
| Lane Util. Factor          | 0.95  | 1.00  | 1.00 | 0.91  | 1.00  | 1.00  |
| Frt                        |       | 0.850 |      |       |       |       |
| Flt Protected              |       |       |      |       |       |       |
| Satd. Flow (prot)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Flt Permitted              |       |       |      |       |       |       |
| Satd. Flow (perm)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 339.6 |       |      | 118.5 | 265.8 |       |
| Travel Time (s)            | 15.3  |       |      | 8.9   | 19.9  |       |
| Peak Hour Factor           | 0.95  | 0.95  | 0.95 | 0.95  | 0.95  | 0.95  |
| Adj. Flow (vph)            | 1204  | 493   | 0    | 723   | 0     | 0     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 1204  | 493   | 0    | 723   | 0     | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 0.0   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        |       | 14    | 24   |       | 24    | 14    |
| Sign Control               | Free  |       |      | Free  | Free  |       |

Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 36.7%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings  
13: Walkley Road & NB off ramp

Future Total 2025 PM - Site Peak  
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| Lane Group                 | EBL  | EBT  | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑   | ↑     | ↗     |       |       |
| Traffic Volume (vph)       | 0    | 472  | 49    | 46    | 0     | 0     |
| Future Volume (vph)        | 0    | 472  | 49    | 46    | 0     | 0     |
| Ideal Flow (vphpl)         | 1800 | 1800 | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 0.0  |      |       | 50.0  | 0.0   | 0.0   |
| Storage Lanes              | 0    |      |       | 1     | 0     | 0     |
| Taper Length (m)           | 7.6  |      |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00 | 0.95 | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      |      |       | 0.850 |       |       |
| Flt Protected              |      |      |       |       |       |       |
| Satd. Flow (prot)          | 0    | 3390 | 1784  | 1517  | 0     | 0     |
| Flt Permitted              |      |      |       |       |       |       |
| Satd. Flow (perm)          | 0    | 3390 | 1784  | 1517  | 0     | 0     |
| Link Speed (k/h)           |      | 80   | 48    |       | 48    |       |
| Link Distance (m)          |      | 95.4 | 197.1 |       | 264.7 |       |
| Travel Time (s)            |      | 4.3  | 14.8  |       | 19.9  |       |
| Peak Hour Factor           | 0.91 | 0.91 | 0.91  | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)            | 0    | 519  | 54    | 51    | 0     | 0     |
| Shared Lane Traffic (%)    |      |      |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 519  | 54    | 51    | 0     | 0     |
| Enter Blocked Intersection | No   | No   | No    | No    | No    | No    |
| Lane Alignment             | Left | Left | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0  | 0.0   |       | 0.0   |       |
| Link Offset(m)             |      | 0.0  | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9  | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |      |       |       |       |       |
| Headway Factor             | 1.06 | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |      |       | 14    | 24    | 14    |
| Sign Control               |      | Free | Free  |       | Free  |       |

















Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 17.1%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

















Lanes, Volumes, Timings  
15: Sheffield Road & Humber Place










Future Total 2025 PM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group                        | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 11  | 0   | 104   | 0   | 0   | 0   | 44   | 347   | 0   | 0   | 515   | 15  |
| Future Volume (vph)               | 11  | 0   | 104   | 0   | 0   | 0   | 44   | 347   | 0   | 0   | 515   | 15  |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  | 1800   | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   |   | 0.878   |   |   |   |   |  |   |   |   | 0.996   |   |
| Fl <sub>t</sub> Protected         |   | 0.995   |   |   |   |   |  | 0.994   |   |   |   |   |
| Satd. Flow (prot)                 | 0   | 1452  | 0   | 0   | 1784  | 0   | 0  | 1374  | 0   | 0   | 1663  | 0   |
| Fl <sub>t</sub> Permitted         |   | 0.995   |   |   |   |   |  | 0.994   |   |   |   |   |
| Satd. Flow (perm)                 | 0   | 1452  | 0   | 0   | 1784  | 0   | 0  | 1374  | 0   | 0   | 1663  | 0   |
| Link Speed (k/h)                  |   | 48  |   |   | 48  |   |  | 48  |   |   | 48  |   |
| Link Distance (m)                 |   | 152.4   |   |   | 148.3   |   |  | 830.6   |   |   | 80.7  |   |
| Travel Time (s)                   |   | 11.4  |   |   | 11.1  |   |  | 62.3  |   |   | 6.1   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 14%   | 2%  | 9%  | 33%   | 2%  | 2%  | 21%  | 33%   | 50%   | 0%  | 9%  | 10%   |
| Adj. Flow (vph)                   | 12  | 0   | 116   | 0   | 0   | 0   | 49   | 386   | 0   | 0   | 572   | 17  |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 128   | 0   | 0   | 0   | 0   | 0  | 435   | 0   | 0   | 589   | 0   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  | No   | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Left  | Right   | Left  | Left  | Right   | Left   | Left  | Right   | Left  | Left  | Right   |
| Median Width(m)                   |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Link Offset(m)                    |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Crosswalk Width(m)                |   | 4.9   |   |   | 4.9   |   |  | 4.9   |   |   | 4.9   |   |
| Two way Left Turn Lane            |   |   |   |   |   |   |  |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06   | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  |   | 14  | 24  |   | 14  | 24   |   | 14  | 24  |   | 14  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |  |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 68.8%   |   |   |   |   |   | ICU Level of Service C   |   |   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 15: Sheffield Road & Humber Place










Future Total 2025 PM - Site Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 11  | 0   | 104   | 0   | 0   | 0   | 44   | 347   | 0   | 0   | 515   | 15  |
| Future Volume (Veh/h)             | 11  | 0   | 104   | 0   | 0   | 0   | 44   | 347   | 0   | 0   | 515   | 15  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 12  | 0   | 116   | 0   | 0   | 0   | 49   | 386   | 0   | 0   | 572   | 17  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (m)                    |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (m/s)               |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Median storage veh                |   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (m)               |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 1064  | 1064  | 580   | 1180  | 1073  | 386   | 589  |   |   | 386   |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 1064  | 1064  | 580   | 1180  | 1073  | 386   | 589  |   |   | 386   |   |   |
| tC, single (s)                    | 7.2   | 6.5   | 6.3   | 7.4   | 6.5   | 6.2   | 4.3  |   |   | 4.1   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 3.6   | 4.0   | 3.4   | 3.8   | 4.0   | 3.3   | 2.4  |   |   | 2.2   |   |   |
| p0 queue free %                   | 93  | 100   | 77  | 100   | 100   | 100   | 95   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 182   | 211   | 501   | 107   | 208   | 662   | 899  |   |   | 1184  |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | SB 1  |   |   |  |   |   |   |   |   |
| Volume Total                      | 128   | 0   | 435   | 589   |   |   |  |   |   |   |   |   |
| Volume Left                       | 12  | 0   | 49  | 0   |   |   |  |   |   |   |   |   |
| Volume Right                      | 116   | 0   | 0   | 17  |   |   |  |   |   |   |   |   |
| cSH                               | 430   | 1700  | 899   | 1184  |   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.30  | 0.00  | 0.05  | 0.00  |   |   |  |   |   |   |   |   |
| Queue Length 95th (m)             | 9.3   | 0.0   | 1.3   | 0.0   |   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 16.9  | 0.0   | 1.6   | 0.0   |   |   |  |   |   |   |   |   |
| Lane LOS                          | C   | A   | A   |   |   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 16.9  | 0.0   | 1.6   | 0.0   |   |   |  |   |   |   |   |   |
| Approach LOS                      | C   | A   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 2.5   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 68.8%   |   | ICU Level of Service  |   |  |   |   | C   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 1   | 0   | 210   | 132   | 32  | 519   |
| Future Volume (vph)               | 1   | 0   | 210   | 132   | 32  | 519   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               |   |   | 0.947   |   |   |   |
| Flt Protected                     | 0.950   |   |   |   |   | 0.997   |
| Satd. Flow (prot)                 | 1695  | 0   | 1690  | 0   | 0   | 1067  |
| Flt Permitted                     | 0.950   |   |   |   |   | 0.997   |
| Satd. Flow (perm)                 | 1695  | 0   | 1690  | 0   | 0   | 1067  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 56.2  |   | 80.7  |   |   | 63.2  |
| Travel Time (s)                   | 4.2   |   | 6.1   |   |   | 4.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.92  | 0.90  | 0.90  | 0.90  |
| Bus Blockages (#/hr)              | 0   | 0   | 0   | 0   | 0   | 100   |
| Adj. Flow (vph)                   | 1   | 0   | 228   | 147   | 36  | 577   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 1   | 0   | 375   | 0   | 0   | 613   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.96  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 64.2%   |   |   | ICU Level of Service C  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 18: Sheffield Road & Way #5










Future Total 2025 PM - Site Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 1   | 0   | 210   | 132   | 32  | 519   |
| Future Volume (Veh/h)             | 1   | 0   | 210   | 132   | 32  | 519   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.92  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1   | 0   | 228   | 147   | 36  | 577   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 950   | 302   |   |   | 375   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 950   | 302   |   |   | 375   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 97  |   |
| cM capacity (veh/h)               | 280   | 738   |   |   | 1183  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 1   | 375   | 613   |   |   |   |
| Volume Left                       | 1   | 0   | 36  |   |   |   |
| Volume Right                      | 0   | 147   | 0   |   |   |   |
| cSH                               | 280   | 1700  | 1183  |   |   |   |
| Volume to Capacity                | 0.00  | 0.22  | 0.03  |   |   |   |
| Queue Length 95th (m)             | 0.1   | 0.0   | 0.7   |   |   |   |
| Control Delay (s)                 | 17.9  | 0.0   | 0.8   |   |   |   |
| Lane LOS                          | C   |   | A   |   |   |   |
| Approach Delay (s)                | 17.9  | 0.0   | 0.8   |   |   |   |
| Approach LOS                      | C   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.5   |   |   |   |
| Intersection Capacity Utilization |   |   | 64.2%   | ICU Level of Service  | C   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |



Lanes, Volumes, Timings  
20: Sheffield Road & Way #4

Future Total 2025 PM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 140   | 34  | 210   | 0   | 0   | 409   |
| Future Volume (vph)               | 140   | 34  | 210   | 0   | 0   | 409   |
| Ideal Flow (vphp)                 | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   | 0.974   |   |   |   |   |   |
| Fl <sub>t</sub> Protected         | 0.961   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1670  | 0   | 1784  | 0   | 0   | 1784  |
| Fl <sub>t</sub> Permitted         | 0.961   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1670  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 60.6  |   | 63.2  |   |   | 102.2   |
| Travel Time (s)                   | 4.5   |   | 4.7   |   |   | 7.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 156   | 38  | 233   | 0   | 0   | 454   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 194   | 0   | 233   | 0   | 0   | 454   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 39.8%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
20: Sheffield Road & Way #4

Future Total 2025 PM - Site Peak  
10-24-2022



| Movement                          | WBL         | WBR         | NBT         | NBR  | SBL                  | SBT  |
|-----------------------------------|-------------|-------------|-------------|------|----------------------|------|
| Lane Configurations               |             |             |             |      |                      |      |
| Traffic Volume (veh/h)            | 140         | 34          | 210         | 0    | 0                    | 409  |
| Future Volume (Veh/h)             | 140         | 34          | 210         | 0    | 0                    | 409  |
| Sign Control                      | Stop        |             | Free        |      | Free                 |      |
| Grade                             | 0%          |             | 0%          |      | 0%                   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90 | 0.90                 | 0.90 |
| Hourly flow rate (vph)            | 156         | 38          | 233         | 0    | 0                    | 454  |
| <b>Pedestrians</b>                |             |             |             |      |                      |      |
| 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            | 687         | 233         |             |      | 233                  |      |
| vC1, stage 1 conf vol             |             |             |             |      |                      |      |
| vC2, stage 2 conf vol             |             |             |             |      |                      |      |
| vCu, unblocked vol                | 687         | 233         |             |      | 233                  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |      | 4.1                  |      |
| tC, 2 stage (s)                   |             |             |             |      |                      |      |
| tF (s)                            | 3.5         | 3.3         |             |      | 2.2                  |      |
| p0 queue free %                   | 62          | 95          |             |      | 100                  |      |
| cM capacity (veh/h)               | 413         | 806         |             |      | 1335                 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |      |                      |      |
| Volume Total                      | 194         | 233         | 454         |      |                      |      |
| Volume Left                       | 156         | 0           | 0           |      |                      |      |
| Volume Right                      | 38          | 0           | 0           |      |                      |      |
| cSH                               | 456         | 1700        | 1335        |      |                      |      |
| Volume to Capacity                | 0.43        | 0.14        | 0.00        |      |                      |      |
| Queue Length 95th (m)             | 15.9        | 0.0         | 0.0         |      |                      |      |
| Control Delay (s)                 | 18.6        | 0.0         | 0.0         |      |                      |      |
| Lane LOS                          | C           |             |             |      |                      |      |
| Approach Delay (s)                | 18.6        | 0.0         | 0.0         |      |                      |      |
| Approach LOS                      | C           |             |             |      |                      |      |
| <b>Intersection Summary</b>       |             |             |             |      |                      |      |
| Average Delay                     |             |             | 4.1         |      |                      |      |
| Intersection Capacity Utilization |             |             | 39.8%       |      | ICU Level of Service | A    |
| Analysis Period (min)             |             |             | 15          |      |                      |      |

Lanes, Volumes, Timings  
24: Sheffield Road & Way #2

Future Total 2025 PM - Site Peak  
10-24-2022












| Lane Group                 | WBL  | WBR   | NBT   | NBR   | SBL  | SBT  |
|----------------------------|------|-------|-------|-------|------|------|
| Lane Configurations        |      |       |       |       |      |      |
| Traffic Volume (vph)       | 0    | 0     | 244   | 0     | 0    | 409  |
| Future Volume (vph)        | 0    | 0     | 244   | 0     | 0    | 409  |
| Ideal Flow (vphp)          | 1800 | 1800  | 1800  | 1800  | 1800 | 1800 |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 |
| <b>Fr</b>                  |      |       |       |       |      |      |
| Flt Protected              |      |       |       |       |      |      |
| Satd. Flow (prot)          | 1784 | 0     | 1784  | 0     | 0    | 1784 |
| Flt Permitted              |      |       |       |       |      |      |
| Satd. Flow (perm)          | 1784 | 0     | 1784  | 0     | 0    | 1784 |
| Link Speed (k/h)           | 48   |       | 48    |       |      | 48   |
| Link Distance (m)          | 65.0 |       | 102.2 |       |      | 76.9 |
| Travel Time (s)            | 4.9  |       | 7.7   |       |      | 5.8  |
| Peak Hour Factor           | 0.90 | 0.90  | 0.90  | 0.90  | 0.90 | 0.90 |
| Adj. Flow (vph)            | 0    | 0     | 271   | 0     | 0    | 454  |
| Shared Lane Traffic (%)    |      |       |       |       |      |      |
| Lane Group Flow (vph)      | 0    | 0     | 271   | 0     | 0    | 454  |
| Enter Blocked Intersection | No   | No    | No    | No    | No   | No   |
| Lane Alignment             | Left | Right | Left  | Right | Left | Left |
| Median Width(m)            | 3.7  |       | 0.0   |       |      | 0.0  |
| Link Offset(m)             | 0.0  |       | 0.0   |       |      | 0.0  |
| Crosswalk Width(m)         | 4.9  |       | 4.9   |       |      | 4.9  |
| Two way Left Turn Lane     |      |       |       |       |      |      |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06 | 1.06 |
| Turning Speed (k/h)        | 24   | 14    |       | 14    | 24   |      |
| Sign Control               | Stop |       | Free  |       |      | Free |

**Intersection Summary**

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 26.1%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |










HCM Unsignalized Intersection Capacity Analysis  
 24: Sheffield Road & Way #2

Future Total 2025 PM - Site Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 244   | 0   | 0   | 409   |
| Future Volume (Veh/h)             | 0   | 0   | 244   | 0   | 0   | 409   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 271   | 0   | 0   | 454   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 725   | 271   |   |   | 271   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 725   | 271   |   |   | 271   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 392   | 768   |   |   | 1292  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 271   | 454   |   |   |   |
| Volume Left                       | 0   | 0   | 0   |   |   |   |
| Volume Right                      | 0   | 0   | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1292  |   |   |   |
| Volume to Capacity                | 0.00  | 0.16  | 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   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 26.1%   | ICU Level of Service  |   | A   |
| Analysis Period (min)             |   |   | 15  |   |   |   |










Lanes, Volumes, Timings  
26: Sheffield Road & Way #1

Future Total 2025 PM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 246   | 0   | 0   | 409   |
| Future Volume (vph)               | 0   | 0   | 246   | 0   | 0   | 409   |
| Ideal Flow (vphp)                 | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| <b>Fr</b>                         |   |   |   |   |   |   |
| Flt Protected                     |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| Flt Permitted                     |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 58.8  |   | 76.9  |   |   | 181.8   |
| Travel Time (s)                   | 4.4   |   | 5.8   |   |   | 13.6  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 0   | 273   | 0   | 0   | 454   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 273   | 0   | 0   | 454   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 26.1%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

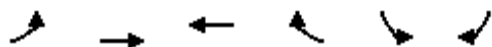
HCM Unsignalized Intersection Capacity Analysis  
26: Sheffield Road & Way #1

Future Total 2025 PM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 246   | 0   | 0   | 409   |
| Future Volume (Veh/h)             | 0   | 0   | 246   | 0   | 0   | 409   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 273   | 0   | 0   | 454   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 727   | 273   |   |   | 273   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 727   | 273   |   |   | 273   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 391   | 766   |   |   | 1290  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 273   | 454   |   |   |   |
| Volume Left                       | 0   | 0   | 0   |   |   |   |
| Volume Right                      | 0   | 0   | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1290  |   |   |   |
| Volume to Capacity                | 0.00  | 0.16  | 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   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 26.1%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future Total 2030 AM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 222   | 788   | 1536  | 699   | 101   | 184   |
| Future Volume (vph)        | 222   | 788   | 1536  | 699   | 101   | 184   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 100.0 |       |       | 0.0   | 0.0   | 70.0  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1647  | 3007  | 3232  | 1517  | 3135  | 1406  |
| Flt Permitted              | 0.081 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 140   | 3007  | 3232  | 1517  | 3135  | 1406  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 601   |       | 190   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 248.5 | 361.1 |       | 367.8 |       |
| Travel Time (s)            |       | 11.2  | 16.2  |       | 27.6  |       |
| Peak Hour Factor           | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Heavy Vehicles (%)         | 5%    | 15%   | 7%    | 2%    | 7%    | 10%   |
| Adj. Flow (vph)            | 229   | 812   | 1584  | 721   | 104   | 190   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 229   | 812   | 1584  | 721   | 104   | 190   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 24.0  | 122.0 | 98.0  | 98.0  | 28.0  | 28.0  |
| Total Split (%)            | 16.0% | 81.3% | 65.3% | 65.3% | 18.7% | 18.7% |
| Maximum Green (s)          | 21.0  | 117.0 | 93.0  | 93.0  | 23.0  | 23.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 119.0 | 117.0 | 93.0  | 93.0  | 23.0  | 23.0  |
| Actuated g/C Ratio         | 0.79  | 0.78  | 0.62  | 0.62  | 0.15  | 0.15  |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future Total 2030 AM - Adjacent Peak  
10-24-2022

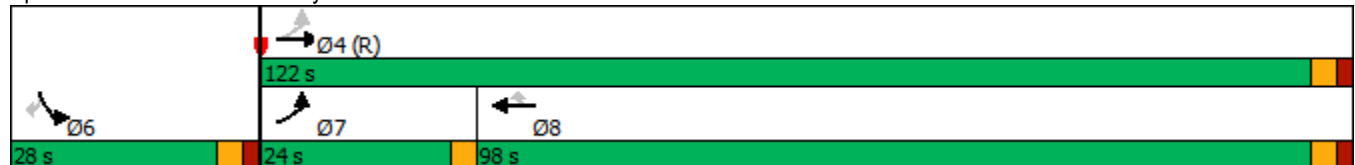


| Lane Group             | EBL   | EBT   | WBT   | WBR   | SBL   | SBR  |
|------------------------|-------|-------|-------|-------|-------|------|
| v/c Ratio              | 0.71  | 0.35  | 0.79  | 0.62  | 0.22  | 0.51 |
| Control Delay          | 39.7  | 5.4   | 12.5  | 2.6   | 57.0  | 12.1 |
| Queue Delay            | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| Total Delay            | 39.7  | 5.4   | 12.5  | 2.6   | 57.0  | 12.1 |
| LOS                    | D     | A     | B     | A     | E     | B    |
| Approach Delay         |       | 13.0  | 9.4   |       | 28.0  |      |
| Approach LOS           |       | B     | A     |       | C     |      |
| Queue Length 50th (m)  | 35.5  | 33.4  | 63.7  | 22.2  | 14.1  | 0.0  |
| Queue Length 95th (m)  | 65.7  | 40.8  | m67.6 | m21.1 | 23.2  | 22.7 |
| Internal Link Dist (m) |       | 224.5 | 337.1 |       | 343.8 |      |
| Turn Bay Length (m)    | 100.0 |       |       |       |       | 70.0 |
| Base Capacity (vph)    | 322   | 2345  | 2003  | 1168  | 480   | 376  |
| Starvation Cap Reductn | 0     | 0     | 0     | 0     | 0     | 0    |
| Spillback Cap Reductn  | 0     | 0     | 0     | 0     | 0     | 0    |
| Storage Cap Reductn    | 0     | 0     | 0     | 0     | 0     | 0    |
| Reduced v/c Ratio      | 0.71  | 0.35  | 0.79  | 0.62  | 0.22  | 0.51 |

Intersection Summary

Area Type: Other  
 Cycle Length: 150  
 Actuated Cycle Length: 150  
 Offset: 50 (33%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 11.9  
 Intersection LOS: B  
 Intersection Capacity Utilization 73.6%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Walkley Road & Lancaster Road





HCM Signalized Intersection Capacity Analysis  
3: Walkley Road & Lancaster Road

Future Total 2030 AM - Adjacent Peak  
10-24-2022



| Movement               | EBL   | EBT   | WBT   | WBR  | SBL   | SBR  |
|------------------------|-------|-------|-------|------|-------|------|
| Lane Configurations    |       |       |       |      |       |      |
| Traffic Volume (vph)   | 222   | 788   | 1536  | 699  | 101   | 184  |
| Future Volume (vph)    | 222   | 788   | 1536  | 699  | 101   | 184  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800  | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95  | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00  | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00  | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1647  | 3007  | 3232  | 1517 | 3135  | 1406 |
| Flt Permitted          | 0.08  | 1.00  | 1.00  | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 140   | 3007  | 3232  | 1517 | 3135  | 1406 |
| Peak-hour factor, PHF  | 0.97  | 0.97  | 0.97  | 0.97 | 0.97  | 0.97 |
| Adj. Flow (vph)        | 229   | 812   | 1584  | 721  | 104   | 190  |
| RTOR Reduction (vph)   | 0     | 0     | 0     | 228  | 0     | 161  |
| Lane Group Flow (vph)  | 229   | 812   | 1584  | 493  | 104   | 29   |
| Heavy Vehicles (%)     | 5%    | 15%   | 7%    | 2%   | 7%    | 10%  |
| Turn Type              | pm+pt | NA    | NA    | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8     |      | 6     |      |
| Permitted Phases       | 4     |       |       | 8    |       | 6    |
| Actuated Green, G (s)  | 117.0 | 117.0 | 93.0  | 93.0 | 23.0  | 23.0 |
| Effective Green, g (s) | 117.0 | 117.0 | 93.0  | 93.0 | 23.0  | 23.0 |
| Actuated g/C Ratio     | 0.78  | 0.78  | 0.62  | 0.62 | 0.15  | 0.15 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 320   | 2345  | 2003  | 940  | 480   | 215  |
| v/s Ratio Prot         | c0.10 | 0.27  | c0.49 |      | c0.03 |      |
| v/s Ratio Perm         | 0.46  |       |       | 0.32 |       | 0.02 |
| v/c Ratio              | 0.72  | 0.35  | 0.79  | 0.52 | 0.22  | 0.14 |
| Uniform Delay, d1      | 35.6  | 5.0   | 21.2  | 16.0 | 55.6  | 54.9 |
| Progression Factor     | 1.00  | 1.00  | 0.53  | 0.75 | 1.00  | 1.00 |
| Incremental Delay, d2  | 12.9  | 0.4   | 1.0   | 0.6  | 1.0   | 1.3  |
| Delay (s)              | 48.5  | 5.4   | 12.3  | 12.6 | 56.6  | 56.2 |
| Level of Service       | D     | A     | B     | B    | E     | E    |
| Approach Delay (s)     |       | 14.9  | 12.4  |      | 56.4  |      |
| Approach LOS           |       | B     | B     |      | E     |      |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 16.6  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.68  |                           |      |
| Actuated Cycle Length (s)         | 150.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 73.6% | ICU Level of Service      | D    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
6: Walkley Road & Sheffield Road

Future Total 2030 AM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 297   | 492   | 1962  | 259   | 46    | 254   |
| Future Volume (vph)        | 297   | 492   | 1962  | 259   | 46    | 254   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 100.0 |       |       | 30.0  | 0.0   | 70.0  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1491  | 3060  | 3357  | 1459  | 2396  | 1190  |
| Flt Permitted              | 0.044 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 69    | 3060  | 3357  | 1459  | 2396  | 1190  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 71    |       | 259   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 361.1 | 363.2 |       | 830.1 |       |
| Travel Time (s)            |       | 16.2  | 16.3  |       | 62.3  |       |
| Peak Hour Factor           | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Heavy Vehicles (%)         | 16%   | 13%   | 3%    | 6%    | 40%   | 30%   |
| Adj. Flow (vph)            | 303   | 502   | 2002  | 264   | 47    | 259   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 303   | 502   | 2002  | 264   | 47    | 259   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 32.0  | 124.0 | 92.0  | 92.0  | 26.0  | 26.0  |
| Total Split (%)            | 21.3% | 82.7% | 61.3% | 61.3% | 17.3% | 17.3% |
| Maximum Green (s)          | 29.0  | 119.0 | 87.0  | 87.0  | 21.0  | 21.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 121.0 | 119.0 | 87.0  | 87.0  | 21.0  | 21.0  |
| Actuated g/C Ratio         | 0.81  | 0.79  | 0.58  | 0.58  | 0.14  | 0.14  |



| Lane Group             | EBL    | EBT   | WBT    | WBR  | SBL   | SBR  |
|------------------------|--------|-------|--------|------|-------|------|
| v/c Ratio              | 0.92   | 0.21  | 1.03   | 0.30 | 0.14  | 0.67 |
| Control Delay          | 72.3   | 3.6   | 59.2   | 12.4 | 57.9  | 15.4 |
| Queue Delay            | 0.0    | 0.0   | 0.0    | 0.0  | 0.0   | 0.0  |
| Total Delay            | 72.3   | 3.6   | 59.2   | 12.4 | 57.9  | 15.4 |
| LOS                    | E      | A     | E      | B    | E     | B    |
| Approach Delay         |        | 29.5  | 53.7   |      | 21.9  |      |
| Approach LOS           |        | C     | D      |      | C     |      |
| Queue Length 50th (m)  | 56.8   | 15.7  | ~333.7 | 27.3 | 6.4   | 0.0  |
| Queue Length 95th (m)  | #125.8 | 19.3  | #374.3 | 44.2 | 12.8  | 28.8 |
| Internal Link Dist (m) |        | 337.1 | 339.2  |      | 806.1 |      |
| Turn Bay Length (m)    | 100.0  |       |        | 30.0 |       | 70.0 |
| Base Capacity (vph)    | 330    | 2427  | 1947   | 876  | 335   | 389  |
| Starvation Cap Reductn | 0      | 0     | 0      | 0    | 0     | 0    |
| Spillback Cap Reductn  | 0      | 0     | 0      | 0    | 0     | 0    |
| Storage Cap Reductn    | 0      | 0     | 0      | 0    | 0     | 0    |
| Reduced v/c Ratio      | 0.92   | 0.21  | 1.03   | 0.30 | 0.14  | 0.67 |

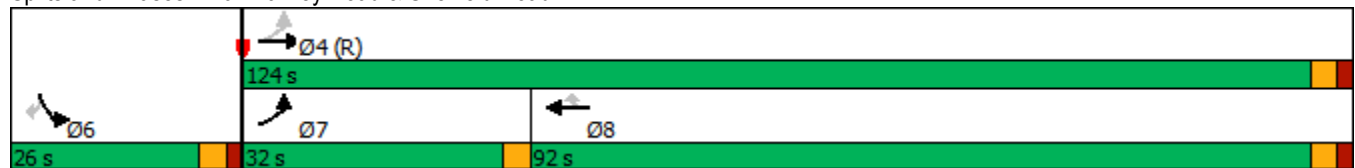
Intersection Summary

Area Type: Other  
 Cycle Length: 150  
 Actuated Cycle Length: 150  
 Offset: 50 (33%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 140  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.03  
 Intersection Signal Delay: 45.1  
 Intersection Capacity Utilization 90.4%  
 Analysis Period (min) 15  
 Intersection LOS: D  
 ICU Level of Service E

~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Walkley Road & Sheffield Road



HCM Signalized Intersection Capacity Analysis  
6: Walkley Road & Sheffield Road

Future Total 2030 AM - Adjacent Peak  
10-24-2022



| Movement               | EBL   | EBT   | WBT   | WBR  | SBL  | SBR   |
|------------------------|-------|-------|-------|------|------|-------|
| Lane Configurations    |       |       |       |      |      |       |
| Traffic Volume (vph)   | 297   | 492   | 1962  | 259  | 46   | 254   |
| Future Volume (vph)    | 297   | 492   | 1962  | 259  | 46   | 254   |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800  | 1800 | 1800 | 1800  |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0   | 5.0  | 5.0  | 5.0   |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95  | 1.00 | 0.97 | 1.00  |
| Frt                    | 1.00  | 1.00  | 1.00  | 0.85 | 1.00 | 0.85  |
| Flt Protected          | 0.95  | 1.00  | 1.00  | 1.00 | 0.95 | 1.00  |
| Satd. Flow (prot)      | 1491  | 3060  | 3357  | 1459 | 2396 | 1190  |
| Flt Permitted          | 0.04  | 1.00  | 1.00  | 1.00 | 0.95 | 1.00  |
| Satd. Flow (perm)      | 70    | 3060  | 3357  | 1459 | 2396 | 1190  |
| Peak-hour factor, PHF  | 0.98  | 0.98  | 0.98  | 0.98 | 0.98 | 0.98  |
| Adj. Flow (vph)        | 303   | 502   | 2002  | 264  | 47   | 259   |
| RTOR Reduction (vph)   | 0     | 0     | 0     | 30   | 0    | 223   |
| Lane Group Flow (vph)  | 303   | 502   | 2002  | 234  | 47   | 36    |
| Heavy Vehicles (%)     | 16%   | 13%   | 3%    | 6%   | 40%  | 30%   |
| Turn Type              | pm+pt | NA    | NA    | Perm | Prot | Perm  |
| Protected Phases       | 7     | 4     | 8     |      | 6    |       |
| Permitted Phases       | 4     |       |       | 8    |      | 6     |
| Actuated Green, G (s)  | 119.0 | 119.0 | 87.0  | 87.0 | 21.0 | 21.0  |
| Effective Green, g (s) | 119.0 | 119.0 | 87.0  | 87.0 | 21.0 | 21.0  |
| Actuated g/C Ratio     | 0.79  | 0.79  | 0.58  | 0.58 | 0.14 | 0.14  |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0   | 5.0  | 5.0  | 5.0   |
| Lane Grp Cap (vph)     | 330   | 2427  | 1947  | 846  | 335  | 166   |
| v/s Ratio Prot         | c0.18 | 0.16  | c0.60 |      | 0.02 |       |
| v/s Ratio Perm         | 0.55  |       |       | 0.16 |      | c0.03 |
| v/c Ratio              | 0.92  | 0.21  | 1.03  | 0.28 | 0.14 | 0.22  |
| Uniform Delay, d1      | 52.8  | 3.8   | 31.5  | 15.8 | 56.6 | 57.2  |
| Progression Factor     | 0.86  | 0.89  | 1.00  | 1.00 | 1.00 | 1.00  |
| Incremental Delay, d2  | 31.6  | 0.2   | 28.0  | 0.8  | 0.9  | 3.0   |
| Delay (s)              | 77.0  | 3.6   | 59.5  | 16.6 | 57.5 | 60.2  |
| Level of Service       | E     | A     | E     | B    | E    | E     |
| Approach Delay (s)     |       | 31.2  | 54.5  |      | 59.8 |       |
| Approach LOS           |       | C     | D     |      | E    |       |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 49.4  | HCM 2000 Level of Service | D    |
| HCM 2000 Volume to Capacity ratio | 0.88  |                           |      |
| Actuated Cycle Length (s)         | 150.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 90.4% | ICU Level of Service      | E    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
7: Walkley Road & Highway SB terminal

Future Total 2030 AM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑↑    |       | ↘     | ↗     |
| Traffic Volume (vph)       | 0    | 475   | 1044  | 0     | 25    | 974   |
| Future Volume (vph)        | 0    | 475   | 1044  | 0     | 25    | 974   |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  |
| Flt                        |      |       |       |       |       | 0.850 |
| Flt Protected              |      |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Flt Permitted              |      |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Link Speed (k/h)           |      | 80    | 80    |       | 80    |       |
| Link Distance (m)          |      | 131.6 | 322.4 |       | 492.9 |       |
| Travel Time (s)            |      | 5.9   | 14.5  |       | 22.2  |       |
| Peak Hour Factor           | 0.97 | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Adj. Flow (vph)            | 0    | 490   | 1076  | 0     | 26    | 1004  |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 490   | 1076  | 0     | 26    | 1004  |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 3.7   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Stop  |       |

Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 100.8%       |
| ICU Level of Service              | G            |
| Analysis Period (min)             | 15           |

HCM Unsignalized Intersection Capacity Analysis  
7: Walkley Road & Highway SB terminal

Future Total 2030 AM - Adjacent Peak  
10-24-2022



| Movement                          | EBL         | EBT         | WBT         | WBR         | SBL                  | SBR         |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|-------------|
| Lane Configurations               |             | ↑↑          | ↑↑          |             | ↘                    | ↗           |
| Traffic Volume (veh/h)            | 0           | 475         | 1044        | 0           | 25                   | 974         |
| Future Volume (Veh/h)             | 0           | 475         | 1044        | 0           | 25                   | 974         |
| Sign Control                      |             | Free        | Free        |             | Stop                 |             |
| Grade                             |             | 0%          | 0%          |             | 0%                   |             |
| Peak Hour Factor                  | 0.97        | 0.97        | 0.97        | 0.97        | 0.97                 | 0.97        |
| Hourly flow rate (vph)            | 0           | 490         | 1076        | 0           | 26                   | 1004        |
| <b>Pedestrians</b>                |             |             |             |             |                      |             |
| 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            | 1076        |             |             |             | 1321                 | 538         |
| vC1, stage 1 conf vol             |             |             |             |             |                      |             |
| vC2, stage 2 conf vol             |             |             |             |             |                      |             |
| vCu, unblocked vol                | 1076        |             |             |             | 1321                 | 538         |
| tC, single (s)                    | 4.1         |             |             |             | 6.8                  | 6.9         |
| tC, 2 stage (s)                   |             |             |             |             |                      |             |
| tF (s)                            | 2.2         |             |             |             | 3.5                  | 3.3         |
| p0 queue free %                   | 100         |             |             |             | 82                   | 0           |
| cM capacity (veh/h)               | 644         |             |             |             | 148                  | 488         |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b> | <b>SB 1</b>          | <b>SB 2</b> |
| Volume Total                      | 245         | 245         | 538         | 538         | 26                   | 1004        |
| Volume Left                       | 0           | 0           | 0           | 0           | 26                   | 0           |
| Volume Right                      | 0           | 0           | 0           | 0           | 0                    | 1004        |
| cSH                               | 1700        | 1700        | 1700        | 1700        | 148                  | 488         |
| Volume to Capacity                | 0.14        | 0.14        | 0.32        | 0.32        | 0.18                 | 2.06        |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0         | 4.7                  | 531.5       |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0         | 34.4                 | 503.0       |
| Lane LOS                          |             |             |             |             | D                    | F           |
| Approach Delay (s)                | 0.0         |             | 0.0         |             | 491.2                |             |
| Approach LOS                      |             |             |             |             | F                    |             |
| <b>Intersection Summary</b>       |             |             |             |             |                      |             |
| Average Delay                     |             |             | 194.9       |             |                      |             |
| Intersection Capacity Utilization |             |             | 100.8%      |             | ICU Level of Service | G           |
| Analysis Period (min)             |             |             | 15          |             |                      |             |

Lanes, Volumes, Timings  
 10: Highway NB terminal & Walkley Road

Future Total 2030 AM - Adjacent Peak  
 10-24-2022



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NBL   | NBR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    |       |      | ↑↑    | ↘     |       |
| Traffic Volume (vph)       | 57    | 446   | 0    | 650   | 429   | 8     |
| Future Volume (vph)        | 57    | 446   | 0    | 650   | 429   | 8     |
| Ideal Flow (vphp)          | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00 | 0.95  | 1.00  | 1.00  |
| Frt                        | 0.867 |       |      | 0.997 |       |       |
| Flt Protected              |       |       |      | 0.953 |       |       |
| Satd. Flow (prot)          | 2939  | 0     | 0    | 3390  | 1695  | 0     |
| Flt Permitted              |       |       |      | 0.953 |       |       |
| Satd. Flow (perm)          | 2939  | 0     | 0    | 3390  | 1695  | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 322.4 |       |      | 108.3 | 295.7 |       |
| Travel Time (s)            | 14.5  |       |      | 8.1   | 22.2  |       |
| Peak Hour Factor           | 0.93  | 0.93  | 0.93 | 0.93  | 0.93  | 0.93  |
| Adj. Flow (vph)            | 61    | 480   | 0    | 699   | 461   | 9     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 541   | 0     | 0    | 699   | 470   | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 3.7   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 14    |       | 24   | 24    |       | 14    |
| Sign Control               | Free  |       |      | Free  | Stop  |       |

Intersection Summary

|                                   |                              |
|-----------------------------------|------------------------------|
| Area Type:                        | Other                        |
| Control Type:                     | Unsignalized                 |
| Intersection Capacity Utilization | 51.2% ICU Level of Service A |
| Analysis Period (min)             | 15                           |

HCM Unsignalized Intersection Capacity Analysis  
 10: Highway NB terminal & Walkley Road

Future Total 2030 AM - Adjacent Peak  
 10-24-2022

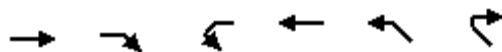


| Movement                          | EBT         | EBR         | WBL         | WBT                  | NBL         | NBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations               | ↑↑          |             |             | ↑↑                   | ↘           |      |
| Traffic Volume (veh/h)            | 57          | 446         | 0           | 650                  | 429         | 8    |
| Future Volume (Veh/h)             | 57          | 446         | 0           | 650                  | 429         | 8    |
| 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)            | 61          | 480         | 0           | 699                  | 461         | 9    |
| <b>Pedestrians</b>                |             |             |             |                      |             |      |
| 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            |             |             | 541         |                      | 650         | 270  |
| vC1, stage 1 conf vol             |             |             |             |                      |             |      |
| vC2, stage 2 conf vol             |             |             |             |                      |             |      |
| vCu, unblocked vol                |             |             | 541         |                      | 650         | 270  |
| tC, single (s)                    |             |             | 4.1         |                      | 6.8         | 6.9  |
| tC, 2 stage (s)                   |             |             |             |                      |             |      |
| tF (s)                            |             |             | 2.2         |                      | 3.5         | 3.3  |
| p0 queue free %                   |             |             | 100         |                      | 0           | 99   |
| cM capacity (veh/h)               |             |             | 1024        |                      | 402         | 727  |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>NB 1</b> |      |
| Volume Total                      | 41          | 500         | 350         | 350                  | 470         |      |
| Volume Left                       | 0           | 0           | 0           | 0                    | 461         |      |
| Volume Right                      | 0           | 480         | 0           | 0                    | 9           |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 405         |      |
| Volume to Capacity                | 0.02        | 0.29        | 0.21        | 0.21                 | 1.16        |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0                  | 136.3       |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 127.0       |      |
| Lane LOS                          |             |             |             |                      | F           |      |
| Approach Delay (s)                | 0.0         |             | 0.0         |                      | 127.0       |      |
| Approach LOS                      |             |             |             |                      | F           |      |
| <b>Intersection Summary</b>       |             |             |             |                      |             |      |
| Average Delay                     |             |             | 34.9        |                      |             |      |
| Intersection Capacity Utilization |             |             | 51.2%       | ICU Level of Service | A           |      |
| Analysis Period (min)             |             |             | 15          |                      |             |      |



Lanes, Volumes, Timings  
11: SB off ramp & Walkley Road

Future Total 2030 AM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NWL   | NWR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    | ↑     |      | ↑↑↑   |       |       |
| Traffic Volume (vph)       | 475   | 148   | 0    | 2018  | 0     | 0     |
| Future Volume (vph)        | 475   | 148   | 0    | 2018  | 0     | 0     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Storage Length (m)         |       | 60.0  | 0.0  |       | 0.0   | 0.0   |
| Storage Lanes              |       | 1     | 0    |       | 0     | 0     |
| Taper Length (m)           |       |       | 7.6  |       | 7.6   |       |
| Lane Util. Factor          | 0.95  | 1.00  | 1.00 | 0.91  | 1.00  | 1.00  |
| Frt                        |       | 0.850 |      |       |       |       |
| Flt Protected              |       |       |      |       |       |       |
| Satd. Flow (prot)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Flt Permitted              |       |       |      |       |       |       |
| Satd. Flow (perm)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 363.2 |       |      | 131.6 | 210.3 |       |
| Travel Time (s)            | 16.3  |       |      | 9.9   | 15.8  |       |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90 | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)            | 528   | 164   | 0    | 2242  | 0     | 0     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 528   | 164   | 0    | 2242  | 0     | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 0.0   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        |       | 14    | 24   |       | 24    | 14    |
| Sign Control               | Free  |       |      | Free  | Free  |       |

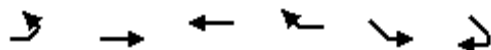
Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 44.5%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings  
13: Walkley Road & NB off ramp

Future Total 2030 AM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SEL   | SER   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑     | ↗     |       |       |
| Traffic Volume (vph)       | 0    | 65    | 650   | 231   | 0     | 0     |
| Future Volume (vph)        | 0    | 65    | 650   | 231   | 0     | 0     |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 0.0  |       |       | 70.0  | 0.0   | 0.0   |
| Storage Lanes              | 0    |       |       | 1     | 0     | 0     |
| Taper Length (m)           | 7.6  |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00 | 0.95  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      |       |       | 0.850 |       |       |
| Flt Protected              |      |       |       |       |       |       |
| Satd. Flow (prot)          | 0    | 3390  | 1784  | 1517  | 0     | 0     |
| Flt Permitted              |      |       |       |       |       |       |
| Satd. Flow (perm)          | 0    | 3390  | 1784  | 1517  | 0     | 0     |
| Link Speed (k/h)           |      | 80    | 80    |       | 48    |       |
| Link Distance (m)          |      | 108.3 | 195.3 |       | 199.6 |       |
| Travel Time (s)            |      | 4.9   | 8.8   |       | 15.0  |       |
| Peak Hour Factor           | 0.93 | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  |
| Adj. Flow (vph)            | 0    | 70    | 699   | 248   | 0     | 0     |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 70    | 699   | 248   | 0     | 0     |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 0.0   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Free  |       |

















Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 39.4%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

















Lanes, Volumes, Timings  
15: Sheffield Road & Humber Place

Future Total 2030 AM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group                        | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 22  | 0   | 77  | 0   | 0   | 0   | 164  | 402   | 0   | 0   | 219   | 17  |
| Future Volume (vph)               | 22  | 0   | 77  | 0   | 0   | 0   | 164  | 402   | 0   | 0   | 219   | 17  |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  | 1800   | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   |   | 0.894   |   |   |   |   |  |   |   |   | 0.990   |   |
| Fl <sub>t</sub> Protected         |   | 0.989   |   |   |   |   |  | 0.986   |   |   |   |   |
| Satd. Flow (prot)                 | 0   | 1289  | 0   | 0   | 1784  | 0   | 0  | 1582  | 0   | 0   | 1389  | 0   |
| Fl <sub>t</sub> Permitted         |   | 0.989   |   |   |   |   |  | 0.986   |   |   |   |   |
| Satd. Flow (perm)                 | 0   | 1289  | 0   | 0   | 1784  | 0   | 0  | 1582  | 0   | 0   | 1389  | 0   |
| Link Speed (k/h)                  |   | 48  |   |   | 48  |   |  | 48  |   |   | 48  |   |
| Link Distance (m)                 |   | 152.4   |   |   | 148.3   |   |  | 830.1   |   |   | 120.3   |   |
| Travel Time (s)                   |   | 11.4  |   |   | 11.1  |   |  | 62.3  |   |   | 9.0   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 35%   | 2%  | 22%   | 50%   | 2%  | 33%   | 12%  | 14%   | 0%  | 33%   | 30%   | 26%   |
| Adj. Flow (vph)                   | 24  | 0   | 86  | 0   | 0   | 0   | 182  | 447   | 0   | 0   | 243   | 19  |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 110   | 0   | 0   | 0   | 0   | 0  | 629   | 0   | 0   | 262   | 0   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  | No   | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Left  | Right   | Left  | Left  | Right   | Left   | Left  | Right   | Left  | Left  | Right   |
| Median Width(m)                   |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Link Offset(m)                    |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Crosswalk Width(m)                |   | 4.9   |   |   | 4.9   |   |  | 4.9   |   |   | 4.9   |   |
| Two way Left Turn Lane            |   |   |   |   |   |   |  |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06   | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  |   | 14  | 24  |   | 14  | 24   |   | 14  | 24  |   | 14  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |  |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 61.5%   |   |   |   |   |   | ICU Level of Service B   |   |   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
 15: Sheffield Road & Humber Place

Future Total 2030 AM - Adjacent Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 22  | 0   | 77  | 0   | 0   | 0   | 164  | 402   | 0   | 0   | 219   | 17  |
| Future Volume (Veh/h)             | 22  | 0   | 77  | 0   | 0   | 0   | 164  | 402   | 0   | 0   | 219   | 17  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 24  | 0   | 86  | 0   | 0   | 0   | 182  | 447   | 0   | 0   | 243   | 19  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (m)                    |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (m/s)               |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Median storage veh                |   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (m)               |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 1064  | 1064  | 252   | 1150  | 1073  | 447   | 262  |   |   | 447   |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 1064  | 1064  | 252   | 1150  | 1073  | 447   | 262  |   |   | 447   |   |   |
| tC, single (s)                    | 7.4   | 6.5   | 6.4   | 7.6   | 6.5   | 6.5   | 4.2  |   |   | 4.4   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 3.8   | 4.0   | 3.5   | 4.0   | 4.0   | 3.6   | 2.3  |   |   | 2.5   |   |   |
| p0 queue free %                   | 84  | 100   | 88  | 100   | 100   | 100   | 85   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 155   | 190   | 740   | 111   | 188   | 552   | 1246   |   |   | 967   |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | SB 1  |   |   |  |   |   |   |   |   |
| Volume Total                      | 110   | 0   | 629   | 262   |   |   |  |   |   |   |   |   |
| Volume Left                       | 24  | 0   | 182   | 0   |   |   |  |   |   |   |   |   |
| Volume Right                      | 86  | 0   | 0   | 19  |   |   |  |   |   |   |   |   |
| cSH                               | 405   | 1700  | 1246  | 967   |   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.27  | 0.00  | 0.15  | 0.00  |   |   |  |   |   |   |   |   |
| Queue Length 95th (m)             | 8.3   | 0.0   | 3.9   | 0.0   |   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 17.2  | 0.0   | 3.6   | 0.0   |   |   |  |   |   |   |   |   |
| Lane LOS                          | C   | A   | A   |   |   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 17.2  | 0.0   | 3.6   | 0.0   |   |   |  |   |   |   |   |   |
| Approach LOS                      | C   | A   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 4.2   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 61.5%   |   | ICU Level of Service  |   |  |   |   | B   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |










Lanes, Volumes, Timings  
18: Sheffield Road & Way #5

Future Total 2030 AM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 1   | 0   | 421   | 1   | 0   | 246   |
| Future Volume (vph)               | 1   | 0   | 421   | 1   | 0   | 246   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| <b>Fr</b>                         |   |   |   |   |   |   |
| Flt Protected                     | 0.950   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1695  | 0   | 1784  | 0   | 0   | 910   |
| Flt Permitted                     | 0.950   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1695  | 0   | 1784  | 0   | 0   | 910   |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 56.2  |   | 120.3   |   |   | 89.9  |
| Travel Time (s)                   | 4.2   |   | 9.0   |   |   | 6.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 2%  | 2%  | 2%  | 2%  | 2%  | 100%  |
| Adj. Flow (vph)                   | 1   | 0   | 468   | 1   | 0   | 273   |
| <b>Shared Lane Traffic (%)</b>    |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 1   | 0   | 469   | 0   | 0   | 273   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| <b>Two way Left Turn Lane</b>     |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 33.5%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 18: Sheffield Road & Way #5










Future Total 2030 AM - Adjacent Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 1   | 0   | 421   | 1   | 0   | 246   |
| Future Volume (Veh/h)             | 1   | 0   | 421   | 1   | 0   | 246   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1   | 0   | 468   | 1   | 0   | 273   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 742   | 468   |   |   | 469   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 742   | 468   |   |   | 469   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 383   | 595   |   |   | 1093  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 1   | 469   | 273   |   |   |   |
| Volume Left                       | 1   | 0   | 0   |   |   |   |
| Volume Right                      | 0   | 1   | 0   |   |   |   |
| cSH                               | 383   | 1700  | 1093  |   |   |   |
| Volume to Capacity                | 0.00  | 0.28  | 0.00  |   |   |   |
| Queue Length 95th (m)             | 0.1   | 0.0   | 0.0   |   |   |   |
| Control Delay (s)                 | 14.4  | 0.0   | 0.0   |   |   |   |
| Lane LOS                          | B   |   |   |   |   |   |
| Approach Delay (s)                | 14.4  | 0.0   | 0.0   |   |   |   |
| Approach LOS                      | B   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 33.5%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |












Lanes, Volumes, Timings  
20: Sheffield Road & Way #4

Future Total 2030 AM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 421   | 0   | 0   | 246   |
| Future Volume (vph)               | 0   | 0   | 421   | 0   | 0   | 246   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| <b>Fr</b>                         |   |   |   |   |   |   |
| <b>Flt Protected</b>              |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| <b>Flt Permitted</b>              |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 60.6  |   | 89.9  |   |   | 135.3   |
| Travel Time (s)                   | 4.5   |   | 6.7   |   |   | 10.1  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 0   | 468   | 0   | 0   | 273   |
| <b>Shared Lane Traffic (%)</b>    |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 468   | 0   | 0   | 273   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| <b>Two way Left Turn Lane</b>     |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 26.7%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
 20: Sheffield Road & Way #4

Future Total 2030 AM - Adjacent Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 421   | 0   | 0   | 246   |
| Future Volume (Veh/h)             | 0   | 0   | 421   | 0   | 0   | 246   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 468   | 0   | 0   | 273   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 741   | 468   |   |   | 468   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 741   | 468   |   |   | 468   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 384   | 595   |   |   | 1094  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 468   | 273   |   |   |   |
| Volume Left                       | 0   | 0   | 0   |   |   |   |
| Volume Right                      | 0   | 0   | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1094  |   |   |   |
| Volume to Capacity                | 0.00  | 0.28  | 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   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 26.7%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |










Lanes, Volumes, Timings  
24: Sheffield Road & Way #2

Future Total 2030 AM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 422   | 0   | 0   | 246   |
| Future Volume (vph)               | 0   | 0   | 422   | 0   | 0   | 246   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| <b>Fr</b>                         |   |   |   |   |   |   |
| <b>Flt Protected</b>              |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| <b>Flt Permitted</b>              |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 65.0  |   | 135.3   |   |   | 74.6  |
| Travel Time (s)                   | 4.9   |   | 10.1  |   |   | 5.6   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 0   | 469   | 0   | 0   | 273   |
| <b>Shared Lane Traffic (%)</b>    |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 469   | 0   | 0   | 273   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| <b>Two way Left Turn Lane</b>     |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 26.8%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
 24: Sheffield Road & Way #2

Future Total 2030 AM - Adjacent Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 422   | 0   | 0   | 246   |
| Future Volume (Veh/h)             | 0   | 0   | 422   | 0   | 0   | 246   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 469   | 0   | 0   | 273   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 742   | 469   |   |   | 469   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 742   | 469   |   |   | 469   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 383   | 594   |   |   | 1093  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 469   | 273   |   |   |   |
| Volume Left                       | 0   | 0   | 0   |   |   |   |
| Volume Right                      | 0   | 0   | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1093  |   |   |   |
| Volume to Capacity                | 0.00  | 0.28  | 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   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 26.8%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

Lanes, Volumes, Timings  
26: Sheffield Road & Way #1

Future Total 2030 AM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 431   | 0   | 0   | 243   |
| Future Volume (vph)               | 0   | 0   | 431   | 0   | 0   | 243   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| <b>Fr</b>                         |   |   |   |   |   |   |
| Flt Protected                     |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| Flt Permitted                     |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 58.8  |   | 74.6  |   |   | 272.6   |
| Travel Time (s)                   | 4.4   |   | 5.6   |   |   | 20.4  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 0   | 479   | 0   | 0   | 270   |
| <b>Shared Lane Traffic (%)</b>    |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 479   | 0   | 0   | 270   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| <b>Two way Left Turn Lane</b>     |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 27.3%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
26: Sheffield Road & Way #1

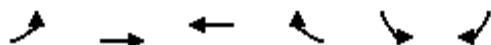
Future Total 2030 AM - Adjacent Peak  
10-24-2022



| Movement                          | WBL         | WBR         | NBT         | NBR  | SBL                  | SBT  |
|-----------------------------------|-------------|-------------|-------------|------|----------------------|------|
| Lane Configurations               |             |             |             |      |                      |      |
| Traffic Volume (veh/h)            | 0           | 0           | 431         | 0    | 0                    | 243  |
| Future Volume (Veh/h)             | 0           | 0           | 431         | 0    | 0                    | 243  |
| Sign Control                      | Stop        |             | Free        |      | Free                 |      |
| Grade                             | 0%          |             | 0%          |      | 0%                   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90 | 0.90                 | 0.90 |
| Hourly flow rate (vph)            | 0           | 0           | 479         | 0    | 0                    | 270  |
| <b>Pedestrians</b>                |             |             |             |      |                      |      |
| 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            | 749         | 479         |             |      | 479                  |      |
| vC1, stage 1 conf vol             |             |             |             |      |                      |      |
| vC2, stage 2 conf vol             |             |             |             |      |                      |      |
| vCu, unblocked vol                | 749         | 479         |             |      | 479                  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |      | 4.1                  |      |
| tC, 2 stage (s)                   |             |             |             |      |                      |      |
| tF (s)                            | 3.5         | 3.3         |             |      | 2.2                  |      |
| p0 queue free %                   | 100         | 100         |             |      | 100                  |      |
| cM capacity (veh/h)               | 379         | 587         |             |      | 1083                 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |      |                      |      |
| Volume Total                      | 0           | 479         | 270         |      |                      |      |
| Volume Left                       | 0           | 0           | 0           |      |                      |      |
| Volume Right                      | 0           | 0           | 0           |      |                      |      |
| cSH                               | 1700        | 1700        | 1083        |      |                      |      |
| Volume to Capacity                | 0.00        | 0.28        | 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           |             |             |      |                      |      |
| <b>Intersection Summary</b>       |             |             |             |      |                      |      |
| Average Delay                     |             |             | 0.0         |      |                      |      |
| Intersection Capacity Utilization |             |             | 27.3%       |      | ICU Level of Service | A    |
| Analysis Period (min)             |             |             | 15          |      |                      |      |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future Total 2030 PM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 137   | 1915  | 1030  | 178   | 525   | 223   |
| Future Volume (vph)        | 137   | 1915  | 1030  | 178   | 525   | 223   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 30.5  |       |       | 0.0   | 0.0   | 30.5  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1695  | 3293  | 3172  | 1419  | 3288  | 1502  |
| Flt Permitted              | 0.170 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 303   | 3293  | 3172  | 1419  | 3288  | 1502  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 196   |       | 139   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 306.2 | 364.1 |       | 701.3 |       |
| Travel Time (s)            |       | 13.8  | 16.4  |       | 52.6  |       |
| Peak Hour Factor           | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  |
| Heavy Vehicles (%)         | 2%    | 5%    | 9%    | 9%    | 2%    | 3%    |
| Adj. Flow (vph)            | 151   | 2104  | 1132  | 196   | 577   | 245   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 151   | 2104  | 1132  | 196   | 577   | 245   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 22.0  | 102.0 | 80.0  | 80.0  | 28.0  | 28.0  |
| Total Split (%)            | 16.9% | 78.5% | 61.5% | 61.5% | 21.5% | 21.5% |
| Maximum Green (s)          | 19.0  | 97.0  | 75.0  | 75.0  | 23.0  | 23.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 99.0  | 97.0  | 75.0  | 75.0  | 23.0  | 23.0  |
| Actuated g/C Ratio         | 0.76  | 0.75  | 0.58  | 0.58  | 0.18  | 0.18  |

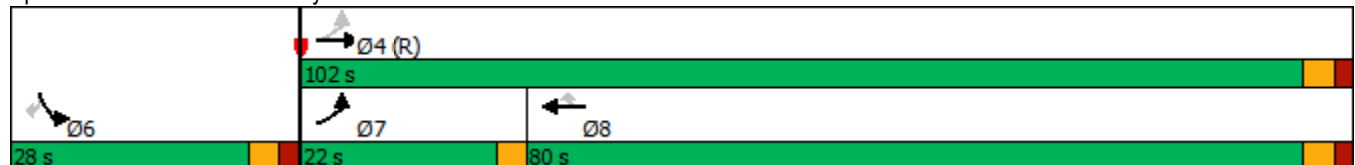


| Lane Group             | EBL  | EBT   | WBT   | WBR   | SBL    | SBR  |
|------------------------|------|-------|-------|-------|--------|------|
| v/c Ratio              | 0.35 | 0.86  | 0.62  | 0.22  | 0.99   | 0.64 |
| Control Delay          | 6.3  | 16.3  | 18.8  | 3.8   | 89.0   | 29.7 |
| Queue Delay            | 0.0  | 0.0   | 0.0   | 0.0   | 0.0    | 0.0  |
| Total Delay            | 6.3  | 16.3  | 18.8  | 3.8   | 89.0   | 29.7 |
| LOS                    | A    | B     | B     | A     | F      | C    |
| Approach Delay         |      | 15.6  | 16.6  |       | 71.3   |      |
| Approach LOS           |      | B     | B     |       | E      |      |
| Queue Length 50th (m)  | 8.8  | 174.7 | 110.8 | 10.9  | 76.9   | 24.9 |
| Queue Length 95th (m)  | 14.1 | 213.9 | 133.6 | m17.8 | #114.1 | 53.8 |
| Internal Link Dist (m) |      | 282.2 | 340.1 |       | 677.3  |      |
| Turn Bay Length (m)    | 30.5 |       |       |       |        | 30.5 |
| Base Capacity (vph)    | 434  | 2457  | 1830  | 901   | 581    | 380  |
| Starvation Cap Reductn | 0    | 0     | 0     | 0     | 0      | 0    |
| Spillback Cap Reductn  | 0    | 0     | 0     | 0     | 0      | 0    |
| Storage Cap Reductn    | 0    | 0     | 0     | 0     | 0      | 0    |
| Reduced v/c Ratio      | 0.35 | 0.86  | 0.62  | 0.22  | 0.99   | 0.64 |

**Intersection Summary**

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 50 (38%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.99  
 Intersection Signal Delay: 26.3  
 Intersection LOS: C  
 Intersection Capacity Utilization 80.0%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

**Splits and Phases: 3: Walkley Road & Lancaster Road**





HCM Signalized Intersection Capacity Analysis  
3: Walkley Road & Lancaster Road

Future Total 2030 PM - Adjacent Peak  
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| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 137   | 1915  | 1030 | 178  | 525   | 223  |
| Future Volume (vph)    | 137   | 1915  | 1030 | 178  | 525   | 223  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1695  | 3293  | 3172 | 1419 | 3288  | 1502 |
| Flt Permitted          | 0.17  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 303   | 3293  | 3172 | 1419 | 3288  | 1502 |
| Peak-hour factor, PHF  | 0.91  | 0.91  | 0.91 | 0.91 | 0.91  | 0.91 |
| Adj. Flow (vph)        | 151   | 2104  | 1132 | 196  | 577   | 245  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 83   | 0     | 114  |
| Lane Group Flow (vph)  | 151   | 2104  | 1132 | 113  | 577   | 131  |
| Heavy Vehicles (%)     | 2%    | 5%    | 9%   | 9%   | 2%    | 3%   |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 97.0  | 97.0  | 75.0 | 75.0 | 23.0  | 23.0 |
| Effective Green, g (s) | 97.0  | 97.0  | 75.0 | 75.0 | 23.0  | 23.0 |
| Actuated g/C Ratio     | 0.75  | 0.75  | 0.58 | 0.58 | 0.18  | 0.18 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 429   | 2457  | 1830 | 818  | 581   | 265  |
| v/s Ratio Prot         | 0.05  | c0.64 | 0.36 |      | c0.18 |      |
| v/s Ratio Perm         | 0.21  |       |      | 0.08 |       | 0.09 |
| v/c Ratio              | 0.35  | 0.86  | 0.62 | 0.14 | 0.99  | 0.49 |
| Uniform Delay, d1      | 8.3   | 11.6  | 18.1 | 12.6 | 53.4  | 48.2 |
| Progression Factor     | 1.00  | 1.00  | 0.95 | 2.00 | 1.00  | 1.00 |
| Incremental Delay, d2  | 2.3   | 4.1   | 1.4  | 0.3  | 35.7  | 6.4  |
| Delay (s)              | 10.5  | 15.7  | 18.5 | 25.5 | 89.1  | 54.7 |
| Level of Service       | B     | B     | B    | C    | F     | D    |
| Approach Delay (s)     |       | 15.4  | 19.5 |      | 78.8  |      |
| Approach LOS           |       | B     | B    |      | E     |      |

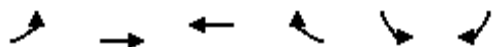
Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 28.5  | HCM 2000 Level of Service | C    |
| HCM 2000 Volume to Capacity ratio | 0.90  |                           |      |
| Actuated Cycle Length (s)         | 130.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 80.0% | ICU Level of Service      | D    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
6: Walkley Road & Sheffield Road

Future Total 2030 PM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 239   | 2098  | 771   | 123   | 319   | 418   |
| Future Volume (vph)        | 239   | 2098  | 771   | 123   | 319   | 418   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 30.5  |       |       | 50.0  | 0.0   | 30.5  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1383  | 3390  | 3172  | 1146  | 3164  | 1381  |
| Flt Permitted              | 0.293 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 427   | 3390  | 3172  | 1146  | 3164  | 1381  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 126   |       | 369   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 364.1 | 339.6 |       | 830.6 |       |
| Travel Time (s)            |       | 16.4  | 15.3  |       | 62.3  |       |
| Peak Hour Factor           | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.97  |
| Heavy Vehicles (%)         | 25%   | 2%    | 9%    | 35%   | 6%    | 12%   |
| Adj. Flow (vph)            | 244   | 2141  | 787   | 126   | 326   | 431   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 244   | 2141  | 787   | 126   | 326   | 431   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.0  | 23.0  | 23.0  | 23.0  | 23.0  |
| Total Split (s)            | 22.0  | 104.0 | 82.0  | 82.0  | 26.0  | 26.0  |
| Total Split (%)            | 16.9% | 80.0% | 63.1% | 63.1% | 20.0% | 20.0% |
| Maximum Green (s)          | 19.0  | 99.0  | 77.0  | 77.0  | 21.0  | 21.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 101.0 | 99.0  | 77.0  | 77.0  | 21.0  | 21.0  |
| Actuated g/C Ratio         | 0.78  | 0.76  | 0.59  | 0.59  | 0.16  | 0.16  |

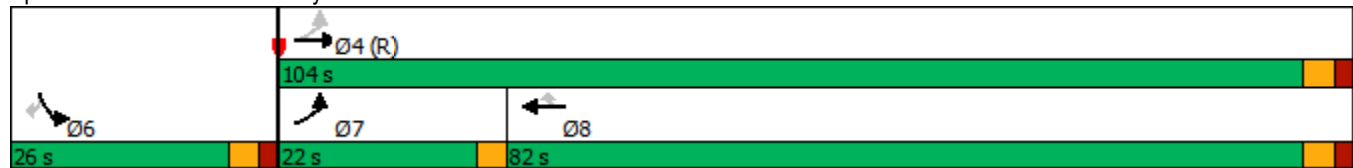


| Lane Group             | EBL   | EBT    | WBT   | WBR  | SBL   | SBR   |
|------------------------|-------|--------|-------|------|-------|-------|
| v/c Ratio              | 0.52  | 0.83   | 0.42  | 0.17 | 0.64  | 0.81  |
| Control Delay          | 5.9   | 10.4   | 15.2  | 2.5  | 57.3  | 22.2  |
| Queue Delay            | 0.0   | 0.1    | 0.0   | 0.0  | 0.0   | 0.0   |
| Total Delay            | 5.9   | 10.5   | 15.2  | 2.5  | 57.3  | 22.2  |
| LOS                    | A     | B      | B     | A    | E     | C     |
| Approach Delay         |       | 10.0   | 13.5  |      | 37.3  |       |
| Approach LOS           |       | A      | B     |      | D     |       |
| Queue Length 50th (m)  | 13.7  | 109.4  | 54.6  | 0.0  | 40.7  | 14.1  |
| Queue Length 95th (m)  | m18.4 | m200.0 | 68.3  | 8.0  | 56.3  | #66.3 |
| Internal Link Dist (m) |       | 340.1  | 315.6 |      | 806.6 |       |
| Turn Bay Length (m)    | 30.5  |        |       | 50.0 |       | 30.5  |
| Base Capacity (vph)    | 471   | 2581   | 1878  | 730  | 511   | 532   |
| Starvation Cap Reductn | 0     | 32     | 0     | 0    | 0     | 0     |
| Spillback Cap Reductn  | 0     | 0      | 0     | 0    | 0     | 0     |
| Storage Cap Reductn    | 0     | 0      | 0     | 0    | 0     | 0     |
| Reduced v/c Ratio      | 0.52  | 0.84   | 0.42  | 0.17 | 0.64  | 0.81  |

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 13 (10%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 15.9  
 Intersection LOS: B  
 Intersection Capacity Utilization 79.2%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Walkley Road & Sheffield Road



HCM Signalized Intersection Capacity Analysis  
6: Walkley Road & Sheffield Road

Future Total 2030 PM - Adjacent Peak  
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| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 239   | 2098  | 771  | 123  | 319   | 418  |
| Future Volume (vph)    | 239   | 2098  | 771  | 123  | 319   | 418  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1383  | 3390  | 3172 | 1146 | 3164  | 1381 |
| Flt Permitted          | 0.29  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 426   | 3390  | 3172 | 1146 | 3164  | 1381 |
| Peak-hour factor, PHF  | 0.98  | 0.98  | 0.98 | 0.98 | 0.98  | 0.97 |
| Adj. Flow (vph)        | 244   | 2141  | 787  | 126  | 326   | 431  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 51   | 0     | 309  |
| Lane Group Flow (vph)  | 244   | 2141  | 787  | 75   | 326   | 122  |
| Heavy Vehicles (%)     | 25%   | 2%    | 9%   | 35%  | 6%    | 12%  |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 99.0  | 99.0  | 77.0 | 77.0 | 21.0  | 21.0 |
| Effective Green, g (s) | 99.0  | 99.0  | 77.0 | 77.0 | 21.0  | 21.0 |
| Actuated g/C Ratio     | 0.76  | 0.76  | 0.59 | 0.59 | 0.16  | 0.16 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 464   | 2581  | 1878 | 678  | 511   | 223  |
| v/s Ratio Prot         | 0.08  | c0.63 | 0.25 |      | c0.10 |      |
| v/s Ratio Perm         | 0.32  |       |      | 0.07 |       | 0.09 |
| v/c Ratio              | 0.53  | 0.83  | 0.42 | 0.11 | 0.64  | 0.55 |
| Uniform Delay, d1      | 5.9   | 10.0  | 14.4 | 11.6 | 50.9  | 50.1 |
| Progression Factor     | 1.01  | 0.85  | 1.00 | 1.00 | 1.00  | 1.00 |
| Incremental Delay, d2  | 1.9   | 1.5   | 0.7  | 0.3  | 6.0   | 9.3  |
| Delay (s)              | 7.8   | 10.0  | 15.1 | 11.9 | 56.9  | 59.4 |
| Level of Service       | A     | A     | B    | B    | E     | E    |
| Approach Delay (s)     |       | 9.8   | 14.6 |      | 58.3  |      |
| Approach LOS           |       | A     | B    |      | E     |      |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 19.9  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.82  |                           |      |
| Actuated Cycle Length (s)         | 130.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 79.2% | ICU Level of Service      | D    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
7: Walkley Road & Highway SB terminal

Future Total 2030 PM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑↑    |       | ↘     | ↗     |
| Traffic Volume (vph)       | 0    | 1618  | 203   | 0     | 187   | 679   |
| Future Volume (vph)        | 0    | 1618  | 203   | 0     | 187   | 679   |
| Ideal Flow (vphp)          | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>            |      |       |       |       |       | 0.850 |
| Fl <sub>t</sub> Protected  |      |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Fl <sub>t</sub> Permitted  |      |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Link Speed (k/h)           |      | 80    | 80    |       | 80    |       |
| Link Distance (m)          |      | 118.5 | 305.1 |       | 468.0 |       |
| Travel Time (s)            |      | 5.3   | 13.7  |       | 21.1  |       |
| Peak Hour Factor           | 0.95 | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  |
| Adj. Flow (vph)            | 0    | 1703  | 214   | 0     | 197   | 715   |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 1703  | 214   | 0     | 197   | 715   |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 3.7   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 64.8%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service C |

HCM Unsignalized Intersection Capacity Analysis  
7: Walkley Road & Highway SB terminal

Future Total 2030 PM - Adjacent Peak  
10-24-2022



| Movement                          | EBL  | EBT  | WBT   | WBR  | SBL                  | SBR  |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Lane Configurations               |      | ↑↑   | ↑↑    |      | ↘                    | ↗    |
| Traffic Volume (veh/h)            | 0    | 1618 | 203   | 0    | 187                  | 679  |
| Future Volume (Veh/h)             | 0    | 1618 | 203   | 0    | 187                  | 679  |
| Sign Control                      |      | Free | Free  |      | Stop                 |      |
| Grade                             |      | 0%   | 0%    |      | 0%                   |      |
| Peak Hour Factor                  | 0.95 | 0.95 | 0.95  | 0.95 | 0.95                 | 0.95 |
| Hourly flow rate (vph)            | 0    | 1703 | 214   | 0    | 197                  | 715  |
| 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            | 214  |      |       |      | 1066                 | 107  |
| vC1, stage 1 conf vol             |      |      |       |      |                      |      |
| vC2, stage 2 conf vol             |      |      |       |      |                      |      |
| vCu, unblocked vol                | 214  |      |       |      | 1066                 | 107  |
| tC, single (s)                    | 4.1  |      |       |      | 6.8                  | 6.9  |
| tC, 2 stage (s)                   |      |      |       |      |                      |      |
| tF (s)                            | 2.2  |      |       |      | 3.5                  | 3.3  |
| p0 queue free %                   | 100  |      |       |      | 9                    | 23   |
| cM capacity (veh/h)               | 1353 |      |       |      | 217                  | 926  |
| Direction, Lane #                 | EB 1 | EB 2 | WB 1  | WB 2 | SB 1                 | SB 2 |
| Volume Total                      | 852  | 852  | 107   | 107  | 197                  | 715  |
| Volume Left                       | 0    | 0    | 0     | 0    | 197                  | 0    |
| Volume Right                      | 0    | 0    | 0     | 0    | 0                    | 715  |
| cSH                               | 1700 | 1700 | 1700  | 1700 | 217                  | 926  |
| Volume to Capacity                | 0.50 | 0.50 | 0.06  | 0.06 | 0.91                 | 0.77 |
| Queue Length 95th (m)             | 0.0  | 0.0  | 0.0   | 0.0  | 56.3                 | 59.5 |
| Control Delay (s)                 | 0.0  | 0.0  | 0.0   | 0.0  | 85.3                 | 20.7 |
| Lane LOS                          |      |      |       |      | F                    | C    |
| Approach Delay (s)                | 0.0  |      | 0.0   |      | 34.6                 |      |
| Approach LOS                      |      |      |       |      | D                    |      |
| Intersection Summary              |      |      |       |      |                      |      |
| Average Delay                     |      |      | 11.2  |      |                      |      |
| Intersection Capacity Utilization |      |      | 64.8% |      | ICU Level of Service | C    |
| Analysis Period (min)             |      |      | 15    |      |                      |      |

Lanes, Volumes, Timings  
 10: Highway NB terminal & Walkley Road

Future Total 2030 PM - Adjacent Peak  
 10-24-2022



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NBL   | NBR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    |       |      | ↑↑    | ↔     |       |
| Traffic Volume (vph)       | 650   | 1159  | 0    | 71    | 152   | 35    |
| Future Volume (vph)        | 650   | 1159  | 0    | 71    | 152   | 35    |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00 | 0.95  | 1.00  | 1.00  |
| Frt                        | 0.904 |       |      | 0.975 |       |       |
| Flt Protected              |       |       |      | 0.961 |       |       |
| Satd. Flow (prot)          | 3065  | 0     | 0    | 3390  | 1672  | 0     |
| Flt Permitted              |       |       |      | 0.961 |       |       |
| Satd. Flow (perm)          | 3065  | 0     | 0    | 3390  | 1672  | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 305.1 |       |      | 95.4  | 443.2 |       |
| Travel Time (s)            | 13.7  |       |      | 7.2   | 33.2  |       |
| Peak Hour Factor           | 0.91  | 0.91  | 0.91 | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)            | 714   | 1274  | 0    | 78    | 167   | 38    |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 1988  | 0     | 0    | 78    | 205   | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 3.7   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 14    |       | 24   | 24    |       | 14    |
| Sign Control               | Free  |       |      | Free  | Stop  |       |

Intersection Summary

|                                   |                              |
|-----------------------------------|------------------------------|
| Area Type:                        | Other                        |
| Control Type:                     | Unsignalized                 |
| Intersection Capacity Utilization | 76.2% ICU Level of Service D |
| Analysis Period (min)             | 15                           |

HCM Unsignalized Intersection Capacity Analysis  
 10: Highway NB terminal & Walkley Road

Future Total 2030 PM - Adjacent Peak  
 10-24-2022

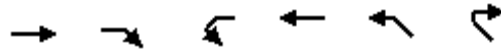


| Movement                          | EBT         | EBR         | WBL         | WBT                  | NBL         | NBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations               | ↑↑          |             |             | ↑↑                   | ↘           |      |
| Traffic Volume (veh/h)            | 650         | 1159        | 0           | 71                   | 152         | 35   |
| Future Volume (Veh/h)             | 650         | 1159        | 0           | 71                   | 152         | 35   |
| Sign Control                      | Free        |             |             | Free                 | Stop        |      |
| Grade                             | 0%          |             |             | 0%                   | 0%          |      |
| Peak Hour Factor                  | 0.91        | 0.91        | 0.91        | 0.91                 | 0.91        | 0.91 |
| Hourly flow rate (vph)            | 714         | 1274        | 0           | 78                   | 167         | 38   |
| <b>Pedestrians</b>                |             |             |             |                      |             |      |
| 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            |             |             | 1988        |                      | 1390        | 994  |
| vC1, stage 1 conf vol             |             |             |             |                      |             |      |
| vC2, stage 2 conf vol             |             |             |             |                      |             |      |
| vCu, unblocked vol                |             |             | 1988        |                      | 1390        | 994  |
| tC, single (s)                    |             |             | 4.1         |                      | 6.8         | 6.9  |
| tC, 2 stage (s)                   |             |             |             |                      |             |      |
| tF (s)                            |             |             | 2.2         |                      | 3.5         | 3.3  |
| p0 queue free %                   |             |             | 100         |                      | 0           | 84   |
| cM capacity (veh/h)               |             |             | 286         |                      | 133         | 244  |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>NB 1</b> |      |
| Volume Total                      | 476         | 1512        | 39          | 39                   | 205         |      |
| Volume Left                       | 0           | 0           | 0           | 0                    | 167         |      |
| Volume Right                      | 0           | 1274        | 0           | 0                    | 38          |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 146         |      |
| Volume to Capacity                | 0.28        | 0.89        | 0.02        | 0.02                 | 1.41        |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0                  | 100.6       |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 276.9       |      |
| Lane LOS                          |             |             |             |                      | F           |      |
| Approach Delay (s)                | 0.0         |             | 0.0         |                      | 276.9       |      |
| Approach LOS                      |             |             |             |                      | F           |      |
| <b>Intersection Summary</b>       |             |             |             |                      |             |      |
| Average Delay                     |             |             | 25.0        |                      |             |      |
| Intersection Capacity Utilization |             |             | 76.2%       | ICU Level of Service | D           |      |
| Analysis Period (min)             |             |             | 15          |                      |             |      |



Lanes, Volumes, Timings  
11: SB off ramp & Walkley Road

Future Total 2030 PM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NWL   | NWR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    | ↑     |      | ↑↑↑   |       |       |
| Traffic Volume (vph)       | 1618  | 585   | 0    | 882   | 0     | 0     |
| Future Volume (vph)        | 1618  | 585   | 0    | 882   | 0     | 0     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Storage Length (m)         |       | 50.0  | 0.0  |       | 0.0   | 0.0   |
| Storage Lanes              |       | 1     | 0    |       | 0     | 0     |
| Taper Length (m)           |       |       | 7.6  |       | 7.6   |       |
| Lane Util. Factor          | 0.95  | 1.00  | 1.00 | 0.91  | 1.00  | 1.00  |
| Frt                        |       | 0.850 |      |       |       |       |
| Flt Protected              |       |       |      |       |       |       |
| Satd. Flow (prot)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Flt Permitted              |       |       |      |       |       |       |
| Satd. Flow (perm)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 339.6 |       |      | 118.5 | 265.8 |       |
| Travel Time (s)            | 15.3  |       |      | 8.9   | 19.9  |       |
| Peak Hour Factor           | 0.95  | 0.95  | 0.95 | 0.95  | 0.95  | 0.95  |
| Adj. Flow (vph)            | 1703  | 616   | 0    | 928   | 0     | 0     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 1703  | 616   | 0    | 928   | 0     | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 0.0   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        |       | 14    | 24   |       | 24    | 14    |
| Sign Control               | Free  |       |      | Free  | Free  |       |

Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 50.5%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings  
13: Walkley Road & NB off ramp

Future Total 2030 PM - Adjacent Peak  
10-24-2022



| Lane Group                 | EBL  | EBT  | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑   | ↑     | ↗     |       |       |
| Traffic Volume (vph)       | 0    | 685  | 71    | 66    | 0     | 0     |
| Future Volume (vph)        | 0    | 685  | 71    | 66    | 0     | 0     |
| Ideal Flow (vphpl)         | 1800 | 1800 | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 0.0  |      |       | 50.0  | 0.0   | 0.0   |
| Storage Lanes              | 0    |      |       | 1     | 0     | 0     |
| Taper Length (m)           | 7.6  |      |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00 | 0.95 | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      |      |       | 0.850 |       |       |
| Flt Protected              |      |      |       |       |       |       |
| Satd. Flow (prot)          | 0    | 3390 | 1784  | 1517  | 0     | 0     |
| Flt Permitted              |      |      |       |       |       |       |
| Satd. Flow (perm)          | 0    | 3390 | 1784  | 1517  | 0     | 0     |
| Link Speed (k/h)           |      | 80   | 48    |       | 48    |       |
| Link Distance (m)          |      | 95.4 | 197.1 |       | 264.7 |       |
| Travel Time (s)            |      | 4.3  | 14.8  |       | 19.9  |       |
| Peak Hour Factor           | 0.91 | 0.91 | 0.91  | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)            | 0    | 753  | 78    | 73    | 0     | 0     |
| Shared Lane Traffic (%)    |      |      |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 753  | 78    | 73    | 0     | 0     |
| Enter Blocked Intersection | No   | No   | No    | No    | No    | No    |
| Lane Alignment             | Left | Left | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0  | 0.0   |       | 0.0   |       |
| Link Offset(m)             |      | 0.0  | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9  | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |      |       |       |       |       |
| Headway Factor             | 1.06 | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |      |       | 14    | 24    | 14    |
| Sign Control               |      | Free | Free  |       | Free  |       |

















Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 23.3%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

















Lanes, Volumes, Timings  
15: Sheffield Road & Humber Place

Future Total 2030 PM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group                        | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 16  | 0   | 150   | 0   | 0   | 0   | 63   | 355   | 0   | 0   | 567   | 21  |
| Future Volume (vph)               | 16  | 0   | 150   | 0   | 0   | 0   | 63   | 355   | 0   | 0   | 567   | 21  |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  | 1800   | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   |   | 0.878   |   |   |   |   |  |   |   |   |   | 0.995   |
| Fl <sub>t</sub> Protected         |   | 0.995   |   |   |   |   |  | 0.993   |   |   |   |   |
| Satd. Flow (prot)                 | 0   | 1452  | 0   | 0   | 1784  | 0   | 0  | 1378  | 0   | 0   | 1661  | 0   |
| Fl <sub>t</sub> Permitted         |   | 0.995   |   |   |   |   |  | 0.993   |   |   |   |   |
| Satd. Flow (perm)                 | 0   | 1452  | 0   | 0   | 1784  | 0   | 0  | 1378  | 0   | 0   | 1661  | 0   |
| Link Speed (k/h)                  |   | 48  |   |   | 48  |   |  | 48  |   |   | 48  |   |
| Link Distance (m)                 |   | 152.4   |   |   | 148.3   |   |  | 830.6   |   |   | 80.7  |   |
| Travel Time (s)                   |   | 11.4  |   |   | 11.1  |   |  | 62.3  |   |   | 6.1   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 14%   | 2%  | 9%  | 33%   | 2%  | 2%  | 21%  | 33%   | 50%   | 0%  | 9%  | 10%   |
| Adj. Flow (vph)                   | 18  | 0   | 167   | 0   | 0   | 0   | 70   | 394   | 0   | 0   | 630   | 23  |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 185   | 0   | 0   | 0   | 0   | 0  | 464   | 0   | 0   | 653   | 0   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  | No   | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Left  | Right   | Left  | Left  | Right   | Left   | Left  | Right   | Left  | Left  | Right   |
| Median Width(m)                   |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Link Offset(m)                    |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Crosswalk Width(m)                |   | 4.9   |   |   | 4.9   |   |  | 4.9   |   |   | 4.9   |   |
| Two way Left Turn Lane            |   |   |   |   |   |   |  |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06   | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  |   | 14  | 24  |   | 14  | 24   |   | 14  | 24  |   | 14  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |  |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 77.0%   |   |   |   |   |   | ICU Level of Service D   |   |   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
 15: Sheffield Road & Humber Place

Future Total 2030 PM - Adjacent Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 16  | 0   | 150   | 0   | 0   | 0   | 63   | 355   | 0   | 0   | 567   | 21  |
| Future Volume (Veh/h)             | 16  | 0   | 150   | 0   | 0   | 0   | 63   | 355   | 0   | 0   | 567   | 21  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 18  | 0   | 167   | 0   | 0   | 0   | 70   | 394   | 0   | 0   | 630   | 23  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (m)                    |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (m/s)               |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Median storage veh                |   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (m)               |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 1176  | 1176  | 642   | 1342  | 1187  | 394   | 653  |   |   | 394   |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 1176  | 1176  | 642   | 1342  | 1187  | 394   | 653  |   |   | 394   |   |   |
| tC, single (s)                    | 7.2   | 6.5   | 6.3   | 7.4   | 6.5   | 6.2   | 4.3  |   |   | 4.1   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 3.6   | 4.0   | 3.4   | 3.8   | 4.0   | 3.3   | 2.4  |   |   | 2.2   |   |   |
| p0 queue free %                   | 88  | 100   | 64  | 100   | 100   | 100   | 92   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 149   | 176   | 462   | 66  | 173   | 655   | 850  |   |   | 1176  |   |   |
| Direction, Lane #                 |   |   |   |   |   |   |  |   |   |   |   |   |
|                                   | EB 1  | WB 1  | NB 1  | SB 1  |   |   |  |   |   |   |   |   |
| Volume Total                      | 185   | 0   | 464   | 653   |   |   |  |   |   |   |   |   |
| Volume Left                       | 18  | 0   | 70  | 0   |   |   |  |   |   |   |   |   |
| Volume Right                      | 167   | 0   | 0   | 23  |   |   |  |   |   |   |   |   |
| cSH                               | 384   | 1700  | 850   | 1176  |   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.48  | 0.00  | 0.08  | 0.00  |   |   |  |   |   |   |   |   |
| Queue Length 95th (m)             | 19.3  | 0.0   | 2.0   | 0.0   |   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 22.8  | 0.0   | 2.3   | 0.0   |   |   |  |   |   |   |   |   |
| Lane LOS                          | C   | A   | A   |   |   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 22.8  | 0.0   | 2.3   | 0.0   |   |   |  |   |   |   |   |   |
| Approach LOS                      | C   | A   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 4.1   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 77.0%   | ICU Level of Service  |   |   |  |   |   | D   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |










Lanes, Volumes, Timings  
18: Sheffield Road & Way #5

Future Total 2030 PM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 1   | 0   | 346   | 1   | 0   | 574   |
| Future Volume (vph)               | 1   | 0   | 346   | 1   | 0   | 574   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| <b>Fr</b>                         |   |   |   |   |   |   |
| Flt Protected                     | 0.950   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1695  | 0   | 1784  | 0   | 0   | 1071  |
| Flt Permitted                     | 0.950   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1695  | 0   | 1784  | 0   | 0   | 1071  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 56.2  |   | 80.7  |   |   | 63.2  |
| Travel Time (s)                   | 4.2   |   | 6.1   |   |   | 4.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.92  | 0.90  | 0.90  | 0.90  |
| Bus Blockages (#/hr)              | 0   | 0   | 0   | 0   | 0   | 100   |
| Adj. Flow (vph)                   | 1   | 0   | 376   | 1   | 0   | 638   |
| <b>Shared Lane Traffic (%)</b>    |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 1   | 0   | 377   | 0   | 0   | 638   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| <b>Two way Left Turn Lane</b>     |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.96  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 41.9%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 18: Sheffield Road & Way #5

Future Total 2030 PM - Adjacent Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 1   | 0   | 346   | 1   | 0   | 574   |
| Future Volume (Veh/h)             | 1   | 0   | 346   | 1   | 0   | 574   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.92  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1   | 0   | 376   | 1   | 0   | 638   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 1014  | 376   |   |   | 377   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 1014  | 376   |   |   | 377   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 264   | 670   |   |   | 1181  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 1   | 377   | 638   |   |   |   |
| Volume Left                       | 1   | 0   | 0   |   |   |   |
| Volume Right                      | 0   | 1   | 0   |   |   |   |
| cSH                               | 264   | 1700  | 1181  |   |   |   |
| Volume to Capacity                | 0.00  | 0.22  | 0.00  |   |   |   |
| Queue Length 95th (m)             | 0.1   | 0.0   | 0.0   |   |   |   |
| Control Delay (s)                 | 18.7  | 0.0   | 0.0   |   |   |   |
| Lane LOS                          | C   |   |   |   |   |   |
| Approach Delay (s)                | 18.7  | 0.0   | 0.0   |   |   |   |
| Approach LOS                      | C   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 41.9%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |



Lanes, Volumes, Timings  
20: Sheffield Road & Way #4

Future Total 2030 PM - Adjacent Peak  
10-24-2022



| Lane Group                 | WBL  | WBR   | NBT  | NBR   | SBL  | SBT   |
|----------------------------|------|-------|------|-------|------|-------|
| Lane Configurations        |      |       |      |       |      |       |
| Traffic Volume (vph)       | 0    | 0     | 346  | 0     | 0    | 572   |
| Future Volume (vph)        | 0    | 0     | 346  | 0     | 0    | 572   |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800 | 1800  | 1800 | 1800  |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| <b>Fr</b>                  |      |       |      |       |      |       |
| Flt Protected              |      |       |      |       |      |       |
| Satd. Flow (prot)          | 1784 | 0     | 1784 | 0     | 0    | 1784  |
| Flt Permitted              |      |       |      |       |      |       |
| Satd. Flow (perm)          | 1784 | 0     | 1784 | 0     | 0    | 1784  |
| Link Speed (k/h)           | 48   |       | 48   |       |      | 48    |
| Link Distance (m)          | 60.6 |       | 63.2 |       |      | 102.2 |
| Travel Time (s)            | 4.5  |       | 4.7  |       |      | 7.7   |
| Peak Hour Factor           | 0.90 | 0.90  | 0.90 | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)            | 0    | 0     | 384  | 0     | 0    | 636   |
| Shared Lane Traffic (%)    |      |       |      |       |      |       |
| Lane Group Flow (vph)      | 0    | 0     | 384  | 0     | 0    | 636   |
| Enter Blocked Intersection | No   | No    | No   | No    | No   | No    |
| Lane Alignment             | Left | Right | Left | Right | Left | Left  |
| Median Width(m)            | 3.7  |       | 0.0  |       |      | 0.0   |
| Link Offset(m)             | 0.0  |       | 0.0  |       |      | 0.0   |
| Crosswalk Width(m)         | 4.9  |       | 4.9  |       |      | 4.9   |
| Two way Left Turn Lane     |      |       |      |       |      |       |
| Headway Factor             | 1.06 | 1.06  | 1.06 | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)        | 24   | 14    |      | 14    | 24   |       |
| Sign Control               | Stop |       | Free |       |      | Free  |

**Intersection Summary**

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 35.1%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
20: Sheffield Road & Way #4










Future Total 2030 PM - Adjacent Peak  
10-24-2022



| Movement                          | WBL         | WBR         | NBT         | NBR                  | SBL  | SBT  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             |             |             |                      |      |      |
| Traffic Volume (veh/h)            | 0           | 0           | 346         | 0                    | 0    | 572  |
| Future Volume (Veh/h)             | 0           | 0           | 346         | 0                    | 0    | 572  |
| Sign Control                      | Stop        |             | Free        |                      | Free |      |
| Grade                             | 0%          |             | 0%          |                      | 0%   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 0           | 0           | 384         | 0                    | 0    | 636  |
| <b>Pedestrians</b>                |             |             |             |                      |      |      |
| 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            | 1020        | 384         |             |                      | 384  |      |
| vC1, stage 1 conf vol             |             |             |             |                      |      |      |
| vC2, stage 2 conf vol             |             |             |             |                      |      |      |
| vCu, unblocked vol                | 1020        | 384         |             |                      | 384  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |                      | 4.1  |      |
| tC, 2 stage (s)                   |             |             |             |                      |      |      |
| tF (s)                            | 3.5         | 3.3         |             |                      | 2.2  |      |
| p0 queue free %                   | 100         | 100         |             |                      | 100  |      |
| cM capacity (veh/h)               | 262         | 664         |             |                      | 1174 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |                      |      |      |
| Volume Total                      | 0           | 384         | 636         |                      |      |      |
| Volume Left                       | 0           | 0           | 0           |                      |      |      |
| Volume Right                      | 0           | 0           | 0           |                      |      |      |
| cSH                               | 1700        | 1700        | 1174        |                      |      |      |
| 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           |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 0.0         |                      |      |      |
| Intersection Capacity Utilization |             |             | 35.1%       | ICU Level of Service | A    |      |
| Analysis Period (min)             |             |             | 15          |                      |      |      |










Lanes, Volumes, Timings  
24: Sheffield Road & Way #2

Future Total 2030 PM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 303   | 42  | 10  | 572   |
| Future Volume (vph)               | 0   | 0   | 303   | 42  | 10  | 572   |
| Ideal Flow (vphp)                 | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 0.983   |   |   |   |   |   |
| Flt Protected                     | 0.999   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1754  | 0   | 0   | 1783  |
| Flt Permitted                     | 0.999   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1754  | 0   | 0   | 1783  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 65.0  |   | 102.2   |   |   | 76.9  |
| Travel Time (s)                   | 4.9   |   | 7.7   |   |   | 5.8   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 0   | 337   | 47  | 11  | 636   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 384   | 0   | 0   | 647   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 43.6%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
24: Sheffield Road & Way #2

Future Total 2030 PM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 303   | 42  | 10  | 572   |
| Future Volume (Veh/h)             | 0   | 0   | 303   | 42  | 10  | 572   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 337   | 47  | 11  | 636   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 1018  | 360   |   |   | 384   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 1018  | 360   |   |   | 384   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 99  |   |
| cM capacity (veh/h)               | 260   | 684   |   |   | 1174  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 384   | 647   |   |   |   |
| Volume Left                       | 0   | 0   | 11  |   |   |   |
| Volume Right                      | 0   | 47  | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1174  |   |   |   |
| Volume to Capacity                | 0.00  | 0.23  | 0.01  |   |   |   |
| Queue Length 95th (m)             | 0.0   | 0.0   | 0.2   |   |   |   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.3   |   |   |   |
| Lane LOS                          | A   |   | A   |   |   |   |
| Approach Delay (s)                | 0.0   | 0.0   | 0.3   |   |   |   |
| Approach LOS                      | A   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.2   |   |   |   |
| Intersection Capacity Utilization |   |   | 43.6%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

Lanes, Volumes, Timings  
26: Sheffield Road & Way #1

Future Total 2030 PM - Adjacent Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 20  | 6   | 307   | 0   | 0   | 551   |
| Future Volume (vph)               | 20  | 6   | 307   | 0   | 0   | 551   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 0.967   |   |   |   |   |   |
| Flt Protected                     | 0.963   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1662  | 0   | 1784  | 0   | 0   | 1784  |
| Flt Permitted                     | 0.963   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1662  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 58.8  |   | 76.9  |   |   | 181.8   |
| Travel Time (s)                   | 4.4   |   | 5.8   |   |   | 13.6  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 22  | 7   | 341   | 0   | 0   | 612   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 29  | 0   | 341   | 0   | 0   | 612   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 40.6%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 26: Sheffield Road & Way #1

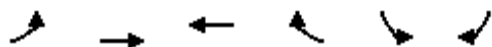
Future Total 2030 PM - Adjacent Peak  
 10-24-2022



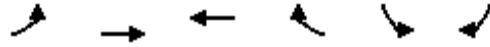
| Movement                          | WBL         | WBR         | NBT         | NBR                  | SBL  | SBT  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             |             |             |                      |      |      |
| Traffic Volume (veh/h)            | 20          | 6           | 307         | 0                    | 0    | 551  |
| Future Volume (Veh/h)             | 20          | 6           | 307         | 0                    | 0    | 551  |
| Sign Control                      | Stop        |             | Free        |                      | Free |      |
| Grade                             | 0%          |             | 0%          |                      | 0%   |      |
| Peak Hour Factor                  | 0.90        | 0.90        | 0.90        | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 22          | 7           | 341         | 0                    | 0    | 612  |
| <b>Pedestrians</b>                |             |             |             |                      |      |      |
| 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            | 953         | 341         |             |                      | 341  |      |
| vC1, stage 1 conf vol             |             |             |             |                      |      |      |
| vC2, stage 2 conf vol             |             |             |             |                      |      |      |
| vCu, unblocked vol                | 953         | 341         |             |                      | 341  |      |
| tC, single (s)                    | 6.4         | 6.2         |             |                      | 4.1  |      |
| tC, 2 stage (s)                   |             |             |             |                      |      |      |
| tF (s)                            | 3.5         | 3.3         |             |                      | 2.2  |      |
| p0 queue free %                   | 92          | 99          |             |                      | 100  |      |
| cM capacity (veh/h)               | 287         | 701         |             |                      | 1218 |      |
| <b>Direction, Lane #</b>          | <b>WB 1</b> | <b>NB 1</b> | <b>SB 1</b> |                      |      |      |
| Volume Total                      | 29          | 341         | 612         |                      |      |      |
| Volume Left                       | 22          | 0           | 0           |                      |      |      |
| Volume Right                      | 7           | 0           | 0           |                      |      |      |
| cSH                               | 335         | 1700        | 1218        |                      |      |      |
| Volume to Capacity                | 0.09        | 0.20        | 0.00        |                      |      |      |
| Queue Length 95th (m)             | 2.1         | 0.0         | 0.0         |                      |      |      |
| Control Delay (s)                 | 16.8        | 0.0         | 0.0         |                      |      |      |
| Lane LOS                          | C           |             |             |                      |      |      |
| Approach Delay (s)                | 16.8        | 0.0         | 0.0         |                      |      |      |
| Approach LOS                      | C           |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 0.5         |                      |      |      |
| Intersection Capacity Utilization |             |             | 40.6%       | ICU Level of Service | A    |      |
| Analysis Period (min)             |             |             | 15          |                      |      |      |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future Total 2030 AM - Site Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 215   | 800   | 1490  | 678   | 98    | 178   |
| Future Volume (vph)        | 215   | 800   | 1490  | 678   | 98    | 178   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 100.0 |       |       | 0.0   | 0.0   | 70.0  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1647  | 3007  | 3232  | 1517  | 3135  | 1406  |
| Flt Permitted              | 0.090 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 156   | 3007  | 3232  | 1517  | 3135  | 1406  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 601   |       | 184   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 248.5 | 361.1 |       | 367.8 |       |
| Travel Time (s)            |       | 11.2  | 16.2  |       | 27.6  |       |
| Peak Hour Factor           | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Heavy Vehicles (%)         | 5%    | 15%   | 7%    | 2%    | 7%    | 10%   |
| Adj. Flow (vph)            | 222   | 825   | 1536  | 699   | 101   | 184   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 222   | 825   | 1536  | 699   | 101   | 184   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 24.0  | 122.0 | 98.0  | 98.0  | 28.0  | 28.0  |
| Total Split (%)            | 16.0% | 81.3% | 65.3% | 65.3% | 18.7% | 18.7% |
| Maximum Green (s)          | 21.0  | 117.0 | 93.0  | 93.0  | 23.0  | 23.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 119.0 | 117.0 | 93.0  | 93.0  | 23.0  | 23.0  |
| Actuated g/C Ratio         | 0.79  | 0.78  | 0.62  | 0.62  | 0.15  | 0.15  |



| Lane Group             | EBL   | EBT   | WBT   | WBR   | SBL   | SBR  |
|------------------------|-------|-------|-------|-------|-------|------|
| v/c Ratio              | 0.67  | 0.35  | 0.77  | 0.60  | 0.21  | 0.50 |
| Control Delay          | 33.0  | 5.5   | 12.2  | 2.4   | 56.9  | 12.1 |
| Queue Delay            | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| Total Delay            | 33.0  | 5.5   | 12.2  | 2.4   | 56.9  | 12.1 |
| LOS                    | C     | A     | B     | A     | E     | B    |
| Approach Delay         |       | 11.3  | 9.1   |       | 28.0  |      |
| Approach LOS           |       | B     | A     |       | C     |      |
| Queue Length 50th (m)  | 29.3  | 34.0  | 62.0  | 20.1  | 13.7  | 0.0  |
| Queue Length 95th (m)  | 58.7  | 41.7  | m68.4 | m20.6 | 22.7  | 22.3 |
| Internal Link Dist (m) |       | 224.5 | 337.1 |       | 343.8 |      |
| Turn Bay Length (m)    | 100.0 |       |       |       |       | 70.0 |
| Base Capacity (vph)    | 332   | 2345  | 2003  | 1168  | 480   | 371  |
| Starvation Cap Reductn | 0     | 0     | 0     | 0     | 0     | 0    |
| Spillback Cap Reductn  | 0     | 0     | 0     | 0     | 0     | 0    |
| Storage Cap Reductn    | 0     | 0     | 0     | 0     | 0     | 0    |
| Reduced v/c Ratio      | 0.67  | 0.35  | 0.77  | 0.60  | 0.21  | 0.50 |

Intersection Summary

Area Type: Other  
 Cycle Length: 150  
 Actuated Cycle Length: 150  
 Offset: 50 (33%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 11.3  
 Intersection LOS: B  
 Intersection Capacity Utilization 71.9%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

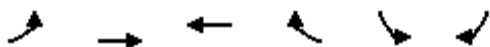
Splits and Phases: 3: Walkley Road & Lancaster Road





HCM Signalized Intersection Capacity Analysis  
3: Walkley Road & Lancaster Road

Future Total 2030 AM - Site Peak  
10-24-2022



| Movement               | EBL   | EBT   | WBT   | WBR  | SBL   | SBR  |
|------------------------|-------|-------|-------|------|-------|------|
| Lane Configurations    |       |       |       |      |       |      |
| Traffic Volume (vph)   | 215   | 800   | 1490  | 678  | 98    | 178  |
| Future Volume (vph)    | 215   | 800   | 1490  | 678  | 98    | 178  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800  | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95  | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00  | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00  | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1647  | 3007  | 3232  | 1517 | 3135  | 1406 |
| Flt Permitted          | 0.09  | 1.00  | 1.00  | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 156   | 3007  | 3232  | 1517 | 3135  | 1406 |
| Peak-hour factor, PHF  | 0.97  | 0.97  | 0.97  | 0.97 | 0.97  | 0.97 |
| Adj. Flow (vph)        | 222   | 825   | 1536  | 699  | 101   | 184  |
| RTOR Reduction (vph)   | 0     | 0     | 0     | 228  | 0     | 156  |
| Lane Group Flow (vph)  | 222   | 825   | 1536  | 471  | 101   | 28   |
| Heavy Vehicles (%)     | 5%    | 15%   | 7%    | 2%   | 7%    | 10%  |
| Turn Type              | pm+pt | NA    | NA    | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8     |      | 6     |      |
| Permitted Phases       | 4     |       |       | 8    |       | 6    |
| Actuated Green, G (s)  | 117.0 | 117.0 | 93.0  | 93.0 | 23.0  | 23.0 |
| Effective Green, g (s) | 117.0 | 117.0 | 93.0  | 93.0 | 23.0  | 23.0 |
| Actuated g/C Ratio     | 0.78  | 0.78  | 0.62  | 0.62 | 0.15  | 0.15 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 330   | 2345  | 2003  | 940  | 480   | 215  |
| v/s Ratio Prot         | c0.09 | 0.27  | c0.48 |      | c0.03 |      |
| v/s Ratio Perm         | 0.43  |       |       | 0.31 |       | 0.02 |
| v/c Ratio              | 0.67  | 0.35  | 0.77  | 0.50 | 0.21  | 0.13 |
| Uniform Delay, d1      | 31.1  | 5.0   | 20.6  | 15.7 | 55.6  | 54.9 |
| Progression Factor     | 1.00  | 1.00  | 0.54  | 0.79 | 1.00  | 1.00 |
| Incremental Delay, d2  | 10.5  | 0.4   | 0.9   | 0.6  | 1.0   | 1.3  |
| Delay (s)              | 41.6  | 5.4   | 12.0  | 13.0 | 56.6  | 56.1 |
| Level of Service       | D     | A     | B     | B    | E     | E    |
| Approach Delay (s)     |       | 13.1  | 12.3  |      | 56.3  |      |
| Approach LOS           |       | B     | B     |      | E     |      |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 16.0  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.66  |                           |      |
| Actuated Cycle Length (s)         | 150.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 71.9% | ICU Level of Service      | C    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
6: Walkley Road & Sheffield Road

Future Total 2030 AM - Site Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 324   | 477   | 1903  | 358   | 159   | 286   |
| Future Volume (vph)        | 324   | 477   | 1903  | 358   | 159   | 286   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 100.0 |       |       | 30.0  | 0.0   | 70.0  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1491  | 3060  | 3357  | 1459  | 2396  | 1190  |
| Flt Permitted              | 0.044 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 69    | 3060  | 3357  | 1459  | 2396  | 1190  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 101   |       | 281   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 361.1 | 363.2 |       | 830.1 |       |
| Travel Time (s)            |       | 16.2  | 16.3  |       | 62.3  |       |
| Peak Hour Factor           | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Heavy Vehicles (%)         | 16%   | 13%   | 3%    | 6%    | 40%   | 30%   |
| Adj. Flow (vph)            | 331   | 487   | 1942  | 365   | 162   | 292   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 331   | 487   | 1942  | 365   | 162   | 292   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 32.0  | 124.0 | 92.0  | 92.0  | 26.0  | 26.0  |
| Total Split (%)            | 21.3% | 82.7% | 61.3% | 61.3% | 17.3% | 17.3% |
| Maximum Green (s)          | 29.0  | 119.0 | 87.0  | 87.0  | 21.0  | 21.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 121.0 | 119.0 | 87.0  | 87.0  | 21.0  | 21.0  |
| Actuated g/C Ratio         | 0.81  | 0.79  | 0.58  | 0.58  | 0.14  | 0.14  |



| Lane Group             | EBL    | EBT   | WBT    | WBR  | SBL   | SBR  |
|------------------------|--------|-------|--------|------|-------|------|
| v/c Ratio              | 1.00   | 0.20  | 1.00   | 0.41 | 0.48  | 0.72 |
| Control Delay          | 91.7   | 3.6   | 51.0   | 13.6 | 64.9  | 18.1 |
| Queue Delay            | 0.0    | 0.0   | 0.0    | 0.0  | 0.0   | 0.0  |
| Total Delay            | 91.7   | 3.6   | 51.0   | 13.6 | 64.9  | 18.1 |
| LOS                    | F      | A     | D      | B    | E     | B    |
| Approach Delay         |        | 39.2  | 45.1   |      | 34.8  |      |
| Approach LOS           |        | D     | D      |      | C     |      |
| Queue Length 50th (m)  | ~63.5  | 15.0  | 291.8  | 40.7 | 23.2  | 2.9  |
| Queue Length 95th (m)  | #144.6 | 18.5  | #354.8 | 62.9 | 35.5  | 35.5 |
| Internal Link Dist (m) |        | 337.1 | 339.2  |      | 806.1 |      |
| Turn Bay Length (m)    | 100.0  |       |        | 30.0 |       | 70.0 |
| Base Capacity (vph)    | 330    | 2427  | 1947   | 888  | 335   | 408  |
| Starvation Cap Reductn | 0      | 0     | 0      | 0    | 0     | 0    |
| Spillback Cap Reductn  | 0      | 0     | 0      | 0    | 0     | 0    |
| Storage Cap Reductn    | 0      | 0     | 0      | 0    | 0     | 0    |
| Reduced v/c Ratio      | 1.00   | 0.20  | 1.00   | 0.41 | 0.48  | 0.72 |

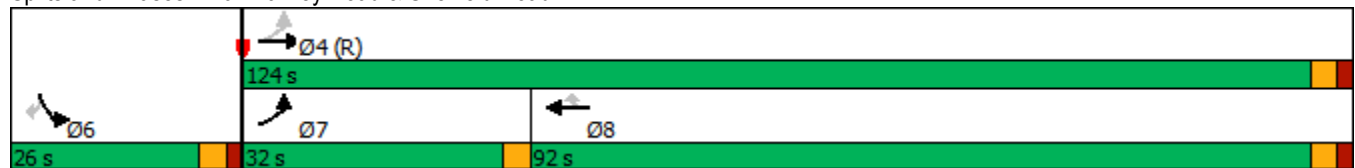
Intersection Summary

Area Type: Other  
 Cycle Length: 150  
 Actuated Cycle Length: 150  
 Offset: 50 (33%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 140  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.00  
 Intersection Signal Delay: 42.4  
 Intersection Capacity Utilization 90.9%  
 Analysis Period (min) 15  
 Intersection LOS: D  
 ICU Level of Service E

~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.

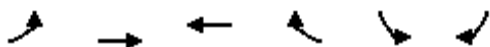
# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Walkley Road & Sheffield Road



HCM Signalized Intersection Capacity Analysis  
6: Walkley Road & Sheffield Road

Future Total 2030 AM - Site Peak  
10-24-2022



| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 324   | 477   | 1903 | 358  | 159   | 286  |
| Future Volume (vph)    | 324   | 477   | 1903 | 358  | 159   | 286  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1491  | 3060  | 3357 | 1459 | 2396  | 1190 |
| Flt Permitted          | 0.04  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 70    | 3060  | 3357 | 1459 | 2396  | 1190 |
| Peak-hour factor, PHF  | 0.98  | 0.98  | 0.98 | 0.98 | 0.98  | 0.98 |
| Adj. Flow (vph)        | 331   | 487   | 1942 | 365  | 162   | 292  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 42   | 0     | 242  |
| Lane Group Flow (vph)  | 331   | 487   | 1942 | 323  | 162   | 50   |
| Heavy Vehicles (%)     | 16%   | 13%   | 3%   | 6%   | 40%   | 30%  |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 119.0 | 119.0 | 87.0 | 87.0 | 21.0  | 21.0 |
| Effective Green, g (s) | 119.0 | 119.0 | 87.0 | 87.0 | 21.0  | 21.0 |
| Actuated g/C Ratio     | 0.79  | 0.79  | 0.58 | 0.58 | 0.14  | 0.14 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 330   | 2427  | 1947 | 846  | 335   | 166  |
| v/s Ratio Prot         | c0.19 | 0.16  | 0.58 |      | c0.07 |      |
| v/s Ratio Perm         | c0.60 |       |      | 0.22 |       | 0.04 |
| v/c Ratio              | 1.00  | 0.20  | 1.00 | 0.38 | 0.48  | 0.30 |
| Uniform Delay, d1      | 54.1  | 3.8   | 31.4 | 17.0 | 59.5  | 57.9 |
| Progression Factor     | 0.87  | 0.88  | 1.00 | 1.00 | 1.00  | 1.00 |
| Incremental Delay, d2  | 49.3  | 0.2   | 19.8 | 1.3  | 4.9   | 4.7  |
| Delay (s)              | 96.2  | 3.5   | 51.2 | 18.3 | 64.4  | 62.6 |
| Level of Service       | F     | A     | D    | B    | E     | E    |
| Approach Delay (s)     |       | 41.0  | 46.0 |      | 63.2  |      |
| Approach LOS           |       | D     | D    |      | E     |      |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 47.0  | HCM 2000 Level of Service | D    |
| HCM 2000 Volume to Capacity ratio | 0.94  |                           |      |
| Actuated Cycle Length (s)         | 150.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 90.9% | ICU Level of Service      | E    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
7: Walkley Road & Highway SB terminal

Future Total 2030 AM - Site Peak  
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| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑↑    |       | ↘     | ↗     |
| Traffic Volume (vph)       | 0    | 495   | 1055  | 0     | 24    | 1009  |
| Future Volume (vph)        | 0    | 495   | 1055  | 0     | 24    | 1009  |
| Ideal Flow (vphp)          | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>            |      |       |       |       |       | 0.850 |
| Fl <sub>t</sub> Protected  |      |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Fl <sub>t</sub> Permitted  |      |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Link Speed (k/h)           |      | 80    | 80    |       | 80    |       |
| Link Distance (m)          |      | 131.6 | 322.4 |       | 492.9 |       |
| Travel Time (s)            |      | 5.9   | 14.5  |       | 22.2  |       |
| Peak Hour Factor           | 0.97 | 0.97  | 0.97  | 0.97  | 0.97  | 0.97  |
| Adj. Flow (vph)            | 0    | 510   | 1088  | 0     | 25    | 1040  |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 510   | 1088  | 0     | 25    | 1040  |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 3.7   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 103.4%                 |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service G |

HCM Unsignalized Intersection Capacity Analysis  
 7: Walkley Road & Highway SB terminal

Future Total 2030 AM - Site Peak  
 10-24-2022



| Movement                          | EBL         | EBT         | WBT         | WBR         | SBL                  | SBR         |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|-------------|
| Lane Configurations               |             | ↑↑          | ↑↑          |             | ↘                    | ↗           |
| Traffic Volume (veh/h)            | 0           | 495         | 1055        | 0           | 24                   | 1009        |
| Future Volume (Veh/h)             | 0           | 495         | 1055        | 0           | 24                   | 1009        |
| Sign Control                      |             | Free        | Free        |             | Stop                 |             |
| Grade                             |             | 0%          | 0%          |             | 0%                   |             |
| Peak Hour Factor                  | 0.97        | 0.97        | 0.97        | 0.97        | 0.97                 | 0.97        |
| Hourly flow rate (vph)            | 0           | 510         | 1088        | 0           | 25                   | 1040        |
| <b>Pedestrians</b>                |             |             |             |             |                      |             |
| 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            | 1088        |             |             |             | 1343                 | 544         |
| vC1, stage 1 conf vol             |             |             |             |             |                      |             |
| vC2, stage 2 conf vol             |             |             |             |             |                      |             |
| vCu, unblocked vol                | 1088        |             |             |             | 1343                 | 544         |
| tC, single (s)                    | 4.1         |             |             |             | 6.8                  | 6.9         |
| tC, 2 stage (s)                   |             |             |             |             |                      |             |
| tF (s)                            | 2.2         |             |             |             | 3.5                  | 3.3         |
| p0 queue free %                   | 100         |             |             |             | 83                   | 0           |
| cM capacity (veh/h)               | 637         |             |             |             | 143                  | 483         |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b> | <b>SB 1</b>          | <b>SB 2</b> |
| Volume Total                      | 255         | 255         | 544         | 544         | 25                   | 1040        |
| Volume Left                       | 0           | 0           | 0           | 0           | 25                   | 0           |
| Volume Right                      | 0           | 0           | 0           | 0           | 0                    | 1040        |
| cSH                               | 1700        | 1700        | 1700        | 1700        | 143                  | 483         |
| Volume to Capacity                | 0.15        | 0.15        | 0.32        | 0.32        | 0.17                 | 2.15        |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0         | 4.6                  | 568.6       |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0         | 35.4                 | 544.6       |
| Lane LOS                          |             |             |             |             | E                    | F           |
| Approach Delay (s)                | 0.0         |             | 0.0         |             | 532.6                |             |
| Approach LOS                      |             |             |             |             | F                    |             |
| <b>Intersection Summary</b>       |             |             |             |             |                      |             |
| Average Delay                     |             |             | 213.0       |             |                      |             |
| Intersection Capacity Utilization |             |             | 103.4%      |             | ICU Level of Service | G           |
| Analysis Period (min)             |             |             | 15          |             |                      |             |

Lanes, Volumes, Timings  
 10: Highway NB terminal & Walkley Road

Future Total 2030 AM - Site Peak  
 10-24-2022



| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NBL   | NBR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    |       |      | ↑↑    | ↑↑    |       |
| Traffic Volume (vph)       | 55    | 467   | 0    | 631   | 459   | 8     |
| Future Volume (vph)        | 55    | 467   | 0    | 631   | 459   | 8     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00 | 0.95  | 1.00  | 1.00  |
| Frt                        | 0.866 |       |      | 0.998 |       |       |
| Flt Protected              |       |       |      | 0.953 |       |       |
| Satd. Flow (prot)          | 2936  | 0     | 0    | 3390  | 1697  | 0     |
| Flt Permitted              |       |       |      | 0.953 |       |       |
| Satd. Flow (perm)          | 2936  | 0     | 0    | 3390  | 1697  | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 322.4 |       |      | 108.3 | 295.7 |       |
| Travel Time (s)            | 14.5  |       |      | 8.1   | 22.2  |       |
| Peak Hour Factor           | 0.93  | 0.93  | 0.93 | 0.93  | 0.93  | 0.93  |
| Adj. Flow (vph)            | 59    | 502   | 0    | 678   | 494   | 9     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 561   | 0     | 0    | 678   | 503   | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 3.7   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 14    |       | 24   | 24    |       | 14    |
| Sign Control               | Free  |       |      | Free  | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 52.4%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

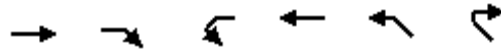
HCM Unsignalized Intersection Capacity Analysis  
 10: Highway NB terminal & Walkley Road

Future Total 2030 AM - Site Peak  
 10-24-2022



| Movement                          | EBT         | EBR         | WBL         | WBT                  | NBL         | NBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations               | ↑↑          |             |             | ↑↑                   | ↘           |      |
| Traffic Volume (veh/h)            | 55          | 467         | 0           | 631                  | 459         | 8    |
| Future Volume (Veh/h)             | 55          | 467         | 0           | 631                  | 459         | 8    |
| 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)            | 59          | 502         | 0           | 678                  | 494         | 9    |
| <b>Pedestrians</b>                |             |             |             |                      |             |      |
| 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            |             |             | 561         |                      | 649         | 280  |
| vC1, stage 1 conf vol             |             |             |             |                      |             |      |
| vC2, stage 2 conf vol             |             |             |             |                      |             |      |
| vCu, unblocked vol                |             |             | 561         |                      | 649         | 280  |
| tC, single (s)                    |             |             | 4.1         |                      | 6.8         | 6.9  |
| tC, 2 stage (s)                   |             |             |             |                      |             |      |
| tF (s)                            |             |             | 2.2         |                      | 3.5         | 3.3  |
| p0 queue free %                   |             |             | 100         |                      | 0           | 99   |
| cM capacity (veh/h)               |             |             | 1006        |                      | 402         | 717  |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>NB 1</b> |      |
| Volume Total                      | 39          | 522         | 339         | 339                  | 503         |      |
| Volume Left                       | 0           | 0           | 0           | 0                    | 494         |      |
| Volume Right                      | 0           | 502         | 0           | 0                    | 9           |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 406         |      |
| Volume to Capacity                | 0.02        | 0.31        | 0.20        | 0.20                 | 1.24        |      |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0                  | 160.4       |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 156.5       |      |
| Lane LOS                          |             |             |             |                      |             | F    |
| Approach Delay (s)                | 0.0         |             | 0.0         |                      | 156.5       |      |
| Approach LOS                      |             |             |             |                      |             | F    |
| <b>Intersection Summary</b>       |             |             |             |                      |             |      |
| Average Delay                     |             |             | 45.2        |                      |             |      |
| Intersection Capacity Utilization |             |             | 52.4%       | ICU Level of Service | A           |      |
| Analysis Period (min)             |             |             | 15          |                      |             |      |





| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NWL   | NWR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    | ↑     |      | ↑↑↑   |       |       |
| Traffic Volume (vph)       | 495   | 224   | 0    | 2064  | 0     | 0     |
| Future Volume (vph)        | 495   | 224   | 0    | 2064  | 0     | 0     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Storage Length (m)         |       | 60.0  | 0.0  |       | 0.0   | 0.0   |
| Storage Lanes              |       | 1     | 0    |       | 0     | 0     |
| Taper Length (m)           |       |       | 7.6  |       | 7.6   |       |
| Lane Util. Factor          | 0.95  | 1.00  | 1.00 | 0.91  | 1.00  | 1.00  |
| Frt                        |       | 0.850 |      |       |       |       |
| Flt Protected              |       |       |      |       |       |       |
| Satd. Flow (prot)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Flt Permitted              |       |       |      |       |       |       |
| Satd. Flow (perm)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 363.2 |       |      | 131.6 | 210.3 |       |
| Travel Time (s)            | 16.3  |       |      | 9.9   | 15.8  |       |
| Peak Hour Factor           | 0.90  | 0.90  | 0.90 | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)            | 550   | 249   | 0    | 2293  | 0     | 0     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 550   | 249   | 0    | 2293  | 0     | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 0.0   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        |       | 14    | 24   |       | 24    | 14    |
| Sign Control               | Free  |       |      | Free  | Free  |       |

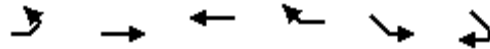
**Intersection Summary**

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 45.4%                  |
|                                   | ICU Level of Service A |
| Analysis Period (min)             | 15                     |

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings  
13: Walkley Road & NB off ramp

Future Total 2030 AM - Site Peak  
10-24-2022



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SEL   | SER   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑     | ↗     |       |       |
| Traffic Volume (vph)       | 0    | 63    | 631   | 224   | 0     | 0     |
| Future Volume (vph)        | 0    | 63    | 631   | 224   | 0     | 0     |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 0.0  |       |       | 70.0  | 0.0   | 0.0   |
| Storage Lanes              | 0    |       |       | 1     | 0     | 0     |
| Taper Length (m)           | 7.6  |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00 | 0.95  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      |       |       | 0.850 |       |       |
| Flt Protected              |      |       |       |       |       |       |
| Satd. Flow (prot)          | 0    | 3390  | 1784  | 1517  | 0     | 0     |
| Flt Permitted              |      |       |       |       |       |       |
| Satd. Flow (perm)          | 0    | 3390  | 1784  | 1517  | 0     | 0     |
| Link Speed (k/h)           |      | 80    | 80    |       | 48    |       |
| Link Distance (m)          |      | 108.3 | 195.3 |       | 199.6 |       |
| Travel Time (s)            |      | 4.9   | 8.8   |       | 15.0  |       |
| Peak Hour Factor           | 0.93 | 0.93  | 0.93  | 0.93  | 0.93  | 0.93  |
| Adj. Flow (vph)            | 0    | 68    | 678   | 241   | 0     | 0     |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 68    | 678   | 241   | 0     | 0     |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 0.0   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Free  |       |

















Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 38.4%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

















Lanes, Volumes, Timings  
15: Sheffield Road & Humber Place

Future Total 2030 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group                        | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 21  | 0   | 75  | 0   | 0   | 0   | 159  | 532   | 0   | 0   | 368   | 16  |
| Future Volume (vph)               | 21  | 0   | 75  | 0   | 0   | 0   | 159  | 532   | 0   | 0   | 368   | 16  |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  | 1800   | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   |   | 0.894   |   |   |   |   |  |   |   |   |   | 0.994   |
| Fl <sub>t</sub> Protected         |   | 0.989   |   |   |   |   |  | 0.989   |   |   |   |   |
| Satd. Flow (prot)                 | 0   | 1289  | 0   | 0   | 1784  | 0   | 0  | 1585  | 0   | 0   | 1393  | 0   |
| Fl <sub>t</sub> Permitted         |   | 0.989   |   |   |   |   |  | 0.989   |   |   |   |   |
| Satd. Flow (perm)                 | 0   | 1289  | 0   | 0   | 1784  | 0   | 0  | 1585  | 0   | 0   | 1393  | 0   |
| Link Speed (k/h)                  |   | 48  |   |   | 48  |   |  | 48  |   |   | 48  |   |
| Link Distance (m)                 |   | 152.4   |   |   | 148.3   |   |  | 830.1   |   |   | 120.3   |   |
| Travel Time (s)                   |   | 11.4  |   |   | 11.1  |   |  | 62.3  |   |   | 9.0   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 35%   | 2%  | 22%   | 50%   | 2%  | 33%   | 12%  | 14%   | 0%  | 33%   | 30%   | 26%   |
| Adj. Flow (vph)                   | 23  | 0   | 83  | 0   | 0   | 0   | 177  | 591   | 0   | 0   | 409   | 18  |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 106   | 0   | 0   | 0   | 0   | 0  | 768   | 0   | 0   | 427   | 0   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  | No   | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Left  | Right   | Left  | Left  | Right   | Left   | Left  | Right   | Left  | Left  | Right   |
| Median Width(m)                   |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Link Offset(m)                    |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Crosswalk Width(m)                |   | 4.9   |   |   | 4.9   |   |  | 4.9   |   |   | 4.9   |   |
| Two way Left Turn Lane            |   |   |   |   |   |   |  |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06   | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  |   | 14  | 24  |   | 14  | 24   |   | 14  | 24  |   | 14  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |  |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 76.4%   |   |   |   |   |   | ICU Level of Service D   |   |   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
 15: Sheffield Road & Humber Place

Future Total 2030 AM - Site Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 21  | 0   | 75  | 0   | 0   | 0   | 159  | 532   | 0   | 0   | 368   | 16  |
| Future Volume (Veh/h)             | 21  | 0   | 75  | 0   | 0   | 0   | 159  | 532   | 0   | 0   | 368   | 16  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 23  | 0   | 83  | 0   | 0   | 0   | 177  | 591   | 0   | 0   | 409   | 18  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (m)                    |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (m/s)               |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Median storage veh                |   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (m)               |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 1363  | 1363  | 418   | 1446  | 1372  | 591   | 427  |   |   | 591   |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 1363  | 1363  | 418   | 1446  | 1372  | 591   | 427  |   |   | 591   |   |   |
| tC, single (s)                    | 7.4   | 6.5   | 6.4   | 7.6   | 6.5   | 6.5   | 4.2  |   |   | 4.4   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 3.8   | 4.0   | 3.5   | 4.0   | 4.0   | 3.6   | 2.3  |   |   | 2.5   |   |   |
| p0 queue free %                   | 75  | 100   | 86  | 100   | 100   | 100   | 84   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 93  | 124   | 594   | 65  | 122   | 454   | 1081   |   |   | 849   |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | SB 1  |   |   |  |   |   |   |   |   |
| Volume Total                      | 106   | 0   | 768   | 427   |   |   |  |   |   |   |   |   |
| Volume Left                       | 23  | 0   | 177   | 0   |   |   |  |   |   |   |   |   |
| Volume Right                      | 83  | 0   | 0   | 18  |   |   |  |   |   |   |   |   |
| cSH                               | 274   | 1700  | 1081  | 849   |   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.39  | 0.00  | 0.16  | 0.00  |   |   |  |   |   |   |   |   |
| Queue Length 95th (m)             | 13.3  | 0.0   | 4.4   | 0.0   |   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 26.2  | 0.0   | 3.8   | 0.0   |   |   |  |   |   |   |   |   |
| Lane LOS                          | D   | A   | A   |   |   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 26.2  | 0.0   | 3.8   | 0.0   |   |   |  |   |   |   |   |   |
| Approach LOS                      | D   | A   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 4.4   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 76.4%   |   | ICU Level of Service  |   |  |   |   | D   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |










Lanes, Volumes, Timings  
18: Sheffield Road & Way #5

Future Total 2030 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 1   | 0   | 408   | 142   | 35  | 394   |
| Future Volume (vph)               | 1   | 0   | 408   | 142   | 35  | 394   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 0.965   |   |   |   |   |   |
| Flt Protected                     | 0.950   |   |   |   |   | 0.996   |
| Satd. Flow (prot)                 | 1695  | 0   | 1722  | 0   | 0   | 944   |
| Flt Permitted                     | 0.950   |   |   |   |   | 0.996   |
| Satd. Flow (perm)                 | 1695  | 0   | 1722  | 0   | 0   | 944   |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 56.2  |   | 120.3   |   |   | 89.9  |
| Travel Time (s)                   | 4.2   |   | 9.0   |   |   | 6.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 2%  | 2%  | 2%  | 2%  | 2%  | 100%  |
| Adj. Flow (vph)                   | 1   | 0   | 453   | 158   | 39  | 438   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 1   | 0   | 611   | 0   | 0   | 477   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 62.5%   |   |   | ICU Level of Service B  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 18: Sheffield Road & Way #5










Future Total 2030 AM - Site Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 1   | 0   | 408   | 142   | 35  | 394   |
| Future Volume (Veh/h)             | 1   | 0   | 408   | 142   | 35  | 394   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1   | 0   | 453   | 158   | 39  | 438   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 1048  | 532   |   |   | 611   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 1048  | 532   |   |   | 611   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 96  |   |
| cM capacity (veh/h)               | 242   | 547   |   |   | 968   |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 1   | 611   | 477   |   |   |   |
| Volume Left                       | 1   | 0   | 39  |   |   |   |
| Volume Right                      | 0   | 158   | 0   |   |   |   |
| cSH                               | 242   | 1700  | 968   |   |   |   |
| Volume to Capacity                | 0.00  | 0.36  | 0.04  |   |   |   |
| Queue Length 95th (m)             | 0.1   | 0.0   | 1.0   |   |   |   |
| Control Delay (s)                 | 19.9  | 0.0   | 1.2   |   |   |   |
| Lane LOS                          | C   |   | A   |   |   |   |
| Approach Delay (s)                | 19.9  | 0.0   | 1.2   |   |   |   |
| Approach LOS                      | C   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.5   |   |   |   |
| Intersection Capacity Utilization |   |   | 62.5%   | ICU Level of Service  | B   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |












Lanes, Volumes, Timings  
20: Sheffield Road & Way #4

Future Total 2030 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 156   | 39  | 408   | 0   | 0   | 273   |
| Future Volume (vph)               | 156   | 39  | 408   | 0   | 0   | 273   |
| Ideal Flow (vphp)                 | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   | 0.973   |   |   |   |   |   |
| Fl <sub>t</sub> Protected         | 0.961   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1668  | 0   | 1784  | 0   | 0   | 1784  |
| Fl <sub>t</sub> Permitted         | 0.961   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1668  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 60.6  |   | 89.9  |   |   | 135.3   |
| Travel Time (s)                   | 4.5   |   | 6.7   |   |   | 10.1  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 173   | 43  | 453   | 0   | 0   | 303   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 216   | 0   | 453   | 0   | 0   | 303   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 41.0%   |   |   | ICU Level of Service A  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
20: Sheffield Road & Way #4

Future Total 2030 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 156   | 39  | 408   | 0   | 0   | 273   |
| Future Volume (Veh/h)             | 156   | 39  | 408   | 0   | 0   | 273   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 173   | 43  | 453   | 0   | 0   | 303   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 756   | 453   |   |   | 453   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 756   | 453   |   |   | 453   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 54  | 93  |   |   | 100   |   |
| cM capacity (veh/h)               | 376   | 607   |   |   | 1108  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 216   | 453   | 303   |   |   |   |
| Volume Left                       | 173   | 0   | 0   |   |   |   |
| Volume Right                      | 43  | 0   | 0   |   |   |   |
| cSH                               | 407   | 1700  | 1108  |   |   |   |
| Volume to Capacity                | 0.53  | 0.27  | 0.00  |   |   |   |
| Queue Length 95th (m)             | 22.9  | 0.0   | 0.0   |   |   |   |
| Control Delay (s)                 | 23.4  | 0.0   | 0.0   |   |   |   |
| Lane LOS                          | C   |   |   |   |   |   |
| Approach Delay (s)                | 23.4  | 0.0   | 0.0   |   |   |   |
| Approach LOS                      | C   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 5.2   |   |   |   |
| Intersection Capacity Utilization |   |   | 41.0%   | ICU Level of Service  |   | A   |
| Analysis Period (min)             |   |   | 15  |   |   |   |










Lanes, Volumes, Timings  
24: Sheffield Road & Way #2

Future Total 2030 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 448   | 0   | 0   | 273   |
| Future Volume (vph)               | 0   | 0   | 448   | 0   | 0   | 273   |
| Ideal Flow (vphp)                 | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| <b>Fr</b>                         |   |   |   |   |   |   |
| Flt Protected                     |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| Flt Permitted                     |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 65.0  |   | 135.3   |   |   | 74.6  |
| Travel Time (s)                   | 4.9   |   | 10.1  |   |   | 5.6   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 0   | 498   | 0   | 0   | 303   |
| <b>Shared Lane Traffic (%)</b>    |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 498   | 0   | 0   | 303   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| <b>Two way Left Turn Lane</b>     |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 28.2%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 24: Sheffield Road & Way #2

Future Total 2030 AM - Site Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 448   | 0   | 0   | 273   |
| Future Volume (Veh/h)             | 0   | 0   | 448   | 0   | 0   | 273   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 498   | 0   | 0   | 303   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 801   | 498   |   |   | 498   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 801   | 498   |   |   | 498   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 354   | 572   |   |   | 1066  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 498   | 303   |   |   |   |
| Volume Left                       | 0   | 0   | 0   |   |   |   |
| Volume Right                      | 0   | 0   | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1066  |   |   |   |
| Volume to Capacity                | 0.00  | 0.29  | 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   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 28.2%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

Lanes, Volumes, Timings  
26: Sheffield Road & Way #1










Future Total 2030 AM - Site Peak  
10-24-2022



| Lane Group                        | WBL          | WBR   | NBT                    | NBR   | SBL  | SBT   |
|-----------------------------------|--------------|-------|------------------------|-------|------|-------|
| Lane Configurations               |              |       |                        |       |      |       |
| Traffic Volume (vph)              | 0            | 0     | 457                    | 0     | 0    | 270   |
| Future Volume (vph)               | 0            | 0     | 457                    | 0     | 0    | 270   |
| Ideal Flow (vphp)                 | 1800         | 1800  | 1800                   | 1800  | 1800 | 1800  |
| Lane Util. Factor                 | 1.00         | 1.00  | 1.00                   | 1.00  | 1.00 | 1.00  |
| <b>Fr</b>                         |              |       |                        |       |      |       |
| Flt Protected                     |              |       |                        |       |      |       |
| Satd. Flow (prot)                 | 1784         | 0     | 1784                   | 0     | 0    | 1784  |
| Flt Permitted                     |              |       |                        |       |      |       |
| Satd. Flow (perm)                 | 1784         | 0     | 1784                   | 0     | 0    | 1784  |
| Link Speed (k/h)                  | 48           |       | 48                     |       |      | 48    |
| Link Distance (m)                 | 58.8         |       | 74.6                   |       |      | 272.6 |
| Travel Time (s)                   | 4.4          |       | 5.6                    |       |      | 20.4  |
| Peak Hour Factor                  | 0.90         | 0.90  | 0.90                   | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)                   | 0            | 0     | 508                    | 0     | 0    | 300   |
| Shared Lane Traffic (%)           |              |       |                        |       |      |       |
| Lane Group Flow (vph)             | 0            | 0     | 508                    | 0     | 0    | 300   |
| Enter Blocked Intersection        | No           | No    | No                     | No    | No   | No    |
| Lane Alignment                    | Left         | Right | Left                   | Right | Left | Left  |
| Median Width(m)                   | 3.7          |       | 0.0                    |       |      | 0.0   |
| Link Offset(m)                    | 0.0          |       | 0.0                    |       |      | 0.0   |
| Crosswalk Width(m)                | 4.9          |       | 4.9                    |       |      | 4.9   |
| Two way Left Turn Lane            |              |       |                        |       |      |       |
| Headway Factor                    | 1.06         | 1.06  | 1.06                   | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)               | 24           | 14    |                        | 14    | 24   |       |
| Sign Control                      | Stop         |       | Free                   |       |      | Free  |
| <b>Intersection Summary</b>       |              |       |                        |       |      |       |
| Area Type:                        | Other        |       |                        |       |      |       |
| Control Type:                     | Unsignalized |       |                        |       |      |       |
| Intersection Capacity Utilization | 28.7%        |       | ICU Level of Service A |       |      |       |
| Analysis Period (min)             | 15           |       |                        |       |      |       |

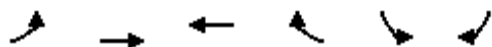
HCM Unsignalized Intersection Capacity Analysis  
26: Sheffield Road & Way #1

Future Total 2030 AM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 457   | 0   | 0   | 270   |
| Future Volume (Veh/h)             | 0   | 0   | 457   | 0   | 0   | 270   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 508   | 0   | 0   | 300   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 808   | 508   |   |   | 508   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 808   | 508   |   |   | 508   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 350   | 565   |   |   | 1057  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 508   | 300   |   |   |   |
| Volume Left                       | 0   | 0   | 0   |   |   |   |
| Volume Right                      | 0   | 0   | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1057  |   |   |   |
| Volume to Capacity                | 0.00  | 0.30  | 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   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 28.7%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

Lanes, Volumes, Timings  
3: Walkley Road & Lancaster Road

Future Total 2030 PM - Site Peak  
10-24-2022



| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 101   | 1442  | 794   | 132   | 389   | 165   |
| Future Volume (vph)        | 101   | 1442  | 794   | 132   | 389   | 165   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 30.5  |       |       | 0.0   | 0.0   | 30.5  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1695  | 3293  | 3172  | 1419  | 3288  | 1502  |
| Flt Permitted              | 0.255 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 455   | 3293  | 3172  | 1419  | 3288  | 1502  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 145   |       | 139   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 306.2 | 364.1 |       | 701.3 |       |
| Travel Time (s)            |       | 13.8  | 16.4  |       | 52.6  |       |
| Peak Hour Factor           | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  |
| Heavy Vehicles (%)         | 2%    | 5%    | 9%    | 9%    | 2%    | 3%    |
| Adj. Flow (vph)            | 111   | 1585  | 873   | 145   | 427   | 181   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 111   | 1585  | 873   | 145   | 427   | 181   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.5  | 23.5  | 23.5  | 23.5  | 23.5  |
| Total Split (s)            | 22.0  | 102.0 | 80.0  | 80.0  | 28.0  | 28.0  |
| Total Split (%)            | 16.9% | 78.5% | 61.5% | 61.5% | 21.5% | 21.5% |
| Maximum Green (s)          | 19.0  | 97.0  | 75.0  | 75.0  | 23.0  | 23.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 99.0  | 97.0  | 75.0  | 75.0  | 23.0  | 23.0  |
| Actuated g/C Ratio         | 0.76  | 0.75  | 0.58  | 0.58  | 0.18  | 0.18  |

Lanes, Volumes, Timings  
 3: Walkley Road & Lancaster Road

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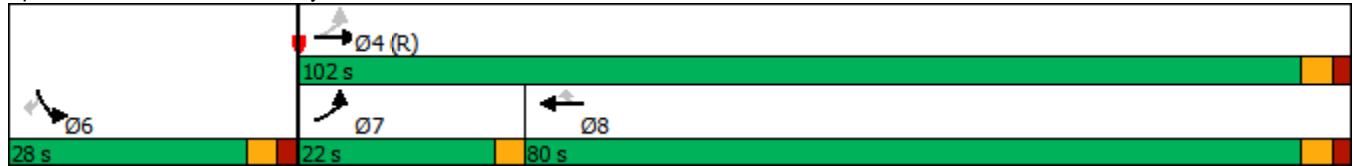


| Lane Group             | EBL  | EBT   | WBT   | WBR   | SBL   | SBR  |
|------------------------|------|-------|-------|-------|-------|------|
| v/c Ratio              | 0.21 | 0.65  | 0.48  | 0.16  | 0.73  | 0.48 |
| Control Delay          | 4.9  | 9.6   | 16.1  | 4.2   | 59.1  | 17.8 |
| Queue Delay            | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| Total Delay            | 4.9  | 9.6   | 16.1  | 4.2   | 59.1  | 17.8 |
| LOS                    | A    | A     | B     | A     | E     | B    |
| Approach Delay         |      | 9.3   | 14.4  |       | 46.8  |      |
| Approach LOS           |      | A     | B     |       | D     |      |
| Queue Length 50th (m)  | 6.3  | 91.8  | 78.9  | 6.3   | 53.9  | 9.2  |
| Queue Length 95th (m)  | 10.8 | 110.5 | 91.3  | m16.1 | 71.8  | 31.0 |
| Internal Link Dist (m) |      | 282.2 | 340.1 |       | 677.3 |      |
| Turn Bay Length (m)    | 30.5 |       |       |       |       | 30.5 |
| Base Capacity (vph)    | 527  | 2457  | 1830  | 880   | 581   | 380  |
| Starvation Cap Reductn | 0    | 0     | 0     | 0     | 0     | 0    |
| Spillback Cap Reductn  | 0    | 0     | 0     | 0     | 0     | 0    |
| Storage Cap Reductn    | 0    | 0     | 0     | 0     | 0     | 0    |
| Reduced v/c Ratio      | 0.21 | 0.65  | 0.48  | 0.16  | 0.73  | 0.48 |

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 50 (38%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 17.7  
 Intersection LOS: B  
 Intersection Capacity Utilization 62.1%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

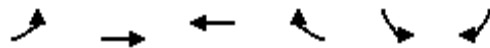
Splits and Phases: 3: Walkley Road & Lancaster Road





HCM Signalized Intersection Capacity Analysis  
3: Walkley Road & Lancaster Road

Future Total 2030 PM - Site Peak  
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| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 101   | 1442  | 794  | 132  | 389   | 165  |
| Future Volume (vph)    | 101   | 1442  | 794  | 132  | 389   | 165  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1695  | 3293  | 3172 | 1419 | 3288  | 1502 |
| Flt Permitted          | 0.25  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 455   | 3293  | 3172 | 1419 | 3288  | 1502 |
| Peak-hour factor, PHF  | 0.91  | 0.91  | 0.91 | 0.91 | 0.91  | 0.91 |
| Adj. Flow (vph)        | 111   | 1585  | 873  | 145  | 427   | 181  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 61   | 0     | 114  |
| Lane Group Flow (vph)  | 111   | 1585  | 873  | 84   | 427   | 67   |
| Heavy Vehicles (%)     | 2%    | 5%    | 9%   | 9%   | 2%    | 3%   |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 97.0  | 97.0  | 75.0 | 75.0 | 23.0  | 23.0 |
| Effective Green, g (s) | 97.0  | 97.0  | 75.0 | 75.0 | 23.0  | 23.0 |
| Actuated g/C Ratio     | 0.75  | 0.75  | 0.58 | 0.58 | 0.18  | 0.18 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 520   | 2457  | 1830 | 818  | 581   | 265  |
| v/s Ratio Prot         | 0.03  | c0.48 | 0.28 |      | c0.13 |      |
| v/s Ratio Perm         | 0.13  |       |      | 0.06 |       | 0.04 |
| v/c Ratio              | 0.21  | 0.65  | 0.48 | 0.10 | 0.73  | 0.25 |
| Uniform Delay, d1      | 5.8   | 8.1   | 16.1 | 12.4 | 50.6  | 46.1 |
| Progression Factor     | 1.00  | 1.00  | 0.94 | 1.96 | 1.00  | 1.00 |
| Incremental Delay, d2  | 0.9   | 1.3   | 0.8  | 0.2  | 8.0   | 2.3  |
| Delay (s)              | 6.8   | 9.4   | 15.9 | 24.4 | 58.7  | 48.3 |
| Level of Service       | A     | A     | B    | C    | E     | D    |
| Approach Delay (s)     |       | 9.2   | 17.1 |      | 55.6  |      |
| Approach LOS           |       | A     | B    |      | E     |      |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 20.1  | HCM 2000 Level of Service | C    |
| HCM 2000 Volume to Capacity ratio | 0.68  |                           |      |
| Actuated Cycle Length (s)         | 130.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 62.1% | ICU Level of Service      | B    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
6: Walkley Road & Sheffield Road

Future Total 2030 PM - Site Peak  
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| Lane Group                 | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Traffic Volume (vph)       | 202   | 1553  | 571   | 167   | 327   | 341   |
| Future Volume (vph)        | 202   | 1553  | 571   | 167   | 327   | 341   |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 30.5  |       |       | 50.0  | 0.0   | 30.5  |
| Storage Lanes              | 1     |       |       | 1     | 2     | 1     |
| Taper Length (m)           | 7.6   |       |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.97  | 1.00  |
| Frt                        |       |       |       | 0.850 |       | 0.850 |
| Flt Protected              | 0.950 |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 1383  | 3390  | 3172  | 1146  | 3164  | 1381  |
| Flt Permitted              | 0.384 |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 559   | 3390  | 3172  | 1146  | 3164  | 1381  |
| Right Turn on Red          |       |       |       | Yes   |       | Yes   |
| Satd. Flow (RTOR)          |       |       |       | 170   |       | 339   |
| Link Speed (k/h)           |       | 80    | 80    |       | 48    |       |
| Link Distance (m)          |       | 364.1 | 339.6 |       | 830.6 |       |
| Travel Time (s)            |       | 16.4  | 15.3  |       | 62.3  |       |
| Peak Hour Factor           | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.97  |
| Heavy Vehicles (%)         | 25%   | 2%    | 9%    | 35%   | 6%    | 12%   |
| Adj. Flow (vph)            | 206   | 1585  | 583   | 170   | 334   | 352   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 206   | 1585  | 583   | 170   | 334   | 352   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |       | 3.7   | 3.7   |       | 7.4   |       |
| Link Offset(m)             |       | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |       | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24    |       |       | 14    | 24    | 14    |
| Turn Type                  | pm+pt | NA    | NA    | Perm  | Prot  | Perm  |
| Protected Phases           | 7     | 4     | 8     |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       | 6     |
| Minimum Split (s)          | 9.5   | 23.0  | 23.0  | 23.0  | 23.0  | 23.0  |
| Total Split (s)            | 22.0  | 104.0 | 82.0  | 82.0  | 26.0  | 26.0  |
| Total Split (%)            | 16.9% | 80.0% | 63.1% | 63.1% | 20.0% | 20.0% |
| Maximum Green (s)          | 19.0  | 99.0  | 77.0  | 77.0  | 21.0  | 21.0  |
| Yellow Time (s)            | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)           | 0.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 3.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                   | Lead  |       | Lag   | Lag   |       |       |
| Lead-Lag Optimize?         | Yes   |       | Yes   | Yes   |       |       |
| Walk Time (s)              |       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |       | 0     | 0     | 0     | 0     | 0     |
| Act Effct Green (s)        | 101.0 | 99.0  | 77.0  | 77.0  | 21.0  | 21.0  |
| Actuated g/C Ratio         | 0.78  | 0.76  | 0.59  | 0.59  | 0.16  | 0.16  |

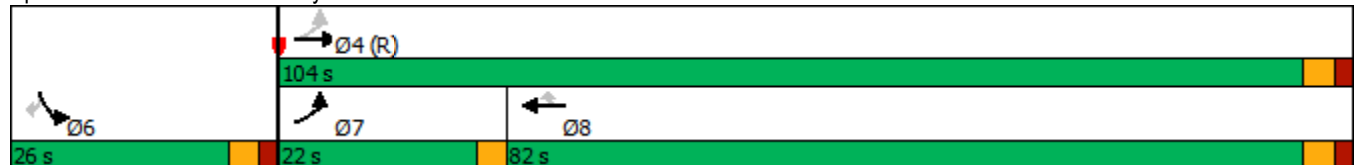


| Lane Group             | EBL   | EBT   | WBT   | WBR  | SBL   | SBR  |
|------------------------|-------|-------|-------|------|-------|------|
| v/c Ratio              | 0.37  | 0.61  | 0.31  | 0.23 | 0.65  | 0.69 |
| Control Delay          | 4.4   | 5.5   | 13.8  | 2.4  | 57.9  | 14.0 |
| Queue Delay            | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  |
| Total Delay            | 4.4   | 5.5   | 13.8  | 2.4  | 57.9  | 14.0 |
| LOS                    | A     | A     | B     | A    | E     | B    |
| Approach Delay         |       | 5.4   | 11.2  |      | 35.4  |      |
| Approach LOS           |       | A     | B     |      | D     |      |
| Queue Length 50th (m)  | 8.9   | 54.8  | 37.3  | 0.0  | 41.8  | 2.9  |
| Queue Length 95th (m)  | m13.6 | 63.8  | 48.0  | 9.1  | 57.7  | 34.2 |
| Internal Link Dist (m) |       | 340.1 | 315.6 |      | 806.6 |      |
| Turn Bay Length (m)    | 30.5  |       |       | 50.0 |       | 30.5 |
| Base Capacity (vph)    | 554   | 2581  | 1878  | 748  | 511   | 507  |
| Starvation Cap Reductn | 0     | 0     | 0     | 0    | 0     | 0    |
| Spillback Cap Reductn  | 0     | 0     | 0     | 0    | 0     | 0    |
| Storage Cap Reductn    | 0     | 0     | 0     | 0    | 0     | 0    |
| Reduced v/c Ratio      | 0.37  | 0.61  | 0.31  | 0.23 | 0.65  | 0.69 |

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 13 (10%), Referenced to phase 4:EBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.69  
 Intersection Signal Delay: 13.1  
 Intersection LOS: B  
 Intersection Capacity Utilization 63.5%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Walkley Road & Sheffield Road



HCM Signalized Intersection Capacity Analysis  
6: Walkley Road & Sheffield Road

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| Movement               | EBL   | EBT   | WBT  | WBR  | SBL   | SBR  |
|------------------------|-------|-------|------|------|-------|------|
| Lane Configurations    |       |       |      |      |       |      |
| Traffic Volume (vph)   | 202   | 1553  | 571  | 167  | 327   | 341  |
| Future Volume (vph)    | 202   | 1553  | 571  | 167  | 327   | 341  |
| Ideal Flow (vphpl)     | 1800  | 1800  | 1800 | 1800 | 1800  | 1800 |
| Total Lost time (s)    | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Util. Factor      | 1.00  | 0.95  | 0.95 | 1.00 | 0.97  | 1.00 |
| Frt                    | 1.00  | 1.00  | 1.00 | 0.85 | 1.00  | 0.85 |
| Flt Protected          | 0.95  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (prot)      | 1383  | 3390  | 3172 | 1146 | 3164  | 1381 |
| Flt Permitted          | 0.38  | 1.00  | 1.00 | 1.00 | 0.95  | 1.00 |
| Satd. Flow (perm)      | 559   | 3390  | 3172 | 1146 | 3164  | 1381 |
| Peak-hour factor, PHF  | 0.98  | 0.98  | 0.98 | 0.98 | 0.98  | 0.97 |
| Adj. Flow (vph)        | 206   | 1585  | 583  | 170  | 334   | 352  |
| RTOR Reduction (vph)   | 0     | 0     | 0    | 69   | 0     | 284  |
| Lane Group Flow (vph)  | 206   | 1585  | 583  | 101  | 334   | 68   |
| Heavy Vehicles (%)     | 25%   | 2%    | 9%   | 35%  | 6%    | 12%  |
| Turn Type              | pm+pt | NA    | NA   | Perm | Prot  | Perm |
| Protected Phases       | 7     | 4     | 8    |      | 6     |      |
| Permitted Phases       | 4     |       |      | 8    |       | 6    |
| Actuated Green, G (s)  | 99.0  | 99.0  | 77.0 | 77.0 | 21.0  | 21.0 |
| Effective Green, g (s) | 99.0  | 99.0  | 77.0 | 77.0 | 21.0  | 21.0 |
| Actuated g/C Ratio     | 0.76  | 0.76  | 0.59 | 0.59 | 0.16  | 0.16 |
| Clearance Time (s)     | 3.0   | 5.0   | 5.0  | 5.0  | 5.0   | 5.0  |
| Lane Grp Cap (vph)     | 546   | 2581  | 1878 | 678  | 511   | 223  |
| v/s Ratio Prot         | 0.06  | c0.47 | 0.18 |      | c0.11 |      |
| v/s Ratio Perm         | 0.23  |       |      | 0.09 |       | 0.05 |
| v/c Ratio              | 0.38  | 0.61  | 0.31 | 0.15 | 0.65  | 0.30 |
| Uniform Delay, d1      | 4.8   | 6.9   | 13.2 | 11.8 | 51.1  | 48.1 |
| Progression Factor     | 0.76  | 0.66  | 1.00 | 1.00 | 1.00  | 1.00 |
| Incremental Delay, d2  | 1.5   | 0.8   | 0.4  | 0.5  | 6.4   | 3.5  |
| Delay (s)              | 5.1   | 5.4   | 13.7 | 12.3 | 57.5  | 51.5 |
| Level of Service       | A     | A     | B    | B    | E     | D    |
| Approach Delay (s)     |       | 5.3   | 13.4 |      | 54.4  |      |
| Approach LOS           |       | A     | B    |      | D     |      |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 17.6  | HCM 2000 Level of Service | B    |
| HCM 2000 Volume to Capacity ratio | 0.64  |                           |      |
| Actuated Cycle Length (s)         | 130.0 | Sum of lost time (s)      | 13.0 |
| Intersection Capacity Utilization | 63.5% | ICU Level of Service      | B    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

Lanes, Volumes, Timings  
7: Walkley Road & Highway SB terminal

Future Total 2030 PM - Site Peak  
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| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    | ↑↑    |       | ↘     | ↗     |
| Traffic Volume (vph)       | 0    | 1225  | 180   | 0     | 138   | 548   |
| Future Volume (vph)        | 0    | 1225  | 180   | 0     | 138   | 548   |
| Ideal Flow (vphp)          | 1800 | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>            |      |       |       |       |       | 0.850 |
| Fl <sub>t</sub> Protected  |      |       |       |       | 0.950 |       |
| Satd. Flow (prot)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Fl <sub>t</sub> Permitted  |      |       |       |       | 0.950 |       |
| Satd. Flow (perm)          | 0    | 3390  | 3390  | 0     | 1695  | 1517  |
| Link Speed (k/h)           |      | 80    | 80    |       | 80    |       |
| Link Distance (m)          |      | 118.5 | 305.1 |       | 468.0 |       |
| Travel Time (s)            |      | 5.3   | 13.7  |       | 21.1  |       |
| Peak Hour Factor           | 0.95 | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  |
| Adj. Flow (vph)            | 0    | 1289  | 189   | 0     | 145   | 577   |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 1289  | 189   | 0     | 145   | 577   |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0   | 0.0   |       | 3.7   |       |
| Link Offset(m)             |      | 0.0   | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9   | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |       |       | 14    | 24    | 14    |
| Sign Control               |      | Free  | Free  |       | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 50.5%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
7: Walkley Road & Highway SB terminal

Future Total 2030 PM - Site Peak  
10-24-2022



| Movement                          | EBL         | EBT         | WBT         | WBR                  | SBL         | SBR         |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|-------------|
| Lane Configurations               |             | ↑↑          | ↑↑          |                      | ↘           | ↗           |
| Traffic Volume (veh/h)            | 0           | 1225        | 180         | 0                    | 138         | 548         |
| Future Volume (Veh/h)             | 0           | 1225        | 180         | 0                    | 138         | 548         |
| Sign Control                      |             | Free        | Free        |                      | Stop        |             |
| Grade                             |             | 0%          | 0%          |                      | 0%          |             |
| Peak Hour Factor                  | 0.95        | 0.95        | 0.95        | 0.95                 | 0.95        | 0.95        |
| Hourly flow rate (vph)            | 0           | 1289        | 189         | 0                    | 145         | 577         |
| <b>Pedestrians</b>                |             |             |             |                      |             |             |
| 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            | 189         |             |             |                      | 834         | 94          |
| vC1, stage 1 conf vol             |             |             |             |                      |             |             |
| vC2, stage 2 conf vol             |             |             |             |                      |             |             |
| vCu, unblocked vol                | 189         |             |             |                      | 834         | 94          |
| tC, single (s)                    | 4.1         |             |             |                      | 6.8         | 6.9         |
| tC, 2 stage (s)                   |             |             |             |                      |             |             |
| tF (s)                            | 2.2         |             |             |                      | 3.5         | 3.3         |
| p0 queue free %                   | 100         |             |             |                      | 53          | 39          |
| cM capacity (veh/h)               | 1382        |             |             |                      | 307         | 944         |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>SB 1</b> | <b>SB 2</b> |
| Volume Total                      | 644         | 644         | 94          | 94                   | 145         | 577         |
| Volume Left                       | 0           | 0           | 0           | 0                    | 145         | 0           |
| Volume Right                      | 0           | 0           | 0           | 0                    | 0           | 577         |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 307         | 944         |
| Volume to Capacity                | 0.38        | 0.38        | 0.06        | 0.06                 | 0.47        | 0.61        |
| Queue Length 95th (m)             | 0.0         | 0.0         | 0.0         | 0.0                  | 18.3        | 32.8        |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 26.8        | 14.6        |
| Lane LOS                          |             |             |             |                      | D           | B           |
| Approach Delay (s)                | 0.0         |             | 0.0         |                      | 17.1        |             |
| Approach LOS                      |             |             |             |                      | C           |             |
| <b>Intersection Summary</b>       |             |             |             |                      |             |             |
| Average Delay                     |             |             | 5.6         |                      |             |             |
| Intersection Capacity Utilization |             |             | 50.5%       | ICU Level of Service | A           |             |
| Analysis Period (min)             |             |             | 15          |                      |             |             |

Lanes, Volumes, Timings  
 10: Highway NB terminal & Walkley Road

Future Total 2030 PM - Site Peak  
 10-24-2022












| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NBL   | NBR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    |       |      | ↑↑    | ↘     |       |
| Traffic Volume (vph)       | 481   | 885   | 0    | 53    | 143   | 26    |
| Future Volume (vph)        | 481   | 885   | 0    | 53    | 143   | 26    |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00 | 0.95  | 1.00  | 1.00  |
| Frt                        | 0.903 |       |      | 0.979 |       |       |
| Flt Protected              |       |       |      | 0.960 |       |       |
| Satd. Flow (prot)          | 3061  | 0     | 0    | 3390  | 1677  | 0     |
| Flt Permitted              |       |       |      | 0.960 |       |       |
| Satd. Flow (perm)          | 3061  | 0     | 0    | 3390  | 1677  | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 305.1 |       |      | 95.4  | 443.2 |       |
| Travel Time (s)            | 13.7  |       |      | 7.2   | 33.2  |       |
| Peak Hour Factor           | 0.91  | 0.91  | 0.91 | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)            | 529   | 973   | 0    | 58    | 157   | 29    |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 1502  | 0     | 0    | 58    | 186   | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 3.7   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 14    |       | 24   | 24    |       | 14    |
| Sign Control               | Free  |       |      | Free  | Stop  |       |

| Intersection Summary              |                              |
|-----------------------------------|------------------------------|
| Area Type:                        | Other                        |
| Control Type:                     | Unsignalized                 |
| Intersection Capacity Utilization | 60.8% ICU Level of Service B |
| Analysis Period (min)             | 15                           |

HCM Unsignalized Intersection Capacity Analysis  
 10: Highway NB terminal & Walkley Road

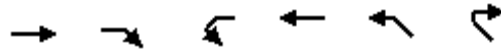
Future Total 2030 PM - Site Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations               |  |   |   |  |  |   |
| Traffic Volume (veh/h)            | 481   | 885   | 0   | 53  | 143   | 26  |
| Future Volume (Veh/h)             | 481   | 885   | 0   | 53  | 143   | 26  |
| Sign Control                      | Free  |   |   | Free  | Stop  |   |
| Grade                             | 0%  |   |   | 0%  | 0%  |   |
| Peak Hour Factor                  | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  | 0.91  |
| Hourly flow rate (vph)            | 529   | 973   | 0   | 58  | 157   | 29  |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            |   |   | 1502  |   | 1044  | 751   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                |   |   | 1502  |   | 1044  | 751   |
| tC, single (s)                    |   |   | 4.1   |   | 6.8   | 6.9   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            |   |   | 2.2   |   | 3.5   | 3.3   |
| p0 queue free %                   |   |   | 100   |   | 30  | 92  |
| cM capacity (veh/h)               |   |   | 442   |   | 224   | 353   |
| <b>Direction, Lane #</b>          | <b>EB 1</b>   | <b>EB 2</b>   | <b>WB 1</b>   | <b>WB 2</b>   | <b>NB 1</b>   |   |
| Volume Total                      | 353   | 1149  | 29  | 29  | 186   |   |
| Volume Left                       | 0   | 0   | 0   | 0   | 157   |   |
| Volume Right                      | 0   | 973   | 0   | 0   | 29  |   |
| cSH                               | 1700  | 1700  | 1700  | 1700  | 238   |   |
| Volume to Capacity                | 0.21  | 0.68  | 0.02  | 0.02  | 0.78  |   |
| Queue Length 95th (m)             | 0.0   | 0.0   | 0.0   | 0.0   | 43.4  |   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   | 0.0   | 59.0  |   |
| Lane LOS                          |   |   |   |   | F   |   |
| Approach Delay (s)                | 0.0   |   | 0.0   |   | 59.0  |   |
| Approach LOS                      |   |   |   |   | F   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 6.3   |   |   |   |
| Intersection Capacity Utilization |   |   | 60.8%   | ICU Level of Service  | B   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |



Lanes, Volumes, Timings  
11: SB off ramp & Walkley Road

Future Total 2030 PM - Site Peak  
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| Lane Group                 | EBT   | EBR   | WBL  | WBT   | NWL   | NWR   |
|----------------------------|-------|-------|------|-------|-------|-------|
| Lane Configurations        | ↑↑    | ↑     |      | ↑↑↑   |       |       |
| Traffic Volume (vph)       | 1225  | 496   | 0    | 728   | 0     | 0     |
| Future Volume (vph)        | 1225  | 496   | 0    | 728   | 0     | 0     |
| Ideal Flow (vphpl)         | 1800  | 1800  | 1800 | 1800  | 1800  | 1800  |
| Storage Length (m)         |       | 50.0  | 0.0  |       | 0.0   | 0.0   |
| Storage Lanes              |       | 1     | 0    |       | 0     | 0     |
| Taper Length (m)           |       |       | 7.6  |       | 7.6   |       |
| Lane Util. Factor          | 0.95  | 1.00  | 1.00 | 0.91  | 1.00  | 1.00  |
| Frt                        |       | 0.850 |      |       |       |       |
| Flt Protected              |       |       |      |       |       |       |
| Satd. Flow (prot)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Flt Permitted              |       |       |      |       |       |       |
| Satd. Flow (perm)          | 3390  | 1517  | 0    | 4871  | 0     | 0     |
| Link Speed (k/h)           | 80    |       |      | 48    | 48    |       |
| Link Distance (m)          | 339.6 |       |      | 118.5 | 265.8 |       |
| Travel Time (s)            | 15.3  |       |      | 8.9   | 19.9  |       |
| Peak Hour Factor           | 0.95  | 0.95  | 0.95 | 0.95  | 0.95  | 0.95  |
| Adj. Flow (vph)            | 1289  | 522   | 0    | 766   | 0     | 0     |
| Shared Lane Traffic (%)    |       |       |      |       |       |       |
| Lane Group Flow (vph)      | 1289  | 522   | 0    | 766   | 0     | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left | Left  | Left  | Right |
| Median Width(m)            | 0.0   |       |      | 0.0   | 0.0   |       |
| Link Offset(m)             | 0.0   |       |      | 0.0   | 0.0   |       |
| Crosswalk Width(m)         | 4.9   |       |      | 4.9   | 4.9   |       |
| Two way Left Turn Lane     |       |       |      |       |       |       |
| Headway Factor             | 1.06  | 1.06  | 1.06 | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        |       | 14    | 24   |       | 24    | 14    |
| Sign Control               | Free  |       |      | Free  | Free  |       |

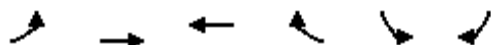
Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 39.1%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings  
13: Walkley Road & NB off ramp

Future Total 2030 PM - Site Peak  
10-24-2022



| Lane Group                 | EBL  | EBT  | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑   | ↑     | ↗     |       |       |
| Traffic Volume (vph)       | 0    | 507  | 53    | 49    | 0     | 0     |
| Future Volume (vph)        | 0    | 507  | 53    | 49    | 0     | 0     |
| Ideal Flow (vphpl)         | 1800 | 1800 | 1800  | 1800  | 1800  | 1800  |
| Storage Length (m)         | 0.0  |      |       | 50.0  | 0.0   | 0.0   |
| Storage Lanes              | 0    |      |       | 1     | 0     | 0     |
| Taper Length (m)           | 7.6  |      |       |       | 7.6   |       |
| Lane Util. Factor          | 1.00 | 0.95 | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      |      |       | 0.850 |       |       |
| Flt Protected              |      |      |       |       |       |       |
| Satd. Flow (prot)          | 0    | 3390 | 1784  | 1517  | 0     | 0     |
| Flt Permitted              |      |      |       |       |       |       |
| Satd. Flow (perm)          | 0    | 3390 | 1784  | 1517  | 0     | 0     |
| Link Speed (k/h)           |      | 80   | 48    |       | 48    |       |
| Link Distance (m)          |      | 95.4 | 197.1 |       | 264.7 |       |
| Travel Time (s)            |      | 4.3  | 14.8  |       | 19.9  |       |
| Peak Hour Factor           | 0.91 | 0.91 | 0.91  | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)            | 0    | 557  | 58    | 54    | 0     | 0     |
| Shared Lane Traffic (%)    |      |      |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 557  | 58    | 54    | 0     | 0     |
| Enter Blocked Intersection | No   | No   | No    | No    | No    | No    |
| Lane Alignment             | Left | Left | Left  | Right | Left  | Right |
| Median Width(m)            |      | 0.0  | 0.0   |       | 0.0   |       |
| Link Offset(m)             |      | 0.0  | 0.0   |       | 0.0   |       |
| Crosswalk Width(m)         |      | 4.9  | 4.9   |       | 4.9   |       |
| Two way Left Turn Lane     |      |      |       |       |       |       |
| Headway Factor             | 1.06 | 1.06 | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)        | 24   |      |       | 14    | 24    | 14    |
| Sign Control               |      | Free | Free  |       | Free  |       |

















Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 18.1%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Intersection Sign configuration not allowed in HCM analysis.

















Lanes, Volumes, Timings  
15: Sheffield Road & Humber Place










Future Total 2030 PM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group                        | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 12  | 0   | 111   | 0   | 0   | 0   | 47   | 364   | 0   | 0   | 542   | 16  |
| Future Volume (vph)               | 12  | 0   | 111   | 0   | 0   | 0   | 47   | 364   | 0   | 0   | 542   | 16  |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  | 1800   | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   |   | 0.878   |   |   |   |   |  |   |   |   | 0.996   |   |
| Fl <sub>t</sub> Protected         |   | 0.995   |   |   |   |   |  | 0.994   |   |   |   |   |
| Satd. Flow (prot)                 | 0   | 1452  | 0   | 0   | 1784  | 0   | 0  | 1374  | 0   | 0   | 1663  | 0   |
| Fl <sub>t</sub> Permitted         |   | 0.995   |   |   |   |   |  | 0.994   |   |   |   |   |
| Satd. Flow (perm)                 | 0   | 1452  | 0   | 0   | 1784  | 0   | 0  | 1374  | 0   | 0   | 1663  | 0   |
| Link Speed (k/h)                  |   | 48  |   |   | 48  |   |  | 48  |   |   | 48  |   |
| Link Distance (m)                 |   | 152.4   |   |   | 148.3   |   |  | 830.6   |   |   | 80.7  |   |
| Travel Time (s)                   |   | 11.4  |   |   | 11.1  |   |  | 62.3  |   |   | 6.1   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Heavy Vehicles (%)                | 14%   | 2%  | 9%  | 33%   | 2%  | 2%  | 21%  | 33%   | 50%   | 0%  | 9%  | 10%   |
| Adj. Flow (vph)                   | 13  | 0   | 123   | 0   | 0   | 0   | 52   | 404   | 0   | 0   | 602   | 18  |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 136   | 0   | 0   | 0   | 0   | 0  | 456   | 0   | 0   | 620   | 0   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  | No   | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Left  | Right   | Left  | Left  | Right   | Left   | Left  | Right   | Left  | Left  | Right   |
| Median Width(m)                   |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Link Offset(m)                    |   | 0.0   |   |   | 0.0   |   |  | 0.0   |   |   | 0.0   |   |
| Crosswalk Width(m)                |   | 4.9   |   |   | 4.9   |   |  | 4.9   |   |   | 4.9   |   |
| Two way Left Turn Lane            |   |   |   |   |   |   |  |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06   | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  |   | 14  | 24  |   | 14  | 24   |   | 14  | 24  |   | 14  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |  |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 72.0%   |   |   |   |   |   | ICU Level of Service C   |   |   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 15: Sheffield Road & Humber Place










Future Total 2030 PM - Site Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 12  | 0   | 111   | 0   | 0   | 0   | 47   | 364   | 0   | 0   | 542   | 16  |
| Future Volume (Veh/h)             | 12  | 0   | 111   | 0   | 0   | 0   | 47   | 364   | 0   | 0   | 542   | 16  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 13  | 0   | 123   | 0   | 0   | 0   | 52   | 404   | 0   | 0   | 602   | 18  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (m)                    |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (m/s)               |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Median storage veh                |   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (m)               |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 1119  | 1119  | 611   | 1242  | 1128  | 404   | 620  |   |   | 404   |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 1119  | 1119  | 611   | 1242  | 1128  | 404   | 620  |   |   | 404   |   |   |
| tC, single (s)                    | 7.2   | 6.5   | 6.3   | 7.4   | 6.5   | 6.2   | 4.3  |   |   | 4.1   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 3.6   | 4.0   | 3.4   | 3.8   | 4.0   | 3.3   | 2.4  |   |   | 2.2   |   |   |
| p0 queue free %                   | 92  | 100   | 74  | 100   | 100   | 100   | 94   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 166   | 194   | 481   | 93  | 192   | 647   | 875  |   |   | 1166  |   |   |
| Direction, Lane #                 |   |   |   |   |   |   |  |   |   |   |   |   |
|                                   | EB 1  | WB 1  | NB 1  | SB 1  |   |   |  |   |   |   |   |   |
| Volume Total                      | 136   | 0   | 456   | 620   |   |   |  |   |   |   |   |   |
| Volume Left                       | 13  | 0   | 52  | 0   |   |   |  |   |   |   |   |   |
| Volume Right                      | 123   | 0   | 0   | 18  |   |   |  |   |   |   |   |   |
| cSH                               | 408   | 1700  | 875   | 1166  |   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.33  | 0.00  | 0.06  | 0.00  |   |   |  |   |   |   |   |   |
| Queue Length 95th (m)             | 11.0  | 0.0   | 1.4   | 0.0   |   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 18.2  | 0.0   | 1.7   | 0.0   |   |   |  |   |   |   |   |   |
| Lane LOS                          | C   | A   | A   |   |   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 18.2  | 0.0   | 1.7   | 0.0   |   |   |  |   |   |   |   |   |
| Approach LOS                      | C   | A   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 2.7   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 72.0%   |   | ICU Level of Service  |   |  |   |   | C   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 1   | 0   | 225   | 132   | 32  | 546   |
| Future Volume (vph)               | 1   | 0   | 225   | 132   | 32  | 546   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               |   |   | 0.949   |   |   |   |
| Flt Protected                     | 0.950   |   |   |   |   | 0.997   |
| Satd. Flow (prot)                 | 1695  | 0   | 1693  | 0   | 0   | 1067  |
| Flt Permitted                     | 0.950   |   |   |   |   | 0.997   |
| Satd. Flow (perm)                 | 1695  | 0   | 1693  | 0   | 0   | 1067  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 56.2  |   | 80.7  |   |   | 63.2  |
| Travel Time (s)                   | 4.2   |   | 6.1   |   |   | 4.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.92  | 0.90  | 0.90  | 0.90  |
| Bus Blockages (#/hr)              | 0   | 0   | 0   | 0   | 0   | 100   |
| Adj. Flow (vph)                   | 1   | 0   | 245   | 147   | 36  | 607   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 1   | 0   | 392   | 0   | 0   | 643   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.96  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 66.5%   |   |   | ICU Level of Service C  |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 18: Sheffield Road & Way #5










Future Total 2030 PM - Site Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 1   | 0   | 225   | 132   | 32  | 546   |
| Future Volume (Veh/h)             | 1   | 0   | 225   | 132   | 32  | 546   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.92  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1   | 0   | 245   | 147   | 36  | 607   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| Lane Width (m)                    |   |   |   |   |   |   |
| Walking Speed (m/s)               |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       | None  |   |   | None  |   |   |
| Median storage veh                |   |   |   |   |   |   |
| Upstream signal (m)               |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |
| vC, conflicting volume            | 998   | 318   |   |   | 392   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 998   | 318   |   |   | 392   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 97  |   |
| cM capacity (veh/h)               | 262   | 722   |   |   | 1167  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 1   | 392   | 643   |   |   |   |
| Volume Left                       | 1   | 0   | 36  |   |   |   |
| Volume Right                      | 0   | 147   | 0   |   |   |   |
| cSH                               | 262   | 1700  | 1167  |   |   |   |
| Volume to Capacity                | 0.00  | 0.23  | 0.03  |   |   |   |
| Queue Length 95th (m)             | 0.1   | 0.0   | 0.7   |   |   |   |
| Control Delay (s)                 | 18.8  | 0.0   | 0.8   |   |   |   |
| Lane LOS                          | C   |   | A   |   |   |   |
| Approach Delay (s)                | 18.8  | 0.0   | 0.8   |   |   |   |
| Approach LOS                      | C   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.5   |   |   |   |
| Intersection Capacity Utilization |   |   | 66.5%   | ICU Level of Service  | C   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |












Lanes, Volumes, Timings  
20: Sheffield Road & Way #4

Future Total 2030 PM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 140   | 34  | 225   | 0   | 0   | 437   |
| Future Volume (vph)               | 140   | 34  | 225   | 0   | 0   | 437   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Fr <sub>t</sub>                   | 0.974   |   |   |   |   |   |
| Fl <sub>t</sub> Protected         | 0.961   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1670  | 0   | 1784  | 0   | 0   | 1784  |
| Fl <sub>t</sub> Permitted         | 0.961   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1670  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 60.6  |   | 63.2  |   |   | 102.2   |
| Travel Time (s)                   | 4.5   |   | 4.7   |   |   | 7.7   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 156   | 38  | 250   | 0   | 0   | 486   |
| Shared Lane Traffic (%)           |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 194   | 0   | 250   | 0   | 0   | 486   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| Two way Left Turn Lane            |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 41.3%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |










HCM Unsignalized Intersection Capacity Analysis  
 20: Sheffield Road & Way #4

Future Total 2030 PM - Site Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 140   | 34  | 225   | 0   | 0   | 437   |
| Future Volume (Veh/h)             | 140   | 34  | 225   | 0   | 0   | 437   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 156   | 38  | 250   | 0   | 0   | 486   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 736   | 250   |   |   | 250   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 736   | 250   |   |   | 250   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 60  | 95  |   |   | 100   |   |
| cM capacity (veh/h)               | 386   | 789   |   |   | 1316  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 194   | 250   | 486   |   |   |   |
| Volume Left                       | 156   | 0   | 0   |   |   |   |
| Volume Right                      | 38  | 0   | 0   |   |   |   |
| cSH                               | 429   | 1700  | 1316  |   |   |   |
| Volume to Capacity                | 0.45  | 0.15  | 0.00  |   |   |   |
| Queue Length 95th (m)             | 17.4  | 0.0   | 0.0   |   |   |   |
| Control Delay (s)                 | 20.1  | 0.0   | 0.0   |   |   |   |
| Lane LOS                          | C   |   |   |   |   |   |
| Approach Delay (s)                | 20.1  | 0.0   | 0.0   |   |   |   |
| Approach LOS                      | C   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 4.2   |   |   |   |
| Intersection Capacity Utilization |   |   | 41.3%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |










Lanes, Volumes, Timings  
24: Sheffield Road & Way #2

Future Total 2030 PM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Lane Group                        | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (vph)              | 0   | 0   | 258   | 0   | 0   | 437   |
| Future Volume (vph)               | 0   | 0   | 258   | 0   | 0   | 437   |
| Ideal Flow (vphpl)                | 1800  | 1800  | 1800  | 1800  | 1800  | 1800  |
| Lane Util. Factor                 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| <b>Fr</b>                         |   |   |   |   |   |   |
| Flt Protected                     |   |   |   |   |   |   |
| Satd. Flow (prot)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| Flt Permitted                     |   |   |   |   |   |   |
| Satd. Flow (perm)                 | 1784  | 0   | 1784  | 0   | 0   | 1784  |
| Link Speed (k/h)                  | 48  |   | 48  |   |   | 48  |
| Link Distance (m)                 | 65.0  |   | 102.2   |   |   | 76.9  |
| Travel Time (s)                   | 4.9   |   | 7.7   |   |   | 5.8   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 0   | 287   | 0   | 0   | 486   |
| <b>Shared Lane Traffic (%)</b>    |   |   |   |   |   |   |
| Lane Group Flow (vph)             | 0   | 0   | 287   | 0   | 0   | 486   |
| Enter Blocked Intersection        | No  | No  | No  | No  | No  | No  |
| Lane Alignment                    | Left  | Right   | Left  | Right   | Left  | Left  |
| Median Width(m)                   | 3.7   |   | 0.0   |   |   | 0.0   |
| Link Offset(m)                    | 0.0   |   | 0.0   |   |   | 0.0   |
| Crosswalk Width(m)                | 4.9   |   | 4.9   |   |   | 4.9   |
| <b>Two way Left Turn Lane</b>     |   |   |   |   |   |   |
| Headway Factor                    | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Turning Speed (k/h)               | 24  | 14  |   | 14  | 24  |   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Area Type:                        | Other   |   |   |   |   |   |
| Control Type:                     | Unsignalized  |   |   |   |   |   |
| Intersection Capacity Utilization | 27.6%   |   | ICU Level of Service A  |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 24: Sheffield Road & Way #2

Future Total 2030 PM - Site Peak  
 10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 258   | 0   | 0   | 437   |
| Future Volume (Veh/h)             | 0   | 0   | 258   | 0   | 0   | 437   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 287   | 0   | 0   | 486   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 773   | 287   |   |   | 287   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 773   | 287   |   |   | 287   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 367   | 752   |   |   | 1275  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 287   | 486   |   |   |   |
| Volume Left                       | 0   | 0   | 0   |   |   |   |
| Volume Right                      | 0   | 0   | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1275  |   |   |   |
| Volume to Capacity                | 0.00  | 0.17  | 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   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 27.6%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

Lanes, Volumes, Timings  
26: Sheffield Road & Way #1

Future Total 2030 PM - Site Peak  
10-24-2022












| Lane Group                 | WBL  | WBR   | NBT  | NBR   | SBL  | SBT   |
|----------------------------|------|-------|------|-------|------|-------|
| Lane Configurations        |      |       |      |       |      |       |
| Traffic Volume (vph)       | 0    | 0     | 261  | 0     | 0    | 436   |
| Future Volume (vph)        | 0    | 0     | 261  | 0     | 0    | 436   |
| Ideal Flow (vphpl)         | 1800 | 1800  | 1800 | 1800  | 1800 | 1800  |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| <b>Fr</b>                  |      |       |      |       |      |       |
| Flt Protected              |      |       |      |       |      |       |
| Satd. Flow (prot)          | 1784 | 0     | 1784 | 0     | 0    | 1784  |
| Flt Permitted              |      |       |      |       |      |       |
| Satd. Flow (perm)          | 1784 | 0     | 1784 | 0     | 0    | 1784  |
| Link Speed (k/h)           | 48   |       | 48   |       |      | 48    |
| Link Distance (m)          | 58.8 |       | 76.9 |       |      | 181.8 |
| Travel Time (s)            | 4.4  |       | 5.8  |       |      | 13.6  |
| Peak Hour Factor           | 0.90 | 0.90  | 0.90 | 0.90  | 0.90 | 0.90  |
| Adj. Flow (vph)            | 0    | 0     | 290  | 0     | 0    | 484   |
| Shared Lane Traffic (%)    |      |       |      |       |      |       |
| Lane Group Flow (vph)      | 0    | 0     | 290  | 0     | 0    | 484   |
| Enter Blocked Intersection | No   | No    | No   | No    | No   | No    |
| Lane Alignment             | Left | Right | Left | Right | Left | Left  |
| Median Width(m)            | 3.7  |       | 0.0  |       |      | 0.0   |
| Link Offset(m)             | 0.0  |       | 0.0  |       |      | 0.0   |
| Crosswalk Width(m)         | 4.9  |       | 4.9  |       |      | 4.9   |
| Two way Left Turn Lane     |      |       |      |       |      |       |
| Headway Factor             | 1.06 | 1.06  | 1.06 | 1.06  | 1.06 | 1.06  |
| Turning Speed (k/h)        | 24   | 14    |      | 14    | 24   |       |
| Sign Control               | Stop |       | Free |       |      | Free  |

**Intersection Summary**

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 27.6%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

HCM Unsignalized Intersection Capacity Analysis  
26: Sheffield Road & Way #1

Future Total 2030 PM - Site Peak  
10-24-2022

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 261   | 0   | 0   | 436   |
| Future Volume (Veh/h)             | 0   | 0   | 261   | 0   | 0   | 436   |
| Sign Control                      | Stop  |   | Free  |   | Free  |   |
| Grade                             | 0%  |   | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 0   | 290   | 0   | 0   | 484   |
| <b>Pedestrians</b>                |   |   |   |   |   |   |
| 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            | 774   | 290   |   |   | 290   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 774   | 290   |   |   | 290   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 367   | 749   |   |   | 1272  |   |
| <b>Direction, Lane #</b>          | <b>WB 1</b>   | <b>NB 1</b>   | <b>SB 1</b>   |   |   |   |
| Volume Total                      | 0   | 290   | 484   |   |   |   |
| Volume Left                       | 0   | 0   | 0   |   |   |   |
| Volume Right                      | 0   | 0   | 0   |   |   |   |
| cSH                               | 1700  | 1700  | 1272  |   |   |   |
| Volume to Capacity                | 0.00  | 0.17  | 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   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 27.6%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

**APPENDIX C**  
**MMLOS WORKSHEETS**

# Multi-Modal Level of Service - Segments Form

|            |   |         |            |
|------------|---|---------|------------|
| Consultant | AECOM   | Project | DYT3       |
| Scenario   | MMLOS Assessment - Existing Conditions (2020) | Date    | 22/06/2020 |

| SEGMENTS         | Sheffield Road | Section                                   |                     |   |
|------------------|----------------|---|---------------------|---|
|                  |                | Sheffield Road                            | Section             |   |
| Pedestrian       | C              | Sidewalk Width                            | 1.5 m               |   |
|                  |                | Boulevard Width                           | 0.5 - 2 m           |   |
|                  |                | Avg Daily Curb Lane Traffic Volume        | ≤ 3000              |   |
|                  |                | Operating Speed                           | > 30 to 50 km/h     |   |
|                  |                | On-Street Parking                         | no                  |   |
|                  |                | Exposure to Traffic PLoS                  | C                   | - |
|                  |                | Effective Sidewalk Width                  | 1.5 m               |   |
| Bicycle          | B              | Pedestrian Volume                         | 250 ped/hr          |   |
|                  |                | Crowding PLoS                             | B                   | - |
|                  |                | Level of Service                          | C                   | - |
|                  |                | Type of Cycling Facility                  | Mixed Traffic       |   |
| Bicycle          | B              | Number of Travel Lanes                    | ≤ 2 (no centreline) |   |
|                  |                | Operating Speed                           | >40 to <50 km/h     |   |
|                  |                | # of Lanes & Operating Speed LoS          | B                   | - |
|                  |                | Bike Lane (+ Parking Lane) Width          | ≥ 1.8 m             |   |
|                  |                | Bike Lane Width LoS                       | A                   | - |
|                  |                | Bike Lane Blockages                       | Rare                |   |
|                  |                | Blockage LoS                              | A                   | - |
|                  |                | Median Refuge Width (no median = < 1.8 m) | < 1.8 m refuge      |   |
|                  |                | No. of Lanes at Unsignalized Crossing     | ≤ 3 lanes           |   |
|                  |                | Sidestreet Operating Speed                | >40 to 50 km/h      |   |
|                  |                | Unsignalized Crossing - Lowest LoS        | B                   | - |
| Level of Service | B              | -   |                     |   |
| Transit          | D              | Facility Type                             | Mixed Traffic       |   |
|                  |                | Friction or Ratio Transit:Posted Speed    | Vt/Vp ≥ 0.8         |   |
|                  |                | Level of Service                          | D                   | - |



# Multi-Modal Level of Service - Intersections Form

|            |   |         |                     |
|------------|---|---------|---------------------|
| Consultant | AECOM   | Project | 2625 Sheffield Road |
| Scenario   | MMLOS Assessment - Existing Conditions (2021) | Date    | 21/01/2021          |

| INTERSECTIONS               |   | Lancaster Road / Walkley Road    |                           |                                |                             | Sheffield Road / Walkley Road    |                           |                                |                             |
|-----------------------------|---|----------------------------------|---------------------------|--------------------------------|-----------------------------|----------------------------------|---------------------------|--------------------------------|-----------------------------|
| Crossing Side               |   | NORTH                            | SOUTH                     | EAST                           | WEST                        | NORTH                            | SOUTH                     | EAST                           | WEST                        |
| Pedestrian                  | Lanes   | 3                                | 0 - 2                     | 3                              | 3                           | 3                                | 0 - 2                     | 3                              | 3                           |
|                             | Median  | No Median - 2.4 m                | No Median - 2.4 m         | Median > 2.4 m                 | No Median - 2.4 m           | No Median - 2.4 m                | No Median - 2.4 m         | Median > 2.4 m                 | No Median - 2.4 m           |
|                             | Conflicting Left Turns  | Protected                        | No left turn / Prohib.    | No left turn / Prohib.         | Protected                   | Protected                        | No left turn / Prohib.    | No left turn / Prohib.         | Protected                   |
|                             | Conflicting Right Turns   | Permissive or yield control      | No right turn             | Permissive or yield control    | No right turn               | Permissive or yield control      | No right turn             | Permissive or yield control    | No right turn               |
|                             | Right Turns on Red (RTOR) ?   | RTOR allowed                     | RTOR prohibited           | RTOR allowed                   | RTOR prohibited             | RTOR allowed                     | RTOR prohibited           | RTOR allowed                   | RTOR prohibited             |
|                             | Ped Signal Leading Interval?  | No                               | No                        | No                             | No                          | No                               | No                        | No                             | No                          |
|                             | Right Turn Channel  | Conventional with Receiving Lane | No Right Turn             | Conv'tl without Receiving Lane | No Right Turn               | Conventional with Receiving Lane | No Right Turn             | Conv'tl without Receiving Lane | No Right Turn               |
|                             | Corner Radius   | 10-15m                           | No Right Turn             | 10-15m                         | No Right Turn               | 10-15m                           | No Right Turn             | 10-15m                         | No Right Turn               |
|                             | Crosswalk Type  | Std transverse markings          | Std transverse markings   | Std transverse markings        | Std transverse markings     | Std transverse markings          | Std transverse markings   | Std transverse markings        | Std transverse markings     |
|                             | <b>PETSI Score</b>  | <b>79</b>                        | <b>111</b>                | <b>82</b>                      | <b>96</b>                   | <b>79</b>                        | <b>111</b>                | <b>82</b>                      | <b>96</b>                   |
|                             | <b>Ped. Exposure to Traffic LoS</b>                                       | <b>B</b>                         | <b>A</b>                  | <b>B</b>                       | <b>A</b>                    | <b>B</b>                         | <b>A</b>                  | <b>B</b>                       | <b>A</b>                    |
|                             | Cycle Length  | 150                              | 150                       | 150                            | 150                         | 90                               | 90                        | 90                             | 90                          |
|                             | Effective Walk Time   | 47                               | 47                        | 47                             | 47                          | 27                               | 27                        | 19                             | 19                          |
|                             | <b>Average Pedestrian Delay</b>   | <b>35</b>                        | <b>35</b>                 | <b>35</b>                      | <b>35</b>                   | <b>22</b>                        | <b>22</b>                 | <b>28</b>                      | <b>28</b>                   |
| <b>Pedestrian Delay LoS</b> | <b>D</b>  | <b>D</b>                         | <b>D</b>                  | <b>D</b>                       | <b>C</b>                    | <b>C</b>                         | <b>C</b>                  | <b>C</b>                       |                             |
| <b>Level of Service</b>     | <b>D</b>  | <b>D</b>                         | <b>D</b>                  | <b>D</b>                       | <b>C</b>                    | <b>C</b>                         | <b>C</b>                  | <b>C</b>                       |                             |
| <b>Approach From</b>        |   | <b>D</b>                         |                           |                                |                             | <b>C</b>                         |                           |                                |                             |
| Approach From               |   | NORTH                            | SOUTH                     | EAST                           | WEST                        | NORTH                            | SOUTH                     | EAST                           | WEST                        |
| Bicycle                     | Bicycle Lane Arrangement on Approach                                      | Mixed Traffic                    | Mixed Traffic             | Mixed Traffic                  | Mixed Traffic               | Mixed Traffic                    | Mixed Traffic             | Mixed Traffic                  | Mixed Traffic               |
|                             | IF Dedicated Right Turn Lane, THEN Right Turn Configuration, ELSE <blank> |                                  |                           |                                |                             |                                  |                           |                                |                             |
|                             | Dedicated Right Turning Speed   |                                  |                           |                                |                             |                                  |                           |                                |                             |
|                             | <b>Cyclist Through Movement</b>   |                                  |                           |                                |                             |                                  |                           |                                |                             |
|                             | <b>Separated or Mixed Traffic</b>   | <b>Mixed Traffic</b>             | <b>Mixed Traffic</b>      | <b>Mixed Traffic</b>           | <b>Mixed Traffic</b>        | <b>Mixed Traffic</b>             | <b>Mixed Traffic</b>      | <b>Mixed Traffic</b>           | <b>Mixed Traffic</b>        |
|                             | Left Turn Approach Operating Speed  | ≥ 2 lanes crossed ≥ 60 km/h      | No lane crossed ≥ 60 km/h | No lane crossed ≥ 60 km/h      | ≥ 2 lanes crossed ≥ 60 km/h | ≥ 2 lanes crossed ≥ 60 km/h      | No lane crossed ≥ 60 km/h | No lane crossed ≥ 60 km/h      | ≥ 2 lanes crossed ≥ 60 km/h |
| <b>Left Turning Cyclist</b> | <b>F</b>  | <b>C</b>                         | <b>C</b>                  | <b>F</b>                       | <b>F</b>                    | <b>C</b>                         | <b>C</b>                  | <b>F</b>                       |                             |
| <b>Level of Service</b>     | <b>F</b>  | <b>C</b>                         | <b>C</b>                  | <b>F</b>                       | <b>F</b>                    | <b>C</b>                         | <b>C</b>                  | <b>F</b>                       |                             |
| <b>Level of Service</b>     |   | <b>F</b>                         |                           |                                |                             | <b>F</b>                         |                           |                                |                             |
| Transit                     | Average Signal Delay  | ≤ 10 sec                         | 0 sec                     | ≤ 30 sec                       | ≤ 30 sec                    | ≤ 10 sec                         | 0 sec                     | ≤ 30 sec                       | ≤ 30 sec                    |
|                             | <b>Level of Service</b>   | <b>B</b>                         | <b>A</b>                  | <b>D</b>                       | <b>D</b>                    | <b>B</b>                         | <b>A</b>                  | <b>D</b>                       | <b>D</b>                    |
| <b>Level of Service</b>     |   | <b>D</b>                         |                           |                                |                             | <b>D</b>                         |                           |                                |                             |

**APPENDIX D**  
**SIGNAL WARRANT JUSTIFICATION SHEETS**  
**WALKLEY ROAD AND HIGHWAY 417 EAST RAMP TERMINAL**

## Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

2 or more



b.- Number of lanes on the Minor Road?

2 or more



c.- How many approaches?

3



d.- What is the operating environment?

Urban



Population >= 10,000

AND

Speed < 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

| Hour Ending  | Main Eastbound Approach |              |              | Minor Northbound Approach |          |              | Main Westbound Approach |              |           | Minor Southbound Approach |          |          | Pedestrians Crossing Main Road |
|--------------|-------------------------|--------------|--------------|---------------------------|----------|--------------|-------------------------|--------------|-----------|---------------------------|----------|----------|--------------------------------|
|              | LT                      | TH           | RT           | LT                        | TH       | RT           | LT                      | TH           | RT        | LT                        | TH       | RT       |                                |
| 8:15         | 0                       | 435          | 131          | 22                        | 0        | 884          | 0                       | 946          | 27        | 0                         | 0        | 0        | 0                              |
| 9:15         | 0                       | 593          | 100          | 25                        | 0        | 793          | 0                       | 619          | 23        | 0                         | 0        | 0        | 0                              |
| 12:15        | 0                       | 757          | 155          | 39                        | 0        | 657          | 0                       | 237          | 10        | 0                         | 0        | 0        | 0                              |
| 13:15        | 0                       | 744          | 165          | 44                        | 0        | 653          | 0                       | 202          | 7         | 0                         | 0        | 0        | 0                              |
| 14:15        | 0                       | 735          | 203          | 45                        | 0        | 686          | 0                       | 204          | 16        | 0                         | 0        | 0        | 0                              |
| 16:15        | 0                       | 1,116        | 413          | 60                        | 0        | 608          | 0                       | 217          | 5         | 0                         | 0        | 0        | 0                              |
| 17:15        | 0                       | 1,471        | 511          | 167                       | 0        | 594          | 0                       | 174          | 2         | 0                         | 0        | 0        | 0                              |
| 18:15        | 0                       | 1,158        | 306          | 87                        | 0        | 479          | 0                       | 185          | 8         | 0                         | 0        | 0        | 0                              |
| <b>Total</b> | <b>0</b>                | <b>7,009</b> | <b>1,984</b> | <b>489</b>                | <b>0</b> | <b>5,354</b> | <b>0</b>                | <b>2,784</b> | <b>98</b> | <b>0</b>                  | <b>0</b> | <b>0</b> | <b>0</b>                       |

Intersection: Walkley and 417 NB Terminal

Count Date: 2022

## Summary Results

| Justification               |                   | Compliance            |   | Signal Justified?                   |                                     |
|-----------------------------|-------------------|-----------------------|---|-------------------------------------|-------------------------------------|
|                             |                   |                       |   | YES                                 | NO                                  |
| 1. Minimum Vehicular Volume | A Total Volume    | 100                   | % | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
|                             | B Crossing Volume | 100                   | % | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 2. Delay to Cross Traffic   | A Main Road       | 100                   | % | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
|                             | B Crossing Road   | 64                    | % | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 3. Combination              | A Justificaton 1  | 100                   | % | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
|                             | B Justification 2 | 64                    | % | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 4. 4-Hr Volume              |                   | 100                   | % | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 5. Collision Experience     |                   | 0                     | % | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 6. Pedestrians              | A Volume          | Justification not met |   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
|                             | B Delay           | Justification not met |   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |